

Note: November 2022.

This Directive may no longer be current. Please check with the program office responsible for this Directive to determine if there are any updates or if the Directive is no longer in use.



Commandant
United States Coast Guard

U.S. Coast Guard Stop 7104
2703 Martin Luther King Jr Ave SE
Washington, DC 20593-7104
Staff Symbol: CG-095
Phone: (202) 372-4581

COMDTINST 5200.38A
06 SEP 2013

COMMANDANT INSTRUCTION 5200.38A

Subj: COAST GUARD MODELING AND SIMULATION (M&S) MANAGEMENT

- Ref:
- (a) DoD Modeling and Simulation (M&S) Management, DoD Directive 5000.59 (series)
 - (b) DoD Modeling and Simulation (M&S) Verification, Validation and Accreditation (VV&A), DoD Instruction 5000.61 (series)
 - (c) Verification, Validation and Accreditation (VV&A) of Models and Simulation, SECNAVINST 5200.40 (series)
 - (d) Department of the Navy Modeling and Simulation Management, SECNAVINST 5200.38 (series)
 - (e) Command, Control, Communications, Computers and Information Technology (C4&IT) System Development Life Cycle (SDLC) Policy, COMDTINST 5230.66 (series)
 - (f) Verification, Validation and Accreditation (VV&A) of Models and Simulations, COMDTINST 5200.40 (series)
 - (g) Command, Control, Communications, Computers and Information Technology (C4&IT) Configuration Management (CM) Policy, COMDTINST 5230.69 (series)
 - (h) Command, Control, Communications, Computers and Information Technology (C4&IT) Investment Management Policy, COMDTINST 5230.71 (series)
 - (i) Classified Information Management Program, COMDTINST M5510.23 (series)
 - (j) DHS Ports Waterways Coastal Security (PWCS) Classification Guide, DHS SCG USCG 001 (series)
 - (k) DHS Sensor and Instrument Performance (SIP) Security Classification Guide, DHS SCG USCG 002 (series)

1. PURPOSE. This Instruction provides vision, policies, roles, and responsibilities for the administration and management of Coast Guard Modeling and Simulation (M&S).

DISTRIBUTION – SDL No. 162

	a	b	c	d	e	f	g	h	i	j	k	l	m	n	o	p	q	r	s	t	u	v	w	x	y	z	
A																											
B		X	X		X	X	X		X		X	X	X		X	X				X	X	X	X	X	X	X	
C											X			X													
D																							X				
E					X																						
F																											
G																											
H																											

NON-STANDARD DISTRIBUTION:

2. ACTION. All Coast Guard unit commanders, commanding officers, officers in charge, deputy/assistant commandants, and chiefs of headquarters staff shall comply with this Instruction. Internet release authorized.
3. DIRECTIVE AFFECTED. Coast Guard Modeling and Simulation (M&S) Management Instruction, COMDTINST 5200.38, is cancelled.
4. BACKGROUND. The cost of doing “business as usual” has become prohibitively high. It is simply too expensive to train, plan, analyze, and develop new systems using traditional methods. Additionally, the capabilities of modern systems have rendered the current training areas inadequate. The expansion of capabilities and mission demands have made planning and training for contingencies difficult, at best. M&S provides a cost-effective method to interact with a complex environment, allowing for the creation of realistic training, forward looking analysis, or a safe testing environment that may be too expensive or futuristic to do live. It allows for changes to variables such as weather, sea state, terrain, or threat capabilities. M&S provides the ability to develop and test new systems, to train, and to analyze plans and proposed force structure in a realistic and secure environment. It allows users to experience failure or create success with no risk to personnel, equipment, or the environment. M&S improves efficiency and effectiveness by eliminating the need to assemble participants in one place, by providing instructional capability, by providing a test capability for concepts, strategy, and tactics, and through the ability to rapidly develop and test different scenarios. Finally, M&S fosters communication. Operators work closely with M&S developers to ensure new M&S tools accurately represent the operational environment. Operators communicate with each other during after action reviews to determine what went well and what areas need more emphasis. Operational planners and developers of new systems use M&S results as a catalyst to discuss issues and to resolve problems. With the increase in this technology, its applicability, and the workforce’s technical skills, M&S use has grown significantly in both the private and public sectors. For example, DoD has made great strides over the last decade managing their M&S to improve performance and reusability while leveraging their M&S capability to reduce project cost and risk. This Coast Guard M&S management policy adapts many of these DoD best practices, which are in References (a – d).
5. DEFINITIONS. For this policy, models and simulations are defined as:
 - a. Model: A physical, mathematical, or otherwise logical representation of a system, entity, phenomenon, or process.
 - b. Simulation: A method for implementing a model over time. Also, a technique for testing, analysis, or training in which real-world systems are used, or where real-world and conceptual systems are reproduced by a model.
6. VISION. The vision for Coast Guard M&S is for models and simulations to provide a pervasive set of tools and capabilities to support decision making, discovery, operations, analysis, training, and acquisition throughout the Coast Guard. To attain this vision the Coast Guard will vigorously pursue the following objectives:
 - a. Apply M&S to increase efficiency of CG resources and optimize mission effectiveness.

- b. Make M&S capability and information readily available and apply the benefits and knowledge derived from their use throughout the Coast Guard.
- c. Invest in cost effective M&S technology that has measurable benefits, provides timely insights, and builds on or leverages best practices of DHS, DoD, academic, or commercial entities.
- d. Apply USCG Research and Development Center (RDC) M&S Center of Expertise (MSCOE) efforts ensuring the acquisition and/or development of technologies meets the M&S needs of the Coast Guard.

7. POLICY.

- a. General. Coast Guard M&S activities encompass a wide range of functional disciplines including research and development, test and evaluation, education and training, operations, logistics, acquisition, assessment, doctrine development, experimentation and discovery. This Instruction supplements the existing regulations in those areas.
- b. Life-cycle Management. Coast Guard M&S requires life-cycle management that addresses program management (cost, schedule, and performance), configuration management, verification, validation and accreditation, data management, usability, and documentation. The extent and formality of this management is proportional to the M&S project risks (cost, complexity, lifetime, number of users, etc.) and the risks associated with the intended use. A written life-cycle management plan is a recommended method to plan the M&S related activities to manage these risks. When M&S use is required beyond the developer's needs, the continuing users assume life-cycle management responsibility during their period of use. Reference (e) contains other life-cycle management requirements for M&S executing within the C4&IT infrastructure.
- c. Interoperability. Interoperability is the ability of a model or simulation to provide services to and accept services from other models and simulations, and to use the services so exchanged to enable them to operate effectively together. When practicable, new M&S applications should be interoperable or compatible with existing M&S applications within the same analytical domain.
- d. M&S Repository. A consolidated and searchable relational database of all Coast Guard M&S shall be established and maintained in a centralized location at the RDC MSCOE. For each model and simulation in the repository, sufficient documentation for categorization is required.
- e. Verification, Validation, and Accreditation (VV&A). The credibility of M&S results from the conscientious application of the verification and validation (V&V) process. The formal process of accreditation establishes the official approval of the M&S as adequate for a particular use. These two processes combined are VV&A. M&S meeting the requirements in Reference (f) require formal accreditation in accordance with that instruction. For those models and simulations not designated for formal accreditation, the M&S Project Manager (PM) shall take reasonable steps to ensure they are verified and validated so that modeling assumptions are accurate and documented, results produced by the M&S are stable, consistent and repeatable, and the correlation between the M&S behavior and real world behavior is clearly understood.

- f. Configuration Management (CM). To improve the consistency and reliability of Coast Guard M&S, CM shall be applied throughout the life-cycle of all M&S. Reference (g) contains other CM requirements for M&S executing within the C4&IT infrastructure.
- g. Reuse. At a minimum, all M&S shall be documented at a level of detail that allows them to be adapted and reused for the same purposes for which they were created. Existing models, simulations, and data sets in the USCG and DoD M&S and Data Repositories shall be explored for reuse or modification before creating a new M&S tool and/or developing new data sets. Primary considerations will be suitability for purpose, currency and relevance of data/data format.
- h. Workforce Capabilities. The development and management of M&S requires a significant and varied set of competencies and technical skills. The M&S workforce capabilities shall be effectively managed and the workforce suitably trained to ensure the successful implementation and sustainment of Coast Guard M&S. These competencies are technically perishable with the rapid advancement of IT and M&S fields and require sufficient investment in recurrent training and Professional Organization (i.e. MORS, INFORMS) membership and conference attendance.
- i. Alignment and Integration of Requirements and Investments. The Coast Guard will create a strategic direction for Coast Guard M&S, which facilitates the alignment and integration of M&S requirements and capabilities, and promotes the visibility of M&S activities throughout the Coast Guard. This strategic direction and associated policy will be in the Coast Guard Master Plan for M&S. A central goal of this plan is to establish mechanisms to determine the M&S budget and program priorities and to integrate them into the Coast Guard budget process. The M&S Master Plan shall consider the C4&IT investment requirements in Reference (h) for M&S executing within the C4&IT infrastructure.
- j. M&S Software and Tools. Special consideration should be given when obtaining new M&S software and tools not included in the CG Standard Workstation III suite of tools. Due to the potential long term funding obligations made when obtaining new software/tools, developers shall contact the RDC MSCOE for assistance in research of existing software/tools prior to any M&S software commitment.
- k. Security. M&S impact is greatest when the input and results are shared with the widest audience possible in an unclassified manner. However, all M&S shall be evaluated for security concerns against References (i-k) to ensure appropriate classification if merited.

8. COAST GUARD M&S ROLES AND RESPONSIBILITIES.

- a. The Director, Strategic Management, Commandant (CG-095), is the senior official in the Coast Guard dealing with M&S and shall:
 - (1) Act as the M&S Executive;
 - (2) Establish and maintain policies and guidelines for M&S applications, standards, and data managed by the Coast Guard;
 - (3) Promote the effective use of M&S in the Coast Guard;

- (4) Resolve M&S issues between different Coast Guard entities; and,
 - (5) Establish Coast Guard-wide M&S vision and objectives.
- b. The Office of Performance Management, Commandant (CG-0952), provides Coast Guard M&S oversight and shall:
- (1) Assign responsibilities for M&S management and prescribe M&S policy and doctrine;
 - (2) Coordinate and resolve issues on Coast Guard M&S policies and guidelines for M&S applications, standards, and data;
 - (3) Review, recommend, and forward all appropriate M&S correspondence and issues to the M&S Executive for review and appropriate disposition;
 - (4) Chair the M&S Advisory Council;
 - (5) Produce the Coast Guard Master Plan for M&S;
 - (6) Serve as the external point of contact for Coast Guard M&S;
 - (7) Establish policy for the release of Coast Guard modeling data, placeholder data, data structures, simulation mechanisms, and M&S applications, as appropriate; and,
 - (8) Maintain the list of primary and alternate Functional Area Managers.
- c. Functional Area Managers (FAM) with the rank of O-6 or civilian equivalent shall serve as the point of contact for their respective functional areas and shall deal with M&S issues that span the Coast Guard. FAMs shall possess sufficient function area knowledge and experience to represent their area on all M&S issues.
- (1) Table 1 lists the organizations that shall designate a M&S FAM:

Table 1: Functional Area Assignments

Organization	Functional Area
DCO	Operations Resource Management
FORCECOM	Training & Education Systems and Simulators
COMDT (CG-1)	Human Systems Integration
COMDT (CG-2)	Intelligence Requirements & Capabilities
COMDT (CG-4)	Logistics

COMDT (CG-5)	Planning and Performance
COMDT (CG-6)	C4IT Requirements
	Enterprise Architecture
COMDT (CG-7)	Capabilities
COMDT (CG-8)	Resources
COMDT (CG-9)	Acquisitions
LANT	Operations Analysis
PAC	Operations Analysis
RDC	Research and Development

(2) The Functional Area Managers shall:

- (a) Participate as members of the Coast Guard M&S Advisory Council;
 - (b) Designate in writing their primary and secondary Functional Area Managers. This designation letter shall be submitted to the chair of the M&S Advisory Council;
 - (c) Within their functional areas, identify conflicting policy interpretations and provide recommendations on deviations from M&S policy for final disposition by the Coast Guard Executive for M&S through the M&S Advisory Council;
 - (d) Within their functional areas, provide and communicate the vision for employment of M&S to commands, facilities, and organizations;
 - (e) Within their functional areas, promote and support participation in service wide cooperative research, development, acquisition, and operation of M&S systems, technologies, and capabilities;
 - (f) Ensure that M&S systems and data developed within their functional area comply with Coast Guard policy and maximize interoperability and reuse of M&S; and
 - (g) Within their functional areas, provide and certify authoritative M&S data for use across the enterprise.
- d. The M&S Advisory Council consists of all the Functional Area Managers and Commandant (CG-0952), which acts as the chair. The M&S Advisory Council shall:

- (1) Provide the Coast Guard's recommendations and advice to the M&S Executive on matters pertaining to M&S;
 - (2) Develop a shared strategic direction that facilitates the alignment and integration of Coast Guard M&S requirements and investments to advance Coast Guard M&S;
 - (3) Guide the development of the Coast Guard Master Plan for M&S;
 - (4) Support and provide subject matter expertise for M&S initiatives such as VV&A, data standards, etc.;
 - (5) Provide the M&S Executive a coordinated Coast Guard response on M&S issues external to the service; and,
 - (6) Determine and communicate the M&S workforce requirements including competencies and skills to Commandant (CG-1).
- e. The Program Manager Commandant (CG-926) Coast Guard Research, Development, Test and Evaluation (RDT&E) shall:
- (1) Provide technical advice to the M&S Chair and the M&S Advisory Council;
 - (2) Investigate, develop, and recommend new modeling, simulation and analysis techniques that show promise and benefit; and,
 - (3) Advise the RDC MSCOE.
- f. The RDC MSCOE provides Coast Guard M&S general support and is responsible for those M&S products not strictly applicable within specific program element domains or requiring high M&S competency or expertise to maintain specified operating standards. The RDC MSCOE shall:
- (1) Provide M&S tool development (RDT&E funded as appropriate) and analysis to meet life cycle and mission needs for acquisitions, strategy, operations, and tactics;
 - (2) Provide V&V tools, guidance, and lessons learned to assist M&S Project Managers with management of V&V for a particular M&S effort;
 - (3) Provide expertise and guidance in M&S selection and development, implementation and operation and maintenance (OM) to M&S Project Managers to ensure effective and efficient application of M&S and resources;
 - (4) Establish and maintain the Coast Guard M&S repository and the Coast Guard M&S data repository.
 - (5) Conduct M&S based analysis to support Coast Guard decision making as a fee-for-service provider; and,
 - (6) Serve as a permanent Technical Advisor to the M&S Advisory Council.

- g. The M&S Project Manager is the organization who has primary responsibility for the development, V&V and configuration management of a *particular* M&S capability as well as its application in specific areas of interest. The M&S Project Manager shall:
- (1) Follow the M&S directives and policies promulgated in the execution of this Instruction and be primarily responsible for:
 - (a) Life-cycle Management
 - (b) Interoperability
 - (c) Verification & Validation
 - (d) Configuration Management
 - (e) Data Management
 - (f) Elevating requests for release through the FAM to the M&S Advisory Council for adjudication by the Chair
 - (g) Representation
 - (h) Security
 - (i) Reuse
 - (2) Ensure the Coast Guard M&S Repository is updated with appropriate information about the M&S under their management;
 - (3) When in doubt about the application of this policy, bring exceptions or questions through the appropriate FAM for adjudication or clarification by the M&S Advisory Council; and,
 - (4) Procedures may be tailored to satisfy the intentions of this policy consistent with common sense, sound business management, accepted industry practices, and the time-sensitive nature of the requirements themselves. In addition, tailoring may be applied differently to the various phases of the M&S development process. Some examples:
 - (a) The depth of analysis involved with the V&V of established legacy or commercial off-the-shelf (COTS) M&S would be different from the development of new M&S. In the case of the legacy or COTS models and simulations, the existing V&V information or commercial acceptance will be explored by the PM and the M&S Council for acceptability in place of part or all of a standard V&V effort;
 - (b) The extent of a life-cycle management plan for a new development model or simulation that will be supporting a multi-year major acquisition from concept development through deployment will be greater than the informal planning done for a simple spreadsheet model or simulation used to set performance goals; and,

- (c) The formality and requirements of configuration management for M&S which is centrally managed and distributed to multiple users is much greater than the informal CM processes for M&S developed in a commercial off-the-shelf product and used by only a few users.
9. MAJOR CHANGES. Major changes to this system include: updated Functional Area Assignments to align with CG Headquarters reorganization and incorporation of role and responsibilities of R&D Center M&S Center of Expertise.
10. REQUEST FOR CHANGES. Units and individuals may recommend changes by electronic means (i.e. email, FAX), or in writing via the chain of command to Commandant (CG-095).
11. RECORDS MANAGEMENT CONSIDERATIONS. This Instruction has been thoroughly reviewed during the directives clearance process, and it has been determined there are no further records scheduling requirements, in accordance with Federal Records Act, 44 U.S.C. 3101 et seq., NARA requirements, and Information and Life Cycle Management Manual, COMDTINST M5212.12 (series). This policy does not have any significant or substantial change to existing records management requirements.
12. ENVIRONMENTAL ASPECT AND IMPACT CONSIDERATIONS. Environmental considerations were examined in the development of this Instruction and have been determined to be not applicable.
- a. The development of this directive and the general policies contained within it have been thoroughly reviewed by the originating office and are categorically excluded under current USCG categorical exclusion (CE) 33 from further environmental analysis, in accordance with Section 2.B.2. and Figure 2-1 of the National Environmental Policy Act Implementing Procedures and Policy for Considering Environmental Impacts, COMDTINST M16475.1 (series).
- b. This directive will not have any of the following: significant cumulative impacts on the human environment; substantial controversy or substantial change to existing environmental conditions; or inconsistencies with any Federal, State, or local laws or administrative determinations relating to the environment. All future specific actions resulting from the general policies in this Manual must be individually evaluated for compliance with the National Environmental Policy Act (NEPA), Council on Environmental Policy NEPA regulations at 40 CFR Parts 1500-1508, DHS and Coast Guard NEPA policy, and compliance with all other environmental mandates.
13. FORMS/REPORTS. None.

M. F. McAllister /s/
Rear Admiral, U.S. Coast Guard
Director, Strategic Management