

Unmanned Systems (UxS) Control Segment (UCS) Architecture: Architecture Description

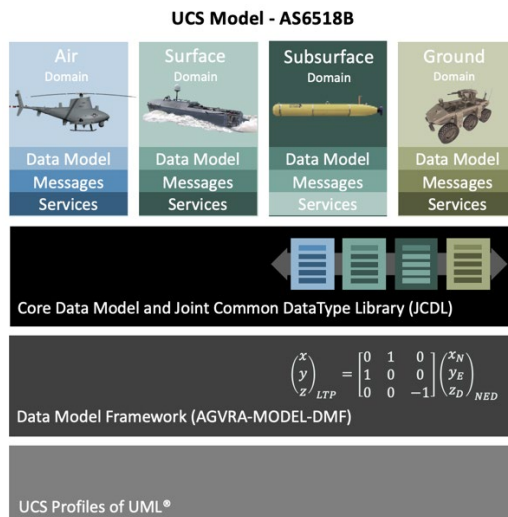
RATIONALE

This revision of AS6512 applies to the UCS Architecture Library, Revision B.

FOREWORD

This Architecture Description (AD) establishes the content of the SAE Unmanned Systems (UxS) Control Segment (UCS) Architecture Library Revision B. The UCS Architecture Library Revision B is expressed by multiple SAE publications, of which this publication is the highest in the publication tree. The official designation of the UCS Architecture Library Revision B is therefore AS6512B. The other SAE publications in the UCS Architecture Library Revision B are AS6513B and AS6518B. One government-owned folder is also distributed with the UCS Library. This is the Autonomous Ground Vehicle Reference Architecture (AGVRA) Data Model Framework (DMF) Version 3.1A. This folder includes the Joint Common Data Type Library (JC DL) and core DMF model.

The UCS Architecture was originally applicable to systems that control unmanned aircraft above 10 kg gross take-off weight (nominal); however, it has since been extended to address all unmanned systems whose means of conveyance includes air, water, and ground. The UCS Architecture is concerned with control station software but not the control station software external environment, including information access, communications, and human-computer interfaces.



Elements of the UCS Architecture Model Revision B

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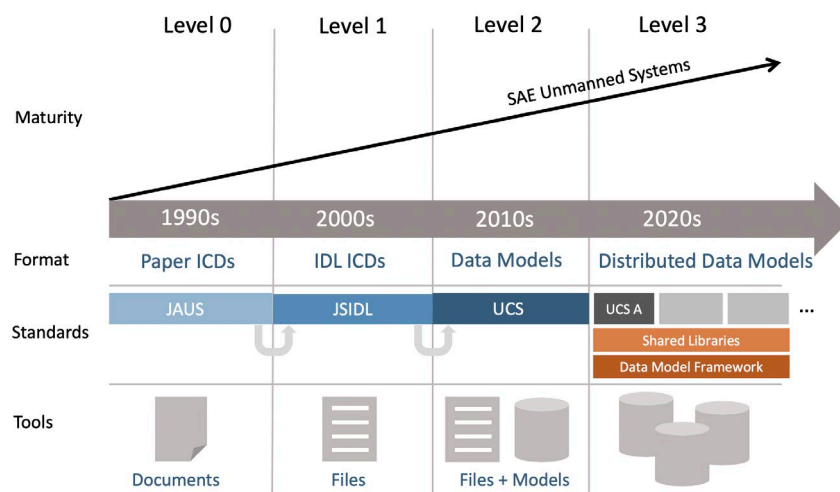
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The UCS Architecture is extensible by users, and significant content exists outside of the AS6518B model. Access to this additional content is controlled by the Department of Defense.

The UCS Architecture defines a service-oriented architecture and modeling framework for the specification, integration, implementation, and deployment of control station software. The architecture is centered on a platform-independent model and associated foundational models. Platform independence (independence of the software operating environment) allows the UCS Architecture to be implemented on different computing infrastructures and with different communication protocols. This supports technology insertion and adoption on multiple UCS systems and related architectures. The architecture is deployable on any scale of UxS control station from a hand-held device to a fixed facility with multiple mission planners, operators, and analysts.

From the perspective of the SAE Aerospace Unmanned Systems Committee (AS-4), this revision of the UCS Architecture Library represents “Level 3” maturity in model-based information standards in which data model content is distributed across multiple architecture stakeholders. The shared library is the JCDL and DMF. Both the DMF and JCDL can support multiple architectures.



Evolution in AS-4 Model-Based Information Standards

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