

Appendix A: PROFILE GUIDANCE

Interoperability Profiles aggregate references to the characteristics of other profiles types to provide a consolidated perspective.... Interoperability Profiles identify essential profile elements including Capability Requirements and other NAF architectural views [1], characteristic protocols, implementation options, technical standards, Service Interoperability Points, and the relationship with other profiles such as the system profile to which an application belongs.

References: [1] NATO Architecture Framework Version 4. 25 January 2018. AC/322-D(2018)0002. [2] Information Technology - Framework and Taxonomy of International Standardized Profiles - Part 3: Principals and Taxonomy for Open System Environment Profiles. Copyright # 1998. ISO. ISO/IEC TR 10000-3.

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North Atlantic Treaty Organization (NATO)

Stakeholder(s):

ISO :

ISO/IEC TR 10000 [2] defines the concept of profiles as a set of one or more base standards and/or International Standardized Profiles, and, where applicable, the identification of chosen classes, conforming subsets, options and parameters of those base standards, or International Standardized Profiles necessary to accomplish a particular function.

C3 Board :

The C3 Board (C3B) Interoperability Profiles Capability Team (IP CaT) has extended the profile concept to encompass references to NAF architectural views [1], characteristic protocols, implementation options, technical standards, Service Interoperability Points (SIOP), and related profiles.

Interoperability Profiles Capability Team :

The IP CaT has undertaken the development of interoperability profiles in order to meet the need for specific guidance at interoperability points between NATO and Nations systems and services required for specific capabilities. As a component of the NISP, profiles have great utility in providing context and interoperability specifications for using mature and evolving systems during exercises, pre-deployment or operations. Application of these profiles also provides benefit to Nations and promotes maximum opportunities for interoperability with NATO common funded systems as well as national to national systems. Profiles for system or service development and operational use within a mission area enable Nations enhanced readiness and availability in support of NATO operations.

Non-NATO Organizations :

Nothing in this guidance precludes the referencing of National profiles or profiles developed by non-NATO organizations in the NATO Interoperability Standards and Profiles (NISP).

NATO Nations :

NATO and Nations use profiles to ensure that all organizations will architect, invest, and implement capabilities in a coordinated way that will ensure interoperability for NATO and the Nations. Interoperability Profiles will provide context and assist or guide information technologists with an approach for building interoperable systems and services to meet required capabilities.

NISP Stakeholders :

NISP stakeholders include engineers, designers, technical project managers, procurement staff, architects and other planners. Architectures, which identify the components of system operation, are most applicable during the development and test and evaluation phase of a project. The NISP is particularly applicable to a federated environment, where interoperability of mature National systems requires an agile approach to architectures.

Engineers

Designers

Technical Project Managers

Procurement Staff

Architects

Planners

Vision

Well-specified interoperability profiles

Mission

To provide guidance on the preparation of Service Interoperability Profiles

1. Baseline

Define a baseline set of interoperability profiles.

Guidelines for interoperability profile development — Due to the dynamic nature of NATO operations, the complex Command and Control structure, and the diversity of Nations and Communities of Interest (COI), interoperability must be anchored at critical points where information and data exchange between entities exists. The key drivers for defining a baseline set of interoperability profiles include:

1.1. Key Drivers

Address the key drivers for information and data exchange.

1.1.1. Interoperability

Identify the Service Interoperability Points and define the Service Interface Profiles

1.1.2. Building Blocks

Develop modular Architecture Building Blocks

1.1.3. Standards

Use standards consistent with common architectures

1.1.4. Specifications

Develop specifications that are service oriented and independent of the technology implemented in National systems where practical

1.1.5. Modularity

Develop modular profiles that are reusable in future missions or capability areas

1.1.6. Emerging Technologies

Use an open system approach to embrace emerging technologies

Use an open system approach to embrace emerging technologies

1.2. Standards & Interoperability Points

Clearly define the Service Interoperability Point where two entities will interface and the standards in use by the relevant systems.

The starting point for development of a profile is to clearly define the Service Interoperability Point where two entities will interface and the standards in use by the relevant systems.

1.3. Irrelevant Capabilities

Determine circumstances in which some of the capability elements may not be relevant.

The NISP is the governing authoritative reference for NATO interoperability profiles. Doctrine, Organization, Training, Materiel, Leadership and education, Personnel, Facilities and Interoperability (DOTMLPFI) capability analysis may result in a profile developer determining that some of the capability elements may not be relevant for a particular profile. In such cases, the "not applicable" sections may either be marked "not applicable" or omitted at the author's discretion.

Stakeholder(s):

Profile Developers

2. Elements

Identify typical elements of Interoperability Profile Documentation.

This section identifies typical elements of Interoperability Profile Documentation.

2.1. Identifiers

Assign a unique identifier to each Interoperability Profile.

Each NATO or candidate NATO Interoperability Profile shall have a unique identifier assigned to it when accepted for inclusion in the NISP. This shall be an alpha-numeric string appended to the root mnemonic from the NISP profile taxonomy.

2.2. Elements

2.2.1. Inter-Related Information

Provide a coherent set of descriptive inter-related information.

Profile elements provide a coherent set of descriptive inter-related information to NATO, national, Non-Governmental Organization (NGO), commercial and other entities ('actors') desiring to establish interoperability.

Stakeholder(s):

NATO

Nations

Non-Governmental Organizations (NGO)

Commercial Entities

2.2.2. Context

Provide context for a specific set of conditions.

Profiles are not concepts, policies, requirements, architectures, patterns, design rules, or standards. Profiles provide context for a specific set of conditions related to the aforementioned documents in order to provide guidance on development of systems, services, or even applications that must consider all of these capability related products. Interoperability Profiles provide the contextual relationship for the correlation of these products in order to ensure interoperability is 'built-in' rather than considered as an 'after-thought'.

2.2.3. Standards

Document the standards required to support this or other associated profiles.

Applicable Standards — Each profile should document the standards required to support this or other associated profiles and any implementation specific options. The intention of this section is to provide an archive that shows the linkage between evolving sets of standards and specific profile revisions.

2.2.3.1. Identifiers

Assign a unique identifier to each profile.

2.2.3.2. Purpose or Service

Describe the purpose or service.

2.2.3.3. Standards

Document a set of relevant Standard Identifiers from the NISP.

2.2.3.4. Guidance

Provide implementation specific guidance associated with the profile.

(may be a reference to a separate annex or document)

2.2.4. Relationships

Document other related systems and service profiles.

Related Profiles — Each profile should document other key related system or service profiles in a cross reference table. The intention of this section is to promote smart configuration management by including elements from other profiles rather than duplicating them in part or in whole within this profile. Related profiles would likely be referenced in another section of the profile.

2.2.4.1. Identifiers

Assign a unique identifier to each profile.

2.2.4.2. Descriptions

Briefly describe the profile.

2.2.4.3. CoIs

Identify Communities of Interest.

2.2.4.4. Associated SIOPs

Assign unique identifiers to associated SIOPs.

3. Verification & Conformance

3.1. Metrics

Identify measures to determine verification and conformance.

Each profile should identify authoritative measures to determine verification and conformance with agreed quality assurance, Key Performance Indicators (KPIs), and Quality of Service standards such that actors are satisfied they achieve adequate performance. All performance requirements must be quantifiable and measurable; each requirement must include a performance (what), a metric (how measured), and a criterion (minimum acceptable value).

3.2. Feedback

Gather feedback to improve profile verification and conformance criteria.

Stakeholders are invited to provide feedback to improve a profile's verification and conformance criteria.

3.3. Aspects

Consider the specified aspects.

Verification and Conformance is considered in terms of the following five aspects:

3.3.1. Approach

Describe the validation approach used to demonstrate the supporting service interoperability points.

Each profile should describe the validation approach used to demonstrate the supporting service interoperability points. The intention of this section is to describe a high-level approach or methodology by which stakeholders may validate interoperability across the SIOP(s).

3.3.2. Maturity

Describe the Maturity criteria applicable to the profile.

Each profile should describe the Maturity criteria applicable to the profile. The intention of this section is to describe how this profile supports the achievement of improved interoperability.

3.3.3. KPIs

Identify Key Performance Indicators (KPIs).

Each profile should describe the associated Key Performance Indicators (KPIs) to establish a baseline set of critical core capability components required to achieve the enhanced interoperability supported by this profile. The intention of this section is to assist all stakeholders and authorities to focus on the most critical performance-related items throughout the capability development process. Key Performance Indicators (KPI) — 'notional' KPIs ... for illustrative purposes only: KPI #1: Single (named) Architecture KPI #2: Shared

Situational Awareness KPI #3: Enhanced C2 KPI #4: Information Assurance KPI #5: Interoperability KPI #6: Quality of Service KPI #7: TBD

3.3.4. Experiments

Document experimentation venues and schedules that will be used to determine conformance.

Each profile should document experimentation venues and schedules that will be used to determine conformance. The intention of this section is to describe how experimentation will be used to validate conformance.

3.3.5. Demonstrations

Document demonstration venues and schedules that demonstrate conformance.

Each profile should document demonstration venues and schedules that demonstrate conformance. The intention of this section is to describe how demonstration will be used to validate conformance.

4. Configuration Management & Governance

4.1. Configuration Management

Identify the approach toward configuration management (CM) of core documentation.

Each profile shall identify the current approach or approaches toward configuration management (CM) of core documentation used to specify interoperability at the Service Interoperability Point. The intention of this section is to provide a short description of how often documents associated with this profile may be expected to change, and related governance measures that are in place to monitor such changes [e.g., the IP CaT].

4.1.1. Timeline

Provide a short description of how often documents associated with this profile may be expected to change.

4.1.2. Monitoring

Provide a short description of related governance measures that are in place to monitor such changes.

4.2. Governance

Provide a methodology for stakeholders to submit recommended changes.

Each profile shall identify one or more authorities to provide feedback and when necessary, Request for Change (RFC) for the Profile in order to ensure inclusion of the most up-to-date details in the NISP. The intention of this section is to provide a clear standardized methodology by which stakeholders may submit recommended changes to this profile.

4.2.1. Authority

Identify an authority to receive feedback and ensure inclusion of the most up-to-date details in the NISP.

Administrative Information

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