



Job Ticket Application Programming Interface

Software Development White Paper

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Authors (Alphabetical)

<i>Authors</i>	<i>Company</i>	<i>Email</i>
Claudia Alimpich	International Business Machines	alimpich@us.ibm.com
Till Kampeter	Mandrake	till.kampeter@gmx.net
Ira McDonald	Sharp Labs	imcdonald@sharplabs.com
Glen Petrie (editor)	EPSON	glen.petrie@eitc.epson.com

Abstract

The Job Ticket subgroup of the Free Standards Group – Open Printing project completed the Job Ticket Application Programming Interface (JTAPI) Specification and C Header File in March 2005. This White Paper outlines a proposed project for development of Reference Implementation Software for the JTAPI specification. The proposed project includes associated project management activities along with software engineering design, development, test and verification activities. The work products from this project will include, but are not limited to, the Reference Implementation Software and supporting documentation, Unit and Integration Test Suites, Unit and Integration Test Reports and a Final Report. Based on similar software development projects, the estimated level of effort for this development is 20 person-months and the project completion in 2 years.

Executive Summary

The purpose of this white paper is to estimate the level-of-effort for the development of a Reference Implementation Software package for the Free Standards Group (FSG) – Open Printing (OP) Job Ticket Application Programming Interface (JTAPI). A brief background is provided on JTAPI, followed by summary project planned estimated level of effort for the development. The project encompasses design, code, test and delivery of a Reference Implementation Software package based on the JTAPI Version 1.0 specification (completed in March 2005). The project has an estimated level of effort equal to 20 person-months to be completed in 2 years.

What is a “job ticket” for printing? A job ticket for printing is defined as a machine-readable electronic file containing job control, print instructions, finishing instructions and print content references at a page, document and job level. Existing public job ticket formats include Job Definition Format (JDF) from CIP4 and Print Job Ticket from PWG. Many other proprietary job ticket formats exist and are supported individual print vendors, print shops and/or printer manufactures.

The JTAPI Version 1.0 specification does not define a new job ticket format. The JTAPI Version 1.0 specification defines an interface with a capability to read an existing job ticket in some specified format or create a new format neutral print job ticket, and functionality to modify the job ticket attributes and to write the job ticket in a specified format. Within the scope of this white paper project, only the JTAPI interface, internal representation of job ticket information and methods to modify attributes are considered. Specific job ticket parsing and/or encoding are outside the scope of the proposed Reference Implementation Software package. Any solution provider using the Reference Implementation Software package would add the additional processing for parsing and/or encoding of one or more specific job ticket format.

Technical Overview

JTAPI is a programming interface for reading, creating, modifying and writing job ticket where a job ticket contains elements to create and process a print job. A print job is defined as;

“A print job contains job description, processing, status attributes and zero or more embedded documents.”

and a job ticket is defined as;

A job ticket is a machine-readable electronic replacement for a manual human-readable hard copy job instructions and information. A job ticket contains *instructions* describing how to process a print job. Job tickets contains *references* to the print data content of a print job. Job tickets can be updated to provide *information* about the results of a print job as it is processed.

Job tickets differ from print jobs in that a job ticket describe about how to process while a print job describes active printing and associated content. Job tickets are produced by an application in response to the user’s job processing request or administrators using job ticket editors. JTAPI isolates the application or editors from the syntax and encoding of a job ticket. When the job is to be executed, a print client sends the job ticket to a print service for processing.

JTAPI is useful because there are existing public job ticket formats from CIP4 called Job Definition Format (JDF) [www.cip4.org] and from PWG called Print Job Ticket [www.pwg.org]. Many other proprietary job ticket formats exist and are supported by individual print vendors, print shops and/or printer manufacturers.

Project Plan

The FSG Open Printing Job Ticket working group will provide the following design documents for version 1.0.

- JTAPI UML Object Model
- JTAPI High Level Specification
- JTAPI C Language Header Files

The JTAPI Reference Implementation Project will deliver the following work products.

1. Detailed Program Plan Document
2. Detailed Design Specification Document
3. JTAPI Reference Implementation Software Library
 - ISO C language source file(s) (for each object and its methods)
 - Methods not implemented
 - JobTicketInfo.writeXXX method
 - JobTicketInfo constructor that take in existing job tickets
 - No JTAPI interface changes are permitted
 - Compile and Link Scripts
4. Test Plan (unit test and integration)
5. ISO C language Test Program (full coverage of all implemented methods)
6. Test Report (demonstrating full coverage of all implemented methods)
7. ReadMe file for the following
 - How to build
 - How to test
 - Compile and link
8. Final Report

The following development and implementation constraints shall be applied to all delivered work products.

- Software
 - Strict ISO Standard C language coding.
 - Platform neutral
 - No operating system extension
 - No compiler extension
 - Complete in-line documentation in English
 - ReadMe are simple text files in English
- Documentation – Specification and Report
 - Primary language shall be English
 - Open Office (source) file format

The estimated time for design, development, testing and documentation for this work and associated work products is 20 person-months and the project completion in 2 years.

In the first calendar year, the following items will be implemented and delivered:

1. Detailed Program Plan Document
2. Detailed Design Specification Document (only for the JobTicketInfo and Job objects)
3. JTAPI Reference Implementation Software Library (only for the JobTicketInfo and Job objects)
4. Test Plan (unit test only for the JobTicketInfo and Job objects)
6. Test Report (only for the JobTicketInfo and Job objects)

In the second calendar year, the remaining items will be implemented and delivered.