

# Unmanned Maritime Autonomy Architecture (UMAA) Governance (GOV)



Version 1.0  
(UMAA-INF-GOV)  
August 25, 2020

## Signature Page

**Submitted by:**

Mark Rothgeb

**Date Signed:** 11/19/20

---

**Mark Rothgeb**

## Unmanned Maritime Autonomy Architecture Standards Board Chair

**PMS 406**

**Approvals:**

**Date Signed:**

## CDR Jeremiah Anderson

## PMS 406 Advanced Autonomous Capabilities, Principal Assistant Program Manager

**Date Signed:**

**CAPT Pete Small**

## Program Manager

## PMS 406 Unmanned Maritime Systems, PEO Unmanned and Small Combatants

## TABLE OF CONTENTS

| <u>SECTION</u>   | <u>PAGE</u> |
|--|-------------|
| TABLE OF CONTENTS .....  | iii         |
| TABLES .....   | iii         |
| 1.0 SCOPE AND PURPOSE .....  | 1           |
| 2.0 ARCHITECTURE PROJECT IDENTIFICATION .....                      | 1           |
| 2.1 NAME .....   | 1           |
| 2.2 PROJECT DESCRIPTION .....                                      | 1           |
| 2.3 APPROVAL AUTHORITY .....                                       | 1           |
| 3.0 GENERAL POLICIES .....   | 1           |
| 4.0 UMAA Interface Control Working Group (ICWG) ORGANIZATION ..... | 1           |
| 5.0 WORK PRODUCTS .....  | 2           |
| 5.1 INFORMATION WORK PRODUCTS .....                                | 2           |
| 5.2 SPECIFICATION WORK PRODUCTS .....                              | 3           |
| 5.3 GUIDANCE WORK PRODUCTS .....                                   | 3           |
| 6.0 CHANGE MANAGEMENT .....  | 4           |
| 7.0 DATA MANAGEMENT .....  | 4           |
| 7.1 WORK PRODUCT DISSEMINATION .....                               | 4           |
| 7.2 WORK PRODUCT DISTRIBUTION STATEMENTS AND WARNINGS .....        | 4           |
| 7.3 MANAGEMENT OF THIRD-PARTY DATA .....                           | 5           |
| 8.0 INDUSTRY DAYS .....  | 5           |
| 9.0 ACRONYMS AND ABBREVIATIONS .....                               | 6           |

## TABLES

| <u>TABLE</u>                               | <u>PAGE</u> |
|--|-------------|
| TABLE 1: WORK PRODUCT TYPES .....          | 2           |
| TABLE 2: INFORMATION WORK PRODUCTS .....   | 2           |
| TABLE 3: SPECIFICATION WORK PRODUCTS ..... | 3           |
| TABLE 4: GUIDANCE WORK PRODUCTS .....      | 3           |

## **1.0 SCOPE AND PURPOSE**

1. This Governance applies to the Unmanned Maritime Autonomy Architecture (UMAA) Board (UMAAB) and its work products as defined by the deliverables set out in the *PMS 406 UMAA Board Charter*. It establishes the operating procedures for all UMAAB activities related to these work products.

## **2.0 ARCHITECTURE PROJECT IDENTIFICATION**

### **2.1 NAME**

1. Program Executive Office Unmanned and Small Combatants (PEO USC) Unmanned Maritime Systems (PMS 406) Unmanned Maritime Autonomy Architecture (UMAA).

### **2.2 PROJECT DESCRIPTION**

1. PMS 406 chartered the UMAAB in November 2018 to develop and maintain an architecture standard that reduces autonomous vehicle system life-cycle costs by supporting technology insertion, refresh, and integration for critical maritime autonomy components. The development of the autonomy architecture must meet the following requirements:

1. Support both Unmanned Surface Vehicles (USVs) and Unmanned Undersea Vehicles (UUVs),
2. Promote the development of modular scalable software,
3. Minimize specific hardware dependencies, and
4. Support the use of existing and new autonomy implementations.

2. *PMS 406 UMAAB Charter* provides information regarding the UMAAB organization, activities and associated work products.

### **2.3 APPROVAL AUTHORITY**

1. As defined in the *PMS 406 UMAAB Charter* the final approval authority within the UMAAB is the PMS 406 Program Manager (PM). For the current PMS 406 PM see the DI2E UMAAPUBLIC website (<https://confluence.di2e.net/display/UMAAPUBLIC>).

## **3.0 GENERAL POLICIES**

1. Membership on the UMAAB is restricted to individuals employed either by the US government or by a University Affiliated Research Center (UARC).

2. All UMAAB related documents, meeting announcements, and meeting minutes shall be posted on the DI2E UMAA website (<https://confluence.di2e.net/display/UMAA>) and shall be accessible via this website to all recognized participants of the UMAAB.

3. All UMAA released documents shall be posted on the DI2E UMAAPUBLIC website (<https://confluence.di2e.net/display/UMAAPUBLIC>).

## **4.0 UMAA Interface Control Working Group (ICWG) ORGANIZATION**

1. See the *PMS406 UMAAB Charter* and DI2E UMAAPUBLIC for information on the UMAA ICWG organization.

## 5.0 WORK PRODUCTS

1. All work products shall conform to one of the work product types listed in *Table 1*.
2. Work products may be in the form of a document or other information sources such as a website.
3. The formal title of all work products shall begin with Unmanned Maritime Autonomy Architecture (UMAA), followed by the distinguishing name of the work product itself.
4. A versioning number will be assigned to all work product documents as defined on the DI2E UMAAPUBLIC website (<https://confluence.di2e.net/pages/viewpage.action?pageId=305464155>).

TABLE 1: WORK PRODUCT TYPES

| Work Product Type | File Name Pattern     | Description  |
|-------------------|-----------------------|--|
| Information       | <b>UMAA-INF-name</b>  | Information concerning other source material. It is not a standard or specification.   |
| Specification     | <b>UMAA-SPEC-name</b> | A set of normative requirements defining an exact description of an object or process. |
| Guidance          | <b>UMAA-G-name</b>    | Consensus recommendations, studies, guidance, or advice.                               |

## 5.1 INFORMATION WORK PRODUCTS

TABLE 2: INFORMATION WORK PRODUCTS

| Reference        | Title                                      | Description   |
|------------------|--|---|
| UMAA-INF-GOV     | <i>Governance</i>                          | Establishes the operating procedures for all UMAA ICWG activities related to UMAA work products.  |
| UMAA-INF-Charter | <i>UMAA Board Charter</i>                  | Establishes the organization for the UMAAB and all member groups.   |
| UMAA-INF-CM      | <i>Sustainment and Enhancement Process</i> | Provides the configuration management process used by the UMAA ICWG.<br><a href="https://confluence.di2e.net/pages/editpage.action?pageId=574819125">https://confluence.di2e.net/pages/editpage.action?pageId=574819125</a> |
| UMAA-INF-ADD     | <i>Architecture Design Description</i>     | Provides a high-level description of the UMAA by providing quality attributes, guidelines and system functional, interface and data views.  |

## 5.2 SPECIFICATION WORK PRODUCTS

1. For a description of the Interface Control Documents (ICDs) listed in Table 3: Specification Work Products see the DI2E UMAAPUBLIC website (<https://confluence.di2e.net/pages/viewpage.action?pageId=305464155>).

**TABLE 3: SPECIFICATION WORK PRODUCTS**

| Reference            | Title                                     | Description   |
|----------------------|---|---|
| UMAA-SPEC-MOICD      | <i>Maneuver Operations ICD</i>            | <a href="https://confluence.di2e.net/pages/viewpage.action?pageId=305464035">https://confluence.di2e.net/pages/viewpage.action?pageId=305464035</a> |
| UMAA-SPEC-EOICD      | <i>Engineering Operations ICD</i>         | <a href="https://confluence.di2e.net/pages/viewpage.action?pageId=314188232">https://confluence.di2e.net/pages/viewpage.action?pageId=314188232</a> |
| UMAA-SPEC-SAICD      | <i>Situational Awareness ICD</i>          | <a href="https://confluence.di2e.net/pages/viewpage.action?pageId=314188283">https://confluence.di2e.net/pages/viewpage.action?pageId=314188283</a> |
| UMAA-SPEC-SEMICD     | <i>Sensor and Effector Management ICD</i> | <a href="https://confluence.di2e.net/pages/viewpage.action?pageId=314188294">https://confluence.di2e.net/pages/viewpage.action?pageId=314188294</a> |
| UMAA-SPEC-POICD      | <i>Processing Operations ICD</i>          | <a href="https://confluence.di2e.net/pages/viewpage.action?pageId=314188317">https://confluence.di2e.net/pages/viewpage.action?pageId=314188317</a> |
| UMAA-SPEC-COICD      | <i>Communication Operations ICD</i>       | <a href="https://confluence.di2e.net/pages/viewpage.action?pageId=314188307">https://confluence.di2e.net/pages/viewpage.action?pageId=314188307</a> |
| UMAA-SPEC-MMICD      | <i>Mission Management ICD</i>             | <a href="https://confluence.di2e.net/pages/viewpage.action?pageId=475303376">https://confluence.di2e.net/pages/viewpage.action?pageId=475303376</a> |
| UMAA-SPEC-SOICD      | <i>Support Operations ICD</i>             | <a href="https://confluence.di2e.net/pages/viewpage.action?pageId=314188339">https://confluence.di2e.net/pages/viewpage.action?pageId=314188339</a> |
| UMAA-SPEC-Compliance | <i>UMAA Compliance</i>                    | Documents the rules associated with conforming to the UMAA services.  |

## 5.3 GUIDANCE WORK PRODUCTS

**TABLE 4: GUIDANCE WORK PRODUCTS**

| Reference  | Title                                       | Description   |
|------------|---|---|
| UMAA-G-RI1 | <i>PS/ARL Reference Implementation</i>      | Provides an overview of the design decisions and implementation results of the reference implementation produced by PS/ARL.<br><a href="https://confluence.di2e.net/pages/viewpage.action?pageId=577241230">https://confluence.di2e.net/pages/viewpage.action?pageId=577241230</a>  |
| UMAA-G-RI2 | <i>JHU/APL Reference Implementation</i>     | Provides an overview of the design decisions and implementation results of the reference implementation produced by JHU/APL.<br><a href="https://confluence.di2e.net/pages/viewpage.action?pageId=577241233">https://confluence.di2e.net/pages/viewpage.action?pageId=577241233</a> |
| UMAA-G-RI3 | <i>NUWC DIVNPT Reference Implementation</i> | Provides an overview of the design decisions and implementation results of the reference implementation produced by NUWC DIVNPT.  |

|           |                  |  |
|-----------|------------------|--|
|           |                  | <a href="https://confluence.di2e.net/pages/editpage.action?pageId=577241243">https://confluence.di2e.net/pages/editpage.action?pageId=577241243</a>  |
| UMAA-G-UC | <i>Use Cases</i> | Provides examples of how the services may be combined to control a UMV.<br><a href="https://confluence.di2e.net/pages/editpage.action?pageId=507421638">https://confluence.di2e.net/pages/editpage.action?pageId=507421638</a> |

## 6.0 CHANGE MANAGEMENT

1. Change management comprises a set of policies, processes, and standard definitions for submitting, accepting, assigning, and implementing changes to Work Products of the UMAA. This information is documented on the DI2E UMAAPUBLIC website (<https://confluence.di2e.net/pages/viewpage.action?pageId=574819125>).

## 7.0 DATA MANAGEMENT

1. Data management is the process for disseminating all UMAA work products. The policy applies to all work products.

### 7.1 WORK PRODUCT DISSEMINATION

1. Dissemination of all UMAA work products is controlled by PMS 406 or higher DOD authority. Unless further dissemination is authorized by PMS 406 or higher DOD authority, UMAA work products may only be disseminated using the DI2E UMAAPUBLIC website and DI2E UMAA website.

### 7.2 WORK PRODUCT DISTRIBUTION STATEMENTS AND WARNINGS

1. Unless otherwise directed by PMS 406 or higher DOD authority, all UMAA work products shall contain the following distribution statement and warning on the first page.

DISTRIBUTION STATEMENT D. Distribution authorized to Department of Defense and U.S. DoD contractors only; Critical Technology (date). Other requests for this document shall be referred to PMS 406.

WARNING - This document contains technical data whose export is restricted by the Arms Export Control Act (Title 22, U.S.C., Sec 2751, et seq.) or the Export Administration Act of 1979 (Title 50, U.S.C., App. 2401 et seq.), as amended. Violations of these export laws are subject to severe criminal penalties. Disseminate in accordance with provisions of DoD Directive 5230.25.

Destruction Notice: For unclassified, limited distribution documents destroy by any method that will prevent disclosure of contents or reconstruction of the document

NOTE: "date" shall be the version or notice date of the work product.

2. The process for changing a work product from Distribution Statement D to Distribution Statement A can be found on the DI2E UMAAPUBLIC website (<https://confluence.di2e.net/pages/viewpage.action?pageId=776360329>).

### **7.3 MANAGEMENT OF THIRD-PARTY DATA**

1. Third-party data may only be hosted on the DI2E UMAAPUBLIC website, DI2E UMAA website or otherwise used by the UMAAB if the data is public or is approved for dissemination to the UMAAB by the responsible party.

### **8.0 INDUSTRY DAYS**

1. With PMS 406 PM sponsorship the UMAAB may establish Industry Days in order to inform the community and acquire feedback on UMAA work products.

2. All Industry Days shall be announced with a minimum of 4 weeks' notice on the DI2E UMAAPUBLIC website.



## **9.0 ACRONYMS AND ABBREVIATIONS**

|            |  |
|------------|--|
| DI2E       | Defense Intelligence Information Enterprise                        |
| DOD        | Department of Defense  |
| GOV        | Governance   |
| ICD        | Interface Control Document   |
| ICWG       | Interface Control Working Group                                    |
| JHU/APL    | Johns Hopkins University Applied Physics Lab                       |
| NUWCDIVNPT | Naval Undersea Warfare Center Division Newport                     |
| PEO USC    | Program Executive Office Unmanned and Small Combatants             |
| PM         | Program Manager  |
| PMS 406    | Program Manager Ships 406 Unmanned Maritime Systems Program Office |
| PS/ARL     | Penn State Applied Research Lab                                    |
| UARC       | University Associated Research Center                              |
| UMAA       | Unmanned Maritime Autonomy Architecture                            |
| UMAAB      | Unmanned Maritime Autonomy Architecture Board                      |
| UMV        | Unmanned Maritime Vehicle  |
| USV        | Unmanned Surface Vessel  |
| UUV        | Unmanned Underwater Vehicle  |