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U.S. Department of Transportation
Federal Aviation Administration
Standard

Software Development
for the
National Airspace System
(NAS)

Document Change Notice Here

Department of Transportation
Washington, DC 20591

NAS Software Development Standard

1. This standard has been approved by the Federal Aviation Administration (FAA).
2. Comments and pertinent data for use in improving this document should be addressed to:

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FOREWORD

1. This standard sets forth process and documentation guidance for software development projects for the NAS. The use of this standard for all other software development projects, both internal and external to the FAA, is optional.
2. This standard will be reviewed (and updated as required) for consistency with the referenced IEEE/EIA standards as they are revised.
3. It is not intended that this standard discourage the use of particular, specialized software development processes and practices necessary to achieve project requirements.
4. This standard, together with the referenced IEEE/EIA standards, provide the means for acquiring, developing, evaluating and maintaining quality software products.

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Data Item Descriptions for FAA-STD-026 (25 documents)

1. SCOPE

1.1 Scope. This standard establishes requirements for software development associated with NAS acquisition. It represents the FAA approved tailoring of IEEE/EIA 12207 and documentation standards (DIDs). This standard can be used for all software development projects external or internal to the FAA.

1.2 Purpose. The purpose of this standard is to establish and communicate requirements to be applied during the development and support of computer software.

1.3 Application. When referenced in the contract or specification, this standard shall apply to the development of computer software and related documentation. It applies to software as a stand-alone product or as a subsystem of a specified product. It applies to software delivered to the FAA including nondevelopmental software (see section 4.4), as well as software developed as an essential component of performing contract requirements (such as tools developed during contract performance). Development and delivery of documents listed herein is not intended to be automatic, i.e. document requirements must be implemented by contract (see section 5.0).

1.4 Software quality assurance. Application of this standard must be coordinated with the requirements of ISO 9001 to ensure a complete software quality program.

1.5 Software configuration management. Application of this standard must be coordinated with all other configuration management and baseline management requirements contained in the contract.

1.6 Firmware. This standard applies to the development of the software element of firmware only.

1.7 Software metrics. Application of this standard must be coordinated with all other measurement requirements contained in the contract.

1.8 Required external documents. This standard imposes requirements contained within IEEE/EIA 12207.0-1996, 12207.1-1997 and 12207.2-1997 as tailored for specific FAA needs. The material contained within these IEEE/EIA standards has not been reproduced here and requires the user to purchase authorized copies of the referenced IEEE/EIA standards. Please refer to the IEEE web page for additional information: <http://www.ieee.org/>

1.9 Data Item Descriptions. Data Item Descriptions (DIDs) applicable to this standard are listed in Appendix A. Additional information on the relationship of these DIDs to 12207.0 requirements and 12207.1 equivalent documents is contained in Appendix B.

1.10 Software developed by Government agencies. The provisions of this standard may be applied to Government agencies, when a Government agency performs software development for the FAA.

1.11 Tailoring of this standard. This standard represents the FAA approved tailoring of IEEE/EIA 12207. Tailoring of documentation requirements should be accomplished by the FAA acquisition officials prior to soliciting proposals.

The tailoring of this standard is consistent with the processes and practices encouraged within the FAA-iCMM version 1.0

2. REFERENCED DOCUMENTS

2.1 Government documents. None.

2.2 Industry standards. The following Industry Standards form a part of this standard to the extent specified herein:

- | | |
|----------------------------|---|
| a. IEEE/EIA 12207.0 – 1996 | Software Life Cycle Processes |
| b. IEEE/EIA 12207.1 – 1997 | Software Life Cycle Processes – Life Cycle Data |
| c. IEEE/EIA 12207.2 – 1997 | Software Life Cycle Processes – Implementation Considerations |
| d. ISO 9001 – 2000 | Quality Management Systems - Requirements |

2.3 Order of precedence. In the event of conflict between the documents listed herein and the contents of this standard, the contents of this standard shall be the superseding requirement.

3. DEFINITIONS

The terminology as defined by IEEE/EIA 12207.0 section 3, and IEEE/EIA 12207.2 section 3 will be used in the application of this standard, unless specifically altered by contract.

4. REQUIREMENTS

The following represents an FAA tailoring of the IEEE/EIA 12207.0 and IEEE/EIA 12207.2 for the procurement of computer software products and services. Only the sections specifically identified herein are requirements of this FAA standard. However, application of the remaining sections of the 12207 model is encouraged.

It is intended that all subsections apply when a higher level section is identified as applicable, unless specifically stated.

4.1 Primary life cycle processes. The requirements of this section shall be in accordance with section 5.3 "Development Process" of IEEE/EIA 12207.0.

4.2 Supporting processes. The requirements of this section shall be in accordance with sections 6.1 "Documentation Process", 6.2 "Configuration Management Process" and 6.3 "Quality Assurance Process" of IEEE/EIA 12207.0.

4.3 Organizational life cycle processes. The requirements of this section shall be in accordance with section 7.1 "Management Process" of IEEE/EIA 12207.0.

4.4 Nondevelopmental software (NDS). All software not developed under the contract (including, but not limited to, tools and commercially available software applications – COTS) is regarded as nondevelopmental. All NDS shall be identified and shall be addressed within required software development activities and documentation. Validation that the NDS performs its required functions and operates correctly within the software system design shall be accomplished.

4.5 Other. The guidance contained within Annexes F and J of IEEE/EIA 12207.0 are applicable to this standard, and the guidance contained within IEEE/EIA 12207.2 may be used in the implementation of this standard.

5. NOTES

5.1 The documents identified in Appendix A as “Supplemental” do not have a specific relationship to the IEEE/EIA 12207.0 and 12207.1 documentation requirements, as noted in Appendix B. However, no conflict in requirements arises in the use of these documents and their use may be warranted by the project.

5.2 The development and delivery of the documents in Appendix A are not intended to be automatic. Documentation requirements will be as identified in the contract Statement of Work (SOW) and the Contract Data Requirements List (CDRL).

APPENDIX A
Version description for Data Item Descriptions (DIDs)

Title	Number	Version
<i>Primary Documents</i>		
Software Development Plan (SDP)	DID-FAA-026-01	1.0
Software Installation Plan (SIP)	DID-FAA-026-02	1.0
Program Management Plan (PMP)	DID-FAA-026-04	1.0
System/Subsystem Specification (SSS)	DID-FAA-026-05	1.0
System/Subsystem Design Description (SSDD)	DID-FAA-026-06	1.0
Software Requirements Specification (SRS)	DID-FAA-026-07	1.0
Interface Requirements Specification (IRS)	DID-FAA-026-08	1.0
Software Design Description (SDD)	DID-FAA-026-09	1.0
Interface Design Description (IDD)	DID-FAA-026-10	1.0
Database Design Description (DBDD)	DID-FAA-026-11	1.0
Software Test Plan (STP)	DID-FAA-026-12	1.0
Software Test Procedures (STPr)	DID-FAA-026-13	1.0
Software Test Report (STR)	DID-FAA-026-14	1.0
Software Product Specification (SPS)	DID-FAA-026-15	1.0
Software Version Description (SVD)	DID-FAA-026-16	1.0
Software Quality Assurance Plan (SQAP)	DID-FAA-026-23	1.0
Software Configuration Management Plan (SCMP)	DID-FAA-026-24	1.0
<i>Supplemental Documents</i>		
Software Transition Plan (STrP)	DID-FAA-026-03	1.0
Software User Manual (SUM)	DID-FAA-026-17	1.0
Software Center Operator Manual (SCOM)	DID-FAA-026-18	1.0
Software Input/Output Manual (SIOM)	DID-FAA-026-19	1.0
Computer Operation Manual (COM)	DID-FAA-026-20	1.0
Computer Programmer's Manual (CPM)	DID-FAA-026-21	1.0
Firmware Support Manual (FSM)	DID-FAA-026-22	1.0
Computer Program Functional Specification (CPFS)	DID-FAA-026-25	1.0

APPENDIX B

Mapping of FAA-STD-026 data requirements to IEEE/EIA 12207

Number:	Title:	IEEE/EIA 12207.1 Equivalent Documents:	IEEE/EIA 12207.0/2 Ref:
DID-FAA-026-01	Software Development Plan (SDP)	Development Process Plan; Software Development Standards Description; Software Engineering Methods, Procedures, Tools Description; Software Integration Plan; Software Life Cycle Model Description	5.2.4.2, 5.3.1.1, 5.3.1.3, 5.3.1.4, 5.3.8.1, 5.3.8.5
DID-FAA-026-02	Software Installation Plan (SIP)	Software Installation Plan	5.3.12.1
DID-FAA-026-03	Software Transition Plan (STrP)	NONE	N/A
DID-FAA-026-04	Program Management Plan (PMP)	Project Management Plan	5.2.4.3, 5.2.4.4, 5.2.4.5
DID-FAA-026-05	System/Subsystem Specification (SSS)	System Requirements Specification	5.1.1.2, 5.3.2.1, 5.3.2.2
DID-FAA-026-06	System/Subsystem Design Description (SSDD)	System Architecture and Requirements Allocation Description	5.3.3.1, 5.3.3.2
DID-FAA-026-07	Software Requirements Specification (SRS)	Software Requirements Description	5.1.1.4, 5.3.4.1, 5.3.4.2
DID-FAA-026-08	Interface Requirements Specification (IRS)	Software Requirements Description	5.1.1.4, 5.3.4.1, 5.3.4.2
DID-FAA-026-09	Software Design Description (SDD)	Software Architecture Description; Software Design Description	5.3.5.1, 5.3.5.6, 5.3.6.1, 5.3.6.7
DID-FAA-026-10	Interface Design Description (IDD)	Software Interface Design Description	5.3.5.2, 5.3.6.2
DID-FAA-026-11	Database Design Description (DBDD)	Database Design Description	5.3.5.3, 5.3.6.3, 5.3.7.1
DID-FAA-026-12	Software Test Plan (STP)	Test or Validation Plan	5.3.5.5, 5.3.6.5, 5.3.6.6, 5.3.7.4, 5.3.7.5, 6.5
DID-FAA-026-13	Software Test Procedures (STPr)	Test or Validation Procedures	5.1.5.1, 5.3.7.1, 5.3.8.1, 5.3.8.4, 5.3.8.5, 5.3.10.2, 6.5
DID-FAA-026-14	Software Test Report (STR)	Test or Validation Results Report	5.3.7.2, 5.3.8.2, 5.3.9.1, 5.3.10.1, 5.3.11.1, 5.3.13.1, 6.5
DID-FAA-026-15	Software Product Specification (SPS)	Software Product Description	5.3.1.2.e, 6.2.2.1
DID-FAA-026-16	Software Version Description (SVD)	Software Product Description	5.3.1.2.e
DID-FAA-026-17	Software User Manual (SUM)	NONE	N/A
DID-FAA-026-18	Software Center Operator Manual (SCOM)	NONE	N/A
DID-FAA-026-19	Software Input/Output Manual (SIOM)	NONE	N/A
DID-FAA-026-20	Computer Operation Manual (COM)	NONE	N/A
DID-FAA-026-21	Computer Programmer's Manual (CPM)	NONE	N/A
DID-FAA-026-22	Firmware Support Manual (FSM)	NONE	N/A
DID-FAA-026-23	Software Quality Assurance Plan (SQAP)	Software Quality Assurance Plan	6.3.1.3
DID-FAA-026-24	Software Configuration Management Plan (SCMP)	Software Configuration Management Plan	6.2.1.1
DID-FAA-026-25	Computer Program Functional Specification (CPFS)	NONE	N/A

APPENDIX C Acknowledgements

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