The Future of JDF

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<table>
<thead>
<tr>
<th>Table of Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Introduction</td>
</tr>
<tr>
<td>• Current JDF Concepts</td>
</tr>
<tr>
<td>• Modern JDF Implementation</td>
</tr>
<tr>
<td>• Modifications Needed</td>
</tr>
<tr>
<td>• Response to Modern Concepts</td>
</tr>
<tr>
<td>• Next Actions</td>
</tr>
</tbody>
</table>
Introduction and background information about JDF.

INTRODUCTION
The History of JDF

- JDF was initiated in 1999
- Published at Drupa 2000
- Founder Members: Adobe, Agfa, Heidelberg, MAN Roland
- Regarded as Successor to PPF and PJTF

→ JDF is a technical standard being developed by the graphic arts industry.
The goal of CIP4 and JDF is to encompass the whole life cycle of a print and cross-media job.
The core concepts as defined in the *latest* JDF Specification.

**CURRENT JDF CONCEPTS**
Job Components

Job Details
- Customer Details
- Deadlines
- ...

SFDC (Shop Floor Data Collection)
- Time Registrations
- Notifications
- ...

Process Logic
- Workflow
- Process Dependencies

Binary Data
- Customers Artwork
- Process Settings
- ...

Integration through Cooperation
A JDF File is used as physical data container holding all the information for a specific job.

- One physical JDF File per job
- JDF references binary data
- JDF File include Job Details, Process Logic and SFDC
Job Storage / Archiving

Pure Filesystem:

- One JDF File per Job physically on the file system
- Jobs are archived by keeping JDF Files on file system
- Binary data is also stored on file system

→ Job data is stored on file system – No database is required (!!)
A **Gray Box** specifies a loose combination of several **Processes** with a specific goal. A **Gray Box** does not specify all **Processes** or all **Resources** - except for **Output Resources**. In a JDF Instance, a **Process Group** with a **Types Attribute** and no child **Nodes** represents a **Gray Box**.” (JDF Specification 1.4a)

- JDF Process Mechanism
- Definition of Process Logic but not the Process Step in detail.
- Gray Boxes are used when process details are not defined yet

→ Gray Boxes are defined for transferring incomplete data
The Master JDF File holds all details for a single job.

Interaction is based on spawning and merging JDF Nodes.

Gray Boxes are filled step by step.

Devices enrich JDF Nodes by SFDC.

The holistic system architecture is defined by JDF.
JDF defines implementation specific details.
How JDF is implemented in modern systems

MODERN JDF IMPLEMENTATIONS
Typical Implementations

**Reduction of JDF Scope:**

- Process Logic is now part of the MIS
- Job Data is kept in a Database
- Binary Data is stored on a File Server
- Devices also have their internal file format

Most Systems use JDF as a pure information interchange technology
Benefit of modern JDF Architecture

Why Modern Systems don’t use JDFs implementation specific details any longer?

Flexibility in architecture
- Standard Databases have become very powerful
- MIS Vendors have developed powerful Workflow Engines
- Internal Concepts of File Storage were introduced

Flexibility in JDF
- Variability to Devices
- Decrease Complexity

→ Development Frameworks and Concepts have changed over the years.
Benefit: Using Databases

Common Databases provides significant features Out-of-the-Box while JDF does not:

- **Multiusers concepts:**
  Concurrency Access, Transaction, Security…

- **Uptime concepts:**
  Clustering, LoadBalancing, High Availability, Live Backups…

- **Data Analysis / Data Mining:**
  Statistics, Controlling, Data Transparency…

→ The data storage concept of JDF is definitely no longer is state of the art.
Modern MIS’s usually include very powerful and generic Workflow Engines:

- Workflow Logic need not to be defined separately per Job
- Generic Workflow Logic reduces complexity
- Workflow Navigation is defined by Job Details
- Workflow-Engines also are used for SFDC

→ Workflow-Engines are fundamental core components of modern MISes
Additional features provided by some of our members systems:

**ZIP Packaging:**
- Both job and corresponding references are packaged in one archive
- Mainstream technology (in contrast to MIME)
- Bandwidth optimization by compression
- Structured data holding

**WebToPrint Interface:**
- Standardized WebShop Integration
- Cross company communication (SAP / ERP)
- Cloud Computing (SaaS)

...some more features also can be discussed.

Standardization of commonly used features and technologies in graphic arts industry.
➢ Some fundamental concepts of JDF are no longer required.

➢ JDF is unnecessarily complex for current requirements.
Modifications needed to meet members requirements with JDF

MODIFICATIONS NEEDED
The technical JDF Concepts do no longer meet modern systems requirements.
Modifications in JDF Schema

JDF as pure Information Interchange Technology:

- Reduction of Complexity
- Easing Learning Curve
- Adoption to mainstream XML Technologies (XPath, XML Editors, Schema, XSLT…)

Nowadays JDF is used as pure Information Interchange Technology
Modifications in Packaging

Introduction of the **ZIP** packaging format.

Advantages over MIME:

- ZIP is supported by many tools and libraries
- Compression saves bandwidth
- Structured data holding
- …

Packaging simplifies data communication between two parties.
➢ The Modifications needed are fundamental for keeping JDF up-to-date
➢ A new major release is strongly recommended
XJDF is the response to modern implementation needs.

RESPONSE TO MODERN CONCEPTS
XJDF as Major Release

- XJDF is the codename for JDF 2.0
- XJDF meets modern requirements and needs
- XJDF includes all modifications listed before
- XJDF retains most JDF semantics
- XJDF and JDF 1.x can coexist
- XJDF is designed based on our members experiences (almost 15 years)

→ XJDF is CIP4s response to modern changes and requirements.
XJDF Design Criteria

XJDF aims to:

• Enable dynamic changes
• Simplify implementations
• Reduce variation
• Remove implementation specific details
• Retain the semantic structures
• Enhance Compatibility with standard XML and XML Tools

→ JDF 2.0 is a major redesign that takes a decade of experience into account.
The XJDF Specification Draft and further samples are available in CIP4 Wiki:

→ https://confluence.cip4.org/display/PUB/XJDF

→ XJDF Specification and JDF 1.x Specification are based on a common Master Document and can be maintained in parallel.
Proof of Concept

• Proof of Concept with regards to the cooperation between FLYERALARM and a major Workflow System

• Minimal effort to implement interface

• System is now online for 6 Month

• Connection is based on CIP4 WebToPrint Draft ICS

• ZIP Packaging has been also proofed successfully

→ FLYERALARM has been successfully connected to a major Workflow System.
➢ XJDF is the response to modern needs and requirements
Integration through Cooperation

NEXT ACTIONS
Next Steps

Publish Pre-Release Versions

• Publish XJDF Pre-Release
• Publish WebToPrint ICS Pre-Release

Further Developments

• Technology Development in XJDF Working Group
• XJDF Libraries and Documentation in T&I Working Group
• Increase number of Prototypes (especially in WebToPrint)
Let’s go !!