NATO STANDARD

APP-18

THE SUB-GROUP 2 SHARABLE (FIRE CONTROL) SOFTWARE SUITE (S^4)

Edition A Version 1

October 2015

NORTH ATLANTIC TREATY ORGANIZATION

ALLIED PROCEDURAL PUBLICATION
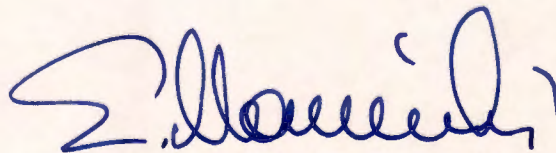
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NORTH ATLANTIC TREATY ORGANIZATION (NATO)

NATO STANDARDIZATION OFFICE (NSO)

NATO LETTER OF PROMULGATION

7 October 2015

1.   The enclosed Allied Procedural Publication APP-18, Edition A, Version 1 on the Sub-Group 2 Sharable (fire Control) Software Suite (S⁴) which has been approved by the nations in the NATO Army Armaments Group (NAAG), is promulgated herewith.   The agreement of nations to use this publication is recorded in STANAG 4537, Edition 4.

2.   APP-18 Edition A, Version 1 is effective upon receipt.

3.   No part of this publication may be reproduced, stored in a retrieval system, used commercially, adapted, or transmitted in any form or by any means, electronic, mechanical, photo-copying, recording or otherwise, without the prior permission of the publisher. With the exception of commercial sales, this does not apply to member or partner nations, or NATO commands and bodies.

4.   This publication shall be handled in accordance with C-M(2002)60.

Edvardas MAŽEIKIS
Major General, LTUAF
Director, NATO Standardization Office

RESERVED FOR NATIONAL LETTER OF PROMULGATION

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<u>RECORD OF RESERVATIONS</u>

CHAPTER	RECORD OF RESERVATION BY NATIONS
Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.	

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RECORD OF SPECIFIC RESERVATIONS

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Note: The reservations listed on this page include only those that were recorded at time of promulgation and may not be complete. Refer to the NATO Standardization Document Database for the complete list of existing reservations.	

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TABLE OF CONTENTS

SUB-GROUP 2 SHAREABLE (FIRE CONTROL) SOFTWARE SUITE (S^4)

Related documents:

AArtyP-1	Artillery Procedures
STANAG 4355	The Modified Point Mass Trajectory Model
STANAG 4425 (+AOP29)	A Procedure to Determine the Degree of Interchangeability of NATO Indirect Fire Ammunition
STANAG 4500	Procedures to Determine Field Artillery Muzzle Velocity Management, Interchangeability and Prediction
STANAG 4537	Sub-Group 2 Shareable (Fire Control) Software Suite (S^4)
AOP-37	NATO SG/2 Shareable (Fire Control) Software Suite
AOP-49	NATO SG/2 Shareable (Fire Control) Software Suite Quality System
STANAG 1059	Codes for Geographical Entities

<u>AIM</u>

1.   The aim of this publication is:

(a) to define and identify the structure, techniques and procedures to be applied to the development, sharing, disclosure, and the use of any software and documentation relating to the SG/2 Shareable (Fire Control) Software Suite (S^4), and

(b) to serve as the official cover document for the associated AOP-37 (structure of projects) and AOP-49 (ICG IF mandated quality system).

<u>AGREEMENT</u>

2.   NATO Member or sponsored government which uses or incorporates all or any portion of the S^4 software (source, object and executable code), related database file formats, and/or documentation agrees to abide by the identified structure, techniques, and procedures in all matters concerning the development, sharing, legal disclosure, and use of S^4 software and documentation. Each NATO member government is individually responsible for all liabilities associated with its own national application of S^4 software and documentation. Each sponsoring NATO member government is also completely responsible for any government that it has sponsored (e.g. Partnership for Peace (PfP), Euro-Atlantic Partnership Council (EAPC), or any other non-NATO country), in order for them to be able to participate in future development under the auspices of the NAAG AC/225 Integrated Capability Group on Indirect Fire, Sub Group 2 (ICG IF-SG/2) technical panel – this includes actions, disclosures, and any form of exploitation or export. Legally binding commercial agreements between governments and their contractors **must** include the statements (or their equivalent) found at Annex D and requires prior approval by the appropriate NATO or sponsoring NATO government authority.

<u>DEFINITIONS</u>

3.   The definitions used for the purpose of this Allied Procedural Publication (APP) are given in Annex A.

Important remark: for practical reasons, when referring in this APP to S^4, it should always be read as 'any S^4 materiel (software, code, tools, documentation, test data) related to the SG/2 Shareable (Fire Control) Software Suite (S^4)'.

<u>GENERAL</u>

4.   The intent of this APP is to serve:

a.   as a common coordinating document stating base policy, concerning the development, sharing, disclosure, and the use of any part of the S^4 programme, related database file formats, and related documentation;

b.   as the official cover document for the associated AOP-37 that defines the structure of the released projects;

c.   as the official cover document for the associated AOP-49 related to the quality system of the S^4 products.

5.   The primary domain of the S^4 is:

a.   For use in technical fire control systems (usable by Direct or Indirect Fire Systems), and secondly in technical or research tools applications.

b.   To provide a set of standard, generic, and layered software modules which, when used together, are capable of performing the required processing, with seamless interaction between kernels.

<u>Note</u> - The overarching Programme Plan for the S^4 (see AOP-37) shall be used as a management guide for the development of the S^4 programme. Each S^4 project shall have a project plan to be used for the development of the individual products.
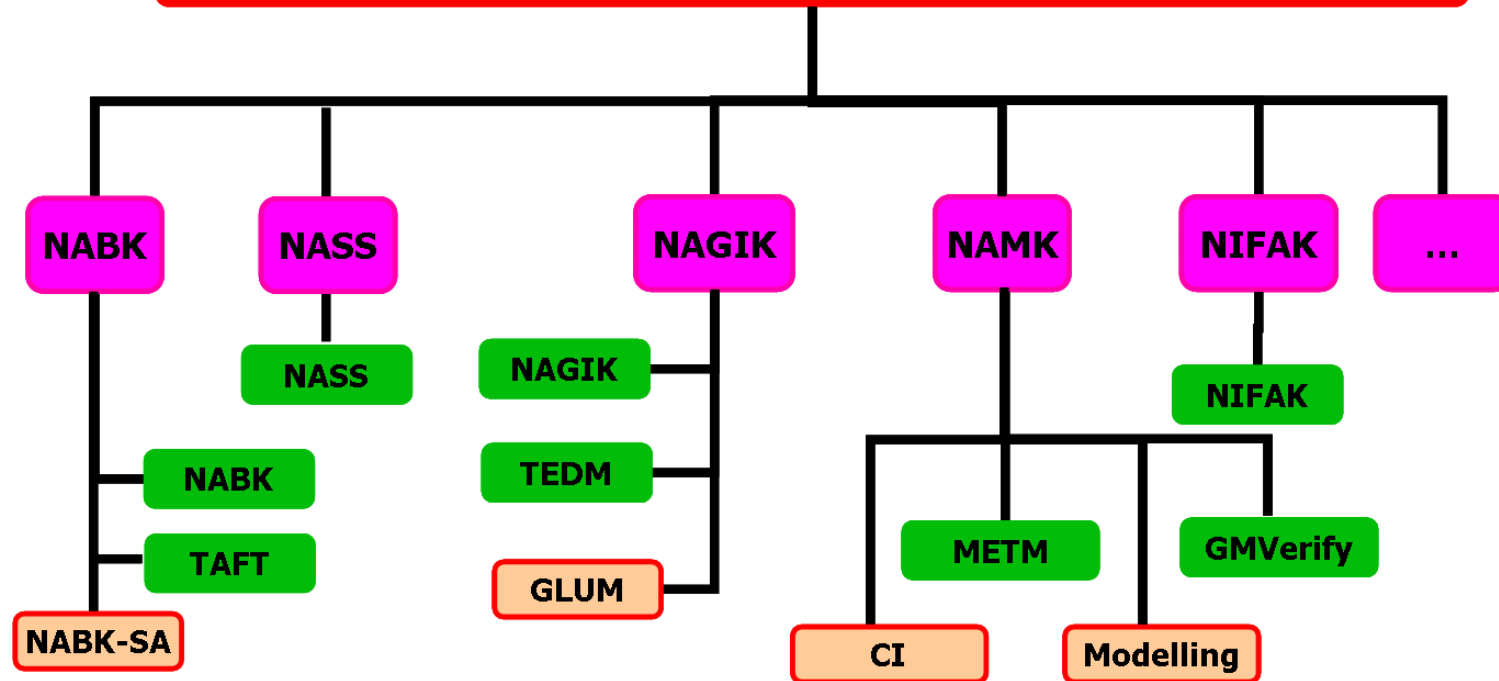
S^4 materiel is available to any NATO member government that ratifies and implements STANAG 4537. S^4 materiel may also be available to PfP, EAPC or other non-NATO governments provided they are sponsored by a NATO S^4 participating government and have received the appropriate authorization of AC/225(ICG IF-SG/2) or higher body with authority.

6.   Cooperation with other NATO working groups.

Development of S^4 products requires cooperation and coordination with other NATO working groups; e.g. the Military Meteorological working group (MILMET).

SUITE ORGANISATION   The re-organisation of the shareable kernel products approved by AC/225(ICG IF-SG/2) (see PfP(NAAG-LG/4-SG/2)DS(2004)0002, dated 28 Oct 2004) into a set of coherent and co-operative projects under the auspices of AOP-37 programme brings much welcomed clarity to a complex software system but adds significant effort required to the configuration management, release timings and testing burden overall. The diagram shows the hierarchy of suite, project, and products. The overall programme, each project and each product has its own plan, security guide etc inheriting the properties of the parent (although exceptions can be approved by SG/2 in the appropriate plan on a case by case basis).

NATO AC/225, Indirect Fire Systems, Sub-Group 2 – S⁴ Shareable Kernels Programme

NABK   NASS   NAGIK   NAMK   NIFAK   ...

NASS

NAGIK   NIFAK

NABK   TEDM

TAFT   METM   GMVerify

GLUM

NABK-SA   CI   Modelling

NASS   – NATO Armaments Support Services – underpins all other Project layers with generic functions
NABK   – NATO Armaments Ballistic Kernel – supplies only ballistic routines (not generic functions) and Tabular Firing Tables application. A prototype small-arms application exists.
NAGIK   – NATO Armaments Geophysical & Information Kernel – supplies routines to kernels & OPrs for terrain, obfuscation and compression functions.
NAMK   – NATO Armaments Meteorological Kernel – supplies met manager, operational met application & supports joint programme with the NATO Meteorological community (MILMET) to produce forecasting model & confidence
                 products
NIFAK   – NATO Indirect Fire Appreciation Kernel – provides routines to evaluate weights and distribution of fire for OPr.

■ Programme   ■ Projects   ■ Released Products   ▢ Products developing technology

3   **Edition A Version 1**

<u>INTELLECTUAL PROPERTY RIGHTS</u>

7. S^4 software and documentation are the intellectual property of NATO with the participating governments of AC/225(ICG IF-SG/2), all having free and unlimited rights of use. S^4 software and documentation are protected by NATO copyright, including without limitation, applicable laws in the country in which it is being used. It is also forbidden to reverse engineer, decompile, disassemble or otherwise attempt to discover the source code of any part of S^4 software except to the extent you may be expressly permitted to decompile when it is essential to do so in order to achieve operability with another software program, and you have first requested and received the appropriate written authorization of AC/225(ICG IF-SG/2). **With the exception of NATO NAAG AC/225(ICG IF-SG/2), this agreement does not grant a group, an individual or a government access to any intellectual property rights in the S^4 software and documentation.**

8.   Use of any materiel related to S^4 by any group, individual or government is done so at their own operational and technical risk. ICG IF does not accept any responsibility whatsoever for the misuse, loss, damage, personal injury or deaths resulting from **any** usage of S^4 components by any persons, group or government. All users in possession of working code or documentation accept the mandatory legal disclaimer at Annex D. All contracting or exporting by any government disclosing S^4 materiel must include some form of Annex D wording to maximise its strength in a court of law.

<u>DETAILS OF AGREEMENT</u>

9.   **Development and Maintenance of the S^4 Materiel**

The participating governments are responsible for the development and maintenance of all the S^4 software components & programmes through a S^4 Team of Experts (S^4 ToE), which will inform all authorized S^4 users of any updates and modifications when available. AOP-37 and AOP-49 shall be developed and continuously maintained by the NATO S^4 participating governments to define the structure, techniques, procedures and quality system to be used in the development of all S^4 software.

10.   **Sponsorship process**

        Only a NATO S^4 participating government (see glossary) is permitted to sponsor an EAPC, PfP, or any other non-NATO government to allow them to participate and eventually take the technical lead in one or more products within the S^4 programme. Non-participating NATO governments or participating sponsored non-NATO governments are not permitted to sponsor any other government.

All agreements and specific Memoranda of Understanding (MOU) between NATO and EAPC/PfP or any other non-NATO country remain unaffected (e.g. approved Contact Countries will be treated as PfP status).

The process:

        a.   The government wanting sponsorship to join the programme must instigate the process by approaching AC/225(ICG IF) after careful evaluation of the available Public Release and/or UNCLASSIFIED S^4 programme materiel.

        b.   An MOU between the NATO S^4 participating sponsoring government and the EAPC/PfP or another non-NATO government, agreed by the AC/225(ICG IF-SG/2) sponsor group and formally accepted by CNAD (in conjunction with NATO rules) is required.   The MOU must also state the mandatory attendance at all the programme reviews and any technical reviews the sponsoring government feels relevant to complying with the sponsor's investment. A mandatory minimum one calendar-year probationary period is required during which investment to the S^4 programme in resources is made (i.e. money, effort and/or knowledge) – see paragraph 12 for amounts & duration of the commitment required. Access to NATO RESTRICTED (NR) S^4 materiel may be granted at the discretion of ICG IF during the probationary period. Agreeing the MOU can take some considerable time and should be considered from the outset. The MOU must also make it clear that the sponsoring government is always responsible for the actions of the sponsored government. The sponsoring government should also review all contracting documents relating to S^4 materiel disclosure on behalf of the sponsored government.

        c.   For EAPC or PfP governments, CNAD approval is already included in their status. Acceptance by the Integrated Capability Group on Indirect Fire (under silence procedure) of the MOU agreement is sufficient.

Subject to satisfactory completion of the probationary period, access to NATO RESTRICTED and elevation to 'higher' activity is permitted and encouraged using the existing NATO acceptance procedures.

To become an active or reviewer S^4 government, access to NATO RESTRICTED S^4 materiel is required (except for NASS which has been approved as wholly NATO UNCLASSIFIED). This can influence a government's time schedule because of the longer appropriate NATO procedures and the required probationary period.

Table 1 below shows the technical status of products. This does not show governmental responsibility but solely where technical effort is recognised. A NATO S^4 participating government always remains responsible for his sponsored government(s) at all times although the MOU, as agreed by SG/2, may allow full autonomy for the sponsored government from the NATO sponsorer to deliver products to the S^4 group with the sponsorer as the "owner" of the responsibility. Project leaders (with responsibility) must be NATO S^4 participating lead, whereas, product leaders are also open to sponsored PfP/EAPC governments under the responsibility of their sponsoring governments.

Government	Lead	Active	Reviewer	Contributor	Observer
NATO	YES	YES	YES	YES	YES
EAPC or PfP	YES (L2)	YES (L2)	YES (L2)	YES (L1)	YES (L1)
Other non-NATO	NO	YES (L4)	YES (L4)	YES (L3)	YES (L3)

Table 1- Government and Status Matrix for Product delivery and technical status (not responsibility)

Notes for Table 1:

L1   Sponsorship Level 1: Sponsored by a full NATO S^4 participating government, MOU with the sponsor Group and acceptance by the Integrated Capability Group on Indirect Fire. Access to the NATO RESTRICTED S^4 materiel not required but allowed if sought at the sponsoring stage providing resource commitment is included in the MOU. Access to NATO S^4 materiel can be permitted through normal NATO channels.

L2   Sponsorship Level 2 : As L1, but after successful probation period; access to the NATO RESTRICTED S^4 materiel is required. Access to NATO RESTRICTED S^4 materiel can be permitted through normal NATO channels. L2 governments may lead technical delivery of S^4 products subject to agreement by SG/2 of the MOU encapsulating the degree of autonomy from the sponsoring participating NATO government who retains formal responsibility for the project.

L3   Sponsorship Level 3: As L1, but CNAD approval is required prior to initiating sponsorship process by the NATO S^4 participating sponsoring government. Access to NATO RESTRICTED S^4 materiel is NOT permitted until the successful completion of the specified probationary period (by default: one year). The sponsored government must be able to guarantee resource levels required (personnel, funding, travel & information) in the MOU. Access to NATO/PfP UNCLASSIFIED S^4 materiel can be permitted through normal NATO channels.

L4   Sponsorship Level 4: As L3 but after successful completion of the specified probation period. Access to the NATO RESTRICTED S^4 materiel is required. Access to NATO/PfP UNCLASSIFIED S^4 materiel can be permitted through normal NATO channels.

Any breaches of an approved sponsorship may result in all released information being returned to the sponsor NATO government. The sponsorship MOU may also be invalidated and the offending government may not be eligible ever to rejoin the development programme.

11.   **Resource Requirements (non-NATO governments only)**

As a contribution for having free access to S^4 materiel through the sponsoring government, minimum resource efforts are required from the sponsored governments. Independent of their status (observer, contributor, reviewer, or active), the government MUST provide appropriate 'real' resource contributions as embodied in the MOU at the outset, else revocation of sponsorship and expulsion from further participation in the S^4 programme may result.

      a.   No specific resource efforts are required to become a sponsored observer government (Sponsorship Level 1 or 3). A sponsored observer government will be invited to the S^4 ToE meetings, but may be asked to leave the meeting on request during specific agenda items. An observer government on probation cannot successfully pass probation until contributions have been made as a contributor government (see 11b).

b. A sponsored contributor government (Sponsorship Level 1 or 3) is required to provide resources as approved by ICG IF. A sponsored contributor government will be invited to the S^4 ToE meetings. To achieve successful completion of the specified probationary period, the government **must** be a contributor.

c. Successful completion of probation and provided access to NATO RESTRICTED S^4 materiel is required for a sponsored reviewer/active government (Sponsorship Level 2 or 4) to continue to contribute significant resources to the programme. For EAPC/PfP governments (Sponsorship Level 2), this consists of at least a ½ work-year (or its equivalent) each year; for other non-NATO governments (Sponsorship Level 4) a contribution of at least one work year (or its equivalent) each year is required. Attending the project review meetings is not considered to be a part of that contribution and the sponsored government must be prepared to make significant ongoing efforts at the outset of the sponsorship process.

NOTE: For the S^4 programme, a work-year comprises the workload of a full one work-year of a professional expert. This commitment must be embodied in the MOU with the sponsoring government, and mandated to last for a period, specified in the MOU (by default, a period of at least 5 years). The sponsoring government will determine which part of the S^4 gets the resource with approval by AC/225(ICG IF-SG/2).

12. **Sharing of the S^4 Materiel**

If approved by the responsible sponsoring government, the sponsored government (sponsored EAPC/PfP or other sponsored non-NATO government) has the right to possess S^4 software and documentation and may use the information in the creation of governmental fire control software. Each nation's government shall ensure compliance with the controls on disclosure set forth in paragraph 14. Government specific databases may be exchanged with other individual governments subject to suitable confidentiality agreements between those governments. It should be noted that use of any S^4 software, databases and documentation is entirely at the user government's own risk (usage and acceptance clauses can be found in annex D and must be used in all commercial agreements).

S^4 NATO RESTRICTED code may be provided to compiler vendors for debugging and investigative purposes by Participating group governments only under a formal Non-Disclosure Agreement (NDA) and contracted support arrangement. Without the compiler vendors being covered, NATO UNCLASSIFIED S^4 code may be provided under standard compiler support arrangements.

13. **Interoperability**

Whilst participating governments may modify S^4 kernel software to suit particular national requirements, any such modification must be reported to the NATO sponsor group and its ToE by the government or the sponsoring government POC at the earliest opportunity. This is to ensure that version interoperability and consistency are maintained.

14. **Disclosure and dissemination of S^4 Materiel**

The disclosures deal with NATO RESTRICTED, NATO/PfP UNCLASSIFIED and UNCLASSIFIED S^4 materiel.

No other disclosure mechanisms other than those described in Annex C are permitted.

For the detailed rules governing disclosure, you must consult the appropriate tables in Annex C:
- Participating NATO group members and contractors based therein: see Annex C, Table C-3;
- Other NATO governments and contractors based therein: see Annex C, Table C-4;
- Sponsored governments with a L2 or L4 sponsorship and contractors based therein: See Annex C, Table C-5;
- Sponsored governments still on probation with a L1 or L3 sponsorship and contractors based therein: See Annex C, Table C-6;
- Non-NATO and unsponsored governments: See Annex C, Table C-7

The S^4 ToE, SG/2, ICG IF, NAAG or CNAD as appropriate (in ascending order of authority) will deal with any discovered breach of the disclosure controls.

15. **Security Classifications**

Generally, the S^4 materiel will be classified in four classes: PUBLIC RELEASE, UNCLASSIFIED, NATO/PfP UNCLASSIFIED (NPU), and NATO RESTRICTED (NR). If a product or project requires/needs different security classifications, then approval of the appropriate project plan by AC/225(ICG IF-SG/2) is required as recording the deviation from the S^4 security classification guide (S^4 SCG).

Every item of S^4 (Software, database files, and documentation) is categorized and summarized in the appropriate volume and part of AOP-37. Overarching programme information will be duplicated in each appropriate AOP-37 volume so that it can be used in isolation.

Any government using or incorporating S^4, or any portion thereof (Software, database files, and/or documentation), into a national application shall protect the resultant with no less than the highest S^4 specified classification used (e.g. UNCLASSIFIED, NATO UNCLASSIFIED or NATO RESTRICTED or an equivalent national classification).

16. **Use of S^4 materiel:** principles for the S^4 programme are summarized**.**

The S^4 products are intended (primarily for use in technical fire control systems) as a set of comprehensive standard, generic, and layered software modules which, when used together, are capable of performing required ballistic processing. The supported platforms shall include a minimum of field artillery, mortars, rockets, tanks and/or naval guns. The S^4 is designed to enable each government to substitute or add nationally developed modules. When a government implements all or a portion of the S^4 into its national fire control system, it is required that problems, solutions, and any improvements be shared with the sponsor group so that an updated version of the S^4 can be developed as appropriate according to the structure, techniques, and procedures established in paragraph 9.

A (sub)contractor designated by a participating NATO government or by a sponsored government (within the boundaries of the MOU) may disclose or export S^4 software, any derivative source code and/or documentation embedded in any fire control system using S^4 software to any other NATO government or to a sponsored government without prior consent of other participating governments provided that the disclosure conforms to the Export Laws of the Country concerned and appropriate authority has been obtained from the sponsoring NATO government and the sponsored government S^4 approving authority. Only S^4 materiel embedded in executable code may be exported to any other government under conditions given at Annex C.

Nationally owned data may be shared with all the S^4 community at the controlling government's discretion. Upon formal release, the data shall be distributed in the appropriate AOP-37 Volume. Separate inter-government agreements that are not covered by this Allied Publication, may be made at the protective marking specified by the owning government.

<u>IMPLEMENTATION OF AGREEMENT</u>

17. **NATO member governments -** This Allied Procedural Procedure and STANAG 4537 are automatically considered as ratified and implemented when the NATO member government uses or incorporates all or any portion of the S^4 (design documentation or plans, source code, object code, or executable code) and/or documentation in the generation of aiming data and/or issue of said S^4 materiel to a contractor for development or production purposes. That government must then adhere to the disclosure controls and statements as indicated in Annexes C and D.

18. **EAPC & PfP sponsored governments -** This Allied Procedural Procedure and STANAG 4537 are considered adopted for legal purposes, and becomes part of the MOU, when a EAPC/PfP sponsored government receives any portion of S^4 software and/or documentation in the generation of aiming data and/or issue of said S^4 materiel to a contractor for development or production purposes from any participating NATO government in accordance with the sponsorship mechanism. The NATO S^4 participating sponsoring government is required to ensure that the sponsored EAPC/PfP government adheres strictly to the disclosure controls in Annexes C and D to which it will have agreed in writing as part of their governmental sponsoring arrangements, laid down in the MOU.

19. **Other sponsored nation governments -** This Allied Procedural Procedure and STANAG 4537 are considered approved and accepted for legal purposes, and becomes part of the MOU, when a sponsored government receives any portion of S^4 software and/or documentation in the generation of aiming data and/or issue of said S^4 materiel to a contractor for development or production purposes from any participating NATO government in accordance with the sponsorship mechanism. The sponsoring NATO S^4 participating government is required to ensure that the sponsored

government adheres strictly to the disclosure controls in Annexes C and D to which it will have agreed in writing as part of their governmental sponsoring arrangements.

20.   MOUs for sponsored governments must include responsibility and resource clauses and the sponsored government must ensure that all commercial uses of the S^4 products are properly scrutinised by the sponsoring NATO government prior to and post issue.

DEFINITION OF TERMS (listed alphabetically)

Active government	A NATO or sponsored government that performs specific tasks and provides deliverables according to a schedule as specified by SG/2 or the S^4 kernel project leader to whom the work is for. It also reviews both programme and technical documents as provided by the project leader providing comments in a timely manner; and provides personnel to attend technical and programme reviews.
Ada	A high level programming language specifically suited to high integrity and safety-related systems. It is based on Pascal, developed for the U.S. Department of Defense and accepted as a standard by NATO.
Ada package	Separately compile-able unit in the Ada programming language that encapsulates types definitions, variables, subprograms, etc.
Ada package specification	Part of the Ada package that describes the interface to the wrapping application.
Ada package body	Part of the Ada package that is the implementation source code.
Approved S^4 materiel	On request through the sponsoring government, and approved by the appropriate NATO level (NAAG, CNAD …), S^4 materiel (software, AOP-37, any derivative source code and/or documentation) releasable to the requesting sponsored government.
BMWG	Battlespace Meteorological working group under the NATO Military Committee Meteorological Group (MCMG).
CI	a. A numeric value indicating the forecast confidence of a given meteorological forecast. The CI value will be generated by post-processing of data in a METGM or GRIB message. The processing quantifies the presence of synoptic features that may influence the forecast confidence. b. A future NAMK Product. The product will generate and provide the CI number for a given METGM.
(sub)Contractor	An individual, group, or organizational entity contracted directly (or indirectly) by a government. It performs work requiring S^4 documentation or code under the specific direction or guidance of that government using mandatory legal statements found at Annex D in all contracting reviewed and approved by the government, and the NATO S^4 participating group government if sponsored.
Contributor government	Any government (NATO or sponsored) that contributes, or is invited to contribute, ideas or technology to the development of one or more kernels within the S^4 programme.
Disclosure	Disclosure is a means of providing S^4 source code, programme/project and product plans, test & verification data and any other documentation to governments and/or (sub)contractors at the discretion of the controlling distribution government(s). Controls at Annex D must always be specified in contracts between governments and contractors which the releasing government, and the NATO government if acting as a sponsor, must ensure are enforced. (See also 'Export')
EAPC government	Any Euro-Atlantic Partnership Council (EAPC) government listed on the current NATO maintained EAPC list.
Executable code	Compiled machine code that will directly allow a computer to perform programmed instructions.

NATO/PFP UNCLASSIFIED

**ANNEX A TO
APP-18**

Export	Export is a means of government selling equipment through a commercial organisation using <u>embedded</u> S^4 materiel by means of exploiting a previous disclosure to a contractor. Export must always be endorsed in writing by the S^4 authority from the releasing government and the NATO government if sponsored, with legal controls at annex D stipulated in the Foreign Military Sales (FMS) or direct purchase contract. Export is NOT disclosure as there is no source S^4 materiel exchanged between the authorised "selling" contractor and purchasing government.
FCI	Fire control inputs: Data sets of aerodynamic and ballistic coefficients and fitting factors for a specific weapon/ammunition combination necessary to perform required ballistic processing in a technical fire control system. (NABK specific)
Fire Control System	Combination of hardware and software used to control the fire of a weapon system.
FMS	Foreign Military Sales: a form of export arrangement between governments.
FORTRAN	A high level programming language specifically suited for problems that can be expressed algebraically, used mainly in mathematics, science, and engineering. Used in the NAMK prototyping project.
GLUM	Global Land-Usage (Data) Manager. A NAGIK Product. Will be developed as requirements are specified to cover geophysical data rather than just Land-Usage (e.g. gravity).
GMVerify	A NAMK Product. GMVerify uses the METM product with a .NET GUI to slice&dice, verify, convert and visualize meteorological data. GMVerify also provide a command based framework to do the same kind of operations.
Government	The term government here is used to reflect the legal authority in control of a sovereign nation and country as recognised by NATO.
ICG IF	Integrated Capability Group on Indirect Fire. The area of responsibility of ICG IF is the Armaments aspects of all surface-to-surface Indirect Fire Systems (Artillery, Mortars and Rockets), including their ammunition and those Target Acquisition Systems directly associated with the parent Indirect Fire System. The Group also considers applicability of the capabilities developed for the Indirect Fire Systems to the Direct Fire Systems. ICG IF appears under the Capability area "Effective Engagement", but also supports other capability areas, namely, Information Superiority, Force Protection and Survivability, JISR and Deployability.
ITT	Invitation To Tender. A contracting term for the issue of a statement of work to receive a legal proposal bid from a prospective contractor.
Lx-government	Level x (x=1 to 4) sponsored Government (see Table C-2)
Lead government	A NATO or sponsored government that takes the lead in one of the projects or in a certain area within a project of S^4 software engineering, development, and/or maintenance as allocated by SG/2. The lead government provides the project leader as described in AOP-49. For a sponsored lead government, the sponsoring NATO government retains primary responsibility for the project. Only participating NATO governments can act as responsible government of any Kernel project. The lead government may delegate authority to a sponsored government subject to MOU agreement
METM	Meteorological (Data) Manager. A NAMK Product. Provides universal routines to access met parameters at known location and time (x,y,z,t) and various other operations on meteorological data (slice&dice, verification and conversion).

MOU	Memorandum of Understanding. To be used to document agreements between governments and underpin sponsorship arrangements.
N-government	A NATO non-Participating government: A NATO government not involved with the development of any part of the S^4 programme.
NAAG	NATO Army Armaments Group. A leading section overseeing Army interests and/or capability within NATO. Working Groups and sub groups divide up the technology and responsibility into manageable sections. Army Committee 225 (AC/225) of the NAAG is the top group for this programme.
NABK	The NATO Armaments Ballistic Kernel is a ballistic trajectory calculator. It relies only on NASS to function, and may optionally use NAGIK products for its terrain processing functionality, and METM for met data processing.
NABK-SA	This is a small-arms demonstrator product under the NABK project. Coded in MISRA-C, it is a cut-down rewrite of the core NABK product specifically aimed at sniper applications.
NAGIK	The NATO Armaments Geophyical & Information Kernel. This is the overarching project supporting TEDM, NAGIK and GLUM products. It provides routines to support Kernels & OPrs for obfuscation, compression and all terrain processing for NABK.
NAMK	The NATO Armaments Meteorological Kernel. This is the overarching project supporting GMVerify and METM products, as well as the CI prototype product. It provides routines to support other Kernels and OPrs for processing of meteorological data.
NASS	The NATO Armaments Support Services. This is a supporting kernel that underpins all other S^4 kernel projects. This project provides generic routines used by one or more kernels based on public domain or open source knowledge.
NATO member government	Any of the current governments listed as a part of the North Atlantic Treaty Organisation.
NDA	Non-Disclosure Agreement. Usually part of a formal contract where sensitive information needs to be released to a government or contractor.
NIFAK	The NATO Indirect Fire Appreciation Kernel – an indirect fire effectiveness tool. Processes and evaluates the distribution and the weights of fires for an OPr.
NPU	NATO/PfP UNCLASSIFIED (protective marking)
NR	NATO RESTRICTED (protective marking)
NSA	NATO Standardisation Agency
NU	NATO UNCLASSIFIED (protective marking) – largely redundant term in S^4 programme
O-government	Non-sponsored Government
Object code	The code produced by a compiler from the source code, usually in the form of machine language that a computer can execute directly, or sometimes in assembly language.
Observer government	Any government (NATO or sponsored) that attends, or is invited to attend, programme reviews and optionally technical reviews.

OPr	Operational Processor program (research tool or fieldable code) that interfaces to S^4 modular code to provide control over functional objects provided by and to each of the kernel software used.
P-government	NATO S^4 participating government: A NATO government actively involved with the development of any part of the S^4 programme.
Participating government	The group of governments comprising all Reviewer, Active or Lead governments. Representation should be made at ALL programme and technical reviews (Not mandatory to attend technical reviews for reviewer).
PfP government	Any Partnership for Peace government listed on the current NATO maintained PfP list.
Product	A product is a selfcontained functionality unit controlled under a project (see also the suite diagram on page 3)
Programme	This is the overarching construct below which projects and products exist (see also the suite diagram on page 3)
Project	A project is defined as a kernel level managed group of functionality (see also the suite diagram on page 3)
Public Release (suitable for)	The materiel in question is suitable for release to the general public e.g. this publication, product brochures, conference presentations and posters.
Purchase Contract	Direct sales method from a contractor with S^4 embedded material in the equipment they are exporting to another government. National S^4 authority to export is still required.
Reverse-engineering	The process of obtaining source code by whatever means from object or executable code
Reviewer Government	Any NATO, level 2 sponsored or level 4 sponsored government that reviews both program and technical documents and provides comments. It also attends ALL programme reviews and optionally technical reviews.
S^4	The programme under control of NAAG, AC/225(ICG IF-SG/2). The SG/2 Shareable (Fire Control) Software Suite (S^4) consists of (but not limited to) the following kernels – NASS, NABK, NAGIK, NAMK, and NIFAK. Can be written as S4 or S^4 either form is acceptable. **Important remark**: when referring in this Allied Publication to S^4, for practical reasons it should always be read as 'any S^4 materiel (software, code, tools, documentation, test data) related to the SG/2 Shareable (Fire Control) Software Suite (S^4)'
S^4 approving authority	The authority within each government having responsibility for issuing approval to release S^4 materiel to other government departments, projects or (sub)contractors. Each S^4 kernel may fall under different internal departments but AC/225(ICG IF) should be aware of the group having overall responsibility within each user government.
S^4 SCG	S^4 Security Classification Guide for Programme. Individual projects and products can declare waivers against the higher level document to be approved by SG/2.
S^4 ToE	The technical Team of Experts (ToE) of the participating governments that are directly involved with the development of the S^4 programme.

Sample FCI database	An FCI database file external to object and executable code containing information on at least one weapon and ammunition combination that serves as a representative example of the implementation of the database format specified in Volume 1 of AOP-37. Applied to NIFAK, their database shall consist of specific data some of which may need to be duplicated from the NABK one.
SG/2	Sub Group 2 (SG/2) of AC/225-Integrated Capability Group on Indirect Fire (ICG IF) is responsible for the accuracy and interchangeability of all indirect fire ammunition (including mortars and rockets), and, where applicable, supports the direct fire ballistics.
Shareable	The state of being exchangeable between/amongst two or more NATO, NATO approved or sponsored government governments.
Software	In the context of "Any S^4 Software", this means source, object <u>and</u> executable code for fielded systems or tools.
Source code	A set of instructions written by a programmer in a high level programming language and provided in standard ASCII format (readable by people) but not computers. Source code must be converted to object code or machine language before a computer can read or execute the program.
Sponsor group	Sub-Group 2 (SG/2) of the NATO Armaments Army Group (NAAG) Army Committee 225 under Integrated Capability Group on Indirect Fireon Indirect Fire Systems (AC/225(ICG IF). Only indirect fire (not Anti-Air) and direct fire capability will be considered and peripheral code supporting that primary function.
Sponsored government	Any non-NATO government receiving direct sponsorship by a NATO S^4 participating government in order to be able to contribute to the development of one or more kernel components comprising the S^4 programme, and/or be eligible to receive approved software and/or approved documents. The sponsorship MOU mandates certain responsibilities: the sponsored government MUST provide personnel to attend all programme reviews as required in the MOU, and any technical reviews they contribute effort to.
Sponsoring government	A NATO S^4 participating government underwriting the sponsorship of an EAPC or PfP, or other non-NATO government in order to enable the sponsored government to contribute to the development of one or more S^4 kernels and/or be eligible to receive software and documents. The sponsoring government is wholly responsible for the conduct of the sponsored government throughout, and for reviewing all contracting documentation and proposals for the use of S^4 materiel (this ensures that the sponsoring government considers all ramifications of its use within and outside its borders).
TAFT	Tabular Firing Table software is a product under the NABK. It uses NABK released product with a .NET GUI and produces STANAG 4119 compliant firing tables in RTF or PDF formats.
TEDM	Terrain Elevation Data Manager. A NAGIK Product. Delivers all terrain cresting processing for deconflicting NABK trajectories and supports OPr altitude requests.
UNCLASSIFIED	UNCLASSIFIED (protective marking) – see also NU – largely redundant term in S^4 programme.
WAC	Weather Analysis Centre. Place where national mesoscale forecasting models are run. Produces various meteorological data products used operationally.

<u>RESPONSIBILITIES of the PARTICIPATING GOVERNMENTS</u>

The AOP-37 Volume 1 for each project provides the current list of participating governments, their responsibilities and an updated list of each of the points of contact for the participating governments.

Additional details can be found in the current version of the relevant programme plan for the suite, or from one of the kernel projects plans.

DETAILED DISCLOSURE PRINCIPLES

The following tables should be used to determine what information might be disclosed from one government to other governments and contractors of those governments. The process of disclosure must conform to NATO rules and regulations, as well as signed MOU and AC/225(ICG IF) approval agreements for the release of RESTRICTED S^4 materiel. The S^4 SCG and the project SCG's show what S^4 materiel has each protective marking.

Table C-1 – Information types

Key	Disclosure categories
a	NATO RESTRICTED DISCLOSURE
b	NATO or NATO/PfP UNCLASSIFIED DISCLOSURE
c	UNCLASSIFIED DISCLOSURE
e	EXPORT (embedded S^4 materiel only)
p	PUBLIC RELEASE DISCLOSURE
x	NON-RELEASABLE & PROHIBITED DISCLOSURE

Table C-2 provides the detailed description of each government type as it is used by this Allied Publication.

Table C-2 - Organization types

Group/Level	Government Type	Comment
P	NATO S^4 participating government	A NATO government actively involved with the development of any part of the S^4 programme.
N	Other NATO government	Any other NATO government but not in P group.
L1	Sponsored EAPC or PfP Government	Sponsorship Level 1. Sponsored EAPC or PfP Government, access to NATO RESTRICTED S^4 materiel is not permitted.
L2	Sponsored EAPC or PfP Government	Sponsorship Level 2. Sponsored EAPC or PfP government which has successfully completed a one year probationary period as a Level 1 sponsored government; access to NATO RESTRICTED S^4 materiel allowed.
L3	Other Sponsored non-NATO Government	Sponsorship Level 3. Sponsored non-NATO government; access to NATO RESTRICTED S^4 materiel is not allowed.
L4	Other Sponsored non-NATO Government	Sponsorship Level 4. Sponsored non-NATO government which has successfully completed a one year probationary period as a Level 3 sponsored government; access to NATO RESTRICTED S^4 materiel allowed.
O	Non-sponsored Government	Any government outside of NATO and who is unsponsored; access to NATO RESTRICTED S^4 materiel or NATO UNCLASSIFIED (except for EAPC or PfP governments) is not allowed.
Con	N/A	Commercial contractor organizations hosted in and headquartered in a P, N, L1, L2, L3 or L4 government.

General Issues:

The full responsibility for any disclosure or export lies completely with the sponsoring participating NATO government for a sponsored government or the NATO government itself.

Multinational consortia or groups shall take on the nationality of the contracting government but steps shall be taken to ensure that S^4 materiel does not pass to parts of the organization in other countries which are ineligible to receive it (e.g. hosted in unsponsored countries).

Appropriate clauses shall be incorporated into legally binding contractual agreements from contracting governments that reflect the above security classifications, disclosure, and export requirements. Any contractual agreement including the release of S^4 software and/or documentation which could lead to modification of either S^4 software or documentation shall include clauses stating that all NATO member countries have the following rights regarding the modified S^4 software and/or documentation; which they may exercise without any charge:

- to use it freely without any time limit;

- to integrate in totality or in part, or make it integrated in other software elements;
- to duplicate it or to have it duplicated without limitation of time or the number of duplicates;
- to modify it further or to have it modified at any time;
- to evaluate it at any time.

Table C-3: NATO S^4 participating Government (P) and P based Contractor (P-Con).

From↓	To→	Governments				(Sub)Contractor				
		P	N	L2/L4	L1/L3	O	P	N	L2/L4	L1/L3	O
P		abcp [1]	abcp [2]	bcp [3]	cp [4]	abcp [5]	abcp [6]	bcp [7]	cp [4]
P-Con [8]		pxe [9]				abcp [10]		bcp [11]	px [12]

1.   Only a Participating NATO government (P) can disclose S^4 source materiel to another NATO government. No prior consent of other participating governments is required provided the S^4 ToE is informed in writing by the participating NATO government and the receiving NATO government. This reflects normal distribution of any S^4 materiel within NATO. No agreements are required and APP-18 disclosure controls are automatically in force when possessed for use. Full disclosure of NATO RESTRICTED S^4 materiel is provided. Public Release materiel may be exchanged freely within and outside NATO for any purpose.

2.   Only a Participating NATO government (P) can disclose S^4 materiel to another government. L2, L4 respectively represents an EAPC or PfP government, or another non-NATO government that has achieved L2 or L4 sponsorship as described in paragraph 10. Following successful probation period and upgrade of status, access to all S^4 NATO RESTRICTED S^4 materiel is permitted through normal NATO release channels provided the S^4 ToE is informed in writing by the sponsoring NATO government and the receiving L2/L4 government. This reflects normal distribution of any S^4 materiel within NATO. The full responsibility for any disclosure lies completely by the participating sponsoring NATO government.

3.   Only a Participating NATO government (P) can disclose S^4 materiel to another government provided the S^4 ToE is informed in writing by the sponsoring NATO government and the receiving L1/L3 government. This reflects normal distribution of any S^4 materiel within NATO. L1, L3 respectively represents an EAPC or PfP government, or another non-NATO government that has achieved L1 or L3 sponsorship as described in paragraph 10. A L1 or a L3 sponsored government has access to all S^4 resources up to and included NATO UNCLASSIFIED S^4 materiel, but explicitly excludes RESTRICTED S^4 materiel. Completion of successful probation allows transition of status from either L1 to L2, or L3 to L4. The full responsibility for any disclosure lies completely by the participating sponsoring NATO government.

4.   Only a Participating NATO government (P) can disclose S^4 materiel to another government provided the S^4 ToE is informed in writing by the participating NATO government and the receiving government. This reflects normal distribution of any S^4 materiel within NATO. It is only permitted to disclose up to UNCLASSIFIED S^4 materiel to non-NATO governments or contractors, so that they can evaluate the potential power of the S^4 programme. The NATO S^4 participating government that was contacted to disclose the UNCLASSIFIED S^4 materiel must formally request to SG/2 and must be officially recorded by the S^4 ToE and SG/2. EAPC or PfP governments can request NATO/PfP UNCLASSIFIED S^4 materiel as stipulated in the official agreement between NATO and EAPC or PfP governments.

5.   Any participating NATO government can contract with any other NATO government classed (sub)-contractor subject to disclosure controls in Annex D. Further disclosure from the NATO based (sub)-contractor are discussed in notes 9, 10, 11 and 12 below.

6.   Any participating NATO government can contract with any L2 or L4 sponsored government (sub)-contractor subject to disclosure controls in Annex D. Further disclosure from the NATO based (sub)-contractor are discussed in notes 9, 10, 11 and 12 below.

7.   Any participating NATO government can contract with any L1 or L3 sponsored government (sub)-contractor subject to disclosure controls in Annex D. Further disclosure from the NATO based (sub)-contractor are discussed in notes 9, 10, 11 and 12 below.

8.   Any subcontractor MUST be included in the main disclosure agreement with the prime contractor and the relevant procuring government body. Subcontractors inherit the status of their national government for S^4 disclosure purposes. All subcontractor contracts must also include Annex D controls. Any prime contractor is completely responsible for all of his subcontractors.

9.   A P based contractor is never permitted to disclose any S^4 source materiel to any government of any type. Annex D controls prohibit this and is illegal. If exporting S^4 embedded in equipment, the P government is responsible for ensuring the classification of the S^4 embedded materiel is appropriate and authorised for export.

10.   A P based contractor is permitted to disclose S^4 materiel (as dictated by the contract with the participating NATO government) to other sub contractors based in NATO or L2/L4 sponsored countries. Further disclosure to other un-sponsored countries is prohibited and must be actively controlled by the responsible government.

11.   A P based contractor is permitted to disclose up to NATO/PfP UNCLASSIFIED S^4 materiel (as dictated by the contract with the participating NATO government) to other sub contractors based in L1/L3 sponsored countries. Further disclosure to other un-sponsored countries is prohibited and must be actively controlled.

12.   A P based contractor is not permitted to disclose or export any S^4 materiel to any unsponsored government sub contractors. Annex D controls prohibit this

Table C-4: NATO NON-participating Government (N) and N based Contractor (N-Con).

From↓ / To→		Governments					(Sub)Contractor				
		P	N	L2/L4	L1/L3	O	P	N	L2/L4	L1/L3	O
N		px [1]					abcp [2]		abcp [3]	bcp [4]	px [5]
N-Con [6]		pxe [7]					abcp [8]			bcp [9]	px [10]

1.   Only a Participating NATO government can disclose the appropriate S^4 source materiel to another government. Public Release materiel may be exchanged freely within and outside NATO for any purpose.

2.   Any NATO NON-participating government (N) can contract with any other NATO government classed (sub)-contractor subject to disclosure controls in Annex D. Further disclosure from the NATO based (sub)-contractor are discussed in notes 7, 8, 9 and 10 below.

3.   Any NATO NON-participating government can contract with any L2 or L4 sponsored government classed (sub)-contractor subject to disclosure controls in Annex D. Further disclosure from the L2/L4 based (sub)-contractor are discussed in notes 7, 8, 9 and 10 below.

4.   Any NATO NON-participating government can contract with any L1 or L3 sponsored government based (sub)-contractor subject to disclosure controls in Annex D. Further disclosure from the L1/L3 based (sub)-contractor are discussed in notes 7, 8, 9 and 10 below. It is only permitted to disclose NATO UNCLASSIFIED S^4 materiel to these (sub)-contractors.

5.   Only a Participating NATO government can disclose the appropriate S^4 materiel.

6.   Any subcontractor MUST be included in the main disclosure agreement with the prime N based contractor and the relevant procuring government body. Subcontractors inherit the status of their national government for S^4 disclosure purposes.   All subcontractor contracts must also include Annex D controls. Any prime contractor is completely responsible for all of his subcontractors.

7.   A N based contractor is never permitted to disclose any S^4 source materiel to any government of any type. Annex D controls prohibit this and is illegal. If exporting S^4 embedded in equipment, the N government is responsible for ensuring the classification of the S^4 embedded materiel is appropriate and authorised for export.

8.   A N based contractor is permitted to disclose S^4 materiel (as dictated by the contract with the NATO NON-participating government) to other sub contractors based in NATO or L2/L4 sponsored countries. Further disclosure to other un-sponsored countries is prohibited and must be actively controlled by the responsible government.

9.   A N based contractor is permitted to disclose up to NATO/PfP UNCLASSIFIED S^4 materiel (as dictated by the contract with the NATO NON-participating government) to other sub contractors based in L1/L3 sponsored countries. Further disclosure to other un-sponsored countries is prohibited and must be actively controlled.

10.   A N based contractor is not permitted to disclose or export any S^4 materiel to any unsponsored government sub contractors. Annex D controls prohibit this.

Table **C-5: Sponsored L2/L4 Government (L2/L4) or L2/L4 based contractor (L2/L4-Con)**

	To→	Governments					(Sub)Contractor				
From↓		**P**	**N**	**L2/L4**	**L1/L3**	**O**	**P**	**N**	**L2/L4**	**L1/L3**	**O**
L2/L4				px [1]			abcp [2]	abcp [3]	bcp [4]	px [5]	
L2/L4-Con [6]				pxe [7]			abcp [8]		bcp [9]	px [10]	

1.   Only a Participating NATO government can disclose the appropriate S^4 source materiel to another government. Public Release materiel may be exchanged freely within and outside NATO for any purpose.

2.   Any L2 or L4 sponsored government (L2/L4-government) can contract with any other NATO government classed (sub)-contractor subject to disclosure controls in Annex D. Further disclosure from the L2/L4 based (sub)-contractor are discussed in notes 7, 8, 9 and 10 below.

3.   Any L2 or L4 sponsored government can contract with any other L2 or L4 sponsored government classed (sub)-contractor subject to disclosure controls in Annex D. Further disclosure from the L2/L4 based (sub)-contractor are discussed in notes 7, 8, 9 and 10 below.

4.   Any L2 or L4 sponsored government can contract with any L1 or L3 sponsored government based (sub)-contractor subject to disclosure controls in Annex D. Further disclosure from the L2/L4 based (sub)-contractor are discussed in notes 7, 8, 9 and 10 below. It is only permitted to disclose NATO/PfP UNCLASSIFIED S^4 materiel to these (sub)-contractors.

5.   Only a Participating NATO government can disclose the appropriate S^4 materiel.

6.   Any subcontractor MUST be included in the main disclosure agreement with the prime L2/L4 based contractor and the relevant procuring government body. Subcontractors inherit the status of their national government for S^4 disclosure purposes. All subcontractor contracts must also include Annex D controls. Any prime contractor is completely responsible for all of his subcontractors.

7.   A L2/L4 based contractor is never permitted to disclose any S^4 source materiel to any government of any type. Annex D controls prohibit this and is illegal. If exporting S^4 embedded in equipment, the Sponsoring NATO government is responsible for ensuring the classification of the S^4 embedded materiel is appropriate and authorised for export.

8.   A L2/L4 based contractor is permitted to disclose S^4 materiel (as dictated by the release by the sponsoring NATO government & MOU) to other sub contractors based in NATO or L2/L4 sponsored countries. Further disclosure to other un-sponsored countries is prohibited and must be actively controlled by the responsible government.

9.   A L2/L4 based contractor is permitted to disclose up to NATO/PfP UNCLASSIFIED S^4 materiel (as dictated by the release by the sponsoring NATO government & MOU) to other sub contractors based in L1/L3 sponsored countries. Further disclosure to other un-sponsored countries is prohibited and must be actively controlled by the responsible government.

10.   A L2/L4 based contractor is not permitted to disclose or export any S^4 materiel to any unsponsored government sub contractors. Annex D controls prohibit this.

Table **C-6: Sponsored L1 or L3 Government (L1/L3) – still on probation.**

From↓	To→	Governments					(Sub)Contractor				
		P	N	L2/L4	L1/L3	O	P	N	L2/L4	L1/L3	O
L1/L3		px [1]					bcp [2]				px [3]
L1/L3-Con [4]		pxe [5]					bcp [6]				px [7]

1.   Only a Participating NATO government can disclose the appropriate S^4 source materiel to another government. Public Release materiel may be exchanged freely within and outside NATO for any purpose.

2.   Any L1 or L3 sponsored government (L1/L3-government) can contract with any NATO, or sponsored government classed (sub)-contractor subject to disclosure controls in Annex D. Further disclosures from the L1/L3 based contractor are discussed in notes 5, 6 and 7 below.

3.   Only a Participating NATO government can disclose the appropriate S^4 source materiel.

4.   Any subcontractor MUST be included in the main disclosure agreement with the prime L1/L3 based contractor and the relevant procuring government body. Subcontractors inherit the status of their governmental government for S^4 disclosure purposes. All subcontractor contracts must also include Annex D controls. Any prime contractor is completely responsible for all of his subcontractors.

5.   A L1/L3 based contractor is never permitted to disclose any S^4 materiel to any government of any type. Annex D controls prohibit this and is illegal. If exporting S^4 embedded in equipment, the Sponsoring NATO government is responsible for ensuring the classification of the S^4 embedded materiel is appropriate and authorised for export.

6.   A L1/L3 based contractor is permitted to disclose up to NATO/PfP UNCLASSIFIED S^4 materiel (as dictated by the release by the sponsoring NATO government & MOU) to other sub contractors based in NATO or sponsored countries. Further disclosure to other un-sponsored countries is prohibited and must be actively controlled by the responsible government.

7.   A L1/L3 based contractor is not permitted to disclose or export any S^4 materiel to any unsponsored government sub contractors. Annex D controls prohibit this.

Table **C-7: Un-Sponsored Non-NATO Government (O)**

From↓	To→	Governments					(Sub)Contractor				
		P	N	L2/L4	L1/L3	O	P	N	L2/L4	L1/L3	O
O		px [1]					cp [2]				px [3]
0-Con [4]		px [5]					cp [6]				px [7]

1.	Only a Participating NATO government can disclose the appropriate S^4 source materiel to another government. Public Release materiel may be exchanged freely within and outside NATO for any purpose.

2.	Any unsponsored non-NATO government can contract with any other NATO government or sponsored classed (sub)-contractor subject to disclosure controls in Annex D. There is little point to be gained here though as only up to UNCLASSIFIED information may be exchanged and the NATO and sponsored government contractors who need S^4 materiel already have it. SG/2 must be fully informed though a nominated participating group government acting as a focal point. Further disclosure from the NATO or sponsored government based contractor to any other un-sponsored countries is prohibited.

3.	Only a Participating NATO government (P) can disclose the appropriate S^4 source materiel.

4.	Any subcontractor MUST be included in the main disclosure agreement with the prime O-based contractor and the relevant procuring government body. Subcontractors inherit the status of their governmental government for S^4 disclosure purposes. All subcontractor contracts must also include Annex D controls. Any prime contractor is completely responsible for all of his subcontractors.

5.	A O based contractor is never permitted to disclose any S^4 source materiel to any other government of any type. Annex D controls prohibit this and is illegal. An O based contractor is never permitted to export any S^4 materiel as it has no legal access to the source materiel to embed in a system.

6.	A O based contractor is permitted to disclose its UNCLASSIFIED S^4 materiel (as dictated by the arrangements with the coordinating SG/2 focal point NATO government) to other sub contractors based in NATO or sponsored countries. Further disclosure to other un-sponsored countries is prohibited and must be actively controlled by the responsible government.

7.	A O based contractor is NOT permitted to disclose any S^4 source materiel to other sub contractors based in non NATO or unsponsored countries unless they were declared at note 4 above. Further disclosure to other un-sponsored countries is prohibited and must be actively controlled by the responsible government.

Secondary Distribution, Reverse-Engineering and Liability Statements

The following three statements must be used by ALL S^4 users, including governments buying exported S^4 embedded systems, and are provided for use in contractual binding legal agreements governing the disclosure of any part of S^4 materiel whether source, object and/or executable code, documentation, test cases or tools. The statements are provided to convey intent. Each NATO or sponsored government may use a variant of these statements only if doing so ***strengthens*** the legal aspects of the contractual agreements and MOUs they have with their sponsored governments and/or contractors.

Secondary Distribution

(By a NATO commercial company as a recipient of S^4 materiel (technology, information, or code) from a participating or non participating NATO group government).

Further dissemination, distribution, or disclosure of S^4 materiel (technology, information, and/or code or any derivative) is strictly prohibited without obtaining prior official written consent of the appropriate government authority contracting them.

(By a sponsored government commercial company as a recipient of S^4 materiel (technology, information, or code) from a sponsoring government).

Further dissemination, distribution, or disclosure of S^4 materiel (technology, information, and/or code or any derivative) is strictly prohibited without obtaining prior official written consent of the appropriate sponsoring government authority. Further dissemination, distribution, or disclosure to unsponsored governments of S^4 technology, information, and/or code or any derivative is strictly prohibited.

(By a unsponsored government commercial company or unsponsored government as a recipient of S^4 information materiel from a participating NATO group government).

Further dissemination, distribution, or disclosure of the S^4 information materiel or any derivative is strictly prohibited without obtaining prior official written consent of the appropriate sponsoring government authority or SG/2

Reverse-Engineering

The act or process of obtaining S^4 technology or source code from object and/or executable code is strictly prohibited and constitutes a breach of trust.

Liability disclaimer

The participating governments, or any part of NATO, will not under any circumstances be liable for any damages whatsoever (including, without limitation, damages for loss of business, business interruption, damage to governmental interests, accidental or deliberate deaths) arising out of the use, misuse, or inability to use any S^4 materiel (documentation, software, data, or tools).

An individual, group, government or their agents shall accept full responsibility for its use, or misuse, of any S^4 materiel, in whatever form that may take.

Suitable for Export disclaimer

The responsible/sponsoring government that determines S^4 release to the exporting contractor and has a role in the approval of the export license and must declare in writing as part of that approval that no S^4 source materiel is included and that all obfuscation rules to declassify the exported system have been met.