Open Mission Systems (OMS) in a Nutshell

OMS is a Government-Owned Architecture Specification

OMS is not an implementation specification. You will not find rules in the OMS documentation on how to implement your system. OMS focuses on the interfaces between software Services and hardware Subsystems, and how data is exchanged across those interfaces.

What is OMS Compliance?

OMS Compliance is the creation of a subset of a weapon system architecture designed with open interfaces and data exchanges in accordance with the OMS Standard.

OMS Promotes Interoperability and Reuse

Use of the standard allows weapon systems, services, and subsystems/payloads/sensors to interact and communicate using common data formats. This interaction can occur within or between weapon systems, between platforms in sub-surface, surface, air, or space domains, or between ground segments.

OMS Provides a Set of Tools

The OMS Standard does not tell you what to build, nor how to build it. OMS provides a standard set of tools so that anyone can use those tools to extend, modify, and/or replace what is currently fielded in existing systems.

OMS Allows Rapid Integration of New Sensor Capabilities, Subsystems/Payloads and Services

If your program is OMS-compliant, an OMS-capable component may be integrated and tested at a minimal cost. If your program has a large amount of common operating picture data, OMS allows you to share it with more users in a standardized format. OMS can also break down boundaries between sensors, allowing data sharing that would be challenging to implement individually.

Use of OMS is Widespread and Growing

There are US Air Force, Navy, and Space Force programs that utilize OMS for their system architecture. Please contact the Open Architecture Management Office for a more complete list of programs.

OMS Can Be Expanded to Work in Multiple Domains and for Many Use Cases

OMS has recently been expanded to new areas. Please contact the Open Architecture Management Office to understand whether your application would benefit from OMS.
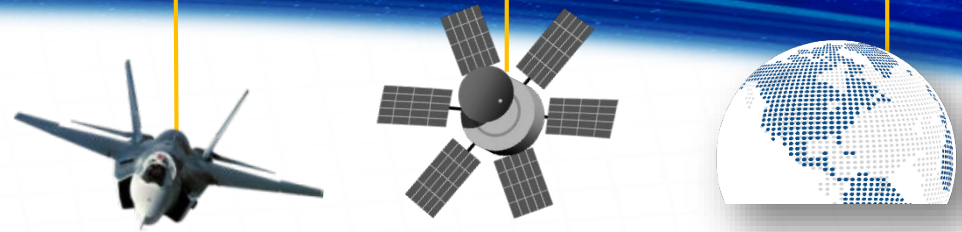
OMS Frequently Asked Questions

1. **Is OMS "All or Nothing?"** – **NO.** OMS offers a Tiered Compliance mechanism that allows a subset of Services and/or Subsystems within the System to be OMS-compliant

2. **Is OMS only for new subsystems and services? - NO.** Use OMS Adapters to quickly reach OMS-compliance with little or no changes to legacy hardware subsystems or software services

3. **Does OMS require contractors to disclose the inner workings of OMS Subsystems and OMS Services? - NO.** OMS only requires documentation and disclosure of your *external* interfaces and resources required

4. **Does OMS guarantee "Plug and Play?"** - **NO.** The OMS Standard enables logical "Plug and Talk" for rapid integration

5. **Does Use of UCI equal OMS compliance?** - **NO.** There are a number of OMS technical and documentation requirements beyond the use of Universal Command and Control Interface (UCI)

6. **Are large UCI messages too big for high-performance systems?** - **NO.** UCI has messages of all sizes, and even large messages can be compressed before transmission; many fields are optional

7. **Does OMS eliminate the need for Systems Engineering?** - **NO.** Systems Engineering work is required to employ OMS Services and Subsystems

8. **Is OMS only for Linux?** - **NO.** OMS can run on any number of operating systems, such as Windows, Linux, Integrity, VxWorks, etc.; only the Open Computing Environment (OCE) is required to be Linux

9. **Is OMS just UCI?** - **NO.** There are four valid OMS Data Exchanges: OMS Messages, Data Transfers, Special Signals, and Security Information Exchanges

10. **Is UCI XML?** - UCI is defined in an XML Schema, but UCI messages do **NOT** have to be transmitted as XML text string. UCI messages have been encoded using multiple industry formats for transmission between nodes.
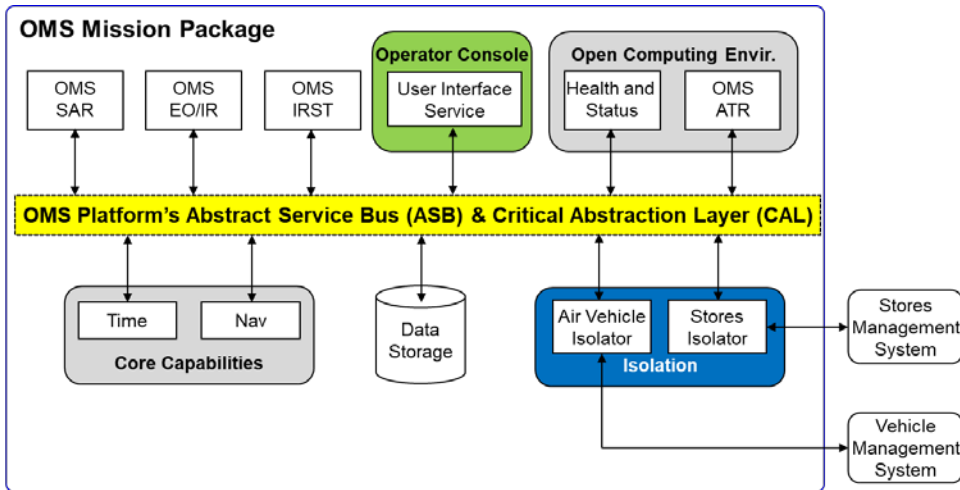
Open Mission Systems (OMS)

Example – Integration of a new Automatic Target Recognition service into an already OMS-compliant weapon system

- Weapons System has 3 OMS Subsystems/Sensors
  - OMS SAR – produces NITF images and MTI entity tracks
  - OMS EO/IR – outputs video with KLV
  - OMS IRST – produces LOBs and entity track messages
- The ATR software has been adapted to be an OMS Service
  - ATR Software has been recompiled with provided mission package Critical Abstraction Layer (CAL)
  - Reports health and status via OMS messages
  - Ingests tracks, video, LOBs, and NITF images
  - Outputs new entity tracks that the ATR service has automatically identified in the received products
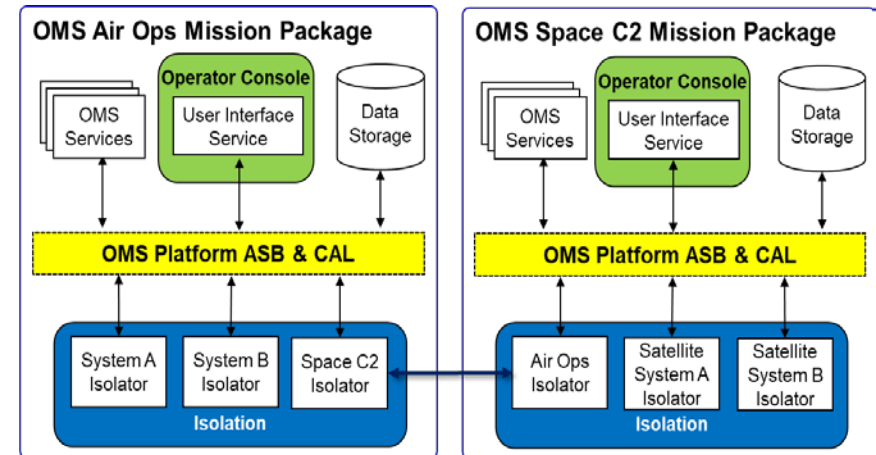

Integration

1. The ATR service will automatically receive new events from the OMS Subsystem/Sensors via OMS messages and other OMS data exchanges
2. Once the ATR service has been installed on the OCE, the UI and the Health and Status services need to be adjusted to support the new service and its outputs
3. No changes are required to the existing sensors or VMS

Example – Sharing of Common Operating Picture (COP) data between an air operations floor and a space operations floor

- Air Operations Center connects and coordinates tasking for two aircraft
- Space C2 Center coordinates tasking for two space systems
- All ISR products are handled via OMS messages or data exchanges
- Completion, status, and management of all tasking is handled via OMS messages

Integration

1. Machine-to-machine common track, tasking, and ISR product formats allow more robust COP for both centers
2. Both operations centers develop isolator services to manage data exchanges between the two systems
3. OMS does not dictate what data exchanges occur between centers – that is based on program needs

For More Information Please Contact: AFLCMC.XZ.OAMO@us.af.mil