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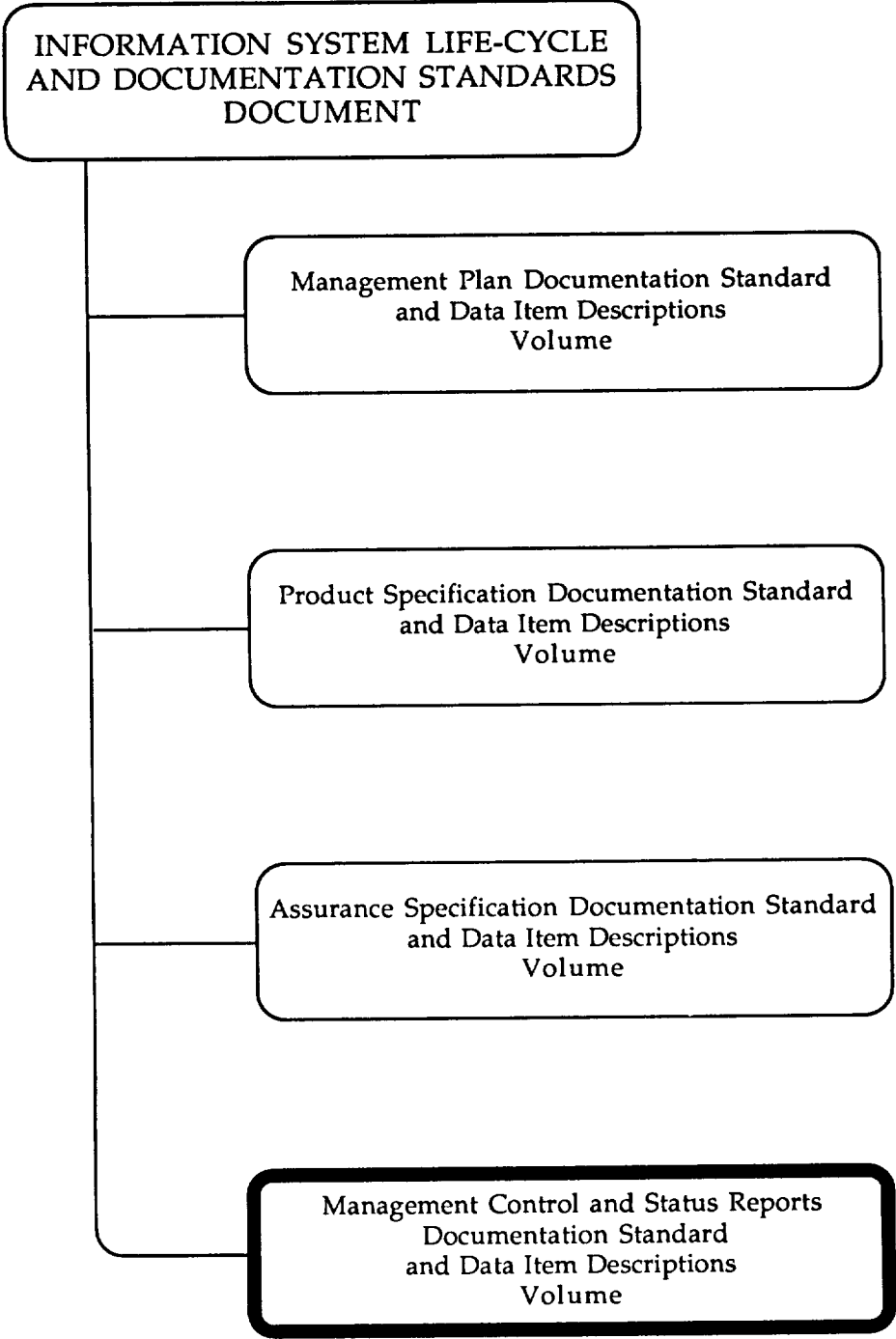
MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD
AND
DATA ITEM DESCRIPTIONS (DID)

VOLUME OF THE
INFORMATION SYSTEM LIFE-CYCLE AND DOCUMENTATION STANDARDS

Release 4.3
2/28/89

NASA
Office of Safety, Reliability, Maintainability,
and Quality Assurance
Software Management and Assurance Program (SMAP)
Washington, DC

(NASA-TM-101860) MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD AND DATA ITEM DESCRIPTIONS (DID). VOLUME OF THE INFORMATION SYSTEM LIFE-CYCLE AND DOCUMENTATION STANDARDS, VOLUME 5 (NASA) 63/82 N90-14139 Unclas 0224526



MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD

ACKNOWLEDGEMENTS

This document incorporates the extensive work of Dr. E. David Callender and Ms. Jody Steinbacher in specifying the documentation standards for information systems and their components. Their contributions are reflected especially in the concept and definition of the information system, the identification of the major categories of documentation, the definition and application of the roll-out concept, the specification of documentation frameworks, the concept of nested life-cycles for components of information systems, and the description of the relationship between information system acquirers and providers.

They have advanced the state-of-the-art for information systems life-cycle management by establishing simplifying principles for identifying needed documentation units to fit a particular system's environment and organization.

MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD

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MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD

1.0 INTRODUCTION

1.1 Identification of Volume

This is the Management Control and Status Reports Documentation Standard and Data Item Descriptions Volume rolled-out from the Information System Life-Cycle and Documentation Standards.

1.2 Scope of Volume

A management control and status reports document contains all reports generated during the course of acquiring, developing, assuring, and maintaining an information system or a hardware, software, or operational procedures component. This volume states the SMAP documentation standard for a management control and status reports document applicable to all NASA information systems and software, hardware, and operational procedures components and related processes.

The selection, adaptation, and enforcement of these documentation standards is the responsibility of the cognizant program/project manager.

IT IS ASSUMED WITHIN THIS VOLUME THAT THE READER OF THIS STANDARD IS FAMILIAR WITH THE TERMS AND CONTENTS OF THE PARENT VOLUME CONCERNING INFORMATION SYSTEM LIFE-CYCLE AND DOCUMENTATION STANDARDS.

1.3 Purpose and Objectives of Volume

The purpose of this volume is to provide a well organized, easily used standard for management control and status reports used in monitoring and controlling the management, development, and assurance of information systems and software, hardware, and operational procedures components and related processes.

1.4 Volume Status and Schedule

Release 4.2C was the first complete release for Version 4 of the Information System Life-Cycle and Documentation Standards document. All five volumes of the document underwent a SMAP and agency review. Release 4.3 is an update to Release 4.2C based on the approved RIDs from this review. The RID review board determined that change bars will not be used to show the differences between Releases 4.2C and 4.3, as 4.3 is the first baselined release of the Version 4 standards.

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1.5 Volume Organization and Roll-Out

Sections 1 and 2 of this volume identify it, describe its purpose, and cite other related documents. Section 3 provides the rationale and scope for this documentation standard. Section 4 presents the actual standard and related rules for documentation, and illustrates the roll-out concept. Section 5 offers guidelines for applying the standard to the needs of a particular application and organizational environment. Section 6 proposes means for assuring and enforcing the standard.

The Data Item Description (DID) for a management control and status reports document is contained in Section 7, together with specification of the minimum content for a selection of reports.

Section 8 defines abbreviations and acronyms; Section 9 contains a glossary of significant terms used throughout the standards.

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2.0 RELATED DOCUMENTATION

2.1 Parent Documents

The following document is the parent of this volume:

- 1) Information System Life-Cycle and Documentation Standards, Release 4.3, 2/28/89. Washington: NASA Office of Safety, Reliability, Maintainability, and Quality Assurance.

2.2 Applicable Documents

The following volumes/documents are referenced herein and are directly applicable to this document:

- 1) Management Plan Documentation Standard and Data Item Descriptions (DID) Volume of the Information System Life-Cycle and Documentation Standards, Release 4.3, 2/28/89. Washington: NASA Office of Safety, Reliability, Maintainability, and Quality Assurance.
- 2) Product Specification Documentation Standard and Data Item Descriptions (DID) Volume of the Information System Life-Cycle and Documentation Standards, Release 4.3, 2/28/89. Washington: NASA Office of Safety, Reliability, Maintainability, and Quality Assurance.
- 3) Assurance Specification Documentation Standard and Data Item Descriptions (DID) Volume of the Information System Life-Cycle and Documentation Standards, Release 4.3, 2/28/89. Washington: NASA Office of Safety, Reliability, Maintainability, and Quality Assurance.
- 4) IEEE Standard Glossary of Software Engineering Terminology. ANSI/IEEE Std 729-1983. New York: Institute of Electrical and Electronic Engineers, Inc.

2.3 Information Documents

The following documents, although not directly applicable, are referenced for historical continuity:

- 1) Military Standard for Defense System Software Development, DoD-STD-2167, 4 June 1985, and DoD-STD-2167A, 27 October 1987.
- 2) NASA Software Data Item Descriptions, Version 3, November 1986. Washington: NASA Office of Safety, Reliability, Maintainability, and Quality Assurance. (Additional Data Item Descriptions were published as Versions 3.1 - 3.5 in

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1987.)

- 3) Space Station Program Software Management Policies, November 1986.

MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD

3.0 OVERVIEW OF THE MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD

3.1 Scope of Standard

The SMAP Management Control and Status Reports Documentation Standard is applicable to all NASA information systems and their software, hardware, and operational procedures components.

The selection, adaptation, and enforcement of these documentation standards is the responsibility of the cognizant program/project manager.

It is important to note that these documentation standards are not management, technical and engineering, or assurance standards. However, the life-cycle and documentation standards provide the mechanism to document the selected activities and related specifications supporting any management, technical and engineering, or assurance standards.

3.2 Rationale for Standard

The rationale for the documentation structure presented in this standard is to provide visibility and to allow management to assign responsibility for the generation of such documentation.

As specified by the Information System Life-Cycle and Documentation Standards, the documentation set for each information system and component consists of:

- 1) a management plan
- 2) a product specification
- 3) an assurance specification
- 4) a management control and status reports document

An assumption upon which the SMAP documentation standard is based is that it is the responsibility of program/project management to decide what information is to be formally recorded. The documentation standard merely indicates the organization for such information.

The function of the management control and status reports documentation standard is to provide a common, uniform, and effective method for cataloging and retrieving all management control and status reports specified in the management plan, and to provide the minimum content for typical reports specified in the management plan.

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3.3 Interface With Other Standards

This documentation standard is derived from the NASA Version 3 software standards maintained by NASA Headquarters Code Q, Office of Safety, Reliability, Maintainability and Quality Assurance.

This documentation standards volume is one of four that augment and detail the life-cycle standards for information systems specified in the parent document. The other three documentation standards volumes are referenced in Section 2.2.

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4.0 THE MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD

The management control and status reports documentation standard describes the organization of and minimum content for reports at a single node in an information system's decomposition tree. (For more information on system decomposition, refer to the Information System Life-Cycle and Documentation Standards.)

4.1 Management Control and Status Reports Document Structure

The purpose of the Management Control and Status Reports document is to organize all the reports and relate individual reports to each other, to the management plan, and to the documents that they affect. The Management Control and Status Reports document may contain the actual reports or may contain pointers (or index information) to the reports. The content of the Management Control and Status Reports document is determined by the reports designated in the management plan and it functions as a catalog or index to the various sets of reports for the information system or component.

The top-level structure of the Management Control and Status Reports document mirrors that of the associated management plan, i.e., the reports are first categorized by the organization (acquirer, development provider, sustaining engineering and operations provider) responsible for the report type. For each organization, the reports are categorized into three major classifications: management, engineering, and assurance. These classifications identify the documentation set volume the report affects or is associated with. The specific reports within each organization and classification are designated in the management plan. The structure is given in Figure 4-1.

4.2 Responsibility for the Preparation of the Management Control and Status Reports Document

Every management plan reflects an agreement between the acquirer and the providers (such as the developer). The acquirer's reporting plans are specified in the acquisition plan section of the management plan along with any reporting requirements for the providers. Similarly, the provider(s)' reporting plans are specified in the appropriate sections of the management plan. The actual selection and specification of the reports to be used during the management, engineering, and assurance of an information system or component is performed during planning and is documented in the management plan. (The actual report format and distribution are usually based on report standards and

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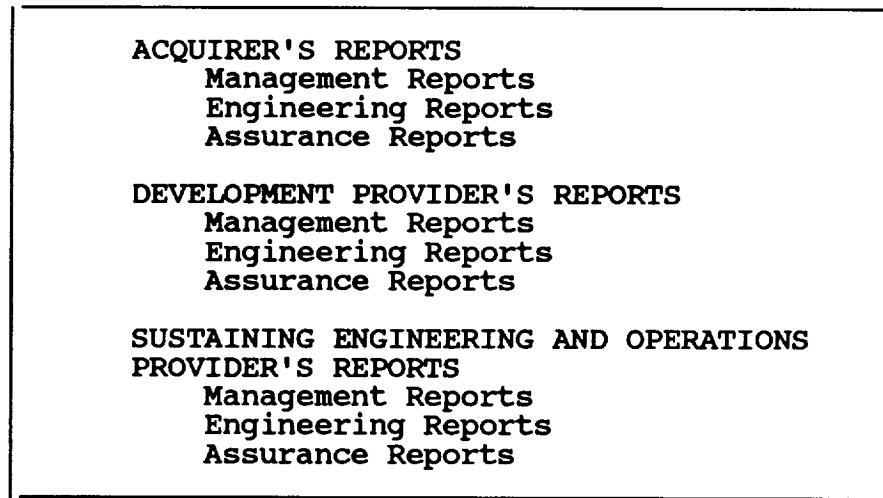


Figure 4-1. Structure for Management Control and Status Reports.

procedures in the standards and procedures repository for a specific application or organization.)

The acquirer is responsible for the overall Management Control and Status Reports document as well the acquirer's reports. Providers are responsible for keeping current their respective sections of the Management Control and Status Report document.

Each Management Control and Status Reports document is prepared for a particular information system or component; i.e., for a node in the system decomposition tree. The physical organization (i.e., roll-out into separate volumes) is dependent upon the specifications contained in the management plan for that node.

4.3 Roll-Out Concept and Template

For a small information system or component, it is possible that each document of the documentation set (management plan, product specification, assurance specification, or management control and status reports) can be written as a single physical document. However, many information systems and components require that multiple volumes be used for each document. In the case where a documentation set document for an information system or component requires more than one volume, the concept of "roll-out" is employed.

The roll-out concept provides a mechanism whereby sections of the document are packaged as separate volumes. The parent document

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or volume contains pointers to each of the rolled-out sections. The rolled-out volume contains a pointer back to its parent. This preserves the overall integrity of the documentation set structure while offering the convenience of separately preparing a section of the document. The decision on which sections of the document are rolled-out is stated in the management plan by the appropriate manager as identified in Section 4.2.

A DID is provided to describe the content of the Management Control and Status Reports Template (SMAP-DID-R999). The standard template (Figure 4-2) is used as part of the roll-out mechanism.

Because the rolled-out volume represents a single section in its parent document or volume, sections 3.0 through N.0 of the rolled-out volume are actually the major subheadings for the section in the parent document or volume.

<u>MANAGEMENT CONTROL AND STATUS REPORTS TEMPLATE</u>	
1.0	INTRODUCTION
1.1	Identification of Volume
1.2	Scope of Volume
1.3	Purpose & Objectives of Volume
1.4	Volume Status & Schedule
1.5	Volume Organization & Roll-Out
2.0	RELATED DOCUMENTATION
2.1	Parent Documents
2.2	Applicable Documents
2.3	Information Documents
3.0 thru N.0	SECTIONS OF THE PARENT BEING ROLLED-OUT INTO A SEPARATE VOLUME
N+1.0	ABBREVIATIONS AND ACRONYMS
N+2.0	GLOSSARY
N+3.0	NOTES
N+4.0	APPENDICES

Figure 4-2. Management Control and Status Reports Template.

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The Abbreviations and Acronyms section defines all acronyms and abbreviations used within the document or volume. The Glossary section includes definitions of special terms used within the document or volume.

The Notes section is used for supplemental information that is not part of the formal, binding information presented elsewhere in the document or volume.

Appendices are considered to be an integral part of the document or volume. They may be separately page numbered, or included in the pagination for the volume as a whole. They may bear a section number within the overall volume, or may be separately identified.

4.4 The Management Control and Status Reports Document Standard and Rules

All of the standards contained in the parent document (Information System Life-Cycle and Documentation Standards) shall apply to management control and status reports documents. This section contains additional rules that are specific to documentation.

For the information system itself, and for each subordinate information system (subsystem) and software, hardware, and operational procedures component identified in the decomposition tree, the following standards shall apply:

- 1) There shall be a single management control and status reports document consisting of one or more volumes. This document shall be prepared as specified by the DIDs given Section 7.
- 2) The acquirer manager shall be responsible for the management control and status reports document, and its roll-out into separate volumes. All reports identified in the management plan shall be identified and referenced in the management control and status reports document.
- 3) The following rules shall be applied when generating a management control and status reports document or volume and the associated reports:
 - a) The roll-out of a section into a separate volume shall follow the standard format specified by the Management Control and Status Reports Template DID (SMAP-DID-R999) given in Section 7.
 - b) The minimum content of any management control and status reports volume shall be a list of report types and their

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traceability to a specific section of the management plan and to the document they affect or apply to. For each report type, there shall be an index (or a pointer to an online index) and an identification of the reports' location.

- c) Each rolled-out volume shall be titled as illustrated below. This method supports the standard and enables one to place the volume in context with its parent(s).

```
< title of the rolled-out section >  
    Volume of the  
    [ < parent volume title >  
      Volume of the ]  
< documentation set parent title >  
    Document
```

Note that the volume entry in brackets ([]) above is to be expanded zero or more times depending on the number of levels of roll-out from the documentation set parent. Additional information may be included on the title page as specified by delivery requirements.

- d) When writing the management control and status reports document, the outline specified by the Management Control and Status Reports DID shall be used. If more detailed structuring is needed for a section than that shown in this DID, then detail may be added at the discretion of the author. The form and content of additional sub-sections shall conform to the DID.
- e) A section shall either:
- o contain information;
 - o point to a lower level volume rolled-out from this document or volume;
 - o point to another document (e.g., the contract governing the effort) that contains the information appropriate to the section;
 - o be marked TBD (to be determined) if appropriate information is not yet available; or
 - o be marked "Not applicable" or "None."

If a section is "Not applicable" or "None," then none of its subordinate sections shall appear.

- f) The documentation standard designates a unique place for each element of information. The same information shall

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not be incorporated in more than one place when generating a document or rolled-out volume.

- g) Reports shall contain, at a minimum, the information defined in the content description for that report in the Management Control and Status Reports DID. Additional reports (other than those identified in Section 7) may be specified in the management plan; their content is the responsibility of the appropriate manager.
- h) Any document that is to be placed under any level of an organization's configuration management shall be compatible with the appropriate electronic formats specified in applicable support environment(s) (such as the SSE and TMIS documentation formats for the Space Station Freedom Program.)

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5.0 APPLICATION AND SUPPORT OF MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD

This section provides guidelines for tailoring and using this standard to prepare a Management Control and Status Reports document or volume thereof.

5.1 Guidelines

The following collection of guidelines is offered to assist in applying this standard.

5.1.1 How to Use the DIDs to Prepare a Management Control and Status Reports Document

Start with the Management Control and Status Reports DID (SMAP-DID-R000). Based upon the reports identified in the management plan, group all report types by responsible organization and classification (management, engineering, or assurance). The classification refers to the document affected by a particular report type (management plan, product specification, or assurance specification) or to which document the report type applies.

For each report type, document the indexing, storage, and retrieval mechanism.

Sections for which no reports exist should be marked "Not applicable".

If individual reports are included in the Management Control and Status Reports document, (as opposed to being contained in a repository), then subsection structure should be added for that report type. If the reports are not contained in this document, then the document contains an index (or pointer to an index) and an identification of the location of the reports.

The roll-out structure for the Management Control and Status Reports document should, in general, mirror the roll-out structure for the management plan.

5.1.2 Use of a Standards and Procedures Repository

Acquirer and provider managers are responsible for determining the need and establishing a repository for any additional procedures, guidelines, rules, and practices for documentation that are not already defined in an existing repository, (such as the ones maintained for the Space Station Freedom Program by TMIS and the SSE), or a parent information system or component

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repository. At the manager's discretion, procedural information for minor or unique matters may be included as added subsections in a documentation set document (per rule for additional sections).

5.2 Tools Supporting the Application and Use of the Documentation Standard

Support environments may provide tools for the application and use of the documentation standard. For example, TMIS and the SSE provide tools for the Space Station Freedom Program that support the documentation standards. Such tools are used when preparing, reviewing, revising, publishing, distributing, and configuration managing documents. Tools are also provided for preparing a WBS and schedules. Tool support of the standards is the responsibility of the program/project.

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6.0 ASSURANCE AND ENFORCEMENT OF THE DOCUMENTATION STANDARD

If the SMAP information system life-cycle and documentation standards have been selected as standards by program/project management, then it is the responsibility of the acquiring manager of the information system or component to assure and enforce this documentation standard for all documentation written for that information system or component.

The assurance process is formally addressed in one of two ways:

- 1) As a quality assurance activity during the phase transition reviews indicated by the information system life-cycle.
- 2) As explicitly called for within any planning document.
(For example, an assurance plan section of the management plan could call for special reviews of individual documents and volumes.)

The information system life-cycle specifies that the management control and status reports document be prepared initially in conjunction with the management plan during the concept and initiation life-cycle phase. This version of the management control and status reports document is reviewed at the end of the concept and initiation phase. The schedule for preparation, submission, and approval of the reports themselves shall be specified in the management plan. The review of the reports as they are generated and their insertion into the management control and status reports document are part of the program/project's assurance activities for each phase of the life-cycle. The plan for these assurance activities is defined in assurance planning sections of the management plan.

It is the responsibility of the reviewers of management control and status reports document to be familiar with this documentation standard and to question any deviations from this standard.

Because all sections specified in a DID must be included in the document or volume, managers and participants in management reviews can easily verify that all necessary information has been prepared. The structure for the document serves as a gross level checklist.

MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD

7.0 DATA ITEM DESCRIPTIONS (DIDS)

This section contains the specifications for the format, outline, and content of the management control and status reports document and template. The minimum content for report types designated in the document is identified, but the exact format and content for the reports themselves must be specified in the management plan.

The Management Control and Status Reports Template (SMAP-DID-R999), provides detailed instructions for preparing the sections that are common to all management control and status reports documents or volumes. Note that this DID does not represent a particular separate document or volume but is used to generate a volume format for a section that a manager wishes to document in a separate volume.

The Management Control and Status Report DID (SMAP-DID-R000) provides an outline for the complete management control and status reports document for an information system or a software, hardware, or operational procedures component. Any section or subsection of this DID may be rolled-out into a separate volume.

For your convenience, the list of DIDs from the Table of Contents is repeated below.

Management Control and Status Reports Document	
DID SMAP-DID-R000	17
Management Control and Status Reports Template	
DID SMAP-DID-R999	22
Minimum Content for Reports	27

LIST OF REPORTS FOR WHICH MINIMUM CONTENTS ARE SPECIFIED

The following pages specify the minimum content for management control and status reports:

CERTIFICATION REPORT	SMAP-DID-R001	27
CONFIGURATION AUDIT REPORT	SMAP-DID-R002	28
CUSTOMER INSPECTION REPORT	SMAP-DID-R003	29
DISCREPANCY (NRCA) REPORT	SMAP-DID-R004	30
ENGINEERING CHANGE PROPOSAL ...	SMAP-DID-R005	31
LESSONS LEARNED REPORT	SMAP-DID-R006	32
PERFORMANCE/STATUS REPORTS	SMAP-DID-R007	33
REVIEW REPORT	SMAP-DID-R008	34
TEST REPORT	SMAP-DID-R009	35
WAIVER/DEVIATION REQUEST	SMAP-DID-R010	36

Additional reports may be required for a particular application. The content and format of these reports are specified in the management plan.

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MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENT: SMAP-DID-R000

SMAP-DID-R000

MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENT

DATA ITEM DESCRIPTION

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- 2.0 RELATED DOCUMENTATION
- 3.0 ACQUIRER'S REPORTS
- 4.0 DEVELOPMENT PROVIDER'S REPORTS
- 5.0 SUSTAINING ENGINEERING AND OPERATIONS
PROVIDER'S REPORTS
- 6.0 ABBREVIATIONS AND ACRONYMS
- 7.0 GLOSSARY
- 8.0 NOTES
- 9.0 APPENDICES

MANAGEMENT CONTROL AND STATUS REPORTS STANDARD
MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENT: SMAP-DID-R000

EXPLANATORY NOTE

The purpose of the management control and status reports document is to provide a "logical" home for all reports that are specified in the management plan and generated throughout the life-cycle for a specific information system or component. This document provides a mechanism for storing and retrieving each individual report.

1.0 INTRODUCTION

The structure and content description to be used when preparing this section is described in detail in the Management Control and Status Reports Template DID (SMAP-DID-R999).

2.0 RELATED DOCUMENTATION

The structure and content description to be used when preparing this section is described in detail in the Management Control and Status Reports Template DID (SMAP-DID-R999).

3.0 ACQUIRER'S REPORTS

The purpose of this section is to provide a "logical home" for (or master index to) all reports under the responsibility of the acquirer as specified in the acquisition plan section of the management plan. The actual mechanism to control and store all the reports is determined by the acquirer. For example, the reports may be physically placed in this document, or this document may contain only a description of each report type and index and location information for the actual reports for each report type.

This section is organized by applicability classification of the report type:

- o Management reports to the acquisition plan section of the Management Plan
- o Assurance reports to the acquirer's section of the Assurance Specification
- o If applicable, engineering reports to the Product Specification

Under each applicability subsection, for each report type, the following information should be provided:

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MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENT: SMAP-DID-R000

- 1) Report title.
- 2) Section of the management plan that specifies this report is to be generated.
- 3) Index of reports that have been generated (or pointer to an online index of same).
- 4) Actual reports (or identification of where reports are stored).

If there is an organizational partitioning of responsibilities within the acquirer's organization (such as, an independent verification and validation provider), then the reports may first be grouped by organizational responsibility and then by management, assurance, and engineering type.

4.0 DEVELOPMENT PROVIDER'S REPORTS

The purpose of this section is to provide a "logical home" for (or master index to) all reports under the responsibility of the developer as specified in the development plan section of the management plan. The actual mechanism to control and store all the reports is determined by the developer. For example, the reports may be physically placed in this document or this document may contain only a description of each report type and index and location information for the actual reports for each report type.

This section is organized by applicability classification of the report type:

- o Management reports to the development plan section of the Management Plan
- o Assurance reports to the developer's section of the Assurance Specification
- o Engineering reports to the Product Specification

Under each applicability subsection, for each report type, the following information should be provided:

- 1) Report title.
- 2) Section of the management plan that specifies this report is to be generated.
- 3) Index of reports that have been generated (or pointer to an online index of same).

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- 4) Actual reports (or identification of where reports are stored).

If there is an organizational partitioning of responsibilities within the developer's organization (such as, an independent configuration management organization), then the reports may first be grouped by organizational responsibility and then by management, assurance, and engineering type.

5.0 SUSTAINING ENGINEERING AND OPERATIONS PROVIDER'S REPORTS

The purpose of this section is to provide a "logical home" for (or master index to) all reports under the responsibility of the sustaining engineering provider as specified in the sustaining engineering and operations plan section of the management plan. The actual mechanism to control and store all the reports is determined by the sustaining engineering provider. For example, the reports may be physically placed in this document or this document may contain only a description of each report type and index and location information for the actual reports for each report type.

This section is organized by applicability classification of the report type:

- o Management reports to the sustaining engineering and operations section of the Management Plan
- o Assurance reports to the Assurance Specification
- o Engineering reports to the Product Specification

Under each applicability subsection, for each report type, the following information should be provided:

- 1) Report title.
- 2) Section of the management plan that specifies this report is to be generated.
- 3) Index of reports that have been generated (or pointer to an online index of same).
- 4) Actual reports (or identification of where reports are stored).

If there is an organizational partitioning of responsibilities within the provider's organization, then the reports may first be grouped by organizational responsibility and then by management, assurance, and engineering type.

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MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENT: SMAP-DID-R000

6.0 ABBREVIATIONS AND ACRONYMS

Refer to the Management Control and Status Reports Template DID (SMAP-DID-R999) for the detailed description of content for this section.

7.0 GLOSSARY

Refer to the Management Control and Status Reports Template DID (SMAP-DID-R999) for the detailed description of content for this section.

8.0 NOTES

Refer to the Management Control and Status Reports Template DID (SMAP-DID-R999) for the detailed description of content for this section.

9.0 APPENDICES

Refer to the Management Control and Status Reports Template DID (SMAP-DID-R999) for the specifications for appendices.

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MANAGEMENT CONTROL AND STATUS REPORTS TEMPLATE: SMAP-DID-R999

SMAP-DID-R999

MANAGEMENT CONTROL AND STATUS REPORTS TEMPLATE

DATA ITEM DESCRIPTION

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MANAGEMENT CONTROL AND STATUS REPORTS STANDARD
MANAGEMENT CONTROL AND STATUS REPORTS TEMPLATE: SMAP-DID-R999

EXPLANATORY NOTE

The purpose of the template is to describe the set of common sections that are to appear in the document specified by this documentation standard and in any rolled-out volumes. When using this template for the document itself, rather than for a rolled-out volume, substitute "Document" for "Volume" in the following.

1.0 INTRODUCTION

1.1 Identification of Volume

Identify this physical volume in terms of its relationship to the parent document(s) in the documentation set for this information system or component. For documentation set documents, identify the parent(s) in the decomposition tree for the information system. For example:

"This is the Management Control and Status Reports Document for the XYZ Information System."

"This is the Engineering Change Proposals Volume of the Technical Reports Volume of the XYZ Information System Management Control and Status Reports Document."

1.2 Scope of Volume

Describe the area of cognizance, responsibility, and applicability for this volume.

1.3 Purpose and Objectives of Volume

Describe the purpose and objectives for this volume concisely and in specific terms.

1.4 Volume Status and Schedule

Describe the status, including goals and dates, for production or revision of the volume. Documentation is often generated incrementally or iteratively. If this is the case for this volume, also summarize here the planned updates and their release dates.

MANAGEMENT CONTROL AND STATUS REPORTS STANDARD
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1.5 Volume Organization and Roll-Out

Briefly describe what is presented in each major section within this version of the volume and what is in each appendix.

If any sections are rolled-out into subordinate volumes of this volume, then cite those volumes and provide a documentation tree pointing to the subordinate volumes and relating them to the parent.

2.0 RELATED DOCUMENTATION

The purpose of this section is to provide the references or bibliography for this volume.

Cite documents by short or common title (if any), full title, version or release designator (if appropriate), date, publisher or source, and document number or other unique identifier.

2.1 Parent Documents

Begin this section as follows, depending upon whether this is a volume of a document or the document itself:

"The following document(s) is (are) parent to this volume:"

or:

"The following document(s) is (are) the parent from which this document's scope and content derive:"

If this is a document, cite the appropriate document at the next higher level. For example, an Information System Management Plan would cite the management plan for the next higher level information system, or the Software Product Specification would cite the Software Management Plan and the parent's product specification. If there is no higher level, state "None." here.

If this is a volume rolled-out from a document, cite that document. If this is a volume rolled-out from another volume, cite each volume in the hierarchical path back to the parent document, starting with the volume immediately superior to this one.

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2.2 Applicable Documents

Begin this section as follows:

"The following documents are referenced herein and are directly applicable to this volume:"

Provide the citations for every document (other than the parent) referenced within this volume, or which are directly applicable, or contain policies or other directive matters that are binding upon the content of this volume.

2.3 Information Documents

Begin this section as follows:

"The following documents, although not directly applicable, amplify or clarify the information presented in this volume, and are not binding:"

or, use an appropriate introduction to indicate the relationship of the documents listed here to this volume.

3.0 - N.0 CONTENT FOR ROLLED-OUT SECTION

Each major section or subsection of an information system or component management control and status reports document, or of a volume thereof, being rolled-out into a separate subordinate volume becomes a major section in the rolled-out volume.

N+1.0 ABBREVIATIONS AND ACRONYMS

This section follows the sections containing the content for the rolled-out section.

The abbreviations and acronyms section contains an alphabetized list of the definitions for abbreviations and acronyms used in this volume.

N+2.0 GLOSSARY

The glossary contains an alphabetized list of definitions for special terms used in the volume; i.e., terms used in a sense that differs from or is more specific than the common usage for such terms.

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N+3.0 NOTES

Use this section to present information that aids in understanding the information provided in previous sections, and which is not contractually binding.

N+4.0 APPENDICES

The appendices contain material that is too bulky, detailed, or sensitive to be placed in the main body of text. Refer to each appendix in the main body of the text where the information applies. Appendices may be bound separately, but are considered to be part of the volume and shall be placed under configuration control as such.

MANAGEMENT CONTROL AND STATUS REPORTS STANDARD

SMAP-DID-R001

MINIMUM CONTENTS FOR CERTIFICATION REPORT

EXPLANATORY NOTE

The purpose of the report is to present to management a summary of certification activity results for a product or group of products. The requirements both for the specific certification activity and for associated reports and the frequency of their generation are specified in the management plan. The description of the supporting test(s) (test specifications, test data, test results, etc.) and other assurance activities is given in the assurance specification. The description of the product being certified is given in the product specification.

The information listed below is considered to be the minimum content for a certification report. The specific content and format for this report is specified in the management plan.

Topics to be included in the certification report are:

- o Identity of the certification activity as defined in the assurance specification
- o Version identification of product under certification as defined in the product specification plus any environment definition
- o Date of certification activity
- o Certification team members (if appropriate)
- o Certification witnesses (if appropriate)
- o Agency granting certification
- o Status of certification activity
 - status of activity
 - certification criteria unfulfilled
 - limitations restricting or precluding certification

MANAGEMENT CONTROL AND STATUS REPORTS STANDARD

SMAP-DID-R002

MINIMUM CONTENTS FOR CONFIGURATION AUDIT REPORT

EXPLANATORY NOTE

The purpose of the report is to provide status on a configuration audit activity to management. The requirement both for the configuration audit activity and for associated reports and the frequency of their generation are specified in the management plan. The description of a configuration audit activity is given in the assurance specification. A configuration audit may apply to either a product or a process. This minimum content statement applies, therefore, to physical configuration audits and configuration management configuration audits. The information listed below is considered to be the minimum content for a configuration audit report. The specific content and format for this report is specified in the management plan.

Topics to be included in the configuration audit report are:

- o Identity of the configuration audit as defined in the assurance specification
- o Version identification of product or process under configuration audit and any environment identification
- o Date of configuration audit
- o Audit team members (if appropriate)
- o Anomalous conditions encountered and recommendations made
- o Configuration audit summary and status
- o Date of follow-up audit

MANAGEMENT CONTROL AND STATUS REPORTS STANDARD

SMAP-DID-R003

MINIMUM CONTENTS FOR CUSTOMER INSPECTION REPORT

EXPLANATORY NOTE

The purpose of the report is to provide the status of a customer inspection to management. The requirement both for the inspection activity and for associated reports and the frequency of their generation are specified in the management plan. The description of the inspection criteria, etc., is given in the assurance specification. The description of the product being inspected is given in the product specification. The information listed below is considered to be the minimum content for a customer inspection report. The specific content and format for this report is specified in the management plan.

Topics to be included in the customer inspection report are:

- o Identity of the customer inspection as defined in the assurance specification
- o Version identification of the product under customer inspection as defined in the product specification plus environment identification
- o Date of customer inspection
- o Inspection team members (if appropriate)
- o Inspection status and summary of results

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SMAP-DID-R004

MINIMUM CONTENTS FOR DISCREPANCY (NRCA) REPORT

EXPLANATORY NOTE

The purpose of the report is to state a discrepancy to a product or product specification. The process of filing a report of this type may be referred to as nonconformance reporting and corrective action (NRCA). A nonconformance is defined as any deviation of a product or process from applicable requirements, standards, or procedures. The requirement for reports of this type and the process for analysis and disposition is specified in the management plan. The information listed below is considered to be the minimum content for a Discrepancy (NRCA) report.

Topics to be included in the Discrepancy (NRCA) report are:

- o Report identification (Discrepancy Report or NRCA number)
- o Originator identification including
 - name and organization
 - address and phone
 - unit or site of occurrence
- o Product identification including
 - name
 - version number (plus release date if applicable)
 - if applicable, environment information (e.g., hardware and operating system for a software product)
 - life-cycle phase in which nonconformance detected
- o Discrepancy Report (NRCA) information including
 - title
 - date
 - type of nonconformance
 - description
 - recommendation for proposed solution (if any), including code, data, or documentation where corrective action must be taken
- o Approval authority including
 - criticality
 - disposition
 - resolution
 - implementation schedule
 - date/version of the item in which the corrective action will be included
 - authority signature
 - date tested
 - date of closure

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SMAP-DID-R005

MINIMUM CONTENTS FOR ENGINEERING CHANGE PROPOSAL (ECP)

EXPLANATORY NOTE

The purpose of the engineering change proposal is to state a suggested change to a product. The requirement for use of engineering change proposals and the process for their analysis and disposition is specified in the management plan. The information listed below is considered to be the minimum content for an engineering change proposal. The specific format for the engineering change proposal report to be used for an information system or component is specified in the management plan.

Topics to be included in the engineering change proposal are:

- o Proposal identification
- o Originator identification including
 - name and organization
 - address and phone
- o Product (including documents) identification including
 - name or title
 - version number (plus release date if applicable)
 - if applicable, environment information (e.g., hardware and operating system for a software product)
- o Proposal information including
 - title
 - date
 - classification (i.e, major or minor)
 - priority
 - description of proposed change
 - recommendation (if any)
- o Proposal analysis including
 - classification
 - resources required to implement change
 - effect upon operational personnel and training
 - suggested resolution
 - reference to associated analysis
- o Change authority including
 - disposition
 - resolution
 - implementation schedule
 - authority signature

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SMAP-DID-R006

MINIMUM CONTENTS FOR LESSONS LEARNED REPORT

EXPLANATORY NOTE

The purpose of this report is to record, for the purpose of improvement in future applications, the major strengths and weaknesses of the management, engineering, and assurance process for an application, and the resultant product. This is not an evaluation of the current application. Rather, it is a distillation of the experience gained that will be useful when applied to similar activities in the future.

Topics to be included in the lessons learned report are lessons learned on matters such as:

- o Author or submitter
- o Identification of information system or component
- o Unique approaches for methods, practices and standards
- o Useful management planning and control techniques
- o Major problem areas and how resolved; identify problems unresolved
- o Successful aspects and shortcomings of the planning, development, and assurance process
- o Recommendation for future applications

MANAGEMENT CONTROL AND STATUS REPORTS STANDARD

SMAP-DID-R007

MINIMUM CONTENTS FOR PERFORMANCE/STATUS REPORTS

EXPLANATORY NOTE

The purpose of this report is to inform management about the performance or status of a process or product. The requirement for reports of this type and their frequency are specified in the management plan. The information listed below is considered the minimum content for a performance or status report. The specific content and format is specified in the management plan.

Topics to be included in performance/status reports are:

- o Identification of activity or process to which this report relates
- o Author or submitter
- o Accomplishments
- o Significant variances in planned versus actual performance
- o Open items or problems
- o Recommendations for corrective action.

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SMAP-DID-R008

MINIMUM CONTENTS FOR REVIEW REPORT

EXPLANATORY NOTE

The purpose of the review report is to record the conduct and status of a formal or informal review, walkthrough, inspection, or similar product assurance activity, as specified in the management plan. A description of the assurance activity including criteria and results is documented in the assurance specification. The specific content and format for this report is specified in the management plan.

Topics to be included in a review report are:

- o Identification of the review as specified in the assurance specification
- o Identification of the product or process reviewed
- o Identification of the organization or person responsible for the product or process reviewed
- o Date and place of the review
- o List of reviewers and organizations represented
- o Summary of review results and status
- o List of actions to be taken, and by whom, as determined during the review
- o Approval action and authority taken as a result of the review

MANAGEMENT CONTROL AND STATUS REPORTS STANDARD

SMAP-DID-R009

MINIMUM CONTENTS FOR TEST REPORT

EXPLANATORY NOTE

The purpose of the report is to provide the status of a test, or a sequence of tests, to management. The requirement both for the tests and for reports of this type and the frequency of their generation are specified in the management plan. The description of the test (test specifications, test data, test results, etc.) is given in the assurance specification. The description of the product tested is given in the product specification. The information listed below is considered to be the minimum content for a test report. The specific content and format for this report is specified in the management plan.

Topics to be included in the test report are:

- o Identity of the test as defined in the assurance specification
- o Version identification of product under test as defined in the product specification
- o Date of test
- o Test team members (if appropriate)
- o Test witnesses (if appropriate)
- o Anomalous conditions encountered and recovery procedures attempted
- o Test status and summary of results

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SMAP-DID-R010

MINIMUM CONTENTS FOR WAIVER/DEVIATION REQUEST

EXPLANATORY NOTE

The purpose of the request is to obtain a waiver or deviation from a required process or product. The requirement for requests of this type and the process for analysis and disposition are specified in the relevant management plan (or parent plan). The information listed below is considered to be the minimum content for a waiver/deviation request. The specific content and format for this request is specified in the management plan.

Topics to be included in the waiver/deviation request are:

- o Waiver/deviation identification
- o Requester identification including
 - name and organization
 - address and phone
- o Product or process identification including
 - name
 - version number (release date if applicable)
- o Waiver/deviation description
- o Rationale for acceptance of waiver/deviation
- o Schedule, cost, or other resources impact analysis
- o Safety, security, or other risk analysis
- o Change authority including
 - disposition
 - resolution
 - implementation schedule
 - authority signature

MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD
ABBREVIATIONS AND ACRONYMS

8.0 ABBREVIATIONS AND ACRONYMS

AR - Acceptance Review
CDR - Critical Design Review
COTS - Commercial off-the-shelf
DID - Data Item Description
DoD - Department of Defense
DRL - Data Requirements List
ECP - Engineering Change Proposal
EPROM - Erasable Programmable Read-Only Memory
FCA - Functional Configuration Audit
FMEA - Failure Modes and Effects Analysis
GFE - Government-furnished equipment
IV&V - Independent Verification and Validation
LRU - Line (or Lowest) Replaceable Unit
MTBF - Mean Time Between Failures
MTTR - Mean Time to Repair
NASA - National Aeronautics and Space Administration
NHB - NASA Handbook
NRCA - Nonconformance Reporting and Corrective Action
PCA - Physical Configuration Audit
PDR - Preliminary Design Review
PROM - Programmable Read-Only Memory
RFP - Request for Proposal
RID - Review Item Discrepancy
ROM - Read-Only Memory
RR - Requirements Review

MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD
ABBREVIATIONS AND ACRONYMS

- SMAP - Software Management and Assurance Program
- SOW - Statement of Work
- SRM&QA - Safety, Reliability, Maintainability, and Quality Assurance
- SSE - Software Support Environment of the Space Station Freedom Program
- SSFP - Space Station Freedom Program
- STD - Standard
- TBD - To be determined (at a later date)
- TMIS - Technical and Management Information System of the Space Station Freedom Program
- TRR - Test Readiness Review
- V&V - Verification & Validation.
- WBS - Work Breakdown Structure

MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD
GLOSSARY

9.0 GLOSSARY

For terms not appearing in this glossary, refer to the IEEE Standard Glossary (as referenced in Section 2.2).

Acceptance Review - The phase transition review for the Acceptance and Delivery life-cycle phase.

Acquirer - An organization that acquires a capability, such as an information system.

Adaptation - The tailoring of the life-cycle and documentation standards (within the specifications of the rules and guidelines) for a specific program/project, information system, or component.

Allocation - The process of apportioning requirements at one level in the decomposition tree to the subsystems or subcomponents at the next lower level in the decomposition.

Assembly - A physical element of a hardware component consisting of one or more line replaceable units. A hardware component is composed of one or more physical assemblies.

Assurance - Includes any and all activities, independent of organization conducting the activity, that demonstrate the conformance of a product to a prespecified criteria (such as to a design or to a standard).

Assurance Specification - One of the four documents in the documentation set for an information system or component; it encompasses all the technical (i.e., non-planning) aspects of the assurance activities for an information system or component.

Baselining - The official acceptance of a product or its placement under configuration management as defined in the management plan.

Code Q - (NASA) Office of Safety, Reliability, Maintainability, and Quality Assurance

Component - 1) One of the three parts making up an information system: software, hardware, or operational procedures.
2) A portion of a higher-level component of the same type; e.g., a component of the software component (of an information system).

Critical Design Review - The phase transition review for the Detailed Design life-cycle phase.

MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD
GLOSSARY

- Data Item Description - The table of contents and associated content description of a document or volume.
- Design Element - An identifiable part of a component's architectural design.
- Developer - The provider organization responsible for development of an information system or of a hardware, software, or operational procedures component.
- Document - One of the four basic types of information for each information system or component: 1) Management Plan, 2) Product Specification, 3) Assurance Specification, and 4) Management Control and Status Reports Document. A document consists of one or more volumes.
- Documentation Set - The four basic documents for each information system or component thereof.
- Evolutionary Acquisition - The acquisition of an information system over a relatively long period of time in which two or more complete iterations of the life-cycle will be employed to revise and extend the system to such an extent as to require a major requirements analysis and therefore subsequent life-cycle iterations.
- Increment - A pre-defined set of units integrated for integration testing by the development organization in response to incremental development plans.
- Incremental Development - The process of developing a product before delivery in a series of segments. These segments remain internal to the development organization. The process is used to avoid the big bang approach to software development and help minimize risk. The segments are defined based on the design and documented in the design section of the product specification. The process leads to a single delivery unless used in conjunction with "phased delivery."
- Independent Verification and Validation - Verification and validation performed by an independent organization. In general, this is intended to be independent of the development organization. For complete independence, the IV&V organization must report directly to or be funded directly by the acquirer.
- Information System - 1) Any system composed of hardware, software, and operational procedures components required to process, store, and/or transmit data. 2) An integrated combination of software, hardware, and operational procedures components that provides a useful capability. An information system is generally software-intensive.

MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD
GLOSSARY

- Inheritables - Existing software or hardware to be drawn upon in developing a new information system. The inheritables may be modified to meet the new system's requirements.
- Instantiate - 1. To represent an abstraction by a concrete instance (e.g., heroes instantiate ideals). 2. Within Ada, the process of creating an instance of a generic subprogram or package.
- Line Replaceable Unit - A hardware unit that is part of an assembly that is defined to be the lowest replaceable element of a hardware component. An assembly is composed of one or more LRUs.
- Management Control and Status Reports Document - One of the documents in the documentation set for an information system or component; it represents a "logical" home for all report and request forms.
- Management Plan - One of the four documentation set documents; it encompasses all planning information for an information system or component, including management, engineering, and assurance planning.
- Partitioning - The process of determining the content for each delivery when using the phased delivery approach, or for determining the content of each segment when using incremental development.
- Phase (of a life-cycle) - A set of activities and associated products and reviews that make up one step of a multi-step process for developing systems and their component. An information system life-cycle has seven standard phases: 1) Concept and Initiation; 2) Requirements; 3) Design; 4) Implementation Coordination (or Implementation or Fabrication); 5) Integration and Test; 6) Acceptance Test; and 7) Sustaining Engineering and Operations. In some cases, phase 3 contains multiple levels of design, such as architectural and detailed.
- Phase Transition Review - The review at the end of a phase triggering transition to the next phase.
- Phased Delivery - The process of developing and delivering a product in stages, each providing an increasing capability for an information system or component. The process may be employed to provide an early operational capability to users, for budgetary reasons, or because of risk, size, or complexity. Each delivery must undergo acceptance testing prior to release for operational use. The capabilities provided in each delivery are determined by prioritizing and partitioning

MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD
GLOSSARY

the requirements. This must be documented in the requirements section of the product specification.

Preliminary Design Review - The phase transition review for the Architectural Design life-cycle phase.

Product Specification - One of the four documentation set documents for an information system or component; it encompasses all the engineering and technical support information related to the development of an information system or component.

Prototyping - A process used to explore alternatives and minimize risks. Prototyping can be used in any life-cycle phase. The product of the process is a report. By-products (such as software, hardware, and models) of the process can be preserved for subsequent use.

Provider - An organization providing a capability to an acquirer; e.g., the developer or an organization providing independent verification and validation.

Quality Assurance - A subset of the total assurance activities generally focused on conformance to standards and plans. In general, these assurance activities are conducted by the SRM&QA organization.

Quality Engineering - The process of incorporating reliability, maintainability, and other quality factors into system, hardware, software, and operational procedures products.

Repository - A collection of standards, procedures, guides, practices, rules, etc. that supplements information contained in the documentation set for an information system or component. In general, the documentation set describes "what" is to be done and the repository provides the "how-to" instructions. A repository usually contains information that is applicable to multiple information systems and components.

Requirements Allocation - The process of distributing requirements of an information system or component to subordinate information systems (subsystems) or components.

Requirements Partitioning - The process of distributing requirements of an information system or component to different deliveries in support of phased delivery.

Requirements Review - The phase transition review for the Requirements life-cycle phase.

MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD
GLOSSARY

- Review Item Discrepancy - A type of discrepancy report used when reviewing documentation.
- Risk - The combined effect of the likelihood of an unfavorable occurrence and the potential impact of that occurrence.
- Risk Management - The process of assessing potential risks and reducing those risks within dollar, schedule, and other constraints.
- Roll-out - A mechanism for recording sections of a document in physically separate volumes while maintaining traceability and links. When using roll-out, a volume is subordinate to a parent document or volume.
- Software Management and Assurance Program - Sponsored by NASA Code Q to foster more effective and productive software engineering methodologies.
- Subsystem - In the information system decomposition context, a subsystem is an information system that is subordinate to a higher level information system and is parent to software, hardware, and operational procedures components, or to other (lower level) information systems.
- Template - Within these Standards, a template is a DID framework used in the roll-out process for defining the specific format of a section rolled-out into a physically separate volume.
- Test Readiness Review - The phase transition review for the Integration and Testing life-cycle phase.
- Testing - The process of exercising or evaluating an information system or component by manual or automated means to demonstrate that it satisfies specified requirements or to identify differences between expected and actual results.
- Tool - A hardware device or computer program used to help develop, test, analyze, or maintain another device or computer program or its documentation. (IEEE Std 729-1983)
- Unit - An identifiable part of a detailed design. A level of decomposition for the purpose of physical design and implementation for a software or hardware component.
- Validation - 1) Assurance activities conducted to determine that the requirements for a product are correct; i.e. to build the right product. 2) (IEEE Std 729-1983) The process of evaluating software at the end of the software development process to ensure compliance with software requirements.

MANAGEMENT CONTROL AND STATUS REPORTS DOCUMENTATION STANDARD
GLOSSARY

Verification - 1) Assurance activities conducted to determine that a product is being built correctly in accordance with design and requirements specifications; i.e., to build the product right. 2) (IEEE Std 729-1983) "The process of determining whether or not the products of a given phase of ... development ... fulfill the requirements established during the previous phase."

Volume - A physically separate section of one of the four documents in a documentation set.

10.0 NOTES

None.

11.0 APPENDICES

None.