



AEROSPACE RECOMMENDED PRACTICE	ARP9005™	REV. A
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Aerospace Guidance for Non-Deliverable Software		

RATIONALE

This document has been determined to contain basic and good practices for non-deliverable software which is not dynamic in nature.

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FOREWORD

Non-deliverable software is defined as software used in the design, manufacture, inspection, test, acceptance, or calibration of a deliverable product, and is not generally delivered under a contract.

As Industry efforts increase to improve product quality and reliability and reduce production costs, use of computer software programs for automation, control and monitoring of production processes and product test, acceptance and calibration is also increasing. It is therefore vital to assure these software programs are controlled to ensure product conformity requirements are properly supported.

The intent of this document is to provide industry recommended guidelines for non-deliverable software that are focused on its control and ensuring validation of released software in its functioning environment, appropriate configuration control of non-deliverable software through application of unique identification, and retention of relevant records for internally developed software documenting its development and validation prior to application or use.

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INTRODUCTION

General

This SAE Aerospace Recommended Practice (ARP) document defines recommendations for the use of non-deliverable software in the Aerospace Industry based on best practices and effective control methodology.

Process Approach

This document deals with the subject of non-deliverable software as a series, or system of processes, linked and managed to bring effective control to the varied aspects and types of software utilized in supporting and enabling production. This linked series or system of processes is referred to as the “Process Approach” and is utilized in developing the control methodology for non-deliverable software.

1. SCOPE:

General:

This document contains recommended practices for the effective control of non-deliverable software. It addresses practices for control during the development, production, release maintenance, and retirement of non-deliverable software, as well as for software procured from outside manufacturers and incorporated in the production, evaluation, test, acceptance or calibration of processes.

For the purposes of this document, the terms software and non-deliverable software are considered synonymous.

Application:

The guidelines in this ARP apply to non-deliverable software that:

- directly relates to design, manufacture, inspection, test or calibration of a deliverable product, and
- directly affects the configuration, conformity or quality of a deliverable product.

The following are not within scope of this ARP:

- deliverable software (reference AS9006),
- business systems or office software,
- information systems software for business applications,
- prototype software that is not intended for delivery, and
- software that only enables the operations of other software or devices in the performance of required tasks that do not affect product conformity.

2. REFERENCES:

The following publications form a part of this document to the extent specified herein. The latest issue of SAE publications shall apply. The applicable issue of other publications shall be the issue in effect on the date of the purchase order. In the event of conflict between the text of this document and references cited herein, the text of the document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

2.1 SAE Publications:

Available from SAE, 400 Commonwealth Drive, Warrendale, PA 15096-0001.

AS9100 Quality Systems - Aerospace - Model for Quality Assurance in Design, Development, Production, Installation and Servicing

AS9006 Deliverable Aerospace Software Supplement for AS9100A

3. TERMS AND DEFINITIONS:

The following terms are important to the understanding of this recommended practice and are included here for ease of use.

Acceptance Testing: Testing conducted in an operational environment to determine whether a product satisfies its acceptance criteria.

Archive: The long-term storage to assure that the software, documents, and life cycle data associated with the software product are retrievable.

Business Systems/Office Software: General-purpose use software that is widely used and commercially obtainable.

Contract: (Software Contract): A binding agreement between two parties, enforceable by law, for the supply of software or the, development, production, operation, or maintenance of a software product.

Commercial-Off-The-Shelf (COTS): Commercially available applications sold by vendors through public catalog listings.

Dataset(s): Information prepared and maintained by electronic means, and provided by electronic data access, interchange, transfer, or on electronic media.

Development: A software life cycle process that contains the activities and support for requirements analysis, design, coding, integration testing, installation and acceptance of software products.

Developed or tailored: Software that is developed, modified or customized by or for the user. This includes new development, modification, re-engineering, and maintenance activities that result in software used in product realization.

EARS: Export Administration Regulation.

ITAR: International Traffic in Arms Regulation.

3. (Continued):

Life cycle: A framework containing the processes, activities and tasks involved in the design, development, operation and maintenance of a software product, spanning the life of the system from the definition of its requirements to the termination of its use.

Non-deliverable software: Software used in the design, manufacture, inspection, test, acceptance, or calibration of a deliverable product.

Part Specific: Software that retains approved configuration information. This may include program files, product definition datasets (Authority Models), Numerical Control (NC) programs, Coordinate Measurement Machine (CMM) programs, and dataset derivatives from Computer Aided Design (CAD) models, etc.

Porting or Migrating: Modifying software to run on a different computer and/or operating system than those on which it has been verified and validated.

Prototype Software: Software in the development stages not used in product realization.

Purchased/Vendor Supplied: Software that is not modified or customized. This includes Commercial off the Shelf (COTS) software used for product realization. Software that is modified for use in production, or not used in its original off-the-shelf state, exclusive of selection of options and features, is not considered COTS.

Release: An approved version of a configuration item made available for a specific purpose (for example, test release).

Replication: A process of copying a software product from one medium to another.

Software: Computer programs and, possibly, associated documentation and data pertaining to the operation of a computer system. This definition includes executable programming logic and data that are embedded in hardware devices known as firmware.

Software item: Any identifiable part of a software product.

Software product: An output that results from a software process. Products can be tangible or intangible, a thing or an idea, hardware or software, information or knowledge, a process or procedure, a service or function. When ISO uses the term product, it also means service.

Stage: A defined segment of development.

NOTE: A stage does not imply the use of any specific life cycle model.