



- **ATA e-Business
Specification Overview**

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Agenda

- Overview of the Suite of ATA e-Business Specs
 - **iSpec 2200** - Information Standard for Aviation Maintenance
 - **Spec 42** - Aviation Industry Standards for Digital Information Security
 - **Spec 2300** - Data Exchange Standard for Flight Operations
 - **Spec 2000** - E-Business Specification for Materials Management
 - **CSDD** - Common Support Data Dictionary
- Overview of ATA e-Business Technical Strategy



ATA Specification 2200 (iSpec 2200)

Information Standards for Aviation Maintenance

Revision 2008.1



AIR TRANSPORT ASSOCIATION

Air Transport Association of America, Inc.
1301 Pennsylvania Avenue, NW - Suite 1100
Washington, DC 20004-1707
USA



iSpec 2200

■ Background

- ATA 100 Originally Issued June 1956
- ATA 2100 Originally Issued June 1994
- Then, in March 2000....

100

+ 2100

iSpec 2200



iSpec 2200

+ ATA iSpec 2200 Information

- Chapter 1. Introduction to ATA Specification 2200 (iSpec 2200)

+ 1-1. Background

+ 1-2. Conceptual Foundation

- 1-3. Functional Areas for the Standards

- 1-3-1. Definition of Areas

1. Generic Resources

2. Maintenance Requirements

3. Maintenance Procedures

4. Configuration Control of Product Definition

5. Training

6. Flight Operations

+ Chapter 2. Requirements

+ Chapter 3. Information Standards

+ Chapter 4. Models and SGML DTDs

+ Chapter 5. Media, Protocols, and Data Packaging

+ Chapter 6. Annex 1



iSpec 2200

- + ATA iSpec 2200 Information
- + Chapter 1. Introduction to ATA Specification 2200 (iSpec 2200)
- **Chapter 2. Requirements**
 - 2-1. Business Requirements
 - + 2-1-1. Scope
 - + 2-1-2. Purpose Statements
 - 2-2. Functional Requirements
 - + 2-2-1. Retrieval Functional Requirements
 - + 2-2-2. Intelligent Graphics Functional Requirements
 - + 2-2-3. Direct Access – Security Guide
 - + 2-2-4. Direct Access – Online Access
 - + 2-2-5. Electronic Signature Functional Requirements
- + Chapter 3. Information Standards
- + Chapter 4. Models and SGML DTDs
- + Chapter 5. Media, Protocols, and Data Packaging
- + Chapter 6. Annex 1



iSpec 2200

- ✚ ATA iSpec 2200 Information
- ✚ Chapter 1. Introduction to ATA Specification 2200 (iSpec 2200)
- ✚ Chapter 2. Requirements
- ✚ **Chapter 3. Information Standards**
 - ✚ 3-1. Generic Resources
 - ✚ 3-2. Maintenance Requirements
 - ✚ 3-3. Maintenance Procedures
 - ✚ 3-4. Configuration Control of Product Definition
 - ✚ 3-5. Training
 - 3-6. Flight Operations
- ✚ Chapter 4. Models and SGML DTDs
- ✚ Chapter 5. Media, Protocols, and Data Packaging
- ✚ Chapter 6. Annex 1



iSpec 2200

- ✚ ATA iSpec 2200 Information
- ✚ Chapter 1. Introduction to ATA Specification 2200 (iSpec 2200)
- ✚ Chapter 2. Requirements
- ✚ Chapter 3. Information Standards
- ✚ **Chapter 4. Models and SGML DTDs**
 - ✚ 4-1. Industry Data Models
 - ✚ 4-2. SGML Based Methodology and Document Type Definitions (DTD)
- ✚ Chapter 5. Media, Protocols, and Data Packaging
- ✚ Chapter 6. Annex 1



iSpec 2200

- ✚ Chapter 3. Information Standards
- ✚ Chapter 4. Models and SGML DTDs
 - ✚ 4-1. Industry Data Models
 - ✚ **4-2. SGML Based Methodology and Document Type Definitions (DTD)**
 - ✚ 4-2-1. DTD General Requirements
 - ✚ 4-2-2. DTD Guide to Functional Requirements (FUNCREQ)
 - ✚ 4-2-3. DTD Technical Requirements
 - ✚ 4-2-4. Aircraft Illustration Parts Catalog (AIPC) DTD Requirements
 - ✚ 4-2-5. Aircraft Maintenance Manual (AMM) DTD Requirements
 - ✚ 4-2-6. Component Maintenance Manual (CMM) DTD Requirements
 - ✚ 4-2-7. Consumable Products Manual (CPM) DTD Requirements
 - ✚ 4-2-8. Engine Illustrated Parts Catalog (EIPC) DTD Requirements
 - ✚ 4-2-9. Engine (Shop) Manual (EM) DTD Requirements
 - ✚ 4-2-10. Fault Reporting/Fault Isolation Manual (FRMFIM) DTD Requirements
 - ✚ 4-2-11. Flight Crew Operations Manual (FCOM) DTD Requirements
 - ✚ 4-2-12. Master Minimum Equipment List (MMEL) DTD Requirements
 - 4-2-13. Maintenance Planning Document (MPD) DTD Requirements
 - ✚ 4-2-14. Service Bulletin (SB) DTD Requirements
 - ✚ 4-2-15. Service Bulletin Index (SBI) DTD Requirements
 - 4-2-16. Structural Repair Manual (SRM) DTD Requirements
 - ✚ 4-2-17. System Description Section (SDS) DTD Requirements
 - ✚ 4-2-18. Tool and Equipment Manual (TEM) DTD Requirements
 - ✚ 4-2-19. Wiring Manual (WM) DTD Requirements



iSpec 2200

- ✚ Chapter 3. Information Standards
- Chapter 4. Models and SGML DTDs
 - ✚ 4-1. Industry Data Models
 - **4-2. SGML Based Methodology and Document Type Definitions (DTD)**
 - ✚ 4-2-20. Aircraft Illustrated Parts Catalog (AIPC) DTD
 - ✚ 4-2-21. Aircraft Maintenance Manual (AMM) DTD
 - ✚ 4-2-22. Component Maintenance Manual (CMM) DTD
 - ✚ 4-2-23. Consumable Products Manual (CPM) DTD
 - ✚ 4-2-24. Engine Illustrated Parts Catalog (EIPC) DTD
 - ✚ 4-2-25. Engine Shop Manual (EM) DTD
 - ✚ 4-2-26. Fault Reporting/Fault Isolation Manual (FRM/FIM) DTD
 - ✚ 4-2-27. Flight Crew Operations Manual (FCOM) DTD
 - ✚ 4-2-28. List of Effective Anchors (LEA) DTD
 - ✚ 4-2-29. Master Minimum Equipment List (MMEL) DTD
 - ✚ 4-2-30. Maintenance Planning Document (MPD) DTD
 - ✚ 4-2-31. Maintenance Steering Group Document (MSG-3) DTD
 - ✚ 4-2-32. Service Bulletin (SB) DTD
 - ✚ 4-2-33. Service Bulletin Index (SBI) DTD
 - ✚ 4-2-34. Structural Repair Manual (SRM) DTD
 - ✚ 4-2-35. Systems Description Section (SDS) DTD
 - ✚ 4-2-36. Tool and Equipment Manual (TEM) DTD
 - ✚ 4-2-37. Wiring Manual (WM) DTD



iSpec 2200

- + ATA iSpec 2200 Information
- + Chapter 1. Introduction to ATA Specification 2200 (iSpec 2200)
- + Chapter 2. Requirements
- + Chapter 3. Information Standards
- + Chapter 4. Models and SGML DTDs
- **Chapter 5. Media, Protocols, and Data Packaging**
 - + 5-1. Media and Labeling
 - + 5-2. Interchange
 - + 5-3. Presentation
 - + 5-4. Retrieval
 - 5-5. Digital Security
- + Chapter 6. Annex 1



iSpec 2200

■ Future Direction

- Mature specification
- Continued maintenance of current functionality
- No major new functionality to be added



ATA Specification 42

Aviation Industry Standards for Digital Information Security

Revision 2008.1



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Spec 42

■ Background

- AFG Digital Certification Working Group launched in 1998
- DCWG joined ATA in 2002
- Recast as ATA Digital Security Working Group (DSWG) in 2005. Current officers:
 - Co-chair: Julien Holstein, Airbus
 - Co-chair: Jacqueline Knoll, Boeing












Spec 42

- Establish industry-standard policies for issuance and management of digital certificates
- Builds on open, established standards and technologies – Public Key Infrastructure (PKI)
- Originally published in *iSpec 2200*
- Initial issue as Spec 42 in 2008



Spec 42

-  ATA Specification 42
 -  ATA PRODUCT LICENSE AGREEMENT
 -  Important Information About This Document
 -  Chapter 1. INTRODUCTION
 -  1-1. Purpose
 -  1-2. Benefits of Public Key Infrastructure
 -  1-3. Fundamental Security Principles
 - +  Chapter 2. IDENTITY AND ACCESS MANAGEMENT
 - +  Chapter 3. APPENDICES














Spec 42

- [-] [document icon] ATA Specification 42
 - [document icon] ATA PRODUCT LICENSE AGREEMENT
 - [document icon] Important Information About This Document
 - [+] [document icon] Chapter 1. INTRODUCTION
 - [-] [document icon] Chapter 2. IDENTITY AND ACCESS MANAGEMENT
 - [+] [document icon] 2-1. Security Considerations
 - [+] [document icon] 2-2. Public Key Infrastructure
 - [-] [document icon] 2-3. Certificate Policies
 - [+] [document icon] 2-3-1. Individual / End-Entity / Organizational Certificate Policy
 - [+] [document icon] 2-3-2. Class 4 Software Assurance Certificate Policy
 - [+] [document icon] 2-3-3. ACARS Message Security (AMS) Certificate Policy
 - [+] [document icon] Chapter 3. APPENDICES



Spec 42

-  ATA Specification 42
-  ATA PRODUCT LICENSE AGREEMENT
-  Important Information About This Document
- +  Chapter 1. INTRODUCTION
- +  Chapter 2. IDENTITY AND ACCESS MANAGEMENT
-  Chapter 3. APPENDICES
 -  3-1. Implementation Guidance
 - +  3-2. Risk Mitigation
 -  3-3. Data Archiving Considerations
 -  3-4. References
 - +  3-5. Data Dictionary



Spec 42

■ Future Direction

- ATN Certificate Policy
- Implementation Guidance
- Data Archiving Considerations



ATA Specification 2300

Data Exchange Standard for Flight Operations

Draft version 0.1



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Spec 2300

■ Background

- Flight Operations Working Group (FOWG) launched in 1997
- Original goal – FCOM SGML DTD
- Renamed to Flight Operations Interest Group (FOIG) in 2005. Current officers:
 - Chair: Jason Bialek, Boeing
 - Vice-chair: Terrie Parsons, Continental Airlines



Spec 2300

- Data-centric, modular schema in XML
- Originally published in *iSpec 2200*
- Draft version 0.1 of Spec 2300 issued in 2008













Spec 2300

- [-] ATA Specification 2300
 - [+] Important Information About This Document
 - [-] Chapter 1. INTRODUCTION
 - [+] 1-1. Purpose
 - [+] 1-2. Intended Audience
 - [+] 1-3. Scope Of This Document
 - [+] 1-4. Anticipated Benefits
 - [+] 1-5. XML Implementation
 - [+] 1-6. Relationship to Other Standards
 - [+] Chapter 2. FLIGHT OPERATIONS INFORMATION STANDARDS
 - [+] Chapter 3. FLIGHT OPERATIONS INFORMATION MANAGEMENT
 - [+] Chapter 4. FLIGHT OPERATIONS MARKUP LANGUAGE
 - [+] Chapter 5. APPENDICES



Spec 2300

- [-]  ATA Specification 2300
 -  Important Information About This Document
 - [+]  Chapter 1. INTRODUCTION
 - [-]  Chapter 2. FLIGHT OPERATIONS INFORMATION STANDARDS
 - [+]  2-1. Phase Of Flight Specification
 -  2-2. ATA Flight Operations Standard Numbering System
 -  2-3. Graphics Standards
 - [+]  Chapter 3. FLIGHT OPERATIONS INFORMATION MANAGEMENT
 - [+]  Chapter 4. FLIGHT OPERATIONS MARKUP LANGUAGE
 - [+]  Chapter 5. APPENDICES














Spec 2300

- [-] ATA Specification 2300
 - [+] Important Information About This Document
 - [+] Chapter 1. INTRODUCTION
 - [+] Chapter 2. FLIGHT OPERATIONS INFORMATION STANDARDS
 - [-] Chapter 3. FLIGHT OPERATIONS INFORMATION MANAGEMENT
 - [+] 3-1. Data Management Concepts
 - [+] 3-2. Information Types
 - [+] 3-3. Data Module Code
 - [+] 3-4. Information Control Number
 - [+] 3-5. Delivery Specification
 - [+] 3-6. Revision Management
 - [+] Chapter 4. FLIGHT OPERATIONS MARKUP LANGUAGE
 - [+] Chapter 5. APPENDICES













Spec 2300

- [-]  ATA Specification 2300
 -  Important Information About This Document
 - [+]  Chapter 1. INTRODUCTION
 - [+]  Chapter 2. FLIGHT OPERATIONS INFORMATION STANDARDS
 - [+]  Chapter 3. FLIGHT OPERATIONS INFORMATION MANAGEMENT
 - [-]  Chapter 4. FLIGHT OPERATIONS MARKUP LANGUAGE
 - [-]  4-1. Flight Operations XML Data Structure
 -  4-1-1. General
 -  4-1-2. Common Schema Modules
 -  4-1-3. Systems Description Schema Modules
 - [+]  Chapter 5. APPENDICES



Spec 2300

- [-]  ATA Specification 2300
 -  Important Information About This Document
 - [+]  Chapter 1. INTRODUCTION
 - [+]  Chapter 2. FLIGHT OPERATIONS INFORMATION STANDARDS
 - [+]  Chapter 3. FLIGHT OPERATIONS INFORMATION MANAGEMENT
 - [+]  Chapter 4. FLIGHT OPERATIONS MARKUP LANGUAGE
 - [-]  Chapter 5. APPENDICES
 -  5-1. Data Authoring Guideline
 -  5-2. References
 - [+]  5-3. Data Dictionary



Spec 2300

■ Future Direction

- Draft version 0.2 – Corrections to mechanical Systems Description
- Revision 2009.1 – Include software Systems Description
- Future Revisions
 - Limitations
 - Procedures
 - Dispatchability
 - Performance
- S1000D integration



Air Transport Association

SPEC 2000
e-business standards

E-Business Specification for Materials Management

Revision 2008.1
(16th Revision)



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Spec 2000 - Background

- 1960's – 1970's
 - Spec 200
 - Initial Provisioning, Procurement
 - IBM Punched Cards
 - EDI Procurement
- 1980's became Spec 2000
 - Procurement Database
 - Invoicing
 - Inventory Consumption



Spec 2000 - Background






■ 1990's

- Warranty
- Repair Order Administration
- Bar-coding
- Reliability Data
- XML



Spec 2000 - Materiel





Pages
Contents

- +  Chapter 1. Provisioning
 - +  Chapter 2. Procurement Planning
 - +  Chapter 3. Order Administration
 - +  Chapter 4. Customer Invoicing
 - +  Chapter 12. Airline Inventory Redistribution System (AIRS)
-
- What should I buy? How many? How long will they last? Can I maintain at line stations?
 - Who sells them? How much do they cost? When can I get them?
 - Place the Order, Correct/Alter the Order, Provide Shipping Details, Invoice



Spec 2000 - Materiel

Tren
Att

- +  Chapter 5. Information and Data Exchange
- +  Chapter 7. Repair Order Administration
- +  Chapter 8. Repair/Overhaul Planning
- +  Chapter 14. Warranty

- How many are you using?
- Can you repair it? How much? When will it be ready?
- Provide Repair Orders, Alterations, Invoices
- Returns



Spec 2000 – Part Tracking




+  Chapter 9. Automated Identification and Data Capture

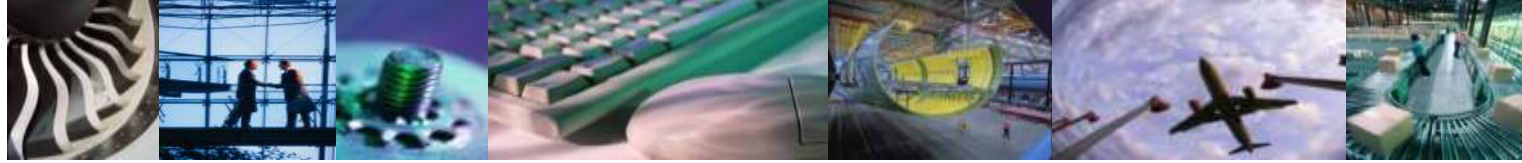
+  Chapter 15. Delivery Configuration Data

- Part lifetime identity and tracking.
- Computer readable part and serial numbers.
- Initial Part Tracking and Serial Number Data



Spec 2000 – Fault / Reliability

- +  Chapter 11. Reliability Data Collection/Exchange
 - +  Chapter 16. Electronic Product and Part Regulatory Documentation
 - +  Chapter 17. Electronic Logbook
-
- Reliability Data Analysis
 - Airworthiness Regulatory Data
 - Fault recording and tracking



Spec 2000 – Metrics

Chapter 13. Performance Metrics Standards

- Measurements for company and product performance
- Specific Definitions
- Specific Formulae
- Covers multiple functional areas



Spec 2000 – Future Direction

- Additional XML development
 - Warranty
 - Repair Order Administration
 - Delivery Configuration Data
- Active Projects
 - E-Logbook – Interoperability Command Set
 - FAA Form 337, 8110
 - Repair Order Administration



Common Support Data Dictionary

- Standardized Names, Definitions and Descriptions
- Usage and context within specifications
- Attributes, tag names, data types, lengths
- Tool to facilitate harmonization



Common Support Data Dictionary

Name **Aircraft Registration Number**

Mod 2006

DEFINITIONS		
Class	Definition	Sources
Concept	The registration identity assigned to each individual aircraft by the cognizant national authority. The registration number is unique to an operator, country, and time.	2000; 2200
Specific	The registration identity assigned to each individual aircraft by the cognizant national authority.	ODM

APPLICATION IN SPECIFICATIONS				
Source	Context	Key (e.g., Tag or TEI)	Type	Properties
ODM	DM	Aircraft Registration Number	Attribute	Class Name: Registration Data Type: Character (5) Precision: 5
2200	ML	acn	Element	Included in DTDs: AIPC; AMM; FRMFIM; MPD; SDS; SRM; WM
2000	MSG	ACN	Data Element	In spares procurement, repair administration and warranty transactions the identifier consists of the three to five most significant characters of the registration number. Data Type: AN Min Length: 3 Max Length: 5 Coval Picture: X(03) to X(05)



Common Support Data Dictionary

APPLICATION IN SPECIFICATIONS				
Source	Context	Key (e.g., Tag or TEI)	Type	Properties
				Data Type: Character (5) Precision: 5
2200	ML	acn	Element	Included in DTDs: AIPC; AMM; FRMFIM; MPD; SDS; SRM; WM
2000	MSG	ACN	Data Element	<p>In spares procurement, repair administration and warranty transactions the identifier consists of the three to five most significant characters of the registration number.</p> Data Type: AN Min Length: 3 Max Length: 5 Cobol Picture: X(03) to X(05) Command Code: R1CPOXMT ; R1CUSSHP ; R1SPLSHP ; S1BOOKED ; W1CLMXMT External Std: UN/EDIFACT ; X12
2000	XSD	ACN	Element	Data Type: xs:string Min Length: 3 Max Length: 5 Record Type Code: 22; 26 Schema: ATA_SparesOrder ; ATA_SparesOrderBookback



ATA XML Project Team Update

Peter White, Chair

eBusiness Conference October 2008



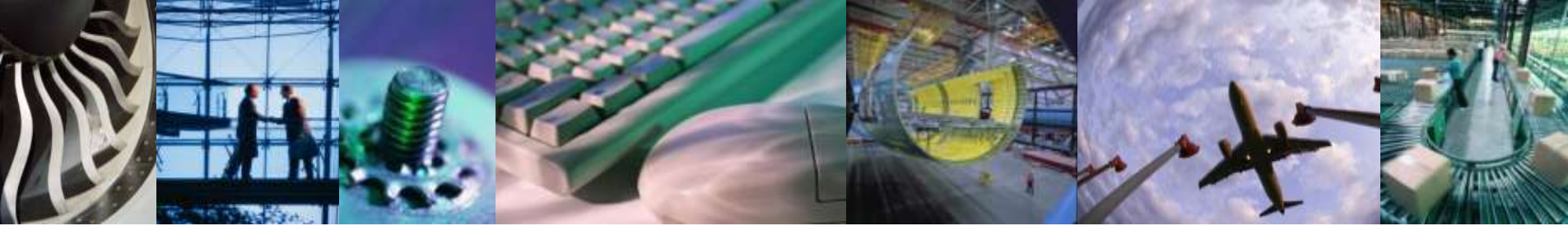
ATA XML Technical Strategy

- A set of high-level guiding principles for the design and development of the ATA Schemas.
- Purpose:
 - Facilitate easier integration
 - Provide a standard framework
 - Enable interoperability



Scope

- All XML schema development within ATA.
 - eLogbook
 - Repair Order Administration
 - Regulatory documentation
 - eCommerce
 - Quotes, Stock Requests
 - Invoice
 - Purchase
 - Flight Data
 - Maintenance and Engineering Data



Guiding Principles

- Design is influenced by the intended use and processing
 - Type of information
 - Nature of application
 - Performance
- Facilitate migration from ATA legacy data formats to XML
 - Determined by the working group
 - Provide mapping guidelines



Guiding Principles

- Backward compatibility
 - Versioning scheme within the guidelines for major and minor revisions
 - Allowing Interest Groups to determine whether major required schema changes are backwards compatible



Schema Specificity

- Designing the schema's to support the intended eBusiness transaction
 - For data transmissions more schema specificity to control quality, definitions and formats for easier application to application communication
 - For transmissions that are more un-structured content then more flexibility in the schema is allowed
 - Will need separate documentation to support business rules and data governance between partners
- Preference is for more schema specificity where the formats and content are known



Re-Use and Common Objects

- Develop an XML CSDD as a source of common reusable objects
- If new common objects must be created, keep them as generic as possible.



Summary

- Fighting a “Tower of Babel” approach to designing schema
- Interoperability is Important
- OEM’s and Vendors can help to facilitate this methodology with expertise





Next Steps

- Publish first draft of Guidelines with Strategy – Q1 2009
- Continue work on Guidelines with detailed best practices and examples. Next draft TBD
- Educate the Groups on the use and application of the Guidelines

NEW PARTICIPANTS WELCOME!