Networked Media Open Specifications – FAQs –

WHAT ARE NETWORKED MEDIA OPEN SPECIFICATIONS?

The Networked Media Open Specifications (NMOS) have been developed for use in IP-based infrastructures to provide a control and management layer, in addition to the transport layer provided by SMPTE ST2110.

The goal is to ensure straightforward interoperability between products from a wide range of manufacturers, so that end users and service providers can easily build best-of-breed systems. It also allows vendors to invest their valuable resources in creating innovative products, not wasting time on the challenges of interoperability.

The NMOS family of specifications began with projects for Discovery & Registration, Device Connection Management and Network Control. It has grown to include other important subjects such as Event & Tally, Audio Channel Mapping and Interoperable Security. Additional working groups become active as new operational and business needs are identified.

The specifications are a growing family, available to both suppliers and end users at no cost, to support the development of products and services which work within an open industry framework. Wherever possible, the specifications are being developed using Internet standards or Internet-friendly techniques.

Please note - A broad overview is available from the NMOS At a Glance page.
www.amwa.tv/nmos-overview

WHO IS SUPPORTING THIS INITIATIVE?

The NMOS initiative is supported by the Joint Task Force on Networked Media (JT-NM), https://www.jt-nm.org/

The JT-NM is comprised of four organizations; the AMWA, EBU, SMPTE and VSF. The work of the AMWA complements and, in turn, supports the contributions from the other organizations.

More than 70 AMWA end users and suppliers, have signed up as participants in this project and are active in the working groups that directly affect their business. The list ranges from large, multinational suppliers to single person consultancies. www.amwa.tv/nmos-supporters

The JT-NM also works closely with the Alliance for IP Media Solutions (AIMS) to provide education and advocacy across our industry. https://aimsalliance.org/

WHAT IS THE TECHNICAL BASIS FOR THE NMOS PROJECT?

In 2015, the JT-NM published a Reference Architecture which describes a conceptual model for interoperability. It is designed for contributions that will allow end users and manufacturers to truly benefit from the cost saving, flexibility and scalability of an Internet-based approach.

However, the Joint Task Force did not go as far as working on specifications or encouraging implementations. Instead, they laid out the Reference Architecture and a collection of best practices, leaving it to initiatives such as NMOS and the AMWA Networked Media Incubator project to look at the detail and bring implementers together to create interoperable solutions.

WHAT IS THE NETWORKED MEDIA INCUBATOR?

This is a key project set up to enable the creation of the family of Open Specifications.

The Networked Media Incubator is sponsored by the AMWA to enable open, multi-vendor interoperability in professional media networks. The activity is focused on getting early tangible results by concentrating on specific technical areas through a series of collaborative development activities and facilitating virtual and physical interchanges between system developers. The technical goals of the group are guided by NMOS Steering group and ultimately based on the JT-NM's Reference Architecture.

The Networked Media Incubator (also simply called the "Incubator") was set up in 2015 as an "umbrella" project, under which the working groups could operate. The number of working groups has grown steadily and most hold weekly or fortnightly conference calls in addition to technical discussions on the Basecamp project forum.

When necessary, face to face or virtual developer workshops have been set up. These are open to any AMWA member which has software to test. The workshops provide a supportive environment where developers share experiences to the mutual benefit of all participants. To encourage openness and discussion, there is strict rule not to speak negatively about any other participant who takes part in a workshop.

WHAT ARE IS-04, IS-05, ETC?

These are identification numbers for the NMOS Interface Specifications, which are assigned to them once they reach "Specification" status. Other supporting specifications may have different numbering, such as "BCP", for Best Current Practice.

NMOS APIs are built on widely adopted patterns used on the Internet / Web, using open-source components wherever available.

WHERE CAN I FIND TECHNICAL DETAILS OF THE SPECIFICATIONS?

An introduction can be found on the NMOS Specifications page which provides links to the individual specifications. https://specs.amwa.tv/nmos/

NMOS specifications are made publicly available (Apache 2 license) as early as is practical and, at the latest, on elevation to AMWA Specification. Note that some specifications are in private

repos in their early stages. These are accessible to AMWA members (if you are a member who needs access, please contact the Incubator or activity lead).

As well as proprietary implementations, several open-source implementations of IS-04 and IS-05 are available. At the time of writing, they all use the Apache 2.0 license, which matches the NMOS specifications themselves. If you have an implementation you would like added, please create an issue against this repository indicating where it is available from.

HOW CAN MY COMPANY PARTICIPATE?

Any company can join this work by becoming a member of the AMWA and signing the Rules document**. Membership provides access to all current NMOS projects and a shared IPR framework through the AMWA's IPR policy.

There are three company membership levels plus an individual membership. Details of the range of membership benefits are available via the JOIN button on AMWA.tv.
https://www.amwa.tv/join

Please note that the NMOS Incubator project is "RAND-Z" so it requires any contributions to be made available on a reasonable and non-discriminatory basis at zero cost.

** The Rules document exists simply to support open, honest communication and ensure that no participant speaks negatively about a competitor following discussions and / or developer workshops.

WHEN WILL NMOS SPECIFICATIONS BECOME STANDARDS?

Although development of an Interface Specification reaches a point where it is sufficiently advanced to be formally elevated to an "AMWA Specification" and published, the need to accommodate evolving end user requirements does not allow an easy fit with the traditional standards processes which have worked so well for transport streams such as SMPTE ST 2110.

For example, as the professional networked media industry matures, new end user requirements are likely to generate new specifications and require backward-compatible updates to existing NMOS specifications. So although individual versions will become "Stable" and widely implemented, NMOS will continue to evolve and grow.