FSG Open Print

JTAPI (Job Ticket API)

Agenda

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  - Resources and/or Funding for Reference Implementation
- **Next Step**

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JTAPI (Job Ticket API)

Introduction

What is JTAPI ?

- **JTAPI stands for:**
  - Job Ticket Application Programming Interface
  - Pronounced “jay-tappy”, “Job Ticket API”, or “jay tee API”
- **A job ticket contains:**
  - **Instructions** describing how to process and/or print a job
  - **Information** about the results of a job as it is processed and/or printed
- **A JTAPI job ticket is:**
  - an electronic replacement of manual hard copy instructions and information

JTAPI Objectives

- To create and consume job tickets
- To be job ticket syntax neutral
- To isolate the application from the content of the job ticket
- To be programming language neutral
- To import and export multiple job ticket formats

JT Working Group Members

- Participants
  - Claudia Alimpich (IBM) – chair
  - Jody Goldberg (Gnome)
  - Tom Hastings (Xerox)
  - Till Kamppeter (MandrakeSoft)
  - Ira McDonald (High North Inc)
  - Glen Petrie (Epson)

Accomplishments 2002

- Feb 2002
  - Began job ticket discussions in FSG Open Print
- June 2002
  - Initial JTAPI proposal
  - Chartered FSG JT working group
- Nov 2002
  - Created IPP to JDF mapping table
    - In cooperation with PODi and CIP4 Digital Printing working groups
- Dec 2002
  - Prioritized features/functions of JTAPI
  - IBM ships first generation C JTAPI product
    - In a job submission GUI and printer control unit product
      - Based on initial JTAPI specification
      - Based on early version of JDF ICS Specification for Digital Printing

Accomplishments 2003

- May 2003
  - Completed detailed JTAPI UML diagrams
    - 19 objects and 33 enumerations
    - 20+ draft versions
- June 2003
  - Defined subset of JTAPI 1.0 content for Alpha version
- Nov 2003
  - Completed version 0.82 JTAPI Specification
  - Started “C” language header files
    - Initial contribution from IBM
- Dec 2003
  - IBM ships second generation C JTAPI product
  - IBM ships first generation Java JTAPI product

Accomplishments 2004

- March 2004
  - 95% completion of C header files

Complete Alpha Version JTAPI Specification in 2004

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JTAPI (Job Ticket API)

Technical Review

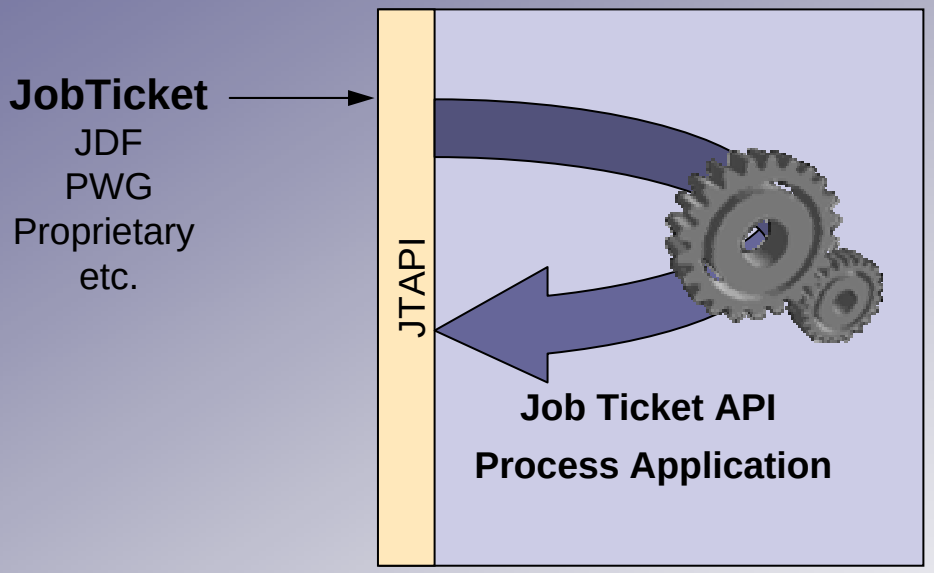
Existing Job Ticket Formats

Technical Review

- **CIP4 JDF (Job Definition Format) Job Ticket**
  - Defined by CIP4, a world wide standards body with over 150 members
  - Open, extensible, XML-based job ticket standard
  - JDF Specification versions
    - 1.0 released April 2001
    - 1.1 released April 2002
    - 1.2 to be released May 2004 (in final public review)
- **PWG Job Ticket**
  - Proposed future work item for PWG
  - To be based on PWG Semantic Model 1.0
  - To be XML-based

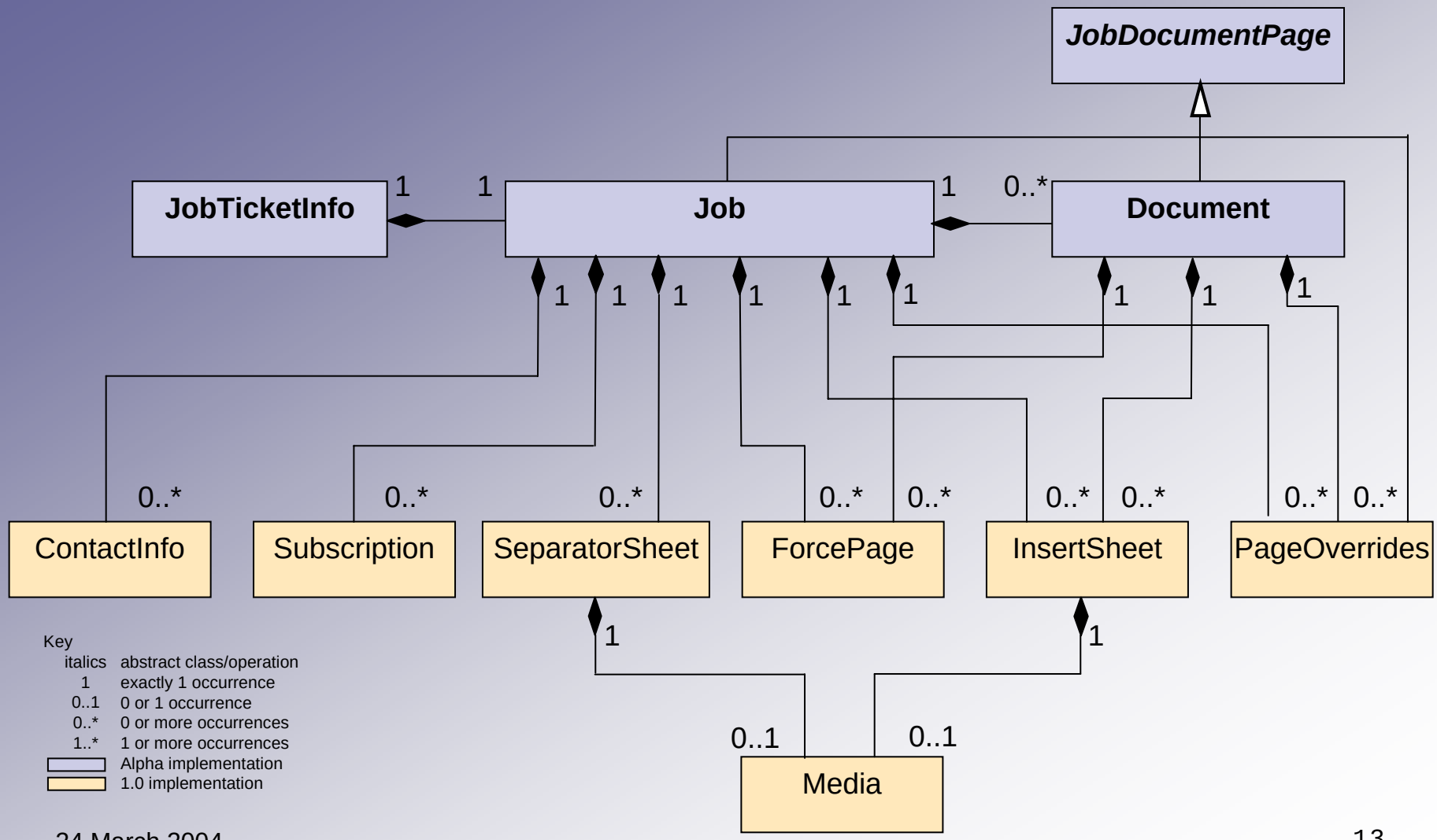
JTAPI Functional Model

Technical Review



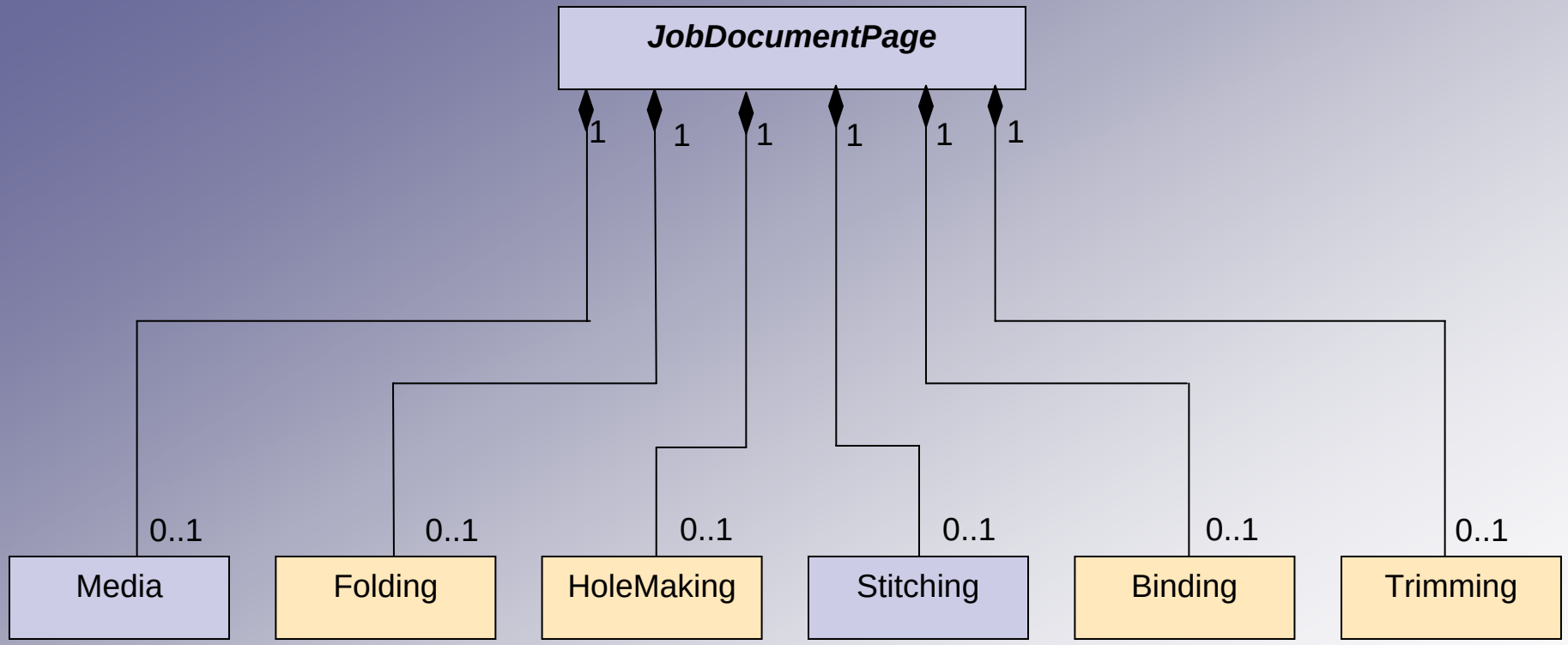
Job Object Model

Technical Review



Job Object Model (cont)

Technical Review



Key

italics	abstract class/operation
1	exactly 1 occurrence
0..1	0 or 1 occurrence
0..*	0 or more occurrences
1..*	1 or more occurrences
	Alpha implementation
	1.0 implementation

Complete set of UML diagrams:
ftp://ftp.pwg.org/pub/pwg/fsg/jobticket/JTAPI_Diagrams/

JTAPI Object Model Details

Technical Review

- Data/object model that is object oriented
- Defines objects that are familiar to the printing industry
  - Job, Document, Insert Sheet, Media, Stitching, HoleMaking, etc.
- Defines relationship between objects
- Defines operations to be performed on objects
- Defines attributes of objects
- Defines well-known enumerated values of all attributes

Alpha – Objects

Technical Review

- JobTicketInfo
- Job
- JobDocumentPage
- Document
- Media
- Stitching

Alpha – JobTicketInfo Attributes

Technical Review

- JobTicketInfo

  A JobTicketInfo object contains information about the job ticket, such as a comment describing the job ticket, the version of the JTAPI, the type or syntax (JDG, PWG, etc.) of the job ticket, and other job ticket information. The JobTicketInfo object does not contain job processing information.

  - jt-api-version
  - jt-comment
  - jt-job
  - jt-length-unit
  - jt-type-and-version

Alpha – JobTicketInfo Methods (1)

Technical Review

- JobTicketInfo
  - fsgjtNewJobTicketInfo
    - Creates a JobTicketInfo object. Used when a new job ticket is being created without a Job object and not from an existing job ticket.
  - fsgjtNewJobTicketInfoFromURI
    - Creates a JobTicketInfo object from the job ticket file at the provided URI. Other JTAPI objects are also created based on the information in the job ticket file.
  - fsgjtNewJobTicketInfoFromBuffer
    - Creates a JobTicketInfo object from the provided buffer that contains a job ticket. Other JTAPI objects are also created based on the information in the job ticket buffer.

Alpha – JobTicketInfo Methods (2)

- JobTicketInfo
  - fsgjtNewJobTicketInfoFromJob
    - Creates a JobTicketInfo object using the provided Job object. Used when a new job ticket is being created. The Job object must be created first.
  - fsgjtWriteJobTicketToBuffer
    - Writes a job ticket to the provided buffer.
  - fsgjtWriteJobTicketToURI
    - Writes a job ticket at the provided URI.

Alpha – Job Attributes

Technical Review

- Job

  A Job object represents a job and contains attributes that describes the job and how it is to be processed.

  - job-comment
  - job-copies
  - job-destinations
  - job-documents
  - job-document-format
  - job-media
  - job-name
  - job-print-quality
  - job-rotation
  - job-sides
  - job-stitching

Alpha – Job Methods

Technical Review

- Job
  - fsgjtNewJob
    - Creates a Job without providing a Document.
  - fsgjtNewJobFromDocument
    - Creates a Job containing the provided Document.

Alpha – Document Attributes

Technical Review

- Document

  A Document object contains attributes that describes the document and how it is to be processed.

  - document-data-uri

Alpha – Document Methods

- Document
  - fsgjtNewDocument
    - Creates a Document object.
  - fsgjtNewDocumentFromURI
    - Creates a Document object using the provided URI that contains the document data.

Alpha – Media Attributes

Technical Review

- Media

  A Media object encapsulates information that describes the media that is be used when printing the job, document, or a range of pages in the job or document. A Media object contains attributes that specify a name that describes the media dimensions, the color of the media, the actual media dimensions, and other media information.

  - media-input-tray-name
  - media-name
  - media-size-name
  - media-type

Alpha – Media Methods

- Media
  - fsgjtNewMedia
    - Creates a Media object using the provided name.

Alpha – Stitching Attributes

Technical Review

- Stitching

  A Stitching object specifies how a job, document, or range of pages in a job or document are to stapled/stitched. A Stitching object contains attributes that specify the number of stitches, the type of stitch, and the edge of the sheet to stitch.

  - stitching-type

Alpha – Stitching Methods

- Stitching
  - fsgjtNewStitching
    - Creates a Stitching object having the provided stitch type.

JTAPI Enumerations

Technical Review

- Enumerations have been define for both Alpha Version and 1.0 Version for completeness.
- Both extensible (new values allowed) and non-extensible (fixed set of values) attributes are enumerated.
  - Attribute definition denotes extensible property.
  - Attributes API support extending extensible attributes.
- First entry in any enumeration list is the Default Value.
  - Typically, the Default Value is NOT_SET (value = 0).
    - NOT_SET implies the print services can use its internal defaults.

Alpha*/1.0 Version – Enumerations

Technical Review

- Enumerations
  - BindTypeEnum
  - BooleanEnum*
  - CollateEnum
  - CompressionEnum
  - ContactTypeEnum
  - FeedOrientationEnum
  - FitPolicyEnum
  - FoldTypeEnum
  - HoldEnum
  - ImageAlignmentXEnum
  - ImageAlignmentYEnum
  - InputTrayNameEnum*
  - InsertSheetContentEnum
  - JobTicketTypeVersionEnum*
  - JogOffsetEnum
  - LengthUnitEnum*
  - MandatoryAttributesEnum
  - MediaCoatingEnum
  - MediaColorEnum
  - MediaTypeEnum*
  - OutputBinEnum
  - PageDeliveryEnum
  - PositionEnum
  - PreprintedEnum
  - PresentEnum
  - PresentationDirectionEnum
  - PrintContentOptimizeEnum
  - PrintQualityEnum*
  - ReferenceEdgeEnum
  - RotationEnum*
  - SperatorSheetEnum
  - SheetSideEnum
  - SidesEnum*
  - StitchingTypeEnum*
  - SubscriptionEventEnum
  - TrimTypeEnum
  - ValueTypeEnum*

Alpha – Attribute Methods (1)

- Attribute

  Generic support for all object/attributes

  - fsgjtNewAttribute
    - Creates a new Attribute object having the provided attribute name, value type, and value. The value must not be an extension value.
  - fsgjtDestroyAttribute
    - Free the memory used by the Attribute.
  - fsgjtAddExtensionValue
    - Add an additional value, that is an extension, to this Attribute.
  - fsgjtAddValue
    - Add an additional value, that is not an extension, to this Attribute.
  - fsgjtGetName
    - Get the name of the Attribute.

Alpha – Attribute Methods (2)

Technical Review

- fsgjtGetNextExtensionValue
  - Return the Attribute's next value that is an extension.
- fsgjtGetNextValue
  - Return the Attribute's next value that is not an extension.
- fsgjtGetNumExtensionValues
  - Get the number of values, that are extensions, that the Attribute contains.
- fsgjtGetNumValues
  - Get the number of values, that are not extensions, that the Attribute contains.
- fsgjtGetValueType
  - Returns the type of the Attribute's values.

Alpha – Attribute Methods (3)

- fsgjtisExtensible
  - Returns true if this Attribute is extensible, which means that a value other than a pre-defined value can be added. Returns false if no value other than a pre-defined value can be added.
- fsgjtReplaceExtensionValue
  - Replaces the existing extension value(s) for this Attribute with the provided value that is an extension. The non-extension value(s) of this Attribute are not affected.
- fsgjtReplaceValue
  - Replaces the existing non-extension value(s) for this Attribute with the provided value that is not an extension. The extension value(s) of this Attribute are not affected.
- fsgjtResetToFirstValue
  - Reset the iterators to point to the first non-extension value and the first extension value of the Attribute.

Conformance

Technical Review

- Specification Conformance divided by print segments:
  - Embedded Mobile
  - Desktop/Home
  - Office/Network
  - Production
- Two classifications of conformance
  - May - Implementation support is optional
  - Must - Implementation support is required
  - ~~Should - Implementation support is recommended~~

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JTAPI (Job Ticket API)

Issues/Concerns

Issues / Concerns

- No Funding and/or Resources for Reference Implementation
  - Supplied by FSG
  - Supplied by End Customer – Japanese Government, ???
  - Supplied by Contributing Companies
  - Supplied by Volunteers

  Impact of **Which Supplier** is Schedule, Schedule and Schedule
- No Funding and/or Resources for Java binding of JTAPI
- Need to resolve interface coherence with other FSG Open Printing Projects (subsystems).

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JTAPI (Job Ticket API)

Next Steps

What's next - schedule

Next Steps

- Final JTAPI Alpha Specification & "C" Language Header Files
  - March 24, 2004 - Get Alpha content feedback from FSG-Japan
  - April 20, 2004 - Incorporate feedback from Japan meeting
  - June 22, 2004 - Release Alpha candidate for public review/comment
  - July 27, 2004 - Public review period ends
  - August 31, 2004 - Final Alpha release
- Alpha Reference Implementation in C
  - Dec 31, 2004 - Requirement / Definition document
  - Feb 28, 2005 - Funding issues for code development and validation
- JTAPI Version 1.0 Specification
  - March 1, 2005 - Start

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JTAPI (Job Ticket API)

Questions / Comments

This presentation is located at:
ftp://ftp.pwg.org/pub/pwg/fsg/March04_meeting_slides/FSGOpenPrint_JT_24Mar2004.pdf

JT Working Group Information

- Weekly FSG Job Ticket conference calls
  - Tuesdays at 3:00 PM US Eastern for 1-2 hours
- To subscribe to FSG Job Ticket mailing list:
  - http://freestandards.org/mailman/listinfo/printing-jobticket
- To post a message to FSG Job Ticket mailing list
  - printing-jobticket@freestandards.org
- To view FSG Job Ticket mailing list archives
  - http://freestandards.org/mailman/listinfo/printing-jobticket
- To find FSG Job Ticket documents
  - ftp://ftp.pwg.org/pub/pwg/fsg/jobticket/

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JTAPI (Job Ticket API)

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