
NAVSEA

**GUIDELINES FOR ACQUISITION OF DIGITAL
PRODUCT MODEL DATA**

Version 1.0

Guidelines for Acquisition of Digital Product Model Data	Version: 1.0
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Revision History

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Policy Guidelines for Digital Product Model Data Acquisition

1. Introduction

This enclosure provides guidance on the acquisition of product model data. This data is necessary to support NAVSEA INSTRUCTION 9040.3A.

1.1 Purpose

The purpose of this document is to provide acquisition guidance to Ship Design Managers and their Technical Authority support structure.

1.2 Scope

The scope of this document encompasses NAVSEA acquisition programs, or any NAVSEA acquisition of product data that would be subject to ASNRDA Policy.

Acquisition guidelines are provided for the initial Statement of Work (SOW), specification, deliverables, CAD guidelines (implementation agreements), and delivery mechanisms of product model data required to support design certification of a ship, situation awareness and response, and fleet maintenance and support.

1.3 References

DoD 5000.59-M (Online M&S Glossary) (<https://www.dmsomil/public/resources/glossary/>)

NAVSEAINST 9040.3A, Acquisition, Development, Maintenance, and Exchange of Product Model Data by Ship and System Programs

1.4 Overview

The acquisition of product model data to support certification, maintenance, and support should follow the guidelines outlined here. The CDRL's, Specifications, and DIDs provided, are intended as preferred contract artifacts for digital product data. Warrant approval on variations of these artifacts will be considered on a case-by-case basis, but a clear and justified reason for variance must be presented.

2. Definitions

2.1 Analysis Model

A model that constitutes a logical view of a system that includes detailed definitions of various aspects of system functionality. An analysis model facilitates the examination of the possible features of a paradigm shift in a given design. This model allows the design agent to perform tradeoff analyses between varying operational configurations of the system design. The goal of the model is to produce configuration and/or operational alternatives with a high degree of predictability of operational logistics.

2.2 Analytical Model

A model that consists of a set of solvable equations.

2.3 Mock-Up

A full sized or scaled down physical representation of a compartment, structure, system, or part of a ship. The parts are constructed from outline dimensions with emphasis on simplicity and are located to occupy the same relative space as the original ship parts, but may not be recognizable from their shape and appearance.

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Physical mockups are constructed for study of space, shape, arrangement, installation sequence, interferences and accessibility, for developing design, and for instruction purposes.

2.4 Model

A physical, mathematical, or otherwise logical representation of a system, entity, phenomenon, or process.

2.5 Modeling

Application of a standard, rigorous, structured methodology to create and validate a physical, mathematical, or otherwise logical representation of a system, entity, phenomenon, or process.

2.6 Modeling and Simulation (M&S)

The use of models, including emulators, prototypes, simulators, and stimulators, either statically or over time, to develop data as a basis for making managerial or technical decisions.

2.7 Physical Model

A model whose physical characteristics resemble the physical characteristics of the system being modeled; for example, a plastic or wooden replica of an airplane or a facsimile of a ship (compartment, structure, system, or part). The parts are shaped, and detailed in such manner that they are readily recognizable. Models are constructed for study of space, shape, arrangement, installation sequence, interferences, accessibility, lines of sight, and arcs of fire, for perfecting details of design, and for identification and instruction.

2.8 Simulation

A method for implementing a model over time.

2.9 Virtual Prototype (VP)

A model or simulation of a system placed in a synthetic environment, and used to investigate and evaluate requirements, concepts, system design, testing, production, and sustainment of the system throughout its life cycle. Capabilities provided allow for walkthrough and interrogation of the VP in 3D geometric form and provides direct access to all attribute information about each part, component, and system.

3. Guidelines

The objective of this instruction is to enable the transition of the contractor defined product model into the NAVSEA product model. A LEAPS repository, LEAPS XML input file, or STEP based neutral file are the preferred formats for the delivery of digital product model data. In addition, it is a good policy to accept and archive the native data. This data does not necessarily have to be delivered to and archived by the program office or NAVSEA. The preferred process is to have all data required to define the product on a configuration controlled IDE, in which the Navy has unlimited and perpetual access to all data for which it retains the rights. Product model data although similar across acquisition programs is unique for each ship, and therefore requires attention be paid to statements of work, specifications, Contract Development Requirements Lists, Data Item Descriptions, and Technical Data Packages.

3.1 Statement of Work (SOW) development

The SOW should specify in clear, understandable terms the work to be done in developing or producing the goods to be delivered or services to be performed by a contractor. Preparation of an effective SOW requires both an understanding of the goods or services that are needed to satisfy a particular requirement and an ability to define what is required in specific, performance-

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based, quantitative terms. A SOW prepared in explicit terms will enable offerors to clearly understand the government's needs. This facilitates the preparation of responsive proposals and delivery of the required goods or services. A well-written SOW also aids the Government in conduct of the source selection and contract administration after award. See the DoD Handbook for the Preparation of SOWs at (<http://www.dla.mil/dss/dss-a/download/DoD%20SOW%20Handbook.pdf>) .

See (<http://ocean.dt.navy.mil/proddata/proddatadetails.html>) for SOW templates for this enclosure. The generic Statement of Work (SOW) provided as guidance on the web will need to be tailored for a specific system acquisition program to acquire the necessary digital data to support NAVSEA processes.

3.2 Specification Development

The generic SWBS 085 for Drawings and 2-D CAD views that is provided will need to be tailored for a specific system acquisition program to acquire the necessary graphics to support NAVSEA processes. This covers drawings that are original images and those derived from 2-D product model data.

The generic SWBS 098 for Product Models and Mock-ups that is provided will need to be tailored for a specific system acquisition program to acquire the necessary digital data to support NAVSEA processes. This covers physical models and mock-ups and digital 3-D product data models.

See (<http://ocean.dt.navy.mil/proddata/proddatadetails.html>) for specification 098 template for this enclosure. A template for specification 085, Drawings and 2-D CAD Views, is also available.

3.3 Contract Deliverable Requirements List (CDRL) development

Guidelines for the CDRL list provide a standardized method of clearly and unambiguously listing the essential deliverables of the contract. Subpart 215.470 of the DFARS requires the use of DD Form 1423 in solicitations when the contract requires delivery of data. The generic CDRL DD Form 1423-2 provided as guidance on the web will need to be tailored for a specific system acquisition program to acquire the necessary digital data to support NAVSEA processes.

See (<http://ocean.dt.navy.mil/proddata/proddatadetails.html/>) for CDRL templates for this enclosure.

3.4 Data Item Description (DID) Development

DIDs provide standard formats for products and are identified by number on CDRLs. A DID could reference a standard format for environmental impacts statements, communications outage reports, weapons test procedures, or technical data packages.

See (<http://assist.daps.dla.mil/online/start/>) for a list of DIDs used to buy technical data packages. DID 81000C is used to procure product model drawings or data.

DI-SESS-81000C - Product Drawings/Models and Associated Lists
 DI-SESS-81001C - Conceptual Design Drawings/Models
 DI-SESS-81002C - Developmental Design Drawings/Models and Associated Lists
 DI-SESS-81003C - Commercial Drawings/Models and Associated Lists
 DI-SESS-81004C - Special Inspection Equipment Drawings/Models and Associated Lists
 DI-SESS-81008C - Special Tooling Drawings/Models and Associated Lists
 DI-SESS-81010C - Source Control Drawing Approval Request
 DI-SESS-81011C - Drawing Number Assignment Report
 DI-SESS-81012C - Proposed Critical Manufacturing Process Description

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These are the DIDs in MIL-DTL-31000 that can be used by Program Managers, Ship Design Managers, and Contracting Officers.

See <http://ocean.dt.navy.mil/proddata/proddatadetails.html> for information on the technical data package DIDs for ship or system product models.

3.5 Technical Data Package (TDP) Option Selection Worksheet

Guidelines for TDP option selection worksheets are provided in MIL-DTL-31000 to enable managers to tailor DIDs for specific repository or process environments. DIDs could be tailored to deliver 3-D CAD data, STEP data, vector drawings, or raster drawings.

TDP Options selection worksheets are available for drawings and 3-D product model data at <http://ocean.dt.navy.mil/proddata/proddatadetails.html>.