Prepress to Conventional Printing ICS

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Abstract

This ICS describes the interface between a ***Prepress Workflow System*** and a Conventional Printing ***Press Controller***. This ICS is primarily for a Sheet-Fed Press and defines how a ***Prepress Workflow System*** dynamically communicates with a ***Press Controller*** in order to deliver previews used for evaluating ink zone settings and information about plates. This ICS defines two Conformance Levels.

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Table of Contents

1 Introduction 4
2 Glossary 4
3 Conformance Levels 4
3.1 Certification 5
4 Conformance Tables – JDF Instances 5
4.1 JDF Node 5
5 Conformance Tables – Resources 5
5.1 Color 5
5.2 ColorantControl 6
5.3 ColorPool 7
5.4 ExposedMedia – Plate 8
5.5 Media – Plate 9
5.6 Preview 9
6 Conformance Tables – JMF Messages 11
6.1 Resource Message 11
6.1.1 Command – Resource 11
6.1.1.1 ResourceCmdParams 12
6.1.1.2 Part 13
6.1.1.3 List of Resource Elements for ResourceCmdParams 14
6.1.2 Response – Resource 14
7 Conformance Rules – Partitioning Summary 15
8 References 16
8.1 Normative References 16
8.2 Informative References 16

Tables

Table 1: Glossary 4
Table 2: Conformance Levels 4
Table 3: JDF Node 5
Table 4: Color 6
Table 5: ColorantControl 7
Table 6: ColorPool 8
Table 7: ExposedMedia – Plate 8
Table 8: Media – Plate 9
Table 9: Preview – Separation 9
Table 10: List of JMF Messages 11
Table 11: Command - Resource 11
Table 12: ResourceCmdParams 12
Table 13: Part 13
Table 14: List of Resource Elements for ResourceCmdParams 14
Table 15: Response - Resource 15

1 Introduction

This document describes the interface between a ***Prepress Workflow System*** and a Conventional Printing ***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
Actual Name of the Print Color	The 'real' name of the color used on the press and in PDF file.
Gray Box	See the Glossary section in [MIS-ICS].
Prepress Workflow System	A Device or Controller that conforms to this ICS and Produces or Consumes JMF Messages defined herein. A ***Prepress Workflow System*** is software and it may be part of a Prepress Device. The term Manager refers to the ***Prepress Workflow System*** in this ICS. In principle, such a ***Prepress Workflow System*** plays the role of a Resource Producer or supplier. A ***Prepress Workflow System*** typically forwards its Output Resources to a ***Press Controller***.
Press Controller	A Device or Controller that controls press devices and handles all the communication via JDF and JMF. It typically communicates with an MIS and a ***Gray Box***. The term Worker refers to the ***Press Controller*** in this ICS. In principle, such a ***Press Controller*** plays the role of a Resource Consumer.

3 Conformance Levels

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

The information in this ICS is synchronized with the [MISCPS-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, a ***Prepress Workflow System*** 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	-	-	

Level of this ICS	[Base-ICS]	[JMF-ICS]	[MIS-ICS]	Description
2	1	-	-	Level 2 is mainly for versioning (support of *PartVersion*).

3.1 Certification

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

- The physical output.
- User Interface, log files or screen representations.

4 Conformance Tables – JDF Instances

4.1 JDF Node

Table 3: JDF Node

Root Node of: JDF Instance

Name	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
ICSVersions	w←			r?			Root Node only.
PRECP_L1-1.3	w←			r?			Specifies conformance to Level 1 of this ICS.
PRECP_L2-1.3		w←		r?			Specifies conformance to Level 2 of this ICS.

5 Conformance Tables – Resources

5.1 Color

Note: this Table is identical to the corresponding one in [MISCPS-ICS].

Table 4: Color
Referenced by: ColorPool

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

5.2 ColorantControl

Note: this Table is identical to the corresponding one in [MISCPS-ICS].

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 5: ColorantControl

In: List of Resource Elements for ResourceCmdParams

Name or Value	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
ProcessColorModel	w			r?			
PartIDKeys	w?			r			
SignatureName	w			r			
SheetName	w←			r			MUST be supplied, if colors differ between *SheetName* parts or the Partition by *Side* is defined.
Side	w←			r			MUST be supplied if the colors differ between *Front* and *Back* surface.
all remaining values	!w			r?			
ColorantOrder	w			r			Colorant order on a ***Sheet***. It contains the colors that ColorantParams and *ProcessColorModel* 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 6: 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].

5.3 ColorPool

Note: this Table is identical to the corresponding one in [MISCPS-ICS].

Table 6: ColorPool

Referenced by: ColorantControl

In: List of Resource Elements for ResourceCmdParams

Name or Value	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
Color	w			r			MUST be inline elements. See Table 4: Color.

5.4 ExposedMedia – Plate

Note: this Table is identical to the corresponding one in [MISCPS-ICS].

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

Table 7: ExposedMedia – Plate

In: List of Resource Elements for ResourceCmdParams

Name or Value	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
PartUsage	w			r			
Explicit	w	w←		r	r		
Sparse	!w	w←		r?	r		For ExposedMedia and Preview Resources, the Sparse value MUST be used if plates are reused for versioning.
all remaining values	!w			r?			
PartIDKeys	w			r			
SignatureName	w			r			
SheetName	w			r			
Side	w			r			MUST also be defined for *WorkAndTurn*, *WorkAndTumble* and *Simplex* jobs. Then the value MUST be "*Front*".
Separation	w			r			
PartVersion	!w	w←		r?	r		Must be specified for versioned Jobs.
all remaining values	!w			r?			
Media	w			r			Plate **Media** description with *Dimension* Attribute for the plate if known. See Table 8: Media – Plate

5.5 Media – Plate

The Conformance Table for **Media** – Plate in the [MISCPS-ICS] is a subset of this Conformance Table herein, because the MIS often cannot supply all Attributes for the **Media**. Then the Prepress Manager (via its ***ImageSetting*** part or its ***Gray Box*** part) MUST supply the missing Attributes.

Table 8: Media – Plate

Referenced by: **ExposedMedia** – Plate

In: List of Resource Elements for ResourceCmdParams

Name or Value	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
Brand	w			r?			
Dimension	w			r?			
MediaType	w			r			
Plate	w			r			
PartIDKeys	w?			r			See section 7Partitioning
SignatureName	w			r			
SheetName	w←			r			
Side	w←			r			
Separation	w←			r			
PartVersion	!w	w←		r?	r		Must be specified for version jobs.
all remaining values	!w			r?			

5.6 Preview

The Conformance Table for **Preview** in the [MISCPS-ICS] is a subset of this Conformance Table herein, because the MIS often cannot supply all attributes for the **Preview** .

The Manager MUST supply at least one **Preview** with *PreviewUsage* = "*Separation*", other **Preview** Resources are optional and not defined in Level 1 of this ICS.

Table 9: Preview – Separation

In: List of Resource Elements for ResourceCmdParams

Name or Value	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
PartIDKeys	w			r			See section 7Partitioning

Name or Value	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
SignatureName	w			r			
SheetName	w			r			
Side	w			r			
Separation	w			r			
PartVersion	!w	w?		r?	r?		
all remaining values	!w			r?			
PartUsage	w			r			See section 7Partitioning
Explicit	w	w←		r	r		
Sparse	!w	w←		r?	r		For **ExposedMedia** and **Preview** Resources, the "*Sparse*" value MUST be used if plates are reused for versioning.
all remaining values	!w			r?			
PreviewFileType	w			r			
CIP3Multiple	!w			r?			
CIP3Single	w←			r?			Compatible with older systems. The Worker MUST support at least one of "*CIP3Single*" and "*PNG*". The Manager MUST support both "*CIP3Single*" and "*PNG*".
PNG	w←			r?			Preferred value for new systems. The Worker MUST support at least one of "*CIP3Single*" and "*PNG*". The Manager MUST support both *CIP3Single* and *PNG*.
PreviewUsage	w			r			
Separation	w			r			The Manager MUST supply at least one **Preview** with *PreviewUsage* = "*Separation*"; others are optional.
Status	w			r			
Available	w←			r			The **Preview** can be read via the URL.
Unavailable	w←			r			
URL	w			r			The Manager MUST support at least one of the schemes: *file* or *http*.
file:…	w?			r			URL whose scheme is “file” MUST be an absolute URL.
http:…	w?			r			URL whose scheme is “http” MUST be an absolute URL.
cid:…	w?			r?			URL whose scheme is “cid”. Is optional.

Name or Value	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
ftp:…	w?			r?			URL whose scheme is “ftp”. Is optional.
all remaining values	!w			r?			

6 Conformance Tables – JMF Messages

This ICS requires support for JMF Messages that MUST be exchanged via HTTP.

Table 10: List of JMF Messages

Message Type	Family	Manager			Worker			Description
	Level ➔	1	2	3	1	2	3	
Resource	Command	w			r			See Table 11: Command - Resource
Resource	Response	r			w			See Table 15: Response - Resource

6.1 Resource Message

6.1.1 Command – Resource

The Manager (i.e. the ***Prepress Workflow System***) uses the JMF Resource Command to update Resources in the Worker (i.e., the ***Press Controller***, which is the consuming Device).

A ***Prepress Workflow System*** MUST notify the ***Press Controller*** about the availability of Resources by sending a Resource Command. Such Resources include plates (**ExposedMedia** (Plate)) and previews (**Preview** – Separation). The ***Press Controller*** will then update the content of its respective Resource. The ***Press Controller*** may take further actions. For example, it may begin a print job that has become executable due to the availability of the Resources.

Note: another system like a MIS can play the role of a ***Prepress Workflow System*** and send this Resource Command.

Table 11: Command - Resource

In: List of JMF Messages

Name or Value	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
ID	w			r			
Type	w			r			

Name or Value	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
Resource	w			r			
xsi:type	w			r?			
CommandResource	w			r			
ResourceCmdParams	w			r			See Table 12: ResourceCmdParams

6.1.1.1 ResourceCmdParams

Table 12: ResourceCmdParams

Referenced by: Command - Resource

Name or Value	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
JobID	w			r			
ProcessUsage	w←			r?			MUST be specified if *ResourceName* is *ExposedMedia*.
Plate	w←			r			
ResourceName	w			r			Resource name of the resource to be updated. This resource defines the root target.
ColorantControl	w?			r?			
ColorPool	w←			r			
ExposedMedia	w←			r			
Layout	w?			r?			
Media	w?			r?			
Preview	w←			r			
Status	!w			r?			This Attribute MUST NOT be used for *Status* updates. Instead the *Status* is read directly from the Resources' *Status* Attribute.
UpdateMethod	w			r			
Incremental	w←			r			If *UpdateMethod* = "*Incremental*", all Resource Subelements and Attributes become optional. Exceptions that are required to correctly identify Resources are called out in the respective Resource descriptions.
Complete	w←			r			MUST be supported if any Elements like colors or Sheets should be deleted.

Name or Value	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
Part	w←			r			If defined, the Part elements make a pre-selection of parts of the target resources that MUST be overwritten by the **Resource** Elements defined herein. If the target Resources contain ResourceRef Elements that reference partitions that are not specified by Part, then these partitions MUST also be overwritten. The restrictions for partitioning of Resources defined in Section 7 "Partitioning" apply here. See Table 13: Part.
Resource	w			r			Fully partitioned Resource with updated *Status* attributes. **Note:** the Worker identifies the corresponding Resource target by using the Resource's *ID* Attribute in the context of the *JobID*. This **Resource** list consists of the Resources for the Worker to update. See Table 14: List of Resource Elements for ResourceCmdParams.

6.1.1.2 Part

Table 13: Part

Referenced by: ResourceCmdParams

Name or Value	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
SignatureName	w←			r			If defined, selects a certain Signature of the target Resource.
SheetName	w←			r			If defined, selects a certain **Sheet** of the target Resource. The Attribute *SignatureName* MUST also be in this Part Element.
Side	w←			r			If defined, selects a certain **Surface** (i.e. sheet side) of the target Resource. The Attributes *SignatureName* and *SheetName* MUST also be in this Part Element.

Name or Value	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
Separation	w←			r			If defined, selects a single separation of the target Resource. The Attributes *SignatureName, SheetName* and *Side* MUST also be in this Part Element.
PartVersion	!w	w←		r?	r		If defined, selects a single separation of the target Resource. The Attributes *SignatureName*, *SheetName*, *Side* and Separation MUST also be in this Part Element.
all remaining attributes	!w			r?			

6.1.1.3 List of Resource Elements for ResourceCmdParams

Table 14: List of Resource Elements for ResourceCmdParams

Referenced by: ResourceCmdParams

Name or Value	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
ColorantControl	w?			r?			See Table 5: ColorantControl.
ColorPool	w←			r			MUST be supported by the Worker since ICS version 1.3, because the actual name of the print color is now indicated to the Worker in the Attribute Color/@ActualColorName. MUST be provided if something has changed. See Table 6: ColorPool.
ExposedMedia	w←			r			MUST be provided if something has changed. See Table 7: ExposedMedia – Plate.
Layout	w?			r?			See [JDF1.3].
Media	w?			r?			See Table 8: Media – Plate.
Preview	w←			r			MUST be provided if something has changed. See Table 9: Preview – Separation.

6.1.2 Response – Resource

The Worker (i.e. the ***Press Controller***) MUST respond to a Resource Command with a corresponding Resource Response.

Table 15: Response - Resource

In: List of JMF Messages

Name or Value	Manager			Worker			Description
Level ➔	1	2	3	1	2	3	
ID	r?			w			
refID	r			w			Value of the *ID* Attribute received from the Manager in the Command Message. See Table 11: Command - Resource.
ReturnCode	r			w			For suitable error codes, see [JDF1.3], Appendix D.
120	r			w←			
Type	r			w			
Resource	r			w			
xsi:type	r?			w			
ResponseResource	r			w			

7 Conformance Rules – Partitioning Summary

This ICS use the *PartIDKeys* Attribute to specify that a Manager or Worker can Partition the Resource.

When a Manager supplies *PartIDKeys* in an Element of a JDF/JMF Instance, the order of Partition keys in its value MUST follow the order shown in the Conformance Table for the Element. All Partition keys not listed in the Conformance Tables are explicitly forbidden with a “!w” for “all remaining values”, e.g. the Partition Key "*SubRun*" is forbidden.

For level 1, the Manager MUST use explicit Partitioning with the Resources **ExposedMedia** and **Preview**, i.e. *PartUsage* = "*Explicit*". For level 2, the Manager is allowed to choose whether *PartUsage* = "*Explicit*" or whether *PartUsage* = "*Sparse*", see also [MISCPS-ICS]. For **ExposedMedia** and **Preview**, the Manager MUST supply all four Partition Keys (*SignatureName*, *SheetName*, *Side* and *Separation*) specified in the Conformance Tables (Table 7 and Table 9). For example, *Side* MUST be present even for a "*Simplex*", "*WorkAndTurn*" or "*WorkAndTumble*" print job.

For all other Resources, the Manager chooses the number of Partition levels to supply and MUST supply all Partition levels from the first in the Conformance Table down to the selected Partition level. For example, if the Manager chooses to Partition **ColorantControl** down to Partition level *SheetName*, then it MUST supply *SignatureName* and *SheetName*. If the Manager instead decides to Partition level down to *Side*, then it MUST supply *SignatureName*, *SheetName* and *Side*.

8 References

8.1 Normative References

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