

TV-1 (Technical Standards Profile)

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Federal Aviation
Administration



Purpose

The Technical Standards Profile describes the rules, standards and conventions governing systems implementation of an architecture.



Definition of a Standard

- **Common and repeated use of rules, conditions, guidelines or characteristics for products or related processes and production methods, and related management systems practices.**
 - Reference: OMB Circular A-119

Content

- **Standards in the TV-1 are listed as:**
 - General IT Standards – Sections 1 through 6
 - Aviation Specific Standards – Section 7



General IT Standards

1.0 NAS IT Policies and Guidance

- Major NASEA IT Policy References

2.0 Information Processing Standards

- Automation
- Weather
- SWIM

3.0 Information Transfer Standards

- FAA Technical Reference Model (draft)
- A few standards from SWIM and FTI

General IT Standards (continued)

4.0 Information Modeling, Metadata and Information Exchange Standards

- SWIMDAF
- Weather

5.0 Human Factors Standards

- FAA HF Lab

6.0 Information Security Standards

- FAA Technical Reference Model (draft)
- Automation
- Security Engineering Team

7.0 Aviation Related Standards

7.1 General Standards

7.2 Aircraft

7.3 NAS Automation

7.4 Weather

7.5 Communications

7.6 Navigation

Standards from GPS/LAAS/WAAS/DME/ILS/VOR



7.0 Aviation Related Standards (continued)

7.7 Surveillance

Standards from ADS-B/TIS-B/FIS-B

7.8 Airspace and Procedures

7.9 Safety

7.10 Facilities

7.11 Human System Integration (HSI)

7.12 Environmental

A Typical Standard from the TV-1

From Section 6.1 General Security Standards:

Standard Designation: **NIST FIPS Pub 199**

Standard Title: **Standards for Security
Categorization of Federal Information and
Information Systems**

Standard Date: **February 1, 2006**

Status: **active**

Status Definitions

- **Active** Published standard currently in used by the FAA; mandatory for new system/program starts unless waived
- **Future FAA** Published standards approved for future use by the FAA
- **Proposed** Published standard under discussion for future use by the FAA
- **Legacy system/project** Published standard not required for new starts, but required for some FAA legacy systems
- **Cancelled** No longer used in FAA legacy systems
- **Superseded** Published standard replaced by another document
- **Draft** Standard under development by the related standards body

Standards Lifecycle

- **When a standards organization proposes a standard for adoption, the status is DRAFT.**
- **When the standard is adopted by the standards organization and the FAA is considering adopting the standard for FAA use, the status is PROPOSED.**
- **When the FAA decides to adopt a standard at some future date, the status is FUTURE.**

Standards Lifecycle (continued)

- **When a standard is adopted for current use by the FAA, the status is ACTIVE.**
- **When a standard is not the current standard in a particular area, but is still a requirement for existing projects, programs or contracts, the status is LEGACY.**



Standards Lifecycle (continued)

- **When the standards is no longer needed by the FAA and is replaced by another standard, the status is SUPERCEDED.**
- **When the standard is not longer needed by the FAA and is not replaced by another standard, the status is CANCELLED.**

Point of Contact

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Backup Slides



Subject Matter Experts

- **Security Engrg Tm** (security) **AJP-1740**
- **Ken Kepchar** (security) **AJP-A2**
- **Steve VanTrees** (aircraft) **AIR-130**
- **Chuck Romano** (automation) **AJP-1710**
- **Thomas E Ryan** (NNEW PM) **AJP-B2**
- **Brent Phillips** (communications - voice) **AJP-15**
- **Barry Smith** (communications - data) **AJP-15**
- **Dave Olsen** (navigation) **AJP-15**

Subject Matter Experts (cont'd)

- **James Baird** (surveillance) **AJP-15**
- **Brian Holquin** (airspace and procedures) **AJR-53**
- **James Daum** (safety) **AJP-19**
- **Charles Dudas** (facilities) **AJP-171**
- **Glen Hewitt** (personnel) **AJP-611**
- **Julie Marks** (environmental) **AEE-001**
- **Jim Robb** (SWIM) **AJW-52**

1.0 NASEA Policies and Guidance

**Information Technology Management Reform
Act of 1996 (Clinger-Cohen)**

**Management of Federal Information
Resources (OMB Circular A-130)**



2.0 Information Processing Standards

2.1 System and Software Engineering Services

2.2 User Interface Services

2.3 Data Management Services

2.4 Document Exchange

2.5 Graphic Data Interchange

2.6 Graphic Services

2.7 Operating System Services

2.0 Information Processing Standards (continued)

2.8 Internationalization Services

2.9 Remote-Procedure Computing

2.10 Geospatial Data Interchange

2.11 Data Interchange Storage Media

3.0 Information Transfer Standards

3.1 Host Service

3.2 Electronic Mail Service

3.3 Directory Services Service

3.4 File Transfer Service

3.5 Remote Terminal Service

3.6 Network Time Synchronization Service

3.7 Configuration Information Transfer

3.0 Information Transfer Standards (continued)

3.8 Web Services

3.9 Transport Services

3.10 Facsimile Services

3.11 Network Services

3.12 Local Area Network (LAN) Access

3.13 Point-to-Point Services

3.14 ISDN Services

3.0 Information Transfer Standards (continued)

3.15 Asynchronous Transfer Mode Services

3.16 Transmission Media

3.17 Data Communications Management

3.18 Telecommunications Management

3.19 Videoconferencing Services

4.0 Information Modeling, Metadata and Information Exchange

4.1 Activity Modeling

4.2 Data Modeling

4.3 FAA Data Model Implementation

4.4 FAA Data Definition

4.5 Binary Floating-Point Data Interchange

4.6 Object Modeling

5.0 Human Factors

- 5.1 General Human Factors Standards**
- 5.2 General Design Requirements**
- 5.3 Automation**
- 5.4 Designing Equipment for Maintenance**
- 5.5 Displays and Printers**
- 5.6 Controls and Visual Indicators**
- 5.7 Alarms, Audio and Voice**

5.0 Human Factors (continued)

5.8 Computer-Human Interface

5.9 Input Devices

5.10 Workstation and Workplace Design

5.11 System Security

5.12 Personnel Safety

5.13 Environmental

5.14 Anthropometry and Biomechanics

5.0 Human Factors (continued)

5.15 User Documentation

6.0 Information Security Standards

6.1 General Security Standards

6.2 Application Security

6.3 Cryptography

6.4 Enclave Boundary

6.5 Network and Infrastructure

6.6 Public Key Infrastructure

6.7 Key Management

6.0 Information Security Standards (continued)

6.8 Intrusion Detection

6.9 Common Evaluation Criteria

Sources of Standards

- **ANSI – American National Standards Institute**
1819 L Street, NW, Washington, DC 20036
www.ansi.org Standards are available for purchase.
- **ATM Forum – now the IP/MPLS Forum**
48377 Fremont Blvd., Suite 117, Fremont, CA 94538
www.ipmplsforum.org/tech/atm_specs.shtml Standards are free.
- **DOT Orders – Documents are on the Tech Ctr Library intranet page**
- **EIA – Electronics Industries Alliance**
Standards available for purchase from Global Engineering Documents or Information Handling Services (IHS).
- **EUROCONTROL – The European Organization for The Safety of**
Air Navigation, Rue de la Fusée 96, B-1130 Brussels, Belgium
www.eurocontrol.int Standards are free.

Sources of Standards (cont'd)

- **FAA Advisory Circulars and Technical Standards Orders**
rgl.faa.gov
- **FAA Handbooks and Standards**
ato-p.se-apps.faa.gov/faastandards/
- **FAA HF Standards**
www.hf.faa.gov and hf.tc.faa.gov/hfds/
- **FAA NAS Documents**
actlibrary.tc.faa.gov/nasdoc.html
- **FAA Orders**
Documents are on the Tech Ctr Library intranet page.
- **FAA Specifications**
nasdigitallibrary.amc.faa.gov on the intranet and/or contact the appropriate FAA program office.

Sources of Standards (cont'd)

- **ICAO Publications and Annexes – International Civil Aviation Organization**
ICAO, 999 University Street, Montréal, Quebec H3C 5H7, Canada
www.icao.org Standards are available for purchase.
- **IEEE – (started as the Institute of Electrical and Electronics Engineers now just referred to as IEEE)**
www.ieee.org Standards are available for purchase.
- **IETF – Internet Engineering Task Force**
www.ietf.org or www.faqs.org Standards are free.
- **ISO – International Organization for Standardization**
www.iso.org Standards are available for purchase.
- **ITU – International Telecommunications Union**
www.itu.int Standards are free.

Sources of Standards (cont'd)

- **JAVA Documents – Available through the JAVA Community Process**

www.jcp.org Standards are free

- **MIL Standards**

assist.daps.dla.mil/quicksearch/ Standards are free

- **NIST FIPS Publications**

csrc.nist.gov/publications/PubsFIPS.html Standards are free

- **NIST Special Publications**

csrc.nist.gov/publications/PubsSPs.html Standards are free

Sources of Standards (cont'd)

- **OGC -- The Open Geospatial Consortium**
www.opengeospatial.org/standards Standards are free.
- **OMG – The Object Management Group**
www.omg.org/omg_specifications/index.htm Standards are free.
- **Open Group**
www.opengroup.org Standards are available for purchase.

Sources of Standards (cont'd)

- **RTCA, Inc (started as Radio Technical Commission for Aeronautics now referred to as just RTCA)**
1828 L Street, NW, Suite 805, Washington, DC 20036
www.rtca.org Standards are available for purchase
Standards are on the Tech Center Library intraweb page
- **SAE International – (started as Society of Automotive Engineers now referred to as just SAE)**
SAE World Headquarters, 400 Commonwealth Drive,
Warrendale, PA 15096-0001
www.sae.org Standards are available for purchase