Allied Data Publication 34

(ADatP-34(J))

NATO Interoperability Standards and Profiles

Volume 2

Agreed Interoperability Standards and Profiles (Version 10)

29 March 2017

C3B Interoperability Profiles Capability Team

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1. INTRODUCTION

001. Volume 2 of the NISP focuses on agreed interoperability standards and profiles.

002. The NISP references Standards from different standardization bodies[1]. In the case of a ratified STANAG, NATO Standardization procedures apply. The NISP only references these STANAG's without displaying the country-specific reservations. The country-specific reservations can be found in the NATO Standardization Agency Standards database.

003. The Combined Communications Electronics Board (CCEB) nations will use NISP Volume 2 Chapter 3 and Section 3.4 tables to publish the interoperability standards for the CCEB under the provisions of the NATO-CCEB List of Understandings (LoU)[2].

1.1. SCOPE

004. The scope of this volume includes:

- Identifying the standards and technologies that are relevant to a service oriented environment,
- Describing the standards and technologies to support federation.

[1]In case of conflict between any recommended non-NATO standard and relevant NATO standard, the definition of the latter prevails.
[2]References:NATO Letter AC/322(SC/5)L/144 of 18 October 2000, CCEB Letter D/CCEB/WS/1/16 of 9 November 2000, NATO Letter AC/322(SC/5)L/157 of 13 February 2001

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2. REFERENCE MODELS: TRANSITION FROM PLATFORM CENTRIC TO SERVICE ORIENTED MODELS

005. Information technology has undergone a fundamental shift from platform-oriented computing to service-oriented computing. Platform-oriented computing emerged with the widespread proliferation of personal computers and the global business environment. These factors and related technologies have created the conditions for the emergence of network-oriented computing. This shift from platform to network is what enables the more flexible and more dynamic network-oriented operation. The shift from viewing NATO and partner Nations as independent to viewing them as part of a continuously adapting network ecosystem fosters a rich information sharing environment.

006. This shift is most obvious in the explosive growth of the Internet, intranets, and extranets. Internet users no doubt will recognize transmission control protocol/internet protocol (TCP/IP), hypertext transfer protocol (HTTP), hypertext markup language (HTML), Web browsers, search engines, and Java[1] Computing. These technologies, combined with high-volume, high-speed data access (enabled by the low-cost laser) and technologies for high-speed data networking (switches and routers) have led to the emergence of network-oriented computing. Information "content" now can be created, distributed, and easily exploited across the extremely heterogeneous global computing environment. The "power" or "payoff" of network-oriented computing comes from information-intensive interactions between very large numbers of heterogeneous computational nodes in the network, where the network becomes the dynamic information grid established by interconnecting participants in a collaborative, coalition environment. At the structural level, network-enabled warfare requires an operational architecture to enable common processes to be shared.

007. One of the major drivers for supporting net-enabled operations is Service-Oriented Architectures (SOA). SOA is an architectural style that leverages heterogeneity, focuses on interfaces between services and as such this approach is inherently platform-neutral. It is focused on the composition of Services into flexible processes and is more concerned with the Service interface and above (including composition metadata, security policy, and dynamic binding information), more so than what sits beneath the abstraction of the Service interface. SOA requires a different kind of platform, because runtime execution has different meanings within SOA. SOA enables users and process architects to compose Services into processes, and then manage and evolve those processes, in a declarative fashion. Runtime execution of such processes is therefore a metadata-centric operation of a different kind of platform -- a Service-oriented composite application platform.

008. Service-enabled operations are characterized by new concepts of speed of command and self-synchronization.

009. The most important SOA within an enterprise is the one that links all its systems. Existing platforms can be wrapped or extended in order to participate in a wider SOA environment.

[1]Registered Trademark of ORACLE and/or its affiliates. Other names may be the trademarks of their respective owners.

NATO use of the NISP will provide a template for new systems development, as well as assist in defining the path for existing systems to migrate towards net-enabled operations.

3. STANDARDS

3.1. INTRODUCTION

010. The purpose of this chapter is to specify the agreed NISP standards. The document organizes these standards, following baseline 2.0 NATO's C3 Taxonomy, as endorsed by the NATO C3 Board per AC/322-D(2016)0017 “C3 Taxonomy Baseline 2.0” dated 14 March 2016. A graphical representation of this taxonomy is included in volume 1.

011. For some standards it was not clear yet which service identified in the C3 Taxonomy should be used. Therefore, as an interim solution, the taxonomy was extended with user-defined “Cloud Services”. In a separate section, all standards are listed for which could not yet be defined how they should be linked to the C3 Taxonomy.

012. The standards are presented in tabular form. The left column of the table corresponds to a service in the C3 Taxonomy. The section headers correspond to a service at a higher (or the same) level. In general, a service is only listed if at least one standard is assigned to this service.

013. When STANAG X Ed Y is in ratification process, this is indicated by STANAG (RD) X Ed Y, and when it is a study draft, this is indicated by STANAG (Study) X Ed Y.

3.1.1. Releasability Statement

014. In principle, NISP only contains or references standards or related documents, which are generally available for NATO/NATO member nations/CCEB.

3.2. OPERATIONAL CAPABILITIES

Service	Standards

3.3. USER APPLICATIONS

Service	Standards
Office Automation Applications	• Rich Text Format (RTF) Specification, Version 1.9.1 (Microsoft RTF 1.9.1:2008)
Office Automation Applications	• Open Document Format for Office Applications (OpenDocument) v1.2 -- Part 1: OpenDocument Schema (ISO/IEC 26300-1:2015:2015) • Open Document Format for Office Applications (OpenDocument) v1.2 -- Part 2: Recalculated Formula (OpenFormula) Format (ISO/IEC 26300-2:2015:2015) • Open Document Format for Office Applications (OpenDocument) v1.2 -- Part 3: Packages (ISO/IEC 26300-3:2015:2015)

3.4. TECHNICAL SERVICES

015. The “Technical Services” include those services required to enable “User Applications”. They are part of the “Back-End Capabilities” while “User Applications” are part of “User-Facing Capabilities”.

016. According to the C3 Taxonomy, they consist of “Community Of Interest (COI) Services”, “Core Services” and “Communications Services”. The complete collection of Technical Services is sometimes referred to as the “Technical Services Framework" (TSF) or “NNEC Services Framework" (NSF).

017. In addition to the “Technical Services” identified in the C3 Taxonomy, a taxonomy layer “Cloud Computing” has been added. This enables a more useful categorization of cloud-based standards (currently only included as candidate standards).

3.4.1. Community Of Interest (COI) Services

Service	Standards
Air Services	• Joint Brevity Words - APP-7 Edition F (NSO STANAG 1401 Ed 15:2015)
Meteorology Services	• Specifications for Naval Mine Warfare Information and for Data Transfer - AMP-11 (Supplement) Edition A (NSO STANAG 1116 Ed 10:2014) • NATO Military Oceanographic and Rapid Environmental Assessment Support Procedures - ATP-32 Edition E (NSO STANAG 1171 Ed 10:2016) • Warning and Reporting and Hazard Prediction of Chemical, Biological, Radiological and Nuclear Incidents (Operators Manual) - ATP-45 Edition E (NSO STANAG 2103 Ed 11:2014) • Adoption of a Standard Ballistic Meteorological Message (NSO STANAG 4061 Ed 4:2000) • Adoption of a Standard Artillery Computer Meteorological Message (NSO STANAG 4082 Ed 3:2012) • Format of Requests for Meteorological Messages for Ballistic and Special Purposes (NSO STANAG 4103 Ed 4:2001) • Adoption of a Standard Target Acquisition Meteorological Message (NSO STANAG 4140 Ed 2:2001) • NATO Meteorological Codes Manual - AWP-4(B) (NSO STANAG 6015 Ed 4:2005) • Adoption of a Standard Gridded Data Meteorological Message (NSO STANAG 6022 Ed 2:2010)
Modeling and Simulation Services	• Common Object Request Broker Architecture (CORBA):2009 (OMG formal/2002-12-06:2002)

Service	Standards
	• Modeling and Simulation (M&S) High Level Architecture (HLA) (IEEE P1516:2000)
COI-Enabling Services	• ECMAScript Language Specification ed.5.1:2011 (ECMA ECMA-262:2011) • ECMAScript for XML (E4X) Specification ed.2:2005 (ECMA ECMA-357:2005) • NATO Standard Bar Code Symbologies - AAP-44 (NSO STANAG 4329 Ed 4:2010) • Representation of Dates and Times (ISO 8601:2004) • Date and Time Formats (W3C datetime:1998)
Symbology Services	• Vector Map (VMap) Level 1 (NSO STANAG 7163 Ed 1:2003) • NATO Vector Graphics (NVG) Protocol version 1.5:2010 (ACT) (NATO TIDE/NVG:2008) • Controlled Imagery Base (CIB) (NSO STANAG 7099 Ed 2:2004) • Portable Network Graphics (PNG) Specification, v. 1.0 (IETF RFC 2083:1997) • Common Warfighting Synbology (DOD MIL-STD 2525B:1999) • NATO Joint Military Symbology - APP-6(C) (NSO STANAG 2019 Ed 6:2011) • Military Telecommunications-Diagram Symbols (NSO STANAG 5042 Ed 1:1978) • Open GIS Web Map Service Implementation Specification v1.3:2006 (OGC 06-042:2006) • Web Feature Service Implementation Specification (OGC 04-094:2005) • Web Coverage Service Core (WCS):2012 (OGC 09-110r4:2012)
Track Services	• Standard for Joint Range Extension Application Protocol (JREAP) (NSO STANAG 5518 Ed 1:2014) • Carrier Sense Multiple Access/Collision Detect (CSMA/CD) (ISO/IEC 8802-3:2000) • Guide to electromagnetic Spectrum Management in military Operations (CCEB ACP 190(D):2013) • ACP 190 (B) Expanding Procedures (NATO ACP 190(B) NATO Supp 1A:2003) • ACP 190 (B) Classified Frequencies (NATO ACP 190(B) NATO Supp 2:2003) • SMADEF XML Documentation Rel.3.0.0 (NATO AC/322(SC/3)D(2007)0003-Rev5:2012) • Tactical Data Exchange - Link 16 (NSO STANAG 5516 Ed 4:2008) • NATO Improved Link Eleven (NILE) - Link 22 (NSO STANAG 5522 Ed 2:2008)

Service	Standards
	• Friendly Force Tracking Systems (FFTS) Interoperability - ADatP-36 Edition A (NSO STANAG 5527 Ed 1:2017) • Tactical Data Exchange - Link 11/11B (NSO STANAG 5511 Ed 6:2008) • Standard Interface for Multiple Platform Link Evaluation (SIMPLE) (- ATDLP-6.02 Edition A) (NSO STANAG 5602 Ed 4:2014)

3.4.2. Core Services

Service	Standards
Core Services	• Security Techniques - Evaluation criteria for IT security:2009 (ISO/IEC 15408:2005) • Identification cards - Contactless integrated circuit(s) cards - Proximity cards (ISO/IEC 14443:2008)
Business Support CIS Security Services	• SAML Token Profile 1.1 (OASIS wss-v1.1-errata-os-SAMLTokenProfile:2006) • WSS XML Schema (OASIS wssutil:2001) • WS-Trust 1.4 (OASIS wstrust-1.4:2012) • Basic Security Profile Version 1.1 (WS-I BasicSecurityProfile-1.1-2010-01-24.html :2010) • NATO Public Key Infrastructure (NPKI) Certificate Policy (CertP) Rev2. (NATO AC/322-D(2004)0024REV2:2008) • Machine readable travel documents - Part 1: Machine readable passport (ISO/IEC 7501-1:2008)
Business Support Guard Services	• Interim Implementation Guide for ACP 123/STANAG 4406 Messaging Services between Nations (CCEB ACP 145(A):2008)
Unified Communication and Collaboration Services	• Media Gateway Control Protocol (MGCP) v3 (ITU-T H.248.1:2013) • Advanced Distributed Learning (ADL) (NSO STANAG 2591 Ed 1:2013) • Document management -- Portable document format -- Part 1: PDF 1.7 (ISO 32000-1:2008) • Open Document Format (ODF) for Office Applications (OpenDocument) v1.1 (ISO/IEC 26300:2006) • HyperText Markup Language (HTML) (ISO/IEC 15445:2000) • XEP-0004: Data Forms (XMPP XEP-0004:2007) • XEP-0030: Service Discovery (XMPP XEP-0030:2007) • Multinational Videoconferencing Services (CCEB ACP 220(A):2008) • Circuit-based Multimedia Comms. System (ITU-T H.320:2004) • Session Initialisation Protocol (IETF RFC 3261:2002)
Military Messaging Services	• Military Message Handling System (MMHS) (NSO STANAG 4406 Ed 2:2006)

Service	Standards
	• Concept of NATO Message Text Formatting System (CONFORMETS) - ADatP-3 (NSO STANAG 5500 Ed 7:2010) • Interoperability of Low-level Ground-based Air Defence Surveillance, Command and Control Systems (NSO STANAG 4312 Ed 2:2012) • NATO Secondary Imagery Format (NSIF) - AEDP-04 Edition 2 (NSO STANAG 4545 Ed 2:2013) • NATO Message Catalogue, APP-11 Edition D (NSO STANAG 7149 Ed 6:2016)[1]
Informal Messaging Services	• Post Office Protocol - Version 3 (IETF RFC 1939:1996) • Internet Message Access Protocol Version 4, revision 1 (IETF RFC 3501:2003)
Informal Messaging Services	• Update to Internet Message Format to Allow Group Syntax in the From: and Sender: Header Fields (IETF RFC 6854:2013)
Fax Services	• Procedures for document facsimile transmission in the general switched telephone network (ITU-T T.30:2005) • Interoperability of Tactical Digital Facsimile Equipment (NSO STANAG 5000 Ed 3:2006)
Audio-based Communication Services	• Packet-based Multimedia Communication System (ITU-T H.323:2001) • 14 kHz audio codec (ITU-T G.722.1c:2012)
Document Sharing Services	• Data Protocols for Multimedia Conferencing (ITU-T T.120:2007)
Application Sharing Services	• Data Protocols for Multimedia Conferencing (ITU-T T.120:2007)
Distributed Search Services	• The Dublin Core Metadata Element Set (ISO 15836:2010) • TIDE Information Discovery (Request-Response) Protocol v2.3 (NATO TIDE/TIDE-ID-RR:2009)
Geospatial Services	• Additional Military Layers (AML) – Digital Geospatial Data Products - AGeoP-19 Edition A (NSO STANAG 7170 Ed 3:2015) • Digital Geographic Information Exchange Standard (DIGEST) (NSO STANAG 7074 Ed 2:1998) • Digital Terrain Elevation Data (DTED) Exchange Format (NSO STANAG 3809 Ed 4:2004) • Geographical Tagged Image Format (GeoTIFF) (OSGEO 1.8.2:2000) • Compressed ARC Digitized Raster Graphics (CADRG) (NSO STANAG 7098 Ed 2:2004) • GML Simple Features Profile v2.0 (OGC 10-100r2:2010) • World Geodetic System 84 (WGS-84) (NGA TR 8350.2:2004)

Service	Standards
	• NATO Geospatial Metadata Profile - AGeoP-8 Edition A (NSO STANAG 2586 Ed 1:2013) • Standard on Warship Electronic Chart Display and Information System (WECDIS) (NSO STANAG 4564 Ed 2:2007) • SEDRIS functional specification (ISO/IEC FCD 18023-1:2006) • Geodetic Datums, Projections, Grids and Grid References - AGeoP-21 Edition A (NSO STANAG 2211 Ed 7:2016) • OGC KML (OGC 07-147r2:2008)
SOA Platform Services	• ebXML Registry Information Model Version 3.0 (OASIS regrep-rim-3.0-os:2005) • Simple Object Access Protocol (SOAP) (W3C NOTE-SOAP-20000508:2000) • Web Services Addressing 1.0 - Metadata (W3C REC-ws-addr-metadata-20070904:2007) • Web Services Addressing 1.0 - SOAP Binding (W3C REC-ws-addr-soap-20060509:2006)
SOA Platform CIS Security Services	• Digital Signature Algorithm RSA 2048 (RSA PKCS#1 v2.1:2002) • XML Signature Syntax and Processing (2nd ed.):2008 (W3C xmldsig-core:2008)
SOA Platform Guard Services	• Transport Layer Security (TLS) (IETF RFC 5246:2008) • Secure Shell (SSH) (IETF RFC 4250:2006)
Security Token Services	• Web Services Policy 1.5 - Framework (W3C REC-ws-policy-20070904:2007) • Web Services Policy 1.5 - Guidelines for Policy Assertion Authors (W3C NOTE-ws-policy-guidelines-20071112:2007) • Web Services Policy 1.5 - Primer (W3C NOTE-ws-policy-primer-20071112:2007) • Web Services Federation Language (WS-Federation) Version 1.2 (OASIS wsfed:2009)
Policy Decision Point Services	• Biometrics Data, Interchange, Watchlistung and Reporting - AEDP-15 Edition A (NSO STANAG 4715 Ed 1:2013)
SOA Platform SMC Services	• CIM Schema: Version 2.30.0 (DMTF cim_schema_v2300:2011) • Configuration Management Database (CMDB) Federation Specification (DMTF DSP0252:2010) • COBIT 5: A Business Framework for the Governance and Management of Enterprise IT (ISACA Cobit 5:2012) • Structure of Management Information (IETF RFC 1212:1991) • Management Information Base v2 (MIB II) (IETF RFC 1213:1991) • Host Resources Management Information Base (MIB) (IETF RFC 2790:2000)

Service	Standards
	• Definitions of Managed Objects for the Ethernet-like Interface Types (IETF RFC 1643:1994) • Remote Network Monitoring Management Information Base, RMON-MIB version 1 (IETF RFC 2819:2000) • OSPF version 2 Management Information Base:2006 (IETF RFC 4750:2006) • RIP Version 2 MIB Extensions (IETF RFC 1724:1994) • IEEE QoS (IEEE 802.1p:2004) • Performance objectives and procedures for provisioning and maintenance of IP-based networks (ITU-T M.2301:2002)
Service Discovery Services	• Universal Description Discovery & Integration (UDDI) (OASIS uddi-v3.00-published-20020719:2002) • electronic business eXtensible Markup Language (ebXML) Technical Architecture Specification v1.0.4 (EBXML ebTA:2001) • ebXML Registry Services and Protocols Version 3.0 (OASIS regrep-rs-3.0-os:2005) • TIDE Service Discovery (NATO TIDE/TIDE-ID-SP:2008) • Web Service Description Language (WSDL) 1.1 (W3C NOTE-wsdl-20010315:2001)
Message-Oriented Middleware Services	• Web Services Security: SOAP Message Security 1.1 (OASIS wss-v1.1-spec-os-SOAPMessageSecurity:2006) • Web Services Reliable Messaging (WS-ReliableMessaging) (OASIS relmes:2009) • Web Services Reliable Messaging (WS-ReliableMessaging) (OASIS relmes:2009)
Web Platform Services	• HyperText Transfer Protocol (HTTP), version 1.1 (IETF RFC 2616:1999) • Cascading Style Sheets, level 2 revision 1 (W3C REC-CSS2-2011067:2011) • Wireless Markup Language (WML) version 2 (WAPFORUM WAP-238-WML-20010911-a:2001) • eXtensible Markup Language (XML) version 1.0 (Fifth Edition) (W3C REC-xml-20081126:2008) • XML Base (W3C REC-xmlbase-20010627:2001) • XML Information Set (W3C REC-xml-infoset-20011024:2001) • Associating Style Sheets with XML documents, Version 1.0 (W3C REC-xml-stylesheet-19990629:1999) • Hypertext Transfer Protocol (HTTP/1.1): Message Syntax and Routing (IETF RFC 7230:2014) • Extended MKCOL for Web Distributed Authoring and Versioning (WebDAV) (IETF RFC 5689:2009) • FTP Security Extensions (IETF RFC 2228:1997)

Service	Standards
	• Internationalization of the File Transfer Protocol (IETF RFC 2640:1999) • Extensions to FTP (IETF RFC 3659:2007) • FTP Command and Extension Registry (IETF RFC 5797:2010) • File Transfer Protocol HOST Command for Virtual Hosts (IETF RFC 7151:2014)
Web Hosting Services	• WS-SecurityPolicy 1.3 (OASIS wsspol-1.3:2009) • XML Key Management Specification:2005 (W3C xkms2:2005) • The Directory: Public-key and attribute certificate frameworks (ISO/IEC 9594-8:2008)
Web Presentation Services	• Web Services for Remote Portlets Specification (OASIS wsrp-specification-1.0:2003)
Information Access Services	• Atom Syndication Format, v1.0 (IETF RFC 4287:2005) • Extensible HyperText Markup Language, version 1 (W3C REC-xhtml1-20020801:2002)
Metadata Repository Services	• XML Signature Syntax and Processing (2nd ed.):2008 (W3C xmldsig-core:2008)
Composition Services	• Unified Modeling Language, v2.4.1:2011 (OMG formal/2011-08-05:2011)
Mediation Services	• Profile for the Use of S/MIME protocols Cryptographic Message Syntax (CMS) and Enhanced Security Services (ESS) for S/MIME (NSO STANAG 4631 Ed 1:2008)
Infrastructure Services	• X Window System, Version 11, release 7.5:2009 (X-CONSORTIUM X11R7.5:2009) • RTP: A Transport Protocol for Real-Time Applications (IETF RFC 3550:2003) • Network News Transfer Protocol (NNTP) (IETF RFC 3977:2006) • Network Time Protocol (NTP) (IETF RFC 5905:2010) • Generic Coding of Moving Pictures and Associated Audio (MPEG-2) (ISO/IEC 13818:2000) • Coding of Moving Pictures and Audio (MPEG-4) (ISO/IEC 14496:1999) • Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s; PCM Part 3: audio (ISO/IEC 11172-3:1993) • 7 kHz Audio-Coding within 64 kbit/s (ITU-T G.722:2012) • 40, 32, 24, 16 kbit/s adaptive differential pulse code modulation (ADPCM) (ITU G.726:2012) • Coding of speech at 8 kbit/s using conjugate-structure algebraic-code-excited linear prediction (CS-ACELP) (ITU G.729:2012) • Video coding for low bit rate communication (ITU-T H.263:2005)

Service	Standards
	• Advanced video coding for generic audiovisual services (ITU-T H.264:2013) • The 600 Bit/S, 1200 Bit/S AND 2400 Bit/S NATO Interoperable Narrow Band Voice Coder (NSO STANAG 4591 Ed 1:2008) • Parameters and Coding Standards for 800 bps Digital Speach Encoder/Decoder (NSO STANAG 4479 Ed 1:2002) • NATO Standard ISR Interface (NSILI) (NSO STANAG 4559 Ed 3:2010) • NATO Imagery Interpretability Rating Scale (NIIRS) (NSO STANAG 7194 Ed 1:2009) • NATO Advanced Data Storage Interface (NADSI) - AEDP-06 Edition B (NSO STANAG 4575 Ed 4:2014) • NATO Ground Moving Target Indicator(GMTI) Format - AEDP-07 Edition 2 (NSO STANAG 4607 Ed 3:2010) • NATO Digital Motion Imagery Standard (- NNSTD MISP-2015.1) (NSO STANAG 4609 Ed 4:2016) • Air Reconnaissance Primary Imagery Data Standard - AEDP-09 Edition 1 (NSO STANAG 7023 Ed 4:2009) • Imagery Air Reconnaissance Tape Recorder Interface - AEDP-11 Edition 1 (NSO STANAG 7024 Ed 2:2001) • Exchange of Imagery (NSO STANAG 3764 Ed 6:2008)[2] • Digital compression and coding of continuous-tone still images: Registration of JPEG profiles, SPIFF profiles, SPIFF tags, SPIFF colour spaces, APPn markers, SPIFF compression types and Registration Authorities (REGAUT) (ISO/IEC 10918-4:1999)
Infrastructure Processing Services	• Open Virtualization Format Specification, v.2.0.1 (DMTF DSP0243:2013) • X Window System, Version 11, release 7.5:2009 (X-CONSORTIUM X11R7.5:2009)
Directory Storage Services	• Common Directory Services and Procedures, ACP 133 ed. D:2009 (CCEB ACP 133:2009) • Common Directory Services and Procedures Supplement, ACP 133 Suppl.-1edA:2009 (CCEB ACP 133 Suppl.1edA:2009) • LDAP Data Interchange Format (LDIF) (IETF RFC 2849:2000)
Relational Database Storage Services	• Open Database Connectivity (ODBC) 3.8 (Microsoft MSDN-ODBCPR:1996) • Joint C3 Information Exchange Data Model (JC3IEDM) (MIP JC3IEDM:2012)
Distributed Time Services	• Working with Time Zones (W3C timezone:2005)

[1]STANAG 7149 Ed 6 - This is a candidate standard in the NISP, but promulgated according to the NSO.

[2]STANAG 3764 Ed 6 - This is an agreed standard in the NISP, but cancelled according to the NSO.

3.4.3. Communications Services

Service	Standards
Communications Services	• Media Access Control (MAC) Bridges (IEEE 802.1D:2004) • Rapid Reconfiguration of Spanning Tree (IEEE 802.1W:2002) • Virtual Bridged Local Area Networks (IEEE 802.1Q:2005) • Station and Media Access Control Connectivity Discovery (IEEE 802.1AB:2009) • Single-mode fiber using 1,310 nm wavelength (IEEE 802.3-2012:2012) • Generic cabling for customer premises (ISO/IEC 11801:2002) • Optical Fibre Cable (ITU-T G.652:2009) • Interface standard for LC connectors with protective housings related to IEC 61076-3-106 (IEC 61754-20:2012) • Characteristics of 1200/2400/ 3600 bps single tone modulators for HF Radio links (NSO STANAG 4285 Ed 1:1989) • Characteristics of a Robust, Non-Hopping Serial Tone Modulator/ Demodulator For Severely Degraded HF Radio Links - AComP-4415 Edition A (NSO STANAG 4415 Ed 2:2015) • Minimum Technical Equipment Standards For Naval HF Shore-to-Ship Broadcast Systems (NSO STANAG 4481 Ed 1:2002) • Characteristics of single tone modulators/demodulators for maritime HF radio links with 1240 Hz bandwidth (NSO STANAG 4529 Ed 1:1998) • Technical Standards for an Automatic Radio Control System (ARCS) for HF Communication Links (NSO STANAG 4538 Ed 1:2009) • Minimum Standards for Naval low Frequency (LF) Shore-to-Ship Surface Broadcast Systems (NSO STANAG 5065 Ed 1:1999) • Profile for HF radio data communications (NSO STANAG 5066 Ed 3:2015) • Standards to Achieve Communication Between Single Channel Tactical Combat Net Radio Equipment and Frequency Hopping Radios Operating in the same VHF (30-108 MHz) Band (NSO STANAG 4292 Ed 2:1987) • Have Quick (NSO STANAG 4246 Ed 3:2009) • Saturn (NSO STANAG 4372 Ed 3:2008) • Multi-hop IP Networking with legacy UHF Radios: Mobile ad hoc relay Line of Sight Networking (MARLIN) - AComP-4691 Edition A (NSO STANAG 4691 Ed 2:2016) • Digital Interoperability between UHF communications terminals - Integrated Waveform (IWF) (NSO STANAG 4681 Ed 1:2015) • An Aplication of the BGP Community Attribute in Multi-Home Routing (IETF RFC 1998:1996)

Service	Standards
	• A Flexible Method for Managing the Assignment of Bits of an IPv6 Address Block (IETF RFC 3531:2003) • Considerations for Internet group Management protocols (IGMP) and Multicast listener Discovery Snooping Switches (IETF RFC 4541:2006) • IPv6 Stateless Address Autoconfiguration (IETF RFC 4862:2007)
Communications Access Services	• ISDN: ITU-T G, I Series (ITU-T GI) • Physical/electrical characteristics of hierarchical digital interfaces (ITU-T G.703:2001) • Synchronous frame structures used at 1544, 6312, 2048, 8448 and 44 736 kbit/s hierarchical levels (ITU-T G.704:1998) • Standards for Data Forwarding between Tactical Data Systems employing Link 11/11B, Link 16 and Link 22 (NSO STANAG 5616 Ed 5:2011) • System Segment Specification for the Multifunctional Information Distribution System (MIDS) Low-Volume Terminal and Ancillary Equipment, Rev. EG (CJCSM SSS-M-10001:2011) • Interoperable Data Links for Imaging Systems - AEDP-10 Edition A (NSO STANAG 7085 Ed 3:2011) • Tactical Data Exchange - Link 11/11B (NSO STANAG 5511 Ed 6:2008) • Standard Interfaces of UAV Control System (UCS) for NATO UAV Interoperability (NSO STANAG 4586 Ed 3:2012) • Technical Characteristics of the Multifunctional Information Distribution System (MIDS) - VOL I & II (NSO STANAG 4175 Ed 5:2014) • Tactical Data Exchange - Link 1 (Point-to-Point) - ATDLP-5.01 Edition A (NSO STANAG 5501 Ed 7:2015)
Tactical Messaging Access Services	• Maritime Tactical Wide Area Networking (Volume 2) (CCEB ACP 200:2010) • International Routing and Directory for Tactical Communications Systems (NSO STANAG 4214 Ed 2:2005) • International Network Numbering for Communications Systems in use in NATO (NSO STANAG 4705 Ed 1:2015) • Enhanced Digital Strategic Tactical Gateway (EDSTG) (NSO STANAG 4578 Ed 2:2009) • NATO Multi-channel Tactical Digital Gateway - System Standards (NSO STANAG 4206 Ed 3:1999) • NATO Multi-channel Digital Gateway-Multiplex Group Framing Standards (NSO STANAG 4207 Ed 3:2000) • Standard for Gateway Multichannel Cable Link (Optical) (NSO STANAG 4290 Ed 1:2015)

Service	Standards
	• The NATO Military Communications Directory System (NSO STANAG 5046 Ed 4:2015)
Packet-based Access Services	• IP packet transfer and availability performance parameters (ITU-T Y.1540:2011) • Network performance objectives for IP-based services (ITU-T Y.1541:2011) • Framework for achieving end-to-end IP performance objectives (ITU-T Y.1542:2006) • Quality of service ranking and measurement^methods for digital video services delivered over broadband IP networks (ITU-T J.241:2005)
Transport Services	• Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers (IETF RFC 2474:1998) • Configuration Guidelines for DiffServ Service Classes (IETF RFC 4594:2006) • Resource ReSerVation Protocol (RSVP) -- Version 1 Functional Specification (IETF RFC 2205:1997) • Requirements for IP Version 4 Routers (IETF RFC 1812:1995) • OSPF Version 2 (STD-54) (IETF RFC 2328:1998) • Intermediate System to Intermediate System intra-domain routeing information exchange protocol for use in conjunction with the protocol for providing the connectionless-mode network service (ISO 8473) (ISO/IEC 10589:2002) • RIP Version 2 (IETF RFC 2453:1998) • Border Gateway Protocol 4 (BGP-4) (IETF RFC 4271:2006) • Multiprotocol Extensions for BGP-4 (IETF RFC 4760:2007) • BGP Communities Attribute (IETF RFC 1997:1996) • Capabilities Advertisement with BGP-4 (IETF RFC 5492:2009) • Application of the Border Gateway Protocol in the Internet (IETF RFC 1772:1995) • Protocol Independent Multicast - Sparse Mode (PIM-SM): Protocol Specification (Revised) (IETF RFC 4601:2006) • Multicast Source Discovery Protocol (MSDP) (IETF RFC 3618:2003) • Encapsulating MPLS in IP or Generic Routing Encapsulation (GRE) (IETF RFC 4023:2005) • Traditional IP Network Address Translation (NAT) (IETF RFC 3022:2001) • RIP Version 2 MIB Extensions (IETF RFC 1724:1994) • IP Mobility Support for IPv4 (IETF RFC 3344:2002) • Layer Two Tunnelling Protocol (L2TP) Differentiated Services Extension (IETF RFC 3308:2002)

Service	Standards
	• PPP LCP Extensions (IETF RFC 1570:1994) • The Point-to-Point Protocol (PPP) (IETF RFC 1661:1994) • The PPP Multilink Protocol (MP) (IETF RFC 1990:1996) • Virtual Router Redundancy Protocol (IETF RFC 3768:2004) • Microsoft Windows Sockets (Winsock) Version 2.0 (Microsoft) • User Datagram Protocol (UDP) (IETF RFC 768:1980) • ISO Transport Service on top of TCP (ITOT) (IETF RFC 2126:1997)
Packet-based Transport Services	• IANA Assigned Numbers (IETF RFC 3232:2002) • Internet Protocol, version 4 (IETF RFC 791:1981) • Internet Protocol, version 6 (IETF RFC 2460:1998) • Internet Group Management Protocol, Version 2 (IETF RFC 2236:1997) • Requirements for Internet Hosts - Communication Layers (IETF STD 89:1989) • IP Encapsulation within IP (IETF RFC 2003:1996)
Packet Routing Services	• Standard for Interconnection of IPv4 Networks at Mission Secret and Unclassified Security Levels (NSO STANAG 5067 Ed 1:2015)
Transmission Services	• Technical Characteristics of the Multifunctional Information Distribution System (MIDS) - VOL I & II (NSO STANAG 4175 Ed 5:2014) • TIA-530-A,Serial binary data interchange between a DTE and a DCE, EIA/TIA:2004 (EIA RS-530:1992) • Generic Specification for Optical Waveguide Fibers (EIA TIA/EIA-492000-A:1997) • Single and Multichannel VLF and LF On-Line Broadcast and Off-Line OOK Systems (NSO STANAG 5030 Ed 4:1995) • VLF / LF MSK Multi Channel Broadcast - AComP-4724 Edition A (NSO STANAG 4724 Ed 1:2015)
Wireless LOS Mobile Narrowband Transmission Services	• Technical standards for single channel HF radio equipment (NSO STANAG 4203 Ed 3:2007) • Technical standards for single channel VHF radio equipment (NSO STANAG 4204 Ed 3:2008) • Technical standards for single channel UHF radio equipment (NSO STANAG 4205 Ed 3:2005) • Voice Coding Algorithm (NSO STANAG 4444 Ed 2:2015) • Overall Super High Frequency (SHF) Military Satellite Communications (MILSATCOM) Interoperability Standards (NSO STANAG 4484 Ed 3:2015)
Wireless BLOS Static Wideband	• Interoperability standard for Satellite Broadcast Services (SBS)) (NSO STANAG 4622 (RD) Ed 1:2008)[1]

Service	Standards
Transmission Services	
Wireless BLOS Mobile Transmission Services	• Digital interoperability between EHF Tactical Satellite Communications Terminals (NSO STANAG 4233 Ed 1:1998) • Extremely High Frequency(EHF) Military Satellite Communications(MILSATCOM) Interoperability Standards for Medium Data Rate Services (NSO STANAG 4522 Ed 1:2006) • SHF Milsatcom Non-EPM Modem for Services Conforming to Class-A Of STANAG 4484 (NSO STANAG 4485 Ed 2:2015) • Super High Frequency (SHF) Military Satellite Communications (SATCOM) Frequency Division Multiple Access (FDMA) Non-EPM (Non-EPM) Modem for Services Conforming to Class-B of Stanag 4484 (NSO STANAG 4486 Ed 3:2015)[2]

[1]STANAG 4622 (RD) Ed 1 - This is an agreed standard in the NISP, but still a ratification draft according to the NSO.
[2]STANAG 4486 Ed 3 - This is an agreed standard in the NISP, but superseded according to the NSO.

3.4.4. Cloud Services

Service	Standards

3.5. UN-ASSIGNED STANDARDS

018. The following standards have been declared mandatory standards for NATO common funded system. However, no information of how to map the standard to the C3 Taxonomy have been provided.

Service	Standards
Undefined Taxonomy Node	• Allied Call Sign and Address Group System - Instructions and Assignments (CCEB ACP 100 (F)) • Call Sign Book for Ships (CCEB ACP 113 (AD)) • Allied Routing Indicator Book (CCEB ACP 117 (K)) • Comms Instructions - General (CCEB ACP 121 (I)) • Information Assurance for Allied Communications and Information Systems (CCEB ACP 122 (D)) • Communication Instructions - Signaling Procedures in the Visual Medium (CCEB ACP 130 (A)) • Communication Instructions - Operating Signals (CCEB ACP 131 (F)) • Communication Instructions - Distress and Rescue Procedures (CCEB ACP 135 (F)) • IFF/SIF Operational Procedures (CCEB ACP 160 (E)) • Glossary of C-E Terms (CCEB ACP 167 (G))

Service	Standards
	• Guide to Spectrum Management in Military Operations (CCEB ACP 190 (A)) • Instructions for the Preparation of ACPs (CCEB ACP 198 (N)) • Mobile Tactical Wide Area Networking (MTWAN) in the Maritime Environment - Operating Guidance (CCEB ACP 200 V1 (D)) • Mobile Tactical Wide Area Networking (MTWAN) Technical Instructions (CCEB ACP 200 V2 (C)) • Mobile Tactical Wide Area Networking (MTWAN) Technical Instructions (CCEB ACP 200 V2 (D)) • Communications Instructions Internet Protocol (IP) Services (CCEB ACP 201 (Orig)) • NATO Elliptic Curve (EC) Key Material Specification Rev. 1.0. (IICWG SCIP-233.102) • NATO Pre Placed Key (PPK) Key Material Format and Fill Checks Specification Rev.1.0 (IICWG SCIP-233.104) • Universal Elliptic Curve (EC) Key Material Specification Rev. 1.0 (IICWG SCIP-233.105) • Universal Multi-Point Pre Placed Key (PPK) Material Format and Fill Specification Rev. 1.0 (IICWG SCIP-233.108) • Unencrypted Key Fill Specification Rev. 1.0. (IICWG SCIP-233.150) • CRC Calculations Specifications Rev. 1.0. (IICWG SCIP-233.151) • Universal Call-Setup Encryption (CSE) Specification Rev. 1.0. (IICWG SCIP-233.201) • NATO EC Agreement and TEK Derivation Specification Rev. 1.0. (IICWG SCIP-233.302) • Universal ECMQV Key Agreement and TEK Derivation Specification Rev. 1.0 (IICWG SCIP-233.303) • NATO Point-to-Point and Multipoint PPK-Processing Specification Rev.1.0 (IICWG SCIP-233.304) • Universal Multipoint PPK-Processing Specification Rev. 1.0. (IICWG SCIP-233.305) • Call Set-Up encryption (CSE) State Vector Processing Specification Rev. 1.0. (IICWG SCIP-233.402) • NATO Fixed Filler Generation Specification Rev. 1.0. (IICWG SCIP-233.422) • Universal Fixed Filler Generation Specification Rev. 1.0. (IICWG SCIP-233.423) • Point-to-Point Cryptographic Verification Specification Rev. 1.1. (IICWG SCIP-233.441) • Multipoint Cryptographic Verification Specification Rev. 1.0. (IICWG SCIP-233.442)

Service	Standards
	• Point-to-Point Cryptographic verification W/HMAC Specification Rev. 1.0. (IICWG SCIP-233.443) • Secure G.729D Voice Specification Rev. 1.1. (IICWG SCIP-233.502) • Secure Reliable Transport (RT) Asynchronous Data Specification Rev. 1.1. (IICWG SCIP-233.516) • Secuer Best effort Transport (BET) Asynchronous Data Transfer Rev. 1.1. (IICWG SCIP-233.517) • Secure Dial Processing Specification Rev. 1.1. (IICWG SCIP-233.546) • MONGOOSE Encryption Algorithm Specification Rev. 1.0. (IICWG SCIP-233.563) • AES-256 Encryption Algorithm Specification Rev. 1.0. (IICWG SCIP-233.601) • MEDLEY Encryption Algorithm Specification Rev. 1.0. (IICWG SCIP-233.603) • Allied Call Sign and Address Group System - Instructions and Assignments, NATO Supplement-1 (NATO ACP 100 NS-1(P)) • Address Groups and Call Signs, Instructions and Assignments, NATO Supplement-2 (NATO ACP 100 NS-2(A)) • NATO Routing Indicator Book, NATO Supplement-1 (NATO ACP 117 NS-1 (S)) • NATO Subject Indicator System (NASIS), NATO Supplement-2 (NATO ACP 117 NS-2 (B)) • Handling of ATOMAL Information Within Classified Communications Centres, NATO Supplement-2 (NATO ACP 122 NS-2 (A)) • Policy and Procedures for the Management of IFF/SIF, NATO Supplement-1 (NATO ACP 160 NS-1 (F)) • Allied Naval and Maritime Air Communications Instructions, NATO Supplement-1 (NATO ACP 176 NS-1 (E)) • NATO Guide to Spectrum Management in Military Operations, NATO Supplement-1 (NATO ACP 190 NS-1 (C)) • NATO Guide to Spectrum Management in Military Operations, NATO Supplement-2 (NATO ACP 190 NS-2 (C)) • Instructions for the Life Cyle Management of Allied Communications Publications (ACPs) - General & NATO Supps (NATO ACP 198 NS-1 (G)) • NII Communications Reference Architecture Edition 1, Version 1.2 (NATO AC/322-D(2010)0035) • Digital Interoperability between UHF satellite communications terminals (NSO STANAG 4231 Ed 5:2011)

Service	Standards
	• SIP Connect v.1.1. - Technical Recommendation (2011) (SIP Forum SIP Connect v.1.1.) • Call Sign Book for Ships (CCEB ACP 113 (AJ)) • Allied Routing Indicator Book (CCEB ACP 117 (O)) • Information Assurance for Allied Communications and Information Systems (CCEB ACP 122 (G)) • Glossary of C-E Terms (CCEB ACP 167 (K)) • Allied Call Sign and Address Group System - Instructions and Assignments, NATO Supplement-1 (NATO ACP 100 NS-1(Q)) • NATO Routing Indicator Book, NATO Supplement-1 (NATO ACP 117 NS-1 (T)) • NATO Subject Indicator System (NASIS), NATO Supplement-2 (NATO ACP 117 NS-2 (C)) • Handling of ATOMAL Information Within Classified Communications Centres, NATO Supplement-2 (NATO ACP 122 NS-2 (B)) • Allied Naval and Maritime Air Communications Instructions, NATO Supplement-1 (NATO ACP 176 NS-1 (F)) • NATO Guide to Spectrum Management in Military Operations, NATO Supplement-2 (NATO ACP 190 NS-2 (D)) • Instructions for the Life Cyle Management of Allied Communications Publications (ACPs), NATO Supplement-1 (NATO ACP 198 NS-1 (H)) • NINE-Certificate Revocation List Transfer Extension, v.1.0.4 (NATO NINE-CRL-Transfer) • NINE-Remote Cryptography Ignition Key Client, v.1.0.4 (NATO NINE-Ign-Key-Clt) • NINE-Remote Cryptography Ignition Key Net Controller, v.1.0.4 (NATO NINE-Ign-Key-Net Ctrl) • NINE-Render useless - Zeroization Net Controller, v.1.0.4 (NATO NINE-Zero-Net-Ctrl) • NINE-Render useless - Zeroization Client, v.1.0.4 (NATO NINE-Zero-Net-Clt) • NINE- IPSec Minimum Essential Interoperability Requirements v.1.0.4. (NATO NINE-IPSEC-MER) • NINE-Traffic Protection Suite B Cryptography, v.1.0.4 (NATO NINE-TP-SB) • NINE-Traffic Protection Suite A MEDLEY Cryptography, v.1.0.4 (NATO NINE-TP-SA-MER) • NINE-Traffic Protection Suite A MERCATOR Cryptography, v.1.0.5 (NATO NINE-TP-SA-MED)

Service	Standards
	• NINE-Traffic Protection Internet Key Exchange version 2 Suite A MEDLEY Cryptography, v.1.0.4 (NATO NINE-TP-IKEv2-SA-MED) • NINE-Traffic Protection Internet Key Exchange version 2 Suite A MERCATOR Cryptography, v.1.0.4 (NATO NINE-TP-IKEv2-SA-MER) • Advanced SATCOM Network Management and Control (NSO STANAG 4494 (RD) Ed 1:2010)[1] • Super High Frequency (SHF) Medium Data Rate (MDR) Military Satellite COMmunications (MILSATCOM) jam-resistant modem interoperability standards (NSO-Expected STANAG 4606 Ed 4)[2] • NATO TDL Implementation Plan (NTDLIP T/1) (NSO-Expected NTDLIP Rev.3) • NATO Implementation Codes and Rules (NICR T/1) (NSO-Expected ATDLP-7.02(A)(1)) • Interface Control Definiton for the International Exchange of MIDS/ JTIDS Network (NETMAN T/1) (NSO-Expected ATDLP-7.03(A)(1)) • Standard Operating Procedures for the CRC-SAM Interface - VOL I & II (NSO-Expected ADatP-12 (E)) • Standard Operating Procedures for Link 1 (NSO ADatP-31 (C):2009) • Sender Policy Framework (SPF) for Authorizing Use of Domains in Email, Version 1 (IETF RFC 7208:2014) • Cryptographic Algorithm Implementation Requirements and Usage Guidance for Encapsulating Security Payload (ESP) and Authentication Header (AH) (IETF RFC 7321:2014) • The NULL Authentication Method in the Internet Key Exchange Protocol Version 2 (IKEv2) (IETF RFC 7619:2015) • The Secure Shell (SSH) Transport Layer Protocol (IETF RFC 4253:2006) • PPP LCP Internationalization Configuration Option (IETF RFC 2484:1999) • Systems and software engineering -- Architecture description (ISO 42010:2011)

[1]STANAG 4494 (RD) Ed 1 - This is an agreed standard in the NISP, but still a ratification draft according to the NSO.

[2]STANAG 4606 Ed 4 - This is an agreed standard in the NISP, as requested by RFCP 9-16. However, according to the NSO, this STANAG does not exist. Note that STANAG 4606 Ed 3 does exist and is promulgated. This edition is not included in the NISP.

Index

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A. AGREED PROFILES

A.1. INTRODUCTION

019. The NATO Interoperability Standards and Profiles include the set of Agreed Profiles listed below.

Table A.1. Agreed Profiles

Service Area	**Title**
Abstract	
URI	
Tactical Messaging	X-TMS-SMTP
Defines military header fields to be used for SMTP messages that are gatewayed across military mail environment boundaries.	
NISP-V2-X-TMS-SMTP.pdf	
Federated Mission Networking	FMN Spiral 1.1 Profile
Defines the Standards Profile for Federated Mission Networking (FMN) Spiral 1. FMN Standards Profiles provide a suite of interoperability standards and other standardized profiles for interoperability of selected community of interest services, core services and communications services in a federation of mission networks. It places the required interoperability requirements, standards and specifications in context for FMN Affiliates.	
NISP-V2-FMN-spiral-1.pdf	
Archive	Profile for the Long Term Preservation of NATO Digital Information of Permanent value
Outlines the file formats and package structures approved by the Archives Committee for the long-term preservation of NATO digital information of permanent value.	
NISP-V2-archive-profile.pdf	
SECURITY SERVICES	SERVICE INTERFACE PROFILE SECURITY SERVICES
This Service Interface Profile (SIP) describes the key elements that make up the NNEC Core Enterprise Services (CES) Security Services.	
AI_TECH_2016.06.02.01_SIP.pdf	
REST SECURITY SERVICES	SERVICE INTERFACE PROFILE FOR REST SECURITY SERVICES
This specification provides the profile for securing representational state transfer (REST) web services (known as RESTful web services) that are deployed within the NNEC web	

Service Area	Title
Abstract	
URI	
service infrastructure. It specifies security requirements that need to be accounted for depending on the environment in which the services are being deployed, and the level of assurance required for protecting those services. This profile covers the required security protection profile for a Client to access protected resources on a Resource Server using REST.	
AI_TECH_2016.06.02.02_SIP.pdf	
SECURITY TOKEN SERVICES	SERVICE INTERFACE PROFILE FOR SECURITY TOKEN SERVICES
The purpose of this Service Interface Profile (SIP) is to specify how the security token service component of the Core Enterprise Services (CES) Security Services may be called.	
AI_TECH_2016.06.02.03_SIP.pdf	
POLICY ENFORCEMENT POINTS	SERVICE INTERFACE PROFILE FOR POLICY ENFORCEMENT POINTS
The purpose of this Service Interface Profile (SIP), which should be read along with the Agency Directive 06.05.04.02.H 2, "Service Interface Profile for Security Services" [NCIA AD 06.05.04.02.H], is to specify how services may be called that are protected by the Core Enterprise Services (CES) Security Services.	
AI_TECH_2016.06.02.04_SIP.pdf	
ENTERPRISE DIRECTORY SERVICES	SERVICE INTERFACE PROFILE FOR ENTERPRISE DIRECTORY SERVICES
The purpose of this Service Interface Profile (SIP) is to specify the interface of the directory service itself.	
AI_TECH_2016.06.02.05_SIP.pdf	
MESSAGING	SERVICE INTERFACE PROFILE FOR MESSAGING
This specification provides the interface control for simple object access protocol (SOAP) web services that are deployed within the NNEC web service infrastructure.	
AI_TECH_2016.06.02.06_SIP.pdf	
REST MESSAGING	SERVICE INTERFACE PROFILE FOR REST MESSAGING
This specification provides the profile for securing representational state transfer (REST) web services (known as RESTful web services) that are deployed within the NNEC web service infrastructure. This covers only the call from a Web Service Consumer to a Web	

Service Area	Title
Abstract	
URI	
Service Provider using REST, and the response from the service provider. It includes how the message must be structured and the elements that must be contained within the call.	
AI_TECH_2016.06.02.07_SIP.pdf	
PUBLISH-SUBSCRIBE SERVICES	SERVICE INTERFACE PROFILE FOR PUBLISH-SUBSCRIBE SERVICES
This document gives directives along with clarifications and amendments to the [OASIS WS-BaseNotification, 2006] and [OASIS WS-BrokeredNotification, 2006] specification on how to implement a notification broker/subscription manager to promote interoperability between the publish/subscribe engines and generic message subscribers. Some extensions to the protocol have been introduced in order to meet NATO requirements.	
AI_TECH_2016.06.02.08_SIP.pdf	
PUBLISH-SUBSCRIBE NOTIFICATION BROKER WITH SUBSCRIPTION MANAGER	SERVICE INTERFACE PROFILE FOR PUBLISH-SUBSCRIBE NOTIFICATION BROKER WITH SUBSCRIPTION MANAGER
This document is part of a Service Interface Profile (SIP) for Publish/Subscribe Core Enterprise Services (CES) and should be read together with the main document [NCIA AD 06.05.04.02.E]. It gives guidance on implementation of a WS-Notification compliant notification broker. It is REQUIRED that each notification broker implementation also includes the subscription manager functionality.	
AI_TECH_2016.06.02.09_SIP.pdf	
PUBLISH-SUBSCRIBE NOTIFICATION CONSUMER	SERVICE INTERFACE PROFILE FOR PUBLISH-SUBSCRIBE NOTIFICATION CONSUMER
This document is part of a Service Interface Profile (SIP) for publish/subscribe Core Enterprise Services (CES) and should be read together with the main document "Service Interface Profile for Publish/Subscribe Services" [NCIA AD 06.05.04.02.E]. It gives guidance on implementation of a WS-Notification-compliant notification consumer.	
AI_TECH_2016.06.02.10_SIP.pdf	
A NOTIFICATION CACHE SERVICE	SERVICE INTERFACE PROFILE FOR A NOTIFICATION CACHE SERVICE
This Service Interface Profile (SIP) describes the key eleme nts that make up the NNEC Core Enterprise Services (CES) Notification Cache service. It describes and profiles the operations which a Notification Cache service offers together with the associated message formats, and serves as a template and guideline for implementations.	

Service Area	Title
Abstract	
URI	
AI_TECH_2016.06.02.11_SIP.pdf	
BASIC COLLABORATION SERVICES	SERVICE INTERFACE PROFILE FOR BASIC COLLABORATION SERVICES
This Collaboration Service Interface Profile (SIP) is focused on instant messaging and is based on the extensible messaging and presence protocol (XMPP).	
AI_TECH_2016.06.02.12_SIP.pdf	
CORE AND ADVANCED INSTANT MESSAGING COLLABORATION SERVICES	SERVICE INTERFACE PROFILE FOR CORE AND ADVANCED INSTANT MESSAGING COLLABORATION SERVICES
This document specifies the Service Interface Profile (SIP) for a number of instant messaging services that can be implemented and used by any XMPP entity (XMPP Client or XMPP Server) on the XMPP network.	
AI_TECH_2016.06.02.13_SIP.pdf	
GEOSPATIAL SERVICES – MAP RENDERING SERVICE	SERVICE INTERFACE PROFILE FOR GEOSPATIAL SERVICES – MAP RENDERING SERVICE
This document gives guidance on the implementation of a Map Rendering Service, being a special kind of a Geospatial Service.	
AI_TECH_2016.06.02.14_SIP.pdf	
Cryptographic Services	Cryptographic Artefact Binding Profiles
Profile the use of cryptographic protocols, which can be used to implement support for different cryptographic techniques and mechanisms, for generating cryptographic artefacts to be stored in a cryptographic binding.	
Cryptographic_Artefacts_Binding_Profilesv1.0.pdf	
XMPP Services	Extensible Message and Presence Protocol (XMPP) Binding Profile
Confidentiality metadata labels can be supported in XMPP stanzas as indicated by XEP-0258 whereby a mechanism for carrying Enhanced Security Services (ESS) Security labels is standardized. This profile extends the XEP-0258 specification to support carrying an Embedded or Detached BDO for Message stanzas. This profile supports the XMPP use cases for one-to-one instant messaging and multi-user chat.	
Extensible_Message_and_Presence_Protocol_Binding_Profilev1.0.pdf	

Service Area	Title
Abstract	
URI	
Metadata Services	Extensible Metadata Platform (XMP) Binding Profile
This Binding Profile for XMP describes how metadata should be incorporated within an XMP packet as a structured value.	
Extensible_Metadata_Platform_Binding_Profilev1.0.pdf	
Generic Packaging Services	Generic Open Packaging Convention (OPC) Binding Profile
This profile defines a generic packaging mechanism, based upon the Open Packaging Container (OPC) defined in ISO/IEC 29500-2:2008, to associate any arbitrary file that do not use the Office Open XML (OOXML) format or have no specific profile for supporting the Binding Information with their own file format.	
Generic_Open_Packaging_Convention_Binding_Profilev1.0.pdf	
Labelling Services	Profiles for Binding Metadata to a Data Object
Introduces and describes profiles for Binding Metadata to a Data Object which may and will be reused in other profiles.	
Introduction_to_Binding_Profile_Set.pdf	
Metadata Services	Office Open XML (OOXML) Formats Binding Profile
This profile for the OOXML describes how metadata can be maintained.	
Office_Open_XML_Binding_Profilev1.0.pdf	
REST Services	Representational State Transfer (REST) Profile
In an environment where data objects must have bound metadata, the resource identified in the URI will already contain a BDO (detached, encapsulating or embedded). As such, there is no requirement for metadata binding that is specific for REST. However, to support information sharing between partners it may be necessary to locate a Binding Data Object (BDO) in the HTTP protocol layer.	
Representational_State_Transfer_Protocol_Binding_Profilev1.0.pdf	
Metadata Services	Sidecar Files Binding Profile
Sidecar files allow the association of metadata with a data object for which there is no profile.	
Sidecar_Files_Binding_Profilev1.0.pdf	

Service Area	Title
Abstract	
URI	
Informal Messaging Services	Simple Mail Transfer Protocol (SMTP) Binding Profile
This profile specifies the mechanism for binding metadata to Internet Email (both formal and informal) including MIME entities.	
Simple_Mail_Transfer_Protocol_Binding_Profilev1.0.pdf	
SOA Platform Services	Simple Object Access Protocol (SOAP) Binding Profile
Where there is a requirement to bind metadata to a SOAP message or data object (s) within the SOAP body that is exchanged between a service consumer and a service provider, the SOAP Binding Profile specified must be adhered to.	
Simple_Object_Access_Protocol_ Binding_Profilev1.0.pdf	