



Job Ticket Application Programming Interface

Software Development White Paper

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Abstract

The Job Ticket Application Programming Interface (JTAPI) subgroup of the Free Standards Group – Open Printing project will complete their High Level Specification and C Header File by January 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 projected level of effort for this development is 20.5 person-months and the project completion in 12 calendar months.

Executive Summary

The purpose of this white paper is to provide an estimated level-of-effort for the development of a Reference Implementation Software (RIS) package for the Free Standards Group (FSG) – Open Printing (OP) Job Ticket Application Programming Interface (JTAPI). As supporting information, 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 RIS package based on the JTAPI Version 1.0 specification (to be completed in January 2005). The project consists of 9 major activities with an estimated level-of-effort equal to 22 person-months to be completed in 12 calendar months.

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. There is currently one existing public standard for a job-ticket developed by CIP4 called Job Definition Format (JDF). The PWG is currently developing a job-ticket format based on XML and the PWG Semantic Model. Other job-tickets would be considered proprietary to a print-vendor or printer-manufacture.

The JTAPI Version 1.0 specification is not a new job-ticket definition or format. The JTAPI Version 1.0 specification defines an interface with a capability to receive an existing job-ticket in some specified format or create a new format neutral (internal) print job-ticket; the functionality to modify the job-ticket attributes and to write the job-ticket in a specified format. Within the scope of this whitepaper 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 RIS package. Any solution provider using the RIS 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 element 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 processed.

Job ticket differ from print jobs in that a job ticket describe about how to process while a print job describe 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.

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A public standard for a job-ticket has been developed by CIP4 called Job Definition Format (JDF). The PWG is currently developing a job-ticket format based on XML and the PWG Semantic Model. Other job-tickets exist but are proprietary to individual print-vendors, print-shops or printer-manufacture.

Project Plan

Title page

Abstract

1 short paragraph

Executive Summary

1 page

What is the purpose of this paper?

1 sentence

Include non technical objective of project

1 short paragraph

What resources are required?

Include a non technical introduction

1-2 short paragraphs

What is a job ticket and what is the JTAPI?

Last paragraph is conclusion.

Technical Overview

1 page

What is a job?

10 word definition of Job from Ira.

What is a job ticket, how does it differ from a job, how do they work together? Where is a job ticket used? Does job ticketing exist today in the real world?

From March 24th JTAPI presentation:

Slide 4

Slide 11

What is the JTAPI?

From March 24th JTAPI presentation:

Slide 5

Tie job, job ticket, JTAPI together.

The above will tie job, job ticket, and JTAPI together.

Project Plan

1-2 pages

Project Description - List what is being provided:

JTAPI Object Model

Describe object model in 2 sentences.

Use well understood printing terminology.

From March 24th JTAPI presentation use some of Slide 15

JTAPI Spec

Describe contents of JTAPI Spec in 2 sentences.

JTAPI C header files

Header files for objects, enumerated values, common methods, data types.

Project Scope

List what is expected to be delivered.

Detailed design specification describing each module.

A C source file for each object and its methods must be implemented, except the following:

JobTicketInfo.writeXXX methods

JobTicketInfo constructors that take in an existing job ticket

Software program that provides full coverage testing

Test report demonstrating complete
and valid implementation

No header files other than those provided
No additional methods should be added to
existing header files

Read me files

How to build

How to test

Compile and link scripts

JTAPI implementation must be:

Written in ISO C

Platform neutral

Well documented/commented source
code

Project Deliverables

Project Tasks

At the end of each task there is a review period.
Create detailed design document that describes
all modules.

Create C source files for each object and its
methods, including the abstract object.

Create test plan including:

Unit test for each object

Function test for complete JTAPI

Create readme files including:

Description of compile and link
procedures

Description of test procedures

Create compile and link scripts

Create unit test programs

Run unit test programs

Fix defects found during unit test

Create function test programs

Run function test programs

Fix defects found during function test

Create project delivery package and detailed
description of content

Resources required (person months)

Glossary

Include glossary if we need it.