

MIS to Conventional Printing – Sheet-Fed ICS

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ConventionalPrinting WG

Abstract

This CIP4 JDF Interoperability Conformance Specification (ICS) defines the interoperability requirements for JDF Sheet-Fed Offset Printing. This ICS defines the Conformance Requirements for an implementation of a JDF Device that consumes Job Tickets for Sheet-Fed offset printing, and returns the Job Tickets. This ICS defines two Conformance Levels.



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1 Introduction

This CIP4 Interface Conformance Specification (ICS) defines the Conformance Requirements for a subset of [JDF1.3] for Job tickets to be processed on conventional printing Sheet-Fed offset presses. This ICS is intended to represent a Job that is suitable for producing *Sheets* on Sheet-Fed offset presses.

This version of the ICS defines two Conformance Levels. The first level is suitable for a Sheet-Fed printing Device that reads JDF files and writes back the results into the JDF file. The second level Supports additionally JMF Messages that allows Controllers to interact dynamically with the Device. Such a Device or Controller controlling such a Device is designated as a *Press Controller*.

2 Glossary

This section defines terminology used throughout this document. References to other documents are indicated with square brackets, e.g. [JDF1.3]. For most terms, see the Glossary section in [JDF1.3] and [Base-ICS].

This section contains Prepress-related terms that pertain to this ICS:

Table 1: Glossary

Term	Definition
<i>Actual Name of the Print Color</i>	The ‘real’ name of the color separation used for display on the press and in PDF file.
<i>Gray Box</i>	See the Glossary section in [MIS-ICS].
<i>MIS</i>	The partner system that communicates with <i>Press Controllers</i> using JDF and JMF Elements. The term Manager refers to the <i>MIS</i> in this ICS.
<i>Prepress Workflow System</i>	The partner system that communicates with <i>Press Controllers</i> using JDF and JMF Elements and can provide all Prepress information. A <i>Prepress Workflow System</i> may provide only the Resource updates [PRECP-ICS] if it works together with a <i>MIS</i> . If there is only a <i>Prepress Workflow System</i> and no <i>MIS</i> , then the <i>Prepress Workflow System</i> can also play the role of a <i>MIS</i> . Then the term Manager refers to the <i>Prepress Workflow System</i> in this ICS, too.
<i>Press Controller</i>	A Device or Controller that controls press Devices and handles all the communication via JDF and JMF. It typically communicates with a <i>MIS</i> and a <i>Prepress Workflow System</i> . The term Worker refers to the <i>Press Controller</i> in this ICS. In principle, such a <i>Press Controller</i> plays the role of a Resource Consumer.
<i>Press Run</i>	One run of a <i>Sheet</i> through a press. The press consists of modules that are linearly linked to a chain. One run of a <i>Sheet</i> through this chain represents one <i>Press Run</i> .
<i>Sheet</i>	The piece of paper or other material that can be printed by a Sheet-Fed press.

3 Conformance Levels

This ICS specifies two *Conformance Levels* of Conformance Requirements. These levels differ mainly in the type of communication between the *Manager* (in the *MIS*) and the *Worker* (in the *Press Controller*).

The information in this ICS is synchronized with the [PRECP-ICS] and [MISPRE-ICS].

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

To be conformant to a level of this ICS specified in the first column of Table 2, an *MIS* MUST conform to the Manager part and a *Press Controller* MUST conform to the Worker part of the ICSs and levels specified in Table 2 below.

Table 2: Conformance Levels

Level of this ICS	[Base-ICS]	[JMF-ICS]	[MIS-ICS]	Description
1	1	-	1	
2	2	2	1	Level 2 is mainly for versioning and Support of the JMF-communication with an <i>MIS</i> .

3.1 Certification

Certification against the ICS for the Worker role can be performed with three types of data:

- The physical output.
- The JMF Messages or returned JDF file.
- User Interface, log files or screen representations.

4 Conformance Tables – JDF Instances

4.1 JDF Node

This JDF Node is for Sheet-Fed Offset Printing.

Table 3: JDF Node
Root Node of: JDF Instance

Name	Manager			Worker			Description	
	Level →	1	2	3	1	2		3
<i>Category</i>	w←				r			MUST be supplied if <i>Type</i> = " <i>ProcessGroup</i> ".
<i>MISCPS.Printing</i>	w				r			
<i>ICSVersions</i>	w←				r?			Root Node only.

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>MISCPS_L1-1.3</i>	W←			r?			Specify conformance to Level 1 of this ICS.
<i>MISCPS_L2-1.3</i>		W←		r?			Specify conformance to Level 2 of this ICS.
<i>Type</i>	W			r			MUST have one of the two values below.
<i>ProcessGroup</i>	W←			r			
<i>ConventionalPrinting</i>	W←			r			
<i>Types</i>	W←			r			Only supplied if <i>Type</i> = “ <i>ProcessGroup</i> ”.
<i>InkZoneCalculation</i>	W←			r?			MUST be specified for <i>InkZoneCalculation</i> .
<i>ConventionalPrinting</i>	W			r			

5 Conformance Tables – Gray Boxes

5.1 ConventionalPrinting

The ***ConventionalPrinting Gray Box*** combines a ***ConventionalPrinting*** Process with an optional ***InkZoneCalculation*** Process. For details of ***Gray Boxes***, see [ICS-MIS].

The output of this ***Gray Box*** is identical with that one of the ***ConventionalPrinting*** Process. Compare Table 7: ***ConventionalPrinting – Output Resources*** and Table 5: ***GB ConventionalPrinting – Output Resources***.

Table 4: GB ConventionalPrinting – Input Resources

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
ColorantControl	W			r			See Table 11: ColorantControl .
Component	W←			r			Manager MUST supply exactly one of Component or Media . See Table 13: Component – Input Resource .
ConventionalPrintingParams	W			r			See Table 15: ConventionalPrintingParams .
Device	W?			r			Selects the press on which this Job SHOULD be executed. See Table 16: Device .
ExposedMedia	W			r			See Table 17: ExposedMedia – Plate .
Ink	W←			r?			Must be supplied if multiple separations use the same ink or if varnishing is used in a printing unit. See Table 18: Ink .

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
Media	w←			r			Manager MUST supply exactly one of Component or Media . See Table 19: Media – Paper.
Preview	w←			r?			Must be supplied if <i>Types</i> contains <i>InkZoneCalculation</i> . For Preview, see Table 22: Preview. Note: Table 22 “Preview – Separation” specifies the use of Preview Resources for ink zone calculation, i.e. where Preview[@PreviewUsage=“Separation”]. The text that precedes Table 22 “Preview – Separation” discusses using a Preview Resource for visualization as well. See Table 22: Preview – Separation.

Table 5: GB ConventionalPrinting – Output Resources

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
Component	w			r			See Table 14: Component – Output Resource.

6 Conformance Tables – Processes

6.1 ConventionalPrinting

The **ConventionalPrinting** Process defines a classical Job for a Sheet-Fed press. In this case, the Worker does not execute an **InkZoneCalculation** Process. .

Table 6: ConventionalPrinting – Input Resources

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
ColorantControl	w			r			See Table 11: ColorantControl.
Component	w←			r			Manager MUST supply exactly one of Component or Media . See Table 13: Component – Input Resource.

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
ConventionalPrintingParams	w			r			See Table 15: ConventionalPrintingParams.
Device	w?			r			Selects the press on which this Job SHOULD be executed. See Table 16: Device.
ExposedMedia	w			r			See Table 17: ExposedMedia – Plate.
Ink	w←			r?			Must be supplied if multiple separations use the same ink or if varnishing is used in a printing unit. See Table 18: Ink.
Media	w←			r			Manager MUST supply exactly one of Component or Media . See Table 19: Media – Paper.

Table 7: ConventionalPrinting – Output Resources

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
Component	w			r			See Table 14: Component – Output Resource.

7 Conformance Tables – ResourceLinks

This section specifies the use of amounts in ResourceLink Elements for conventional Sheet-Fed printing. This affects the consumed media (**Media** Input Resource) or preprinted *Sheets* (**Component** Input Resource), its intended usage, and the productions (**Component** Output Resource).

See Table 23 “Overview of Amount” in the appendix for a quick overview.

The following tables are copied from the Base ICS. Attributes or Elements whose Conformance Requirements are inherited are not repeated here. Only deviating descriptions will be stated explicitly.

7.1 Input ComponentLink or MediaLink or //AmountPool/PartAmount

The following table specifies amount values for the input ComponentLink and input MediaLink Elements and all their semantically related //AmountPool/PartAmount Elements.

For further details see Table 18 in [Base-ICS].

Table 8: Input ComponentLink or MediaLink or //AmountPool/PartAmount

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>ActualAmount</i>	w? r?				r w←		<p>For <i>Condition</i> = "Good".</p> <p>Used for good production. The value is produced good <i>Sheets</i>.</p> <p>The Worker MUST write this Attribute if the Part <i>Condition</i> = "Good" is provided in the Input ResourceLink.</p>
<i>ActualAmount</i>	w? r?				r w←		<p>For <i>Condition</i> = "Waste".</p> <p>Used for waste consumption.</p> <p>The Worker MUST write this Attribute if the Part <i>Condition</i> = "Waste" is supplied in the Input ResourceLink and the Worker knows the amount of input used for waste. It is strongly RECOMMENDED that the Worker not write this Attribute if the value from the output Component (<i>Condition</i> = "Waste") is simply copied herein. In other words, the Worker writes it only if it knows the waste amount better than the default would indicate.</p> <p>The value defaults to the produced waste, i.e. <i>ActualAmount</i> (<i>Condition</i> = "Waste") of the Component output ResourceLink.</p> <p>See Table 23: Overview of Amount.</p>
<i>Amount</i>	w?				r?		<p>For <i>Condition</i> = "Good".</p> <p>Planned consumption for total output, i.e. waste plus good.</p>
<i>Amount</i>	!w				r?		<p>For <i>Condition</i> = "Waste".</p> <p>MUST not be provided. It is always zero.</p>
<i>MaxAmount</i>	!w				r?		<p>For <i>Condition</i> = "Good".</p> <p>MUST not be provided.</p>
<i>MaxAmount</i>	w?				r		<p>For <i>Condition</i> = "Waste".</p> <p>Maximum amount of media allowed for waste.</p>

7.2 Output ComponentLink or ComponentLink/AmountPool/PartAmount

The following table specifies amount values for the output ComponentLink Elements and all the semantically related ComponentLink/AmountPool/PartAmount Elements.

For further details see table 18 in [Base-ICS].

Table 9: Output ComponentLink or //AmountPool/PartAmount

Name or Value	Manager			Worker			Description	
	Level →	1	2	3	1	2		3
<i>ActualAmount</i>		w← r			rW			For <i>Condition</i> = "Good". Actual good production. This is typically the last actual net counter plus the initial <i>ActualAmount</i> , where the last relates to the last <i>Press Run</i> . The Manager MUST provide this Attribute if its value was already defined by some previous processing.
<i>ActualAmount</i>		w← r?			r w?			For <i>Condition</i> = "Waste". The produced waste. This is typically the first actual gross counter minus the last actual net counter plus the initial <i>ActualAmount</i> , where the first relates to the first <i>Press Run</i> and the last relates to the last <i>Press Run</i> . The Manager MUST provide this Attribute if its value was already defined by some previous processing.
<i>Amount</i>		w			r			For <i>Condition</i> = "Good". Defines the planned good production.
<i>Amount</i>		!w			r?			For <i>Condition</i> = "Waste". MUST not be provided, because it is zero.
<i>MaxAmount</i>		w?			r?			For <i>Condition</i> = "Good". Defines the planned good production including the overage.
<i>MaxAmount</i>		!w			r?			For <i>Condition</i> = "Waste". MUST not be provided because it is zero.

8 Conformance Tables – Resources

This section specifies the Input Resources and Output Resources of the **ConventionalPrinting Gray Box** and **ConventionalPrinting** Process.

8.1 Color

Table 10: Color
Referenced by: ColorPool

Name or Value	Manager			Worker			Description	
	Level →	1	2	3	1	2		3
<i>ActualColorName</i>		w←			r			<p>The <i>ActualColorName</i>, defaults to the value of <i>Name</i>. <i>ActualColorName</i> MUST be supplied, if the <i>Actual Name of the Print Color</i> is known.</p> <p>Also if <i>Actual Name of the Print Color</i> has the same value as <i>Name</i>, the Manager MUST provide <i>ActualColorName</i> to indicate to the Worker that the <i>MIS or Prepress Workflow System</i> has confirmed the <i>Actual Name of the Print Color</i>.</p> <p>Note: that this Attribute was added in [JDF1.3 Errata].</p>
<i>CMYK</i>		w←			r			<p>MUST be supplied if the color is a standard Process colorant. In other words, if <i>CMYK</i> would have one of the following values:</p> <p>1 0 0 0 0 1 0 0 0 0 1 0 0 0 0 1</p> <p>For example, a black text plate can be defined with <i>Separation</i> = "Text" and <i>CMYK</i> = "0 0 0 1".</p>
<i>Name</i>		w			r			<p>A real color name is preferable. However, <i>Name</i> MAY be generic like "Spot", "Spot1", "Spot02", "Metalic01", etc.</p>

8.2 ColorantControl

The **ColorantControl** Resource defines the colors used on a *Sheet* and provides additional data about colors.

The Worker determines the colors used by evaluating the following two Elements of **ColorantControl** in the order listed:

- DeviceColorantOrder
- ColorantOrder

Table 11: ColorantControl
Input to: ConventionalPrinting, GB ConventionalPrinting

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>ProcessColorModel</i>	w			r?			
<i>PartIDKeys</i>	w?			r			See Section 9 “Conformance Rules – Partitioning Summary”.
<i>SignatureName</i>	w			r			
<i>SheetName</i>	w←			r			MUST be supplied, if colors differ between <i>SheetName</i> parts or the Partition by <i>Side</i> is defined.
<i>Side</i>	w←			r			MUST be supplied if the colors differ between <i>Front</i> and <i>Back</i> Surface.
<i>all remaining values</i>	!w			r?			
ColorantParams	w←			r?			MUST be specified if spot colors are present. See [JDF1.3].
ColorantOrder	w			r			Colorant order on a <i>Sheet</i> . It contains the colors that ColorantParams and <i>ProcessColorModel</i> define. If the Manager doesn’t know the names of spot colors, then it MAY use "Spot1", "Spot2", or any other generic name. The Manager SHOULD NOT designate standard Process colors like Cyan, Magenta; Yellow, and Black with a generic name. See [MISPRE-ICS].
ColorPool	w			r			See Table 12: ColorPool.
DeviceColorantOrder	w?			r			Colorant order on the press. If supplied, it is strongly recommended to be the color order for printing. See [JDF1.3].

8.3 ColorPool

Table 12: ColorPool
Referenced by: ColorantControl

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
Color	w			r			MUST be inline Elements. See Table 10: Color.

8.4 Component

8.4.1 Component – Input Resource

Depending on the situation, a Manager uses either a **Media** Resource or a **Component** Resource to describe the paper on which the press prints.

A Manager uses a **Component** Resource for precut Media and preprinted *Sheets*.

Table 13: Component – Input Resource
Input to: ConventionalPrinting, GB ConventionalPrinting

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>ComponentType</i>	w			r			
<i>Sheet</i>	w			r			
<i>Dimensions</i>	w			r			3 numbers x, y, z, which are width, length and thickness, respectively. A thickness of 0 means unknown. (Thickness comes from Layout/Media/@Thickness).
<i>PartIDKeys</i>	w			r			See Section 9 “Conformance Rules – Partitioning Summary”.
<i>SignatureName</i>	w			r			
<i>SheetName</i>	w			r			
<i>PartVersion</i>	!w	w←		r?	r		MUST be specified for versioned Jobs.
<i>all remaining values</i>	!w			r?			
Layout	w			r?			Contains information about <i>Sheet</i> -related Media . MUST supply in order to provide further Media information besides what the <i>Dimensions</i> Attribute provides.

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
							See [JDF1.3].

8.4.2 Component – Output Resource

Table 14: Component – Output Resource
 Output from: *ConventionalPrinting, GB ConventionalPrinting*

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>ComponentType</i>		w			r		
<i>Sheet</i>		w			r		
<i>DescriptiveName</i>		w			r		Human readable <i>Sheet</i> name. MUST be specified for each <i>Sheet</i> .
<i>Dimensions</i>		w? r			r? w		<i>Sheet</i> dimension for finishing purposes. Dimensions MUST be maintained for further processing.
<i>PartIDKeys</i>		w			r		MUST be Partitioned at least by <i>SheetName</i> . For further details, see Section 9 “Conformance Rules – Partitioning Summary”.
<i>SignatureName</i>		w			r		
<i>SheetName</i>		w			r		
<i>PartVersion</i>		!w	w←		r?	r	MUST be specified for versioned Jobs.
<i>Condition</i>		w?			r?		
<i>all remaining values</i>		!w			r?		

8.5 ConventionalPrintingParams

Table 15: ConventionalPrintingParams
 Input to: *ConventionalPrinting, GB ConventionalPrinting*

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>PartIDKeys</i>		w?			r		See Section 9 “Conformance Rules – Partitioning Summary”.

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>SignatureName</i>		w			r		
<i>SheetName</i>		w←			r		MUST be supplied, if varnishes differ between different <i>SheetName</i> parts or the Partition by <i>Side</i> is defined.
<i>Side</i>		w←			r		MUST be supplied, if different varnishes (these are the Ink Elements herein) are used for <i>Front</i> and <i>Back</i> side.
<i>all remaining values</i>		!w			r?		
<i>PrintingType</i>		w			r		
<i>SheetFed</i>		w			r		
<i>WorkStyle</i>		w			r		Note: In case of <i>Side</i> Partitioning, the location of the <i>WorkStyle</i> Attribute MUST NOT be deeper than at the <i>SheetName</i> level. In other words, <i>WorkStyle</i> MUST NOT be Partitioned by <i>Side</i> .
<i>Perfecting</i>		w←			r?		If specified, the Worker MUST use inline perfecting.
<i>Simplex</i>		w←			r?		Defines one <i>Press Run</i> .
<i>WorkAndBack</i>		w←			r		Defines one <i>Press Run</i> if the press uses inline perfecting and implicitly defines two <i>Press Runs</i> if the press doesn't use inline perfecting.
<i>WorkAndTumble</i>		w←			r		Defines implicitly two <i>Press Runs</i> .
<i>WorkAndTurn</i>		w←			r		Defines implicitly two <i>Press Runs</i> .
<i>WorkAndTwist</i>		!w			r?		
Ink		w?			r?		Defines inline varnishing in a varnishing module. Note: by contrast, varnishing in a print unit is represented by an Ink Partition Partitioned by Separation with Ink[@Family="Varnish"] and an associated ExposedMedia Partition, where both are explicit Input Resources to the ConventionalPrinting Process . See Table 18: Ink.

8.6 Device

Starting with ICS version 1.3, **Device** Partitioning has been introduced to allow synchronized Partitions of **NodeInfo** and **Device** Resources. This change occurred because in [JDF1.3] **NodeInfo** has become a Resource; in earlier versions it was a child of a JDF Node For details of **NodeInfo**, see section 8.10 “**NodeInfo**”.

Table 16: Device
Input to: ConventionalPrinting, GB ConventionalPrinting

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>PartIDKeys</i>	w?			r			See Section 9 “Conformance Rules – Partitioning Summary”.
<i>SignatureName</i>	w			r			
<i>SheetName</i>	w←			r			MUST be supplied, if different <i>SheetName</i> Parts shall be printed on different presses or the Part <i>Side</i> is defined.
<i>Side</i>	w←			r			MUST be supplied for splitting sides to be printed on different presses.
<i>Separation</i>	! w	w?		r?	r?		May be used for splitting colors on different presses.
<i>PartVersion</i>	! w	w?		r?	r?		May be used for splitting version on different presses.
<i>all remaining values</i>	! w			r?			

8.7 ExposedMedia – Plate

The semantics of the Attribute ExposedMedia/@DescriptiveName in [MISCP-ICS 1.0] has been replaced by ColorPool/Color/@ActualColorName in this ICS.

Table 17: ExposedMedia – Plate
Input to: ConventionalPrinting, GB ConventionalPrinting

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>PartUsage</i>	w			r			See section “Conformance Rules – Partitioning Summary”.
<i>Explicit</i>	w	w←		r	r		
<i>Sparse</i>	! w	w←		r?	r		For ExposedMedia and Preview Resources, the " <i>Sparse</i> " value MUST be used if plates are reused for versioning.
<i>all remaining values</i>	! w			r?			
<i>PartIDKeys</i>	w			r			See section 9 “Conformance Rules – Partitioning Summary”.
<i>SignatureName</i>	w			r			
<i>SheetName</i>	w			r			

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>Side</i>	w			r			MUST also be defined for Jobs with one set of plates for both Surfaces, i.e. <i>WorkAndTurn</i> , <i>WorkAndTumble</i> and <i>Simplex</i> . For each of these 3 cases, the value MUST be " <i>Front</i> ".
<i>Separation</i>	w			r			
<i>PartVersion</i>	!w	w←		r?	r		Must be specified for versioned Jobs.
<i>all remaining values</i>	!w			r?			
Media	w			r			Plate Media description with <i>Dimension</i> Attribute for the plate if known. See Table 20: Media – Plate.

8.8 Ink

The **Ink** Resource describes the physical colorants used in printing.

Table 18: Ink
 Referenced by: **ConventionalPrintingParams**
 Input to: *ConventionalPrinting*, *GB ConventionalPrinting*

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>ColorName</i>	!w			r?			The <i>Separation</i> Partition Key MUST be used instead of <i>ColorName</i> .
<i>Family</i>	w←			r			
<i>Varnish</i>	w←			r			Must be supplied for varnishing.
<i>InkName</i>	w←			r?			The fully qualified name of the ink, for example: " <i>Pantone 47</i> " or " <i>Varnish glossy</i> ". The Manager MUST provide an identical <i>InkName</i> if the same ink is used for multiple separations. The Manager MUST NOT set the value of this Attribute to non-specified values like "Spot 01" or any other non-describing text.
<i>PartIDKeys</i>	w			r			If the physical ink of a definite <i>Separation</i> does not vary over the Partitions <i>SignatureName</i> , <i>SheetName</i> , or <i>Side</i> , it is strongly RECOMMENDED to Partition by <i>Separation</i> only.

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>SignatureName</i>	w?			r			
<i>SheetName</i>	w?			r			
<i>Side</i>	w?			r			
<i>Separation</i>	w			r			
<i>all remaining values</i>	!w			r?			

8.9 Media

8.9.1 Media – Paper

Table 19: Media – Paper
 Input to: *ConventionalPrinting*, *GB ConventionalPrinting*

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>DescriptiveName</i>	w			r			Human readable name to help the operator select the correct media.
<i>Dimension</i>	w			r			
<i>MediaType</i>	w			r			
<i>Paper</i>	w			r			
<i>PartIDKeys</i>	w?			r			See Section 9 “Conformance Rules – Partitioning Summary”.
<i>SignatureName</i>	w			r			
<i>SheetName</i>	w←			r			MUST be supplied if media differ between <i>SheetName</i> parts.
<i>all remaining values</i>	!w			r?			
<i>Thickness</i>	w			r			
<i>Weight</i>	w			r			

8.9.2 Media – Plate

Table 20: Media – Plate
 Referenced by: **ExposedMedia** – Plate

Name	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>MediaType</i>		w			r		
<i>Plate</i>		w			r		
<i>PartIDKeys</i>		w?			r		See Section 9 “Conformance Rules – Partitioning Summary”.
<i>SignatureName</i>		w			r		
<i>SheetName</i>		w←			r		MUST be supplied, if plate media types differ between <i>SheetName</i> parts or the Partition by <i>Side</i> is defined.
<i>Side</i>		w←			r		MUST be supplied, if plate media types differ between <i>Side</i> parts or the Partition by <i>Separation</i> is defined.
<i>Separation</i>		w←			r		MUST be supplied, if plate media types differ between <i>Separation</i> parts or the <i>PartVersion</i> Partition is defined.
<i>PartVersion</i>		!w	w?		r?	r?	
<i>all remaining values</i>		!w			r?		

8.10 NodeInfo

The Partitioning rules for **Device** and **NodeInfo** are identical. The Partition of both Resources may be different, for example, if a *MIS* wants to schedule front and back side independently on the same press.

A **NodeInfo** leaf must represent at least a single *Press Run*, it may also represent more, i.e. a set of *Press Runs*.

This usage of **NodeInfo** is described in [MIS-ICS] Table 6: ResourcePool.

Table 21: NodeInfo

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>DescriptiveName</i>		w?			r		Defines descriptions for one or more <i>Press Runs</i> . Its value defaults to JDF/@DescriptiveName of the ConventionalPrinting Process Node or <i>Gray Box</i> Node. For example, if NodeInfo is Partitioned by

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
							Side, an <i>MIS</i> can define different descriptions for front and back sides. Modification Note: this Attribute replaces ConventionalPrintingParams/@DescriptiveName that was specified in [MISCPS-ICS 1.0].
<i>End</i>	w←			r			MUST be provided for scheduling.
<i>Start</i>	w←			r			MUST be provided for scheduling.
<i>PartIDKeys</i>	w?			r			See Section 9 “Conformance Rules – Partitioning Summary”.
<i>SignatureName</i>	w			r			
<i>SheetName</i>	w←			r			MUST be supplied if different <i>SheetName</i> parts will either be scheduled or described differently or if the <i>Side</i> Partition is defined.
<i>Side</i>	w←			r			MUST be supplied for scheduling or describing sides independently. For example, the Manager MUST supply the part <i>Side</i> = "Back" if a <i>WorkAndTurn</i> Job has been interrupted after the first run and is submitting the Job again for the second run. Modification Note the <i>Side</i> Partition of NodeInfo replaces the ConventionalPrintingParams/@FirstSurface Attribute that was specified in [MISCPS-ICS 1.0].
<i>Separation</i>	!w	w?		r?	r?		May be used for splitting colors on different <i>Press Runs</i> .
<i>PartVersion</i>	!w	w?		r?	r?		May be used for splitting version on different <i>Press Runs</i> .
<i>all remaining values</i>	!w			r?			

8.11 Preview

If a Manager intends that a **Preview** be used for ink zone settings, then it MUST set the JDF/@Type Attribute to "ProcessGroup" and JDF/@Types Attribute to "InkZoneCalculation ConventionalPrinting". If a Manager links a **Preview** Resource to a pure **ConventionalPrinting** Process, the **Preview** is for visualization purposes only. If a Manager supplies both kinds of **Preview** Resources, the corresponding PreviewLink MUST supply a *CombinedProcessIndex* Attribute in order to clearly distinguish between the **Preview** for **InkZoneCalculation** and the **Preview** for visualization purposes. Table 22 “Preview – Separation” defines the conformance rules that apply to a **Preview** for **InkZoneCalculation**.

Table 22: Preview – Separation
Input to: GB ConventionalPrinting

Name or Value	Manager			Worker			Description	
	Level →	1	2	3	1	2		3
<i>PartIDKeys</i>		w			r			See Section 9 “Conformance Rules – Partitioning Summary”.
<i>SignatureName</i>		w			r			
<i>SheetName</i>		w			r			
<i>Side</i>		w			r			
<i>Separation</i>		w			r			
<i>PartVersion</i>		!w	w←		r?	r		Must be supplied for version Jobs.
<i>all remaining values</i>		!w			r?			
<i>PartUsage</i>		w			r			See section “Conformance Rules – Partitioning Summary”.
<i>Explicit</i>		w	w←		r	r		
<i>Sparse</i>		!w	w←		r?	r		For ExposedMedia and Preview Resources, the " <i>Sparse</i> " value MUST be used if plates are reused for versioning.
<i>all remaining values</i>		!w			r?			
<i>PreviewFileType</i>		w←			r			MUST be provided, if <i>Status</i> is " <i>Available</i> ".
<i>CIP3Multiple</i>		!w			r?			
<i>CIP3Single</i>		w←			r?			Compatible with older systems. The Worker MUST Support at least one of " <i>CIP3Single</i> " and " <i>PNG</i> ". The Manager MUST Support both " <i>CIP3Single</i> " and " <i>PNG</i> ".
<i>PNG</i>		w←			r?			Preferred value for new systems. The Worker MUST Support at least one of " <i>CIP3Single</i> " and " <i>PNG</i> ". The Manager MUST Support both <i>CIP3Single</i> and <i>PNG</i> .
<i>PreviewUsage</i>		w			r			
<i>Separation</i>		w			r			
<i>Status</i>		w			r			
<i>Available</i>		w←			r			If the previews are available.
<i>Incomplete</i>		w←			r			MUST be used, if the preview will be provided by a prepress system according to the [PRECP-ICS].
<i>URL</i>		w←			r			MUST be provided, if <i>Status</i> = " <i>Available</i> ".

Name or Value	Manager			Worker			Description
	Level →	1	2	3	1	2	
<i>file:...</i>	w?			r			URL whose scheme is " <i>file</i> " MUST be an absolute URL.
<i>http:...</i>	w?			r			URL whose scheme is " <i>http</i> " MUST be an absolute URL.
<i>cid:...</i>	w?			r?			URL whose scheme is " <i>cid</i> ". Is optional.
<i>ftp:...</i>	w?			r?			URL whose scheme is " <i>ftp</i> ". Is optional.
<i>all remaining values</i>	!w			r?			

9 Conformance Rules – Partitioning Summary

The Manager MUST use explicit Partitioning with **Component** Output Resources. For level 1, the Manager MUST use explicit Partitioning with **ExposedMedia** and **Preview** Input Resources, i.e. *PartUsage* = "*Explicit*". For level 2, the Manager is allowed to choose whether *PartUsage* = "*Explicit*" or *PartUsage* = "*Sparse*". See examples below.

The Manager and Worker MUST Support the following Partition Keys for **ConventionalPrinting**:

- *SignatureName*,
- *SheetName*,
- *Side*,
- *Separation*,
- *PartVersion* (in Level 2 only),
- *Condition*

The Manager MUST use the Partition Keys in the order defined above. For example, *SheetName* MUST NOT appear before *SignatureName* and *Separation* MUST NOT appear before *Side*.

The required depth for Partitioning depends on the Resource. For example, the Manager MUST Partition the **ExposedMedia** (Plate) Input Resource deeper than the **Component** Resource for Sheets. The **ExposedMedia** (plate) Resource is Partitioned by *SignatureName*, *SheetName*, *Side* and *Separation*. By contrast, the **Component** Resource is Partitioned only by *SignatureName* and *SheetName*.

The following example shows a Partitioned **ExposedMedia** Resource:

```
<ExposedMedia Class="Handling" Brand="Gooley" ID="L1" Status="Available"
  PartIDKeys="SignatureName SheetName Side Separation" PartUsage="Explicit">
  <ExposedMedia SignatureName="Sig1">
    <ExposedMedia SheetName="S1">
      <ExposedMedia Side="Front">
        <ExposedMedia Separation="Cyan" ProductID="S1FCPlateJ42"/>
        <ExposedMedia Separation="Magenta" ProductID="S1FMPlateJ42"/>
        <ExposedMedia Separation="Yellow" ProductID="S1FYPlateJ42"/>
        <ExposedMedia Separation="Black" ProductID="S1FBPlateJ42"/>
      </ExposedMedia>
    </ExposedMedia>
  </ExposedMedia>
</ExposedMedia>
```

The following examples document illustrates sparse and explicit Partitioning (i.e. *PartUsage* = "Explicit" and *PartUsage* = "Sparse") for versioned Jobs, i.e. with *PartVersion* Partitioning.

The following example shows a sparse Partitioned **ExposedMedia** Resource consisting of 5 physical plates. Sparse Partitioning MUST be used if the Manager wants to describe a plate set, where the colored plates Cyan, Magenta and Yellow are shared for both versions:

```
<ExposedMedia Class="Handling" Brand="Gooley" ID="L1" Status="Available"
  PartIDKeys="SignatureName SheetName Side Separation PartVersion" PartUsage="Sparse">
  <ExposedMedia SignatureName="Sig1">
    <ExposedMedia SheetName="S1">
      <ExposedMedia Side="Front">
        <ExposedMedia Separation="Cyan" ProductID="S1FCPlateJ42"/>
        <ExposedMedia Separation="Magenta" ProductID="S1FMPlateJ42"/>
        <ExposedMedia Separation="Yellow" ProductID="S1FYPlateJ42"/>
        <ExposedMedia Separation="Black" >
          <ExposedMedia PartVersion="English" ProductID="S1FBPlateJ42E"/>
          <ExposedMedia PartVersion="German" ProductID="S1FBPlateJ42G"/>
        </ExposedMedia>
      </ExposedMedia>
    </ExposedMedia>
  </ExposedMedia>
</ExposedMedia>
```

The following example shows an explicit Partitioned **ExposedMedia** Resource consisting of 8 physical plates. Explicit Partitioning MUST be used if the Manager wants describe two sets of plates, each having colored plates:

```
<ExposedMedia Class="Handling" Brand="Gooley" ID="L1" Status="Available"
  PartIDKeys="SignatureName SheetName Side Separation PartVersion" PartUsage="Explicit">
  <ExposedMedia SignatureName="Sig1">
    <ExposedMedia SheetName="S1">
      <ExposedMedia Side="Front">
        <ExposedMedia Separation="Cyan " >
          <ExposedMedia PartVersion="English" ProductID="S1FCPlateJ42E"/>
          <ExposedMedia PartVersion="German" ProductID="S1FCPlateJ42G"/>
        </ExposedMedia>
        <ExposedMedia Separation="Magenta" >
          <ExposedMedia PartVersion="English" ProductID="S1FMPlateJ42E"/>
          <ExposedMedia PartVersion="German" ProductID="S1FMPlateJ42G"/>
        </ExposedMedia>
        <ExposedMedia Separation="Yellow" >
          <ExposedMedia PartVersion="English" ProductID="S1FYPlateJ42E"/>
          <ExposedMedia PartVersion="German" ProductID="S1FYPlateJ42G"/>
        </ExposedMedia>
        <ExposedMedia Separation="Black" >
          <ExposedMedia PartVersion="English" ProductID="S1FBPlateJ42E"/>
          <ExposedMedia PartVersion="German" ProductID="S1FBPlateJ42G"/>
        </ExposedMedia>
      </ExposedMedia>
    </ExposedMedia>
  </ExposedMedia>
</ExposedMedia>
```

9.1 JobPhase/@PercentCompleted

PercentCompleted always applies to the currently executed *Press Run*. Values should therefore increase from an initial value of 0% to a final value of about 100%. Values of more than 100% to track overage are neither REQUIRED nor excluded by this ICS.

9.2 “Side” Partition Key – Details

The sub-sections describe the details for the *Side* Partition Key for the values of `ConventionalPrintingParams/@WorkStyle`.

9.2.1 Perfecting

If `WorkStyle = "Perfecting"`:

- A press uses two different set of plates to print the front and back sides of a *Sheet* in one *Press Run*.
- The Manager MUST specify Partitioning for both *Front* and *Back* values of *Side* for **ExposedMedia** and **Preview**.
- The Manager MUST Partition **ExposedMedia** and **Preview** explicitly or sparsely (`PartUsage = "Sparse"` can also be used for versioned Jobs).
- The Worker MUST NOT specify *Side* Partitions in JMF Status Messages, PartStatus Elements and Audit Elements if the Worker makes exactly one *Press Run* over all color separations.
- The Worker SHOULD cause the value of `JobPhase/@PercentCompleted` to increase from an initial value of 0% to a final value of about 100%. The final value occurs when the first and only *Press Run* over all color separations is completed.

9.2.2 Simplex

If `WorkStyle = "Simplex"`:

- The Manager MUST supply a Partition with `Side = "Front"` for **ExposedMedia** and **Preview** Resources. The Manager and Worker MUST NOT supply a Partition with `Side = "Back"`.
- The Worker MUST specify a Partition with `Side = "Front"` in JMF Status Messages, PartStatus Elements and Audit Elements for the *Press Run* over all color separations.
- The Worker SHOULD cause the value of `JobPhase/@PercentCompleted` to increase from an initial value of 0% to a final value of about 100%. The final value occurs when the *Press Run* over all color separations is completed.

9.2.3 WorkAndBack

If `WorkStyle = "WorkAndBack"`:

- A press uses two different set of plates to print the front and back sides of a *Sheet* in two *Press Runs*.
- If the Manager wants both sides to be printed:
 - The Manager MUST specify Partitions for both values of the *Side* Attribute for **ExposedMedia** and **Preview** Resources.
 - The Worker MUST specify exactly one Partition for *Side* in JMF Status Messages, PartStatus Elements and Audit Elements for the first *Press Run* over color separations. The Worker MUST specify the other value for the *Side* Partition in the second *Press Run*.
 - The Worker SHOULD cause the value of `JobPhase/@PercentCompleted` to increase:
 - from an initial value of 0%
 - to an intermediate value of about 100% plus overage that occurs when the first *Press Run* over all color separations is completed.
 - from an initial value of 0% to a final value of about 100% that occurs when the second *Press Run* for the other side over all color separations is completed.
 - **Note:**
The usage of the Attribute `@PercentCompleted` has been changed with the ICS version for JDF 1.3. If a Manager wants evaluate the percentage completed of the Job then he must summarize over the individual parts and evaluate his own value for the percentage completed.
- If the Manager wants one side to be printed:
 - The Manager MUST specify one Partition for one value of *Side* for **ExposedMedia** and **Preview** Resources.

- The Worker MUST specify exactly one Partition for *Side* in JMF Status Messages, PartStatus Elements and Audit Elements.
- The Worker SHOULD cause the value of JobPhase/@PercentCompleted to increase:
 - from an initial value of 0%
 - to a final value of about 100% that occurs when the *Press Run* over all color separations is completed.

9.2.4 WorkAndTumble and WorkAndTurn

If *WorkStyle* = "WorkAndTumble" or *WorkStyle* = "WorkAndTurn":

- A press uses the same set of plates to print the front and back sides of a *Sheet*
- The Manager MUST specify a Partition for *Side* = "Front" for **ExposedMedia** and **Preview Resources**.
- The Worker MUST specify a Partition for *Side* = "Front" in JMF Status Messages, PartStatus Elements and Audit Elements for the first *Press Run* over color separations. For the second *Press Run* over color separations, the Worker MUST do the same with a Partition for *Side* = "Back".
- The Worker SHOULD cause the value of JobPhase/@PercentCompleted to increase:
 - from an initial value of 0%
 - to an intermediate value of 100% plus overage that occurs when the first *Press Run* over all color separations is completed.
 - from an initial value of 0% to a final value of about 100% that occurs when the second *Press Run* over all color separations is complete.
 - see **Note** in section 9.2.3 *WorkAndBack*.

9.3 “Separation” Partition Key – Details

The number of print modules on a press and the number of separations per Surface of a *Sheet* influence the behavior of the *Separation* Attribute.

If all Separations on a Surface are printed in one *Press Run*:

- The Worker MUST NOT specify a *Separation* Partition in JMF Status Messages, PartStatus Elements and Audit Elements.
- The Worker SHOULD cause the value of JobPhase/@PercentCompleted to increase as described in section 9.2 “Side” Partition Key – Details.

If all Separations on a Surface are printed in multiple *Press Runs*:

- The Worker MUST specify one *Separation* Partition in JMF Status Messages, PartStatus Elements and Audit Elements for each separation in the *Press Run*.
- The Worker SHOULD cause the value of JobPhase/@PercentCompleted to increase from an initial value of 0% to about 100% plus overage for the *Press Runs* processed.
- see **Note** in section 9.2.3 *WorkAndBack*.

For instance, at the end of each *Press Run* of a 4-color *WorkAndTumble* Job that is printing on a two-color press, a Status Signal would contain the following JobPhase Elements:

Run 1: Front Side, Cyan + Magenta:

```
<JobPhase PercentCompleted="110" ...>
  <Part SignatureName="Sig1" SheetName="S1" Side="Front" Separation="Cyan"/>
  <Part SignatureName="Sig1" SheetName="S1" Side="Front" Separation="Magenta"/>
</JobPhase>
```

Run 2: Front Side, Yellow + Black:

```
<JobPhase PercentCompleted="106" ...>
  <Part SignatureName="Sig1" SheetName="S1" Side="Front" Separation="Yellow"/>
```

```
<Part SignatureName="Sig1" SheetName="S1" Side="Front" Separation="Black"/>
</JobPhase>
```

Run 3: Back Side, Yellow + Black:

```
<JobPhase PercentCompleted="103" ...>
  <Part SignatureName="Sig1" SheetName="S1" Side="Back" Separation="Yellow"/>
  <Part SignatureName="Sig1" SheetName="S1" Side="Back" Separation="Black"/>
</JobPhase>
```

Run 4: Back Side, Cyan + Magenta:

```
<JobPhase PercentCompleted="101" ...>
  <Part SignatureName="Sig1" SheetName="S1" Side="Back" Separation="Cyan"/>
  <Part SignatureName="Sig1" SheetName="S1" Side="Back" Separation="Magenta"/>
</JobPhase>
```

10 References

10.1 Normative References

- [Base-ICS] Base ICS, Version 1.3, published July 2007, available at <http://www.cip4.org>.
- [JDF1.3] Job Definition Format (JDF), Version 1.3, published September 2005. Available at <http://www.cip4.org>.
- [JDF1.3 Errata] JDF 1.3 Release 3 Errata, published July 31, 2007. Available at <http://www.cip4.org>.
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10.2 Informative References

- [FileURL-AN] “CIP4 Application Note: Use of the File URL in JDF”, published 12 November 2003. Available at <http://www.cip4.org>.
- [MISPRES-Ex] [MISPRES-ICS] examples. Available at <http://www.cip4.org>.
- [MISPRES-AN] MIS-to-Prepress Application Notes, Version 1.0, work in progress. Available at <http://www.cip4.org>.
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10.3 Acknowledgements

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Appendix A: Amounts

This appendix explains how to use amounts in Sheet-Fed printing.

The following rules apply for using amounts in the ResourceLinkPool or AuditPool:

1. ResourceLink Elements in the ResourceLinkPool represent the integral amounts. Integral is related to the amounts produced or consumed by the JDF Node, integrated over all *Press Runs*. If one Node is executed more times, then integral values apply for all executions of that Node.
2. AuditPool/ResourceAudit/ResourceLink Elements contain incremental amounts only. They are related to the actual execution of this Node containing the AuditPool.
3. AuditPool/PhaseTime/ResourceLink Elements contain amounts that refer to the time interval of the PhaseTime only where the ResourceLink resides.

For example, if the ResourceLinkPool/ComponentLink[@Usage = "Output" and @Condition="Good"]/@ActualAmount Attribute is 6000 at some time during execution of a Node and if during a further run of that Node, 2000 additional good *Sheets* are produced, then the aforementioned *ActualAmount* Attribute increases 2000 and becomes 8000 whereas the //JDF/AuditPool/ResourceAudit/ComponentLink/@ActualAmount and //JDF/AuditPool/PhaseTime/ComponentLink/@ActualAmount Attributes are each 2000..

A.1 Overview of Amount Attributes for Input Elements

Table 23: Overview of Amount Attributes for Input MediaLink and ComponentLink Elements

Amount Attribute	Condition Value	Mgr	Wkr	Press Counters / Planned Values	Example
<i>ActualAmount</i>	<i>Good</i>	r?	w←	Actual net	10200
<i>ActualAmount</i>	<i>Waste</i>	r?	w←	Actual wasted input. Defaults to ActualAmount[Waste] of the ComponentLink[Output].	300
<i>Amount</i>	<i>Good</i>	w?	r?	Planned net + overage	10500
<i>Amount</i>	<i>Waste</i>	!w	r?		-
<i>MaxAmount</i>	<i>Good</i>	!w	r?		-
<i>MaxAmount</i>	<i>Waste</i>	w?	r	Planned input for waste.	500

A.2 Overview of Amount Attributes for Output Elements

Table 24: Overview of Amount Attributes for Output ComponentLink Elements

Amount Attribute	Condition Value	Mgr	Wkr	Press Counters / Planned Values	Example
<i>ActualAmount</i>	<i>Good</i>	r	w	Actual net	10200

Amount Attribute	Condition Value	Mgr	Wkr	Press Counters / Planned Values	Example
<i>ActualAmount</i>	<i>Waste</i>	r?	w?	Waste = actual Gross – actual Net	300
<i>Amount</i>	<i>Good</i>	w	r	Planned net	10000
<i>Amount</i>	<i>Waste</i>	!w	r?		-
<i>MaxAmount</i>	<i>Good</i>	w?	r?	Planned Net + overage	10400
<i>MaxAmount</i>	<i>Waste</i>	!w	r?		-