Acquisition Directorate
Boulevard Leopold III
B-1110 Brussels, Belgium

NCIA/ACQ/2023/06703
20 March 2023

To: Bidders List and Distribution List

Subject: Invitation For Bid IFB-CO-115498-TOPFAS-BMD **Amendment 5**

TOPFAS Ballistic Missile Defence (BMD) Increments 1&2

References:

A. AC/4-D/2261(1996 Edition), Procedures for International Competitive Bidding

B. AC/4-D(2008)0002-REV2, International Competitive Bidding Using Best Value Evaluation Methodology, dated 15 July 2015

C. NCI Agency NOI NCIA/ACQ/2022/07167, dated 11 October 2022

D. NCI Agency IFB-CO-115498-TOPFAS-BMD; NCIA/ACQ/2022/07297 dated 14 December 2022

E. NCI Agency IFB-CO-115498-TOPFAS-BMD Amendment 1, NCIA/ACQ/2023/06521 dated 25 January 2023

F. NCI Agency IFB-CO-115498-TOPFAS-BMD Amendment 2, NCIA/ACQ/2023/06569 dated 10 February 2023

G. NCI Agency IFB-CO-115498-TOPFAS-BMD Amendment 3, NCIA/ACQ/2023/06603 dated 17 February 2023

H. NCI Agency IFB-CO-115498-TOPFAS-BMD Amendment 4, NCIA/ACQ/2023/06634 dated 07 March 2023

Dear Prospective Bidders,

1. The purpose of this Amendment 5 is to:

a. Issue revised IFB documents:
   i. Book I, Bidding Sheets.
   ii. Book II Statement of Work Annex-A-SRS.
   iii. Book II Statement of Work Annex-A-SRS – Matrix.

b. Issue the Purchaser responses to all Requests for Clarifications received to date.

c. Issue CR.38 Annex - SonarQube reports.

2. NCI Agency responses to Bidders' questions received by 16 March 2023 are hereby published with this IFB Amendment 5 as Attachment 2. Previous responses to Clarification Requests have been greyed out for your convenience.

3. Any future Requests for Clarification (RfC) are limited to questions that are in response to answers by the Purchaser to existing Bidder RfC. Such additional requests shall arrive not later than fourteen (14) calendar days before the established Bid Closing Date, which is confirmed to be set to 21 April 2023. Any clarifications received after that date will be answered at the discretion of NCI Agency. Additional RfC may be responded to, however they will not extend the Bid Closing Date. This decision shall not be a subject for dispute.

4. Prospective Bidders are advised that the NCI Agency reserves the right to cancel this IFB at any time in its entirety and bears no liability for bid preparation costs incurred by firms or any other collateral costs if bid cancellation occurs.

5. This IFB remains the property of the NCI Agency and shall be protected in accordance with the applicable national security regulations.

6. The NCI Agency point of contact for all information concerning this IFB is Ms. Sara G.C. Stephens, Senior Contracting Officer, who may be reached at CO115498TOPFASBMD@ncia.nato.int.

For the Chief of Acquisition:

// Original signed //

Sara G.C. STEPHENS
Senior Contracting Officer

Attachments:

1) Revised IFB Documents:

1.1) File # 02_NU_IFB-CO-115498-TOPFAS-BMD-Bidding-Sheets_.xls

1.2) File # 07_NU_CO-115498-TOPFAS-BMD-Book-II-Part-IV-SOW-Annex-A-SRS_.pdf

1.3) File # 07a_NU_CO-115498-TOPFAS-BMD-Book-II-Part-IV-SOW-Annex-A-SRS-Matrix.pdf

2) Responses to Clarification Requests, Release Number 5

3) CR.38 Annex SonarQube reports

Distribution List for IFB-CO-115498-TOPFAS-BMD Amendment 5

All Prospective Bidders

NATO Delegation (Attn: Investment Adviser):

- Albania
- Belgium
- Bulgaria
- Canada
- Croatia
- Czech Republic
- Denmark
- Estonia
- France
- Germany
- Greece
- Hungary
- Iceland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Montenegro
- The Netherlands
- North Macedonia
- Norway
- Poland
- Portugal
- Romania
- Slovakia
- Slovenia
- Spain
- Turkey
- United Kingdom
- United States

NATO HQ

- NATO Office of Resources (NOR)
    - CIS and Cyber Capabilities Branch (CCC) Branch Head
    - NOR Secretariat Section (RPPB, IC, BC)

Strategic Commands

- SHAPE SDP J5 PLS, OF-5 Luc MEES
- SACT CAPDEV CAP OC2, OF-4 Stefan Meyer

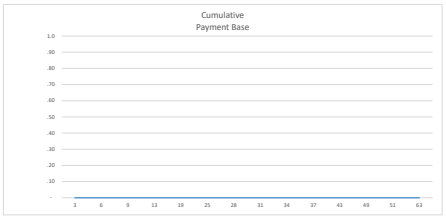
ACO Liaison Office
All NATEXs
Embassies

CLIN	Description	Required Completion Date	Quantity	Unit Price	Total Fixed Price	10% Req	40% Req	70% Req	FAT	Validation Phase	PSA	FSA	WARRANTY	check	Notes
				Declare Currency =>	0										
1	**CLIN 1 (BASE-EVALUATED) - Project Management**				-										
1.1	Project Management		833	-	-										
	Project Management WP1	EDC+25 months	456	-	-	15%	15%	15%	15%	20%	10%		10%	100%	0.0% Advance on completion initation WP1, remaining pro rata delivered and accepted requirements
	Project Management WP2	EDC+51 months	377	-	-	15%	15%	15%	15%	20%		10%	10%	100%	
TOTAL PRICE CLIN 1					-										
2	**CLIN 2 (BASE-EVALUATED) - Design & Engineering**														
2.1	Design		833	-	-										
	Design WP1	EDC+13 months	456	-	-	15%	15%	15%	20%	20%	5%		10%	100%	0.0% Advance on comoletion initation WP1. remaining pro rata delivered and accepted requirements
	Design WP2	EDC+37 months	377	-	-	15%	15%	15%	20%	20%	5%		10%	100%	
2.2	System Development & Integration		833	-	-										
	System Development & Integration WP1	EDC+13 months	456	-	-	15%	15%	15%	15%	20%	10%		10%	100%	0.0% Advance on completion initation WP1, remaining pro rata delivered and accepted requirements
	System Development & Integration WP2	EDC+37 months	377	-	-	15%	15%	15%	15%	20%	5%	5%	10%	100%	
2.3	System Test, Validation & Delivery		833	-	-										
	System Test, Validation & Delivery WP1	EDC+25 months	456	-	-	10%	10%	10%	20%	30%	10%		10%	100%	0.0% Advance on completion initation WP1, remaining pro rata delivered and accepted requirements
	System Test, Validation & Delivery WP2	EDC+49 months	377	-	-	10%	10%	10%	20%	30%	5%	5%	10%	100%	
2.4	Support to BMD Programme				-										
	Support to BMD Programme for WP1	EDC+27 months	1	-	-			10%	10%	20%	50%		10%	100%	0.0% Advance on comoletion initation WP1. remaininz as delivered and accepted
	Support to BMD Programme for WP2	EDC+51 months	1	-	-			10%	10%	20%	45%	5%	10%	100%	
TOTAL PRICE CLIN 2					-										
3	**CLIN 3 (BASE-EVALUATED) - Implementation**														
3.1	Deployment, Installation, Integration & Activation Services		833	-	-										
	Deployment, Installation, Integration & Activation WP1	EDC+25 months	456	-	-					10%	80%		10%	100%	0.0% Advance on completion initation WP1, remaining pro rata delivered and accepted requirements
	Deployment, Installation, Integration & Activation WP2	EDC+49 months	377	-	-					10%	75%	5%	10%	100%	
TOTAL PRICE CLIN 3					-										
4	**CLIN 4 (BASE-EVALUATED) - Integrated Product Support**				-										
4.1	Support Documentation		833	-	-										
	Support Documentation WP1	EDC+13 months	456	-	-		5%	10%	35%	30%	10%		10%	100%	0.0% Advance on comoletion initation WP1. remaininz oro rata delivered and accepted requirements
	Support Documentation WP2	EDC+37 months	377	-	-		5%	10%	35%	30%	5%	5%	10%	100%	
4.2	Training				-										
	Training Package WP1				-					90%	10%			100%	0.0% Advance on completion initation WP1, remaining as delivered and accepted
	TOPFAS SAT Practitioner Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS SAT Train-The-Trainer Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS OPT Practitioner Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS OPT Train-The-Trainer Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS CAT Practitioner Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS CAT Train-The-Trainer Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS Desktop Functional Manager Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS Desktop & TOPFAS Online System Administrator Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS Collaboration Apps & Services Practitioner Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS eFGMT Force Generator Practitioner Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS eFGMT System Administrator Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS NCRS Practitioner Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS NCRS System Administrator Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS RRT Force Readiness Manager Practitioner Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS RRT Force Readiness Assessor Practitioner Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS RRT Force Readiness Reporter Practitioner Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS RRT System Administrator Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS OCC E&F Tool Practitioner Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS OCC E&F Tool Functional Manager & System Administrator Cou	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS RFI App Practitioner Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS RFI App System Administrator Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS TEM App Practitioner Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS TEM App System Administration Course	EDC+19 months	1	-	-					1	1				As delivered & accepted
	TOPFAS Application Suite Transition Courses	EDC+19 months	1	-	-					1	1				As delivered & accepted
	Training Package WP2 (Update)				-					75%	10%	5%	10%	100%	
	TOPFAS SAT Practitioner Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS SAT Train-The-Trainer Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS OPT Practitioner Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS OPT Train-The-Trainer Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS CAT Practitioner Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS CAT Train-The-Trainer Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS Desktop Functional Manager Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS Desktop & TOPFAS Online System Administrator Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS Collaboration Apps & Services Practitioner Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS eFGMT Force Generator Practitioner Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS eFGMT System Administrator Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS NCRS Practitioner Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS NCRS System Administrator Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS RRT Force Readiness Manager Practitioner Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS RRT Force Readiness Assessor Practitioner Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS RRT Force Readiness Reporter Practitioner Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS RRT System Administrator Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS OCC E&F Tool Practitioner Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS OCC E&F Tool Functional Manager & System Administrator Cou	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS RFI App Practitioner Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS RFI App System Administrator Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS TEM App Practitioner Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS TEM App System Administration Course	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	TOPFAS Application Suite Transition Courses	EDC+43 months	1	-	-					1	1	1	1		As delivered & accepted
	Training Delivery WP1				-						100%			100%	0.0% Advance on completion initation WP1, remaining as delivered and accepted
	TOPFAS SAT Transition Course	EDC+25 months	4	-	-						4				As delivered & accepted
	TOPFAS SAT Train-The-Trainer Course	EDC+25 months	2	-	-						2				As delivered & accepted
	TOPFAS OPT Transition Course	EDC+25 months	6	-	-						6				As delivered & accepted
	TOPFAS OPT Train-The-Trainer Course	EDC+25 months	3	-	-						3				As delivered & accepted
	TOPFAS CAT Transition Course	EDC+25 months	3	-	-						3				As delivered & accepted
	TOPFAS CAT Train-The-Trainer Course	EDC+25 months	2	-	-						2				As delivered & accepted
	TOPFAS Desktop Functional Manager Course	EDC+25 months	3	-	-						3				As delivered & accepted
	TOPFAS Desktop & TOPFAS Online System Administrator Course	EDC+25 months	3	-	-						3				As delivered & accepted
	TOPFAS eFGMT Transition Course	EDC+25 months	2	-	-						2				As delivered & accepted
	TOPFAS eFGMT System Administrator Course	EDC+25 months	1	-	-						1				As delivered & accepted
	TOPFAS NCRS Transition Course	EDC+25 months	1	-	-						1				As delivered & accepted
	TOPFAS NCRS System Administrator Course	EDC+25 months	1	-	-						1				As delivered & accepted
	TOPFAS RRT Transition Course	EDC+25 months	1	-	-						1				As delivered & accepted
	TOPFAS RRT System Administrator Course	EDC+25 months	1	-	-						1				As delivered & accepted
	TOPFAS OCC E&F Tool Transition Course	EDC+25 months	1	-	-						1				As delivered & accepted
	TOPFAS OCC E&F Tool Functional Manager & System Administrator Cou	EDC+25 months	1	-	-						1				As delivered & accepted
	TOPFAS RFI App Practitioner Course	EDC+25 months	5	-	-						5				As delivered & accepted
	TOPFAS RFI App System Administrator Course	EDC+25 months	1	-	-						1				As delivered & accepted
	TOPFAS RFI App Train-The-Trainer Course	EDC+25 months	1	-	-						1				As delivered & accepted
	TOPFAS Collaboration Apps & Services Practitioner Course	EDC+25 months	5	-	-						5				As delivered & accepted
	TOPFAS Collaboration Apps & Services Train-The-Trainer Course	EDC+25 months	2	-	-						2				As delivered & accepted
	TOPFAS TEM App Practitioner Course	EDC+25 months	4	-	-						4				As delivered & accepted
	TOPFAS TEM App System Administration Course	EDC+25 months	1	-	-						1				As delivered & accepted
	TOPFAS TEM App Train-The-Trainer Course	EDC+25 months	2	-	-						2				As delivered & accepted
	Training Delivery WP2				-						100%			100%	
	TOPFAS SAT Transition Course	EDC+49 months	4	-	-						4				As delivered & accepted
	TOPFAS SAT Train-The-Trainer Course	EDC+49 months	2	-	-						2				As delivered & accepted
	TOPFAS OPT Transition Course	EDC+49 months	6	-	-						6				As delivered & accepted
	TOPFAS OPT Train-The-Trainer Course	EDC+49 months	2	-	-						2				As delivered & accepted
	TOPFAS CAT Transition Course	EDC+49 months	4	-	-						4				As delivered & accepted
	TOPFAS CAT Train-The-Trainer Course	EDC+49 months	2	-	-						2				As delivered & accepted
	TOPFAS Desktop Functional Manager Course	EDC+49 months	3	-	-						3				As delivered & accepted
	TOPFAS Desktop & TOPFAS Online System Administrator Course	EDC+49 months	3	-	-						3				As delivered & accepted
	TOPFAS eFGMT Transition Course	EDC+49 months	2	-	-						2				As delivered & accepted
	TOPFAS eFGMT System Administrator Course	EDC+49 months	1	-	-						1				As delivered & accepted
	TOPFAS NCRS Transition Course	EDC+49 months	1	-	-						1				As delivered & accepted
	TOPFAS NCRS System Administrator Course	EDC+49 months	1	-	-						1				As delivered & accepted
	TOPFAS RRT Transition Course	EDC+49 months	1	-	-						1				As delivered & accepted
	TOPFAS RRT System Administrator Course	EDC+49 months	1	-	-						1				As delivered & accepted
	TOPFAS OCC E&F Tool Transition Course	EDC+49 months	1	-	-						1				As delivered & accepted
	TOPFAS OCC E&F Tool Functional Manager & System Administrator Cou	EDC+49 months	1	-	-						1				As delivered & accepted
	TOPFAS RFI App Practitioner Course	EDC+49 months	4	-	-						4				As delivered & accepted
	TOPFAS RFI App System Administrator Course	EDC+49 months	1	-	-						1				As delivered & accepted
	TOPFAS RFI App Train-The-Trainer Course	EDC+49 months	1	-	-						1				As delivered & accepted
	TOPFAS Collaboration Apps & Services Practitioner Course	EDC+49 months	4	-	-						4				As delivered & accepted
	TOPFAS Collaboration Apps & Services Train-The-Trainer Course	EDC+49 months	2	-	-						2				As delivered & accepted
	TOPFAS TEM App Practitioner Course	EDC+49 months	4	-	-						4				As delivered & accepted
	TOPFAS TEM App System Administration Course	EDC+49 months	1	-	-						1				As delivered & accepted
	TOPFAS TEM App Train-The-Trainer Course	EDC+49 months	2	-	-						2				As delivered & accepted
TOTAL PRICE CLIN 4					-										
5	**CLIN 5 (BASE-EVALUATED) - COTS Software**														
5.1	COTS (3rd Party) Software and Components WP1	EDC+25 months	1	-	-					90%			10%	100%	As delivered & accepted
5.2	COTS (3rd Party) Software and Components WP2	EDC+49 months	1	-	-					90%			10%	100%	As delivered & accepted
TOTAL PRICE CLIN 5					-										
Total Fixed Price Base Contract					-										

Base CLINS

Milestone	Description	From EDC in Months	Calendar Date	Milestone Payment	Cumulative Payment	SRS Requirements Delivered & Accepted
M01	Contract Award		tbd	nil		n/a
M02	Effective Date of Contract (EDC)		tbd	nil		n/a
M03	Completion Initiation Phase WP1	1	-	nil		n/a
M04	10% SRS Requirements Developed WP1	3	-	-	-	n/a
M05	40% SRS Requirements Developed WP1	6	-	-	-	n/a
M06	70% SRS Requirements Developed WP1	9	-	-	-	n/a
M07	Completion Iterative Development WP1 (FAT)	13	-	-	-	456
M08	Completion Validation Phase WP1	19	-	-	-	456
M09	Partial System Acceptance (PSA) WP1	25	-	-	-	456
M10	10% SRS Requirements Developed WP2	28	-	-	-	n/a
M11	40% SRS Requirements Developed WP2	31	-	-	-	n/a
M12	70% SRS Requirements Developed WP2	34	-	-	-	n/a
M13	Completion Iterative Development WP2 (FAT)	37	-	-	-	378
M14	Completion Validation Phase WP2	43	-	-	-	378
M15	Partial System Acceptance (PSA) WP2	49	-	-	-	378
M16	Final System Acceptance (FSA)	51	-	-	-	378
M17	Warranty (paid in 4 quarterly payments)	63	-	-	-	
	TOTAL			**0**	-	

Breakdown	*Check*	*Check*
CLIN1	-	*834*
CLIN2	-	*834*
CLIN3	-	*834*
CLIN4	-	
CLIN5	-	
0	-	



Optional CLINS

Milestone		From EDC in Months	Calendar Date	Milestone Payment	Cumulative Payment
M18	ISS & Maintenance	37	-	-	-
M19	M&S Year 1	57	-	-	-
M20	M&S Year 2	69	-	-	-
M21	M&S Year 3	81	-	-	-
M22	M&S Year 4	93	-	-	-
M23	M&S Year 5	105	-	-	-
	TOTAL			**0**	-

CLIN6	-
CLIN7	-
0	-

	OPTIONS						
	6.1	7.1	7.2	7.3	7.4	7.5	Total
Total =>	-	-	-	-	-	-	-
Check =>	100%	100%	100%	100%	100%	100%	
	100%						
		100%					
			100%				
				100%			
					100%		
						100%	


0.50
0.40
0.30
0.20
0.10
-
37
57
69
81
93
105

IFB-CO-115498-TOFPAS-BMD

BOOK II-PART-IV-SOW-ANNEX-A-SRS

SOFTWARE REQUIREMENTS SPECIFICATIONS

Version 4.0

17/03/2023

TABLE OF CONTENTS

INDEX OF TABLES

Document Revision History

Date	Version	Changes
17 Mar 2023	4.0	Removed requirement [REQ-5850] (changed to “Reserved”)
24 Feb 2023	3.0	Inserted paragraphs [041i] and [054i]; Modified requirement [REQ-4070]
13 Feb 2023	2.0	Insert of “Document Revision History” section; Table 1.1 Inserted TCLM reference; Editorial change paragraph [009] (b); Editorial change title section 2.1; Modified title section 2.1.1; Modified section 2.1.1; Modified requirement [REQ-0010]; Inserted requirements [REQ-0011] to [REQ-0018] instead of paragraphs [011]-[018]; Inserted requirements [REQ-0030] to [REQ-0090]; Swapped sections 2.1.2 and 2.1.3, resulting in modified requirements numbering; Modified section 2.1.2 and 2.1.3 and changed requirements in both sections accordingly; Section 2.1.4: due to changes in section 2.1.2 and 2.2.3, the requirements numbering from section 2.1.4 has been off-set to [REQ-0360], similar for paragraph numbering. Editorial change title section 2.1.5 and 2.4.14; Modified paragraph [048] and changed paragraph number to [045]; Inserted paragraphs [045(i)], [045(ii)], [046(i)] Modified requirement [REQ-5940] and changed number to [REQ-5901]; Inserted requirement [REQ-5920]; Inserted requirement [REQ-7111]; Modified requirement [REQ-7980] and changed number to [REQ-7960]; Modified requirement [REQ-8110] and changed number to [REQ-8090]; Modified requirement [REQ-8260] and changed number to [REQ-8240];
08 Dec 2022	1.0	IFB package release version

1 Introduction

1.1 Purpose and Aim

[001] This document describes the functional and non-functional requirements for implementation of the TOPFAS BMD Increment-1&2 scope with the TOPFAS Application Suite (TOPFAS in short).

[002] The aim is to develop and deliver a comprehensive capabilities and enhancement of the TOPFAS Application Suite with the required functionalities to support BMD specific functions.

1.2 Conventions and Common Terminology

[003] The headings in this document are for ease of reference only and shall not affect its interpretation.

[004] In this document, unless the context otherwise requires:

(a) A number in brackets "[*number*]" precedes each informational or context paragraph;

(b) A unique identifier, consisting of a prefix and number "[REQ-*number*]", precedes each requirement;

(c) Requirements are formulated using the form "shall" and contractually binding. Context information supporting the requirements definition is provided using the form "will" and implies the intent or aim on the part of the Purchaser; the context forms one part with the requirements;

(d) Any phrase introduced by the words "including", "includes", "in particular", "for example" or similar, shall be construed as illustrative and without limitation to the generality of the related general words;

(e) Any reference made to a section or paragraph encompasses the referenced section or paragraph including all subordinate sections and paragraphs;

(f) The convention used for dates (e.g. quoting dates of meetings) is "day-month-year" and not "month-day-year";

(g) With respect to data manipulation requirements, the term "manage" is used to cover all CRUD (Create, Read, Update and Delete) operations.

1.3 Structure

[005] This document is structured as follows:

- Chapter 1: The introduction to this document;
- Chapter 2: Specification of general functional requirements;
- Chapter 3: Specification of the module specific functional requirements;
- Chapter 4: The mapping of the specific functional requirements to applications;
- Chapter 5: Specification of the non-functional requirements.

1.4 References

[006] The references listed below provide further amplifications and contextual information related to the requirements.

Table 1-1 References

[AC-322-D0048-REV3]	Technical and Implementation Directive on CIS Security, Nov 2019
[AC-322-N(2011)130]	Guidance on the Marking of NATO Information, Jun 2011
[AC-324-D(2014)0008]	Directive on the Preservation of NATO Digital Information of Permanent Value, Jul 2014
[AC-35-D-2004-REV3]	Primary Directive on CIS Security, Nov 2013
[ADatP-4774]	(STANAG 4774) Confidentiality Metadata Label Syntax, Ed.A V1, Dec 2017
[ADatP-4778]	(STANAG 4778) Metadata Binding Mechanism, Ed.1, Oct 2018
[APP-11]	NATO Standard APP-11, NATO Message Catalogue, Ed.D V1, Nov 2015
[BMD-ARS]	[NR] TOPFAS BMD Architecture Requirements Specification (ARS) V2.1. Sep 2021
[BMD-IDD]	[NR] Ballistic Missile Defence Programme Interface Design Description (IDD) V4.0. May 2021
[NIMA-TR8350.2]	World Geodetic System-84, NIMA TR8350.2, Ed.3, Amdt.1, Jan 2020
[OWASP]	Open Web Application Security Project (OWASP), https://www.owasp.org/index.php/Main_Page
[SOA-IdM-ICD]	SOA-IDM Service Oriented Architecture (SOA) and Identity Management (IdM) Platform - Wave 1, Interface Control Document (ICD), V15.0, Jun 2021
[SOA-IdM-SDS]	SOA-IDM Service Oriented Architecture (SOA) and Identity Management (IdM) Platform - Wave 1, System Design Specification (SDS), V9.3, May 2021
[SOA-IdM-SUM]	SOA-IDM Service Oriented Architecture (SOA) and Identity Management (IdM) Platform - Wave 1, System User and Operation Manual, V8.0, Feb 2021
[SonarQube]	SonarQube, https://www.sonarqube.org/
[STANAG-5500]	(ADatP-03) NATO Message Text Formatting System (FORMETS) – Concept of FORMETS, Ed.A V3, Nov 2019
[TCLM]	NATO Trusted container lifecycle management v1.4, 2022

1.5 Background – Envisioned Capability

[007] With the TOPFAS BMD, NATO will acquire a set of user applications for a full BMD capability within the TOPFAS Application Suite in support of the NATO Ballistic Missile Defence (BMD) community.

[008] The final, enhanced TOPFAS Application Suite will provide all current existing TOPFAS functionality plus: support for the BMD Pol-Mil consultation process,

between the strategic commands, the North Atlantic Council (NAC) and Military Committee (MC); integration with other functional services to provide greater focus on passive defence (CBRN-FS), support for Education, Training, Exercises and Evaluation (ETEE-FS), utilization of OPFOR information (INTEL-FS) and defence designs (AirC2IS); integration with the NATO platform and core services.

[009] The technical solution of TOPFAS application suite is envisioned to encompass the following user applications:

(a) TOPFAS Desktop - Windows applications: Systems Analysis Tool (SAT), Operations Planning Tool (OPT), Campaign Assessment Tool (CAT), ORBAT Management Tool (OMT), TOPFAS Lite, TOPFAS OCC E&F (Operational Capabilities Concept Evaluation & Feedback) Tool.

(b) TOPFAS Online - server-hosted or web apps: web apps of SAT, OPT, CAT and OMT, TOPFAS eFGMT (Enhanced Force Generation Management Tool), TOPFAS RRT (Readiness Reporting Tool), TOPFAS RFI (Request For Information), TOPFAS NCRS (NATO Crisis Response System), TOPFAS TEM (Training and Exercise Management), TOPFAS Help Centre, TOPFAS Collaboration Apps and Services (Task Planner, Video, Business Intelligence, Assessment, Documents with WebDAV support, Calendar, Wiki, Collaboration Space).

(c) TOPFAS Office Add-in and Slides Management: TOPFAS Briefing Tool (TBT), TOPFAS Slides Management.

(d) Service Configuration and Management: User Management, Application and Service Configuration Management, Data Management Tool (DMT), TOPFAS Catalogue Management, TOPFAS Service Monitoring.

2 Functional Requirements

[010] This chapter defines a set of functional requirements that are generally applicable to most if not all of the TOPFAS Application Suite.

[011] Reserved.

[012] Reserved.

[013] Reserved.

[014] Reserved.

[015] Reserved.

[016] Reserved.

[017] Reserved.

[018] Reserved.

2.1 Cross-cutting Requirements

2.1.1 General

[REQ-0010] The evolution of the TOPFAS Application Suite, while incorporating the requirements specified herein, shall be based on the principle of no regression, no loss of functionality and no loss of non-functional qualities (e.g. loss in performance), unless specified otherwise and agreed with the Purchaser.

Reference: TOPFAS

[REQ-0011] The TOPFAS capabilities specified in this SRS are to be implemented in the TOPFAS Desktop and TOPFAS Online apps where applicable. All modules and components not specifically mentioned are subject to potential modification if they are impacted by any of the requirements.

Reference: TOPFAS

[REQ-0012] The TOPFAS Desktop application modules that are web-based (existing and new to be developed) shall be implemented and integrated in TOPFAS Online with the same functionality.

Reference: TOPFAS

[REQ-0013] The TOPFAS Desktop Explorer, List and Map components shall be migrated to be web-based with all their existing functionality and integrated in TOPFAS Online.

Reference: TOPFAS

[REQ-0014] The BMD specific modules, existing and new, (e.g. Missile Defence - Assets/Asset List/PCAL/JPCAL/JPDAL/IPB Report/Defence Design/OPFOR

TBM COA) shall be web-based and shall be integrated in both TOPFAS Desktop and TOPFAS Online with the same functionality.

Reference: TOPFAS

[REQ-0015] Any requirement related to force requirements shall be implemented in TOPFAS Desktop and TOPFAS Online (e.g. TOPFAS OMT, TOPFAS RRT and/or TOPFAS eFGMT) where applicable.

Reference: TOPFAS

[REQ-0016] Any requirement related to Education, Training, Exercises and Evaluation and ETEE-FS shall be implemented in TOPFAS TEM, and relevant applications/apps of TOPFAS Desktop and TOPFAS Online.

Reference: TOPFAS

[REQ-0017] Any requirement related to user documentation and online help shall be implemented in the relevant application.

Reference: TOPFAS

[REQ-0018] Any requirement related to user and system documentation, online help and training material shall be implemented/integrated in the TOPFAS Help Centre.

Reference: TOPFAS

[REQ-0020] The TOPFAS architecture shall contain the implementation of the management of structured Data Entities (DEs, see section 2.2) as micro services using containers. These services shall be utilized by TOPFAS itself and be exposed for consumption by other systems.

Reference: TOPFAS

[REQ-0030] All containers must be able to be deployed onto Kubernetes.

Reference: TOPFAS

[REQ-0040] Containers must be built using the NATO Trusted Container process (defined by [TCLM]) on NSF. For this they will need to be derived from approved and hardened base images. Exceptionally, if containers cannot be based on these (e.g. for COTS containers), the trusted import process must be followed as defined in the NATO trusted container process.

Reference: TOPFAS

[REQ-0050] The system will utilize infrastructure as code and configuration as code for deployment and configuration. Hardcoding of, or embedding of, resources, configuration settings, or any other non-binary artefacts (URL, DNS, IP addresses, file path, drive letters, etc.) shall NOT be implemented / used.

Reference: TOPFAS

[REQ-0060] For the infrastructure layer (deployment of VMs, clusters, storage), Terraform shall be used in line with agency guidance to provide agnostic cloud service support.

Reference: TOPFAS

[REQ-0070] Kubernetes YAML (Yet Another Mark-up Language) shall be used for containers deployments/orchestration.

Reference: TOPFAS

[REQ-0080] For installation of software (on VMs) and configuration, Ansible shall be used.

Reference: TOPFAS

[REQ-0090] Test-automation, Continuous Integration (CI) and Continuous Delivery (CD) processes shall be implemented for the services and these shall feed in to the pipeline stages for staging, security scanning, container signing, base image registration, etc.

Reference: TOPFAS

2.1.2 Data Management through REST API

[019] TOPFAS will expose the Data Entities (see paragraph 2.2) through a Representational State Transfer (REST) architectural style Application Programming Interface (API).

[REQ-0100] The TOPFAS API shall deliver versioned REST APIs.

Reference: TOPFAS

[REQ-0110] The services shall return a standard, programming language-agnostic, interface description which allows both humans and computers to discover and understand the capabilities of a service without requiring access to source code, additional documentation, or inspection of network traffic. That means the services shall return the contract specifying the API interface compliant to [OAS 3.0.1, 2017] in both JSON (JavaScript Object Notation) and in YAML formats.

Reference: TOPFAS

[REQ-0120] The services shall collect statistics on the API usage to log files. The statistics shall include metrics on the API latencies (response times), frequency of use (down to the granularity of the Data Entities type), the URI requested, the requester, the action, etc.

Reference: BMD-ARS-2291

[REQ-0130] The services shall, for all exposed Data Entities, implement full entity lifecycle management (create, read, update, soft-delete, hard-delete, un-delete etc.)

Reference: TOPFAS

[REQ-0140] The services shall, for all exposed Data Entities, implement the full set of query operators and filters appropriate to the types of the Data Entity properties (numeric, string, datetime, enumeration, etc.)

Reference: TOPFAS

[REQ-0150] The services shall, for all exposed Data Entities, implement extent management (paging, top, skip, etc.)

Reference: TOPFAS

[REQ-0160] The services shall, for all exposed Data Entities, implement Partial GETs.

Reference: TOPFAS

[REQ-0170] The services shall, for all exposed Data Entities, implement partial updates (PATCH).

Reference: TOPFAS

[REQ-0180] The services shall, for all exposed Data Entities, implement ‘navigation properties’ for entity relationships.

Reference: TOPFAS

[REQ-0190] The services shall, for all exposed Data Entities, provide optimistic concurrency (ETag).

Reference: TOPFAS

[REQ-0200] The services shall, for all exposed Data Entities, provide batching of operations (functions and actions) / queries.

Reference: TOPFAS

[REQ-0210] The services API implementation shall enforce the authorisation / validation rules. Services shall prevent commands succeeding in case of validation error.

Reference: BMD-ARS-8865 / BMD-ARS-7859

[REQ-0220] The services shall mark the data being created such that exercise-related and training-related information are distinguishable from operational information.

Reference: BMD-ARS-7304 / BMD-ARS-7305

[REQ-0230] The services shall, whenever a Data Entity through the service API is created, updated or deleted, publish an appropriate Data Entity Create / Update / Delete / etc. event notification for potential subscribers.

Reference: TOPFAS

[REQ-0240] The service API shall for all Data Entity actions, support individual actions on a single Data Entity as well as applying the action on a list of Data Entities (e.g. soft-deleting many Data Entities in one operation).

Reference: TOPFAS

[REQ-0250] All services shall, implement observability interfaces and services to support central management, accessing and analysis of the service logs and metrics.

Reference: TOPFAS

[REQ-0260] At a minimum, all activities / actions / queries of all service consumers (persons, integration partners, other services, etc.) shall be logged for auditing purposes (i.e. enabling full audit traceability of identifiable client activities / actions). Note this includes all read actions on all data entities; i.e. identification of which identity received the data entity and at what time.

Reference: TOPFAS

[REQ-0270] Fault / error logs shall contain required information in order to provide the support staff with interpretable and comprehensive information about the cause and nature of the fault / error.

Reference: TOPFAS

2.1.3 SOA & IdM Platform Integration

[020] The SOA & IdM Platform general requirements span all phases of the service lifecycle – a key service offered by the SOA & IdM Platform is Service Lifecycle Automation; for detailed, authoritative specification see [SOA-IdM-SDS].

[021] The SOA & IdM Platform provides services to three client / consumer hosting models. These include:

(a) Native Hosted Services: These services leverage a pre-canned ‘base runtime’ and include extensions to support integration, mediation, edge and common business services.

(b) Non-Native Hosted Services: Non-Native base images are provided to create runtime implementations that follow standard NATO technology stacks including: .Net Core Framework; Java Web Application Server; generic Web Application Server, etc.

(c) Externally hosted services and applications: these include some or more of legacy / heritage systems; other systems that, for whatever reason, are not hosted on the SOA & IdM Platform; external integration partners and / or federated systems that are not a part of the NATO IT estate; etc.

[022] The standard unit of software - deployable to the SOA & IdM Platform - is the container image. Container image lifecycles are managed by the SOA & IdM Platform Container Image Registry. Container images encapsulate all service dependencies except for service runtime parameterisation. Management of runtime parameterisation is solely the concern of the SOA & IdM Platform Configuration Server.

[023] Various pre-canned, curated, container base images are available from the SOA & IdM Platform.

[024] The SOA & IdM Platform will provide ‘Platform Services’ in support of Domain Specific Services such as the catalogue service specified herein.

[025] SOA & IdM Platform services include:

(a) Observability service: logging, metrics, audit, traces, customizable dashboards, alert management and notification rules, etc.
(b) Security services: Identity Management, Authentication, Single Sign On (SSO), Authorisation, Authoring (Policies, etc.), Credential Management, etc.
(c) Integration Services are based on the established Enterprise Integration Patterns (EIP) and include: Transport Normalisation, Encoding/ Decoding, Message composition/ aggregation/ de-aggregation etc., Message Routing, Publish and Subscribe, Mediation, etc.
(d) Platform Management Services manage, configure and operate the SOA & IdM Platform, its tenants and the services hosted on it.
(e) Message Oriented Middleware Services are offered by several of the SOA & IdM Platform's foundational components including the Message Bus, Message Broker, Notification Broker, Notification Cache and Message Queue. Together, these components provide a number of services including asynchronous messaging, message queues, publish and subscribe, message streaming, brokerage etc.; these in support of both SOA & IdM Platform hosted service-to-service communications and SOA & IdM Platform hosted service-to-external service communications.
(f) Service Lifecycle Management: lifecycle automation, container registry, service configuration management, etc.

[REQ-0280] The relevant TOPFAS services (i.e. all Data Entities services consumed or exchanged with other systems) shall be made available as published services onto the SOA & IdM Platform.

Reference: [BMD-IDD] / BMD-ARS-7127 / BMD-ARS-7128 / BMD-ARS-7129 / BMD-ARS-8298 / BMD-ARS-7138 / BMD-ARS-2039 / BMD-ARS-7142 / BMD-ARS-8837 / BMD-ARS-7310

[REQ-0290] All published services shall be hosted upon the SOA & IdM Platform, and re-use and / or integrate with the SOA & IdM Platform services.

Reference: [BMD-IDD] / BMD-ARS-7127 / BMD-ARS-7128 / BMD-ARS-7129 / BMD-ARS-8298 / BMD-ARS-7138 / BMD-ARS-2039 / BMD-ARS-7142 / BMD-ARS-8837 / BMD-ARS-7310

[REQ-0300] All published services implementations shall derive from the SOA & IdM Platform provided, pre-canned service base images.

Reference: [BMD-IDD] / BMD-ARS-7127 / BMD-ARS-7128 / BMD-ARS-7129 / BMD-ARS-8298 / BMD-ARS-7138 / BMD-ARS-2039 / BMD-ARS-7142 / BMD-ARS-8837 / BMD-ARS-7310

[REQ-0310] For all published services, the build pipeline shall result in self-contained (all dependencies are included with the exception of runtime parameterisation) base images that target the SOA & IdM Platform Container Image Registry and are compatible with the SOA & IdM Platform Application Runtimes, see [SOA-IdM-SDS].

Reference: [BMD-IDD] / BMD-ARS-7127 / BMD-ARS-7128 / BMD-ARS-7129 / BMD-ARS-8298 / BMD-ARS-7138 / BMD-ARS-2039 / BMD-ARS-7142 / BMD-ARS-8837 / BMD-ARS-7310

[REQ-0320] All published services shall use the SOA & IdM Platform Configuration Server for the complete lifecycle management of their runtime parameterisation, see [SOA-IdM-SDS].

Reference: [BMD-IDD] / BMD-ARS-7127 / BMD-ARS-7128 / BMD-ARS-7129 / BMD-ARS-8298 / BMD-ARS-7138 / BMD-ARS-2039 / BMD-ARS-7142 / BMD-ARS-8837 / BMD-ARS-7310

[REQ-0330] All published services shall conform to the SOA & IdM Hosted Services Implementation Contract, see [SOA-IdM-SDS].

Reference: [BMD-IDD] / BMD-ARS-7127 / BMD-ARS-7128 / BMD-ARS-7129 / BMD-ARS-8298 / BMD-ARS-7138 / BMD-ARS-2039 / BMD-ARS-7142 / BMD-ARS-8837 / BMD-ARS-7310

[REQ-0340] The published services shall work consistently with the quality of service characteristics facilitated by the SOA & IdM Platform including observability, elasticity/ scale-out, resilience, etc.

Reference: [BMD-IDD] / BMD-ARS-7127 / BMD-ARS-7128 / BMD-ARS-7129 / BMD-ARS-8298 / BMD-ARS-7138 / BMD-ARS-2039 / BMD-ARS-7142 / BMD-ARS-8837 / BMD-ARS-7310

[026] Collectively, the security services provided by the SOA & IdM Platform are referred to as Identity and Access Management (IAM) and in the [SOA-IdM-SDS] cover four broad areas:

(a) Authentication and Authorisation
(b) Identity Management
(c) Service and Application (delegated) Authentication
(d) Attribute Based Access Control.

[027] The security technologies, implementations and standards used with the SOA & IdM Platform include OAuth2, Open ID Connect (OIDC), WS-Security, SAML, XACML, etc.

[028] SOA & IdM Platform service security features cover both RESTful and SOAP based services.

[REQ-0350] All published services shall make use of the identity management, authentication and authorization services provided by the SOA & IdM Platform in addition to the current TOPFAS Application Suite capabilities.

Reference: BMD-ARS-8865 / BMD-ARS-7861

2.1.4 Export of Information

[REQ-0360] TOPFAS shall ensure that the highest security classification and the most restricted releasability of the data is captured in the metadata of the exported file.

Reference: BMD-ARS-7558

[REQ-0370] TOPFAS shall implement the confidentiality metadata label specification defined by [ADatP-4774].

Reference: BMD-ARS-8227

[REQ-0380] TOPFAS shall implement the metadata label binding specification defined by [ADatP-4778].

Reference: BMD-ARS-8228

[REQ-0390] TOPFAS shall always require the user to specify/confirm the highest security classification and most restricted releasability of the file before saving an export file. Attempts to export without a classification shall not be accepted. The system shall alert the user that a selected export classification level is lower than the classification level of the data selected for export.

Reference: BMD-ARS-5389 / BMD-ARS-8853

[REQ-0400] TOPFAS shall ensure that the file name conveys the security classification as a prefix (e.g. using an (NR) prefix for files with NATO RΞSTRICTED information).

Reference: BMD-ARS-947

[REQ-0410] TOPFAS shall insert a security classification construct into headers/footers of generated, created and/or exported reports, Microsoft Office files and PDF files. For file formats that do not use or support headers/footers, the capability shall include a security classification construct into an appropriate part, preferably at or close to the top of the file so that it is clearly visible to the user.

Reference: BMD-ARS-947

[REQ-0420] TOPFAS shall head all exported files with metadata including:

(1) The user who carried out the export;
(2) The date and time of the export;
(3) The system and database the data was exported from;
(4) The version numbers of the objects being exported if applicable.

Reference: BMD-ARS-948

[REQ-0430] TOPFAS shall log all exports with the metadata in a human readable format.

Reference: BMD-ARS-5656

2.1.5 User Interface

2.1.5.1 User Interface (UI) Implementation

[REQ-0440] The web-based applications shall require only a Chromium-based web browser present on the Approved Fielded Product List (AFPL) at the time of deployment, and shall not require the installation of additional software, components or plug-ins on the user workstation.

Reference: TOPFAS

[REQ-0450] The TOPFAS Desktop applications (client component) shall not require the installation of additional software, components or plug-ins on the user workstation, unless explicitly approved by the Purchaser.

Reference: TOPFAS

2.1.5.2 Adapted to User Roles and User Privileges

[REQ-0460] The UI shall adapt to the individual users roles and privileges (e.g., a user with only read privileges shall not have access to create/update/delete functionalities, a user with no privilege to access an application shall not be able to log in, etc.).

Reference: BMD-ARS-7847 / BMD-ARS-7848

[REQ-0470] TOPFAS shall only provide access to data based on user roles and privileges (e.g. a user with no access to particular data shall not see the data).

Reference: BMD-ARS-7846

2.1.5.3 User Guidance and Feedback

[REQ-0480] TOPFAS shall display the expected input format on all form fields to the user if the label is not clear enough (e.g. date input format - ddmmyyyy or dd-mm-yyyy). This shall be done via tooltips, greyed-out example content or watermarks, additional labels, or other suitable, non-intrusive, means.

Reference: BMD-ARS-4654

[REQ-0490] TOPFAS control actions shall be simple and direct, whereas potentially destructive control actions shall require extended user attention such that they are not easily acted on (e.g., "are you sure" queries).

Reference: BMD-ARS-4654

[REQ-0500] TOPFAS‘s user guidance information shall be readily distinguishable from other displayed information, e.g. data. This user guidance information shall be provided to the user through feedback, status information and error management:

(1) Feedback provides information in response to the user's input. In general, users can be expected to make mistakes while entering data; they shall not be considered errors and should be caught by input field validation rules;
(2) Status information indicates the current state of the application or processes;
(3) Error management provides the users with meaningful error messages and information about the actions they need to take in order to fix or at least to report the problem.

Reference: BMD-ARS-4654

[REQ-0510] TOPFAS shall include a visual label that at all times inform the user of which mission or database the user is connected to (i.e. operational mission, training database, exercise database, ...)

Reference: BMD-ARS-8883

2.1.5.4 Data Entry Interactions

[REQ-0520] The UI shall run successfully independent of environment regional settings (e.g. decimal symbol, date/time format).

Reference: BMD-ARS-4654

[REQ-0530] Where the user is entering (or changing) data, the user interface shall detect invalid and missing entries. The invalid or missing entries shall be highlighted or marked so that the user can be quickly identify and correct them. The validation (and subsequent highlighting) of the value in an entry field shall take place "dynamically" upon moving to the next entry field.

Reference: BMD-ARS-8863

[REQ-0540] For all attributes related to geographic co-ordinates, TOPFAS shall allow the user to enter geographic co-ordinates using a gazetteer function. The user shall be able to:

(1) Select a gazetteer (or optionally use the default gazetteer), and
(2) Select a place/area name from the gazetteer.

Reference: BMD-ARS-4654 / BMD-ARS-8008

[REQ-0550] TOPFAS shall provide prompts (i.e., allow cancellation or confirmation) when input or changes may be lost due to navigation or logging out.

Reference: BMD-ARS-4654

[REQ-0560] Any user interface shall support normal Microsoft (MS) Windows Accelerators. These shall include: CTRL+C (Copy), CTRL+X (Cut), CTRL+V (Paste), CTRL+Z (Undo), CTRL+Y (Redo) and Delete.

Reference: BMD-ARS-5385

[REQ-0570] TOPFAS shall allow the user to cut, copy and paste textual or tabulated data between (to and from) the TOPFAS applications and Microsoft Office applications.

Reference: BMD-ARS-5385

[REQ-0580] TOPFAS shall support Microsoft Office 2016 and later versions (latest Microsoft Office version available from Microsoft at initiation phase).

Reference: BMD-ARS-7736

[REQ-0590] TOPFAS shall allow the display, import and export of NATO Vector Graphics (NVG). It shall maintain the currently supported versions and shall implement the latest draft version at the time of implementation.

Reference: BMD-ARS-8873 / BMD-ARS-7276 / BMD-ARS-7318 / BMD-ARS-7277 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-0600] For all attributes related to geographic coordinates, TOPFAS shall allow the user to enter geographic coordinates in a single text field (not requiring the user to copy/paste more than once to input a geographic value). TOPFAS shall be able to automatically identify and parse the location formats as listed in the Table 2-1 below.

Reference: BMD-ARS-4654

Table 2-1 Location formats automatically detected

1	Degrees/Minutes/Seconds
2	Decimal Degrees
3	Degrees and Decimal Minutes
4	Degrees, Minutes and Decimal Seconds
5	Military Grid Reference System (MGRS)
6	Universal Transverse Mercator (UTM)

2.1.5.5 User eXperience (UX)

[REQ-0610] The TOPFAS user interface shall be in line with the current TOPFAS interface style.

Reference: BMD-ARS-4654

[REQ-0620] The TOPFAS user interface shall provide theme support with a light and dark theme.

Reference: BMD-ARS-4654

[REQ-0630] All TOPFAS user interfaces shall automatically updated whenever a user makes a change that has an impact on the information presented in the UI.

Reference: BMD-ARS-4654

[REQ-0640] TOPFAS shall, for all multi-select actions, support consecutive item selection by selecting first and last item in a list or tree (e.g. by shift-key plus left mouse click) and support adding individual (non-consecutive) items to the multi-selected set (e.g. by control-key plus left mouse click).

Reference: BMD-ARS-4654

[REQ-0650] TOPFAS shall, for all panels and dialog windows containing data entry fields, support navigation between entry fields using the Tab key (i.e. Tab key to move cursor to next entry field and Shift-Tab key to move curser to previous entry field)

Reference: BMD-ARS-4654

2.1.6 Access Control

[REQ-0660] TOPFAS shall provide single sign-on capabilities with the following services:
- Integrated Windows Authentication / Active Directory (IWA/AD);
- Active Directory Federated Services (ADFS);
- OAuth2 / OpenID Connect (OIDC).

Reference: BMD-ARS-8865

[REQ-0670] TOPFAS shall allow the enabling of one or multiple authentication services and to configure each of them.

Reference: BMD-ARS-8865

[REQ-0680] TOPFAS shall require users to identify themselves before being allowed to perform any other actions, and shall use a protected mechanism for uniquely identifying and authenticating users.

Reference: BMD-ARS-7858

[REQ-0690] TOPFAS shall implement role-based access control as a method of restricting access to applications, functions and information to authenticated users as defined by their assigned roles or individually assigned privileges, and shall ensure that these are enforced correctly throughout the application.

Reference: BMD-ARS-7859

[REQ-0700] TOPFAS shall obscure authenticator feedback information from the user during the authentication process.

Reference: BMD-ARS-7861

[REQ-0710] TOPFAS shall protect user credentials in transit. The applications shall employ encryption of the entire login transaction using SSL or similar technologies.

Reference: BMD-ARS-7868

[REQ-0720] TOPFAS shall enforce a "strong passwords" policy in accordance with the “Technical and Implementation Directive on CIS Security [AC-322-D0048-REV3]”.

Reference: BMD-ARS-7862

[REQ-0730] TOPFAS shall enforce a maximum password age policy that determines the period of time (in days) users can keep a password before they are required to change. By default, passwords do not age. Furthermore, administrator accounts are excluded from this policy completely.

Reference: BMD-ARS-7863

[REQ-0740] TOPFAS shall allow a user to view and update their user account profile, including their password. TOPFAS shall enforce password change control policy, meaning the user shall be required to provide both their current password and the new password. The new password shall be entered twice to avoid mistakes when entering the new password.

Reference: BMD-ARS-7864

[REQ-0750] TOPFAS shall prohibit password reuse for 10 generations (i.e. users cannot re-use their last 10 passwords).

Reference: BMD-ARS-7865

[REQ-0760] TOPFAS shall allow a user to reset their password using a secure Self-service Password Reset, when they do not remember their password or when they have locked it. When their account was locked after failed login attempts, the account shall be unlocked once the password has been changed.

Reference: BMD-ARS-7865

[REQ-0770] A Self-service Password Reset request shall expire after 10 minutes; after 10 minutes, the user will have to request a new reset of their password. Existing passwords shall not change before the user has changed their password.

Reference: BMD-ARS-7865

[REQ-0780] When the user changes their password, either from within TOPFAS or after requesting a reset, then TOPFAS shall send an email notification that their password has been changed.

Reference: BMD-ARS-7865

[REQ-0790] TOPFAS shall implement a policy to lock a user account for which a configurable number of failed login attempts have been made and await action to unlock the account. Administrator accounts shall be excluded from this policy, though a progressive delay shall be implemented after the third sequential failed login attempt before administrator credentials can be entered again.

Reference: BMD-ARS-7866

[REQ-0800] TOPFAS shall provide a “Self-service Sign-up” for users to request an account, provide details (including email address) and justification for the account request.

Reference: BMD-ARS-7858

[REQ-0810] TOPFAS shall provide user administrators with the ability to review and approve or deny accounts requests. This includes notification of pending requests (by email and through a specific indicator in the user interface when logged in as a user administrator) and management of the list of pending requests in UMT interface.

Reference: BMD-ARS-7858

[REQ-0820] Upon approval or rejection of an account request, TOPFAS shall send an email notification to the user requesting an account with the result of the request.

Reference: BMD-ARS-7858

[REQ-0830] TOPFAS shall provide a user with the ability to request access to a plan using a form to provide details (including email address) and justification for the access request.

Reference: BMD-ARS-7859

[REQ-0840] TOPFAS shall provide functional managers with the ability to review and approve or deny access requests to those plans they are administrators of. This includes notification of pending requests (by email and through a specific indicator in the user interface when logged in) and management of the list of pending requests in the TOPFAS user interface.

Reference: BMD-ARS-7859

[REQ-0850] Upon approval or rejection of an access request, TOPFAS shall send an email notification to the user requesting access with the result of the request.

Reference: BMD-ARS-7859

2.1.7 Logging

[REQ-0860] The TOPFAS applications shall log the following activities: authentication events (successful and failed logins etc.), file events; export and import events; user account events (change of role, group membership etc.) to security logs.

Reference: BMD-ARS-8135 / BMD-ARS-8136 / BMD-ARS-8137 / BMD-ARS-5656

[REQ-0870] The TOPFAS applications shall log application errors and faults automatically to application logs with technical and debug information.

Reference: BMD-ARS-8141

[REQ-0880] TOPFAS logs shall contain as a minimum: timestamp; event, status and/or error codes; service/command/application; name/user(s) or system account(s) associated with an event; device used (e.g. MAC address, source and destination IP address, web browser).

Reference: BMD-ARS-8138

[REQ-0890] TOPFAS logs shall be only accessible by users with Administrator privileges.

Reference: BMD-ARS-8139

[REQ-0900] TOPFAS shall provide a UI for viewing logs with sorting and filtering capabilities on all log events.

Reference: BMD-ARS-8135 / BMD-ARS-5656

[REQ-0910] The TOPFAS applications' logging configuration settings shall be only accessible by users with Administrator privileges.

Reference: BMD-ARS-8140

[REQ-0920] The TOPFAS applications' logging configuration settings shall include options to specify log size, log recycling, log level details etc.

Reference: BMD-ARS-8135

[REQ-0930] TOPFAS shall provide a UI for managing logging configuration settings.

Reference: BMD-ARS-8135

[REQ-0940] TOPFAS shall present an archive option prior to logs being automatically overwritten if configured as such.

Reference: BMD-ARS-7885

[REQ-0950] TOPFAS shall provide auditing and logging mechanisms for all database activities.

Reference: BMD-ARS-7886

2.1.8 Monitoring

[REQ-0960] TOPFAS shall provide an Application Performance Monitoring (APM) capability by providing reports to a Service Quality Management (SQM) application. This capability shall be compatible with the current enterprise monitoring service.

Reference: BMD-ARS-2291

[REQ-0970] TOPFAS shall gather data on the use and performance of the applications, i.e. how often features and commands are used, measurements of start-up time and processing time, hardware utilization, application crashes, and general usage statistics and/or user behaviour (TOPFAS telemetry component).

Reference: BMD-ARS-2291

[REQ-0980] TOPFAS shall allow a system administrator to view, analyse and export the telemetry.

Reference: BMD-ARS-2291

2.1.9 Preservation of Data

[REQ-0990] TOPFAS shall adhere to the guidelines for the preservation of information of permanent value in accordance with [AC/324-D(2014)0008] - Directive on the Preservation of NATO Digital Information of Permanent Value.

Reference: BMD-ARS-7839

2.1.10 Management Requirements

[029] The current user management functionality of the TOPFAS User Management Tool (UMT) shall be migrated into a web app for user management. The remaining UMT functionality shall be migrated to an application and service configuration web app.

[REQ-1000] TOPFAS shall have a User Management web app that shall allow management of the user accounts / groups and user roles within each application database.

Reference: BMD-ARS-7249

[REQ-1010] TOPFAS shall allow a privileged user to create new data repositories: Plans, Engagement Spaces, Areas of Interest, ORBATs and Data Sources, CJSORs etc.

Reference: BMD-ARS-7249

[REQ-1020] TOPFAS shall allow a privileged user to manage user roles and permissions within a data repository.

Reference: BMD-ARS-7249

[REQ-1030] TOPFAS shall have an Application and Service Configuration Management web app that shall allow management of the configuration of each application.

Reference: BMD-ARS-7251

2.2 Data Entity Requirements

[030] Data Entities (DE) represent the different types of (composite) objects that can be created in the TOPFAS applications/apps (e.g. Unit, Effect, RFI (Request for Information), force contribution, readiness report, MRO etc.) and their properties.

2.2.1 DE Data Management Requirements

[REQ-1040] The applications shall implement user interfaces for managing all DEs that are identified through the requirements and use cases to be of relevance for the particular application.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1050] The applications data entry form shall support the confidentiality metadata label syntax as defined by [ADatP-4774] for the DEs in accordance with the DE's confidentiality metadata attribute definitions.

Reference: BMD-ARS-8227

[REQ-1060] The user shall be able to define default values for the applications data entry forms for the different DEs as per definition of the DE.

Reference: BMD-ARS-4654

[REQ-1070] The application responsible for managing particular DE types shall enable an authorized user to select one or multiple DEs and tag them as soft-deleted.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1080] The application responsible for managing particular DE types shall enable an authorized user to select one or multiple soft-deleted DEs and un-delete them (i.e. recycle bin functionality).

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

2.2.2 General Requirements for DE Property Panels

[REQ-1090] The DE Property Panel shall be used for presenting all details of a selected DE (in read-only mode), and for editing all attributes of a DE (in edit mode).

Reference: BMD-ARS-4654

[REQ-1100] The user shall be able to manage rich-text Notes of a DE in the property panel.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1110] The user shall be able to add/open/delete Attachments (files or URIs) of a DE in the property panel. One attachment (image) can be made the primary image displayed in e.g. DE preview visualization.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1120] The user shall be able to add/reply to/delete Comments of a DE in the property panel.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1130] The user shall be able to view the relations between the DE and other DEs/Views in the property panel and open the related DE/View directly from the dialog.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-8722

[REQ-1140] The user shall be able to view the Audit Trail of the DE in the property panel.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7886

[REQ-1150] The user shall be able to view a small quick map in the property panel for DEs that are geo-located.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1160] The user shall be able to display nationality flags for DEs that have a nation attribute in the property panel.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-1743

[REQ-1170] The user shall be able to manage military APP-6D symbols for appropriate DEs in the property panel.

Reference: BMD-ARS-4655

2.2.3 General Requirements for DE Preview Panel

[REQ-1180] The DE Preview Panel shall be used for presenting the main details of a selected DE in read-only mode.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1190] The user shall be able to open the Property Panel of the DE from a hyperlink in the Preview Panel.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1200] The user shall be able to view the relations between the DE and other DEs/Views in the preview panel.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1210] The user shall be able to open the Property Panel of a related DE from a hyperlink in the Preview Panel.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1220] The user shall be able to open a view related to the DE from a hyperlink in the Preview Panel.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1230] The user shall be able to view a small quick map in the preview panel for DEs that are geolocated.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1240] The user shall be able to display nationality flags for DEs that have a nation attribute in the preview panel.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-1743

[REQ-1250] The user shall be able to display military APP-6D symbols for appropriate DEs in the preview panel.

Reference: BMD-ARS-4655

2.2.4 Approval Workflow Requirements

[REQ-1260] The user shall be able to search for and select one or multiple draft application-specific DEs and request for the selected DEs to be proposed/approved/rejected.

Reference: BMD-ARS-2179 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

[REQ-1270] The user shall be able to search for, filter, and sort application-specific proposed DEs, select one or multiple such DEs, and approve or reject the DEs.

Reference: BMD-ARS-2179 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

[REQ-1280] The user shall be able to search, filter, and sort application-specific DEs where the approval has been rejected. It shall then be possible to update the DEs and set the status to draft or proposed, or delete them.

Reference: BMD-ARS-2179 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

2.3 Audit

[031] TOPFAS shall provide an audit trail of all changes in data (what data was created/changed/deleted) by which user, and when.

2.3.1 Data Entity Auditing

[REQ-1290] TOPFAS shall maintain an Audit Trail for each DE. This audit trail shall contain details about any modifications to the DE: the action (create/update), the time it was carried out and the user who carried it out.

Reference: BMD-ARS-7886

2.3.2 Global Audit View

[REQ-1300] TOPFAS applications shall provide a global Audit View. This view shall contain details about any modifications to DEs: the action (create/update/delete), the time it was carried out and the user who carried it out. It shall also contain application login audits.

Reference: BMD-ARS-7886

[REQ-1310] The user shall be able to filter the audit by action (e.g., create, update, delete, login, etc.), information attributes, users, context (e.g. Plan, Engagement Space, CJSOR, etc.) as well as selecting a period to view changes within the specified timeframe.

Reference: BMD-ARS-7886

[REQ-1320] The user shall be able to sort the audit information.

Reference: BMD-ARS-7886

[REQ-1330] The user shall be able to search the audit information.

Reference: BMD-ARS-7886

2.4 General Requirements for Existing Module and Component Usage

2.4.1 Explorer Module

[REQ-1340] The Explorer Module shall contain two panes. The left pane shall display a tree of filters. Each filter can be defined with a rule that determines which type of DE will be loaded in the filter as well as possible conditions on properties of the DE. The right pane shall display different visualisations of the DE in the selected filter: the List View (see section 2.4.2), the Hierarchical View (see

section 2.4.3), the Relationship View (see section 2.4.4), the Story Line View (see section 2.4.5), the Quick Map View (see section 2.4.6) and the Table View (see section 2.4.7).

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1350] Each filter shall display the number of DEs matching the filter's rule.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1360] The user shall be able to organize the filters in the Explorer Module in folders.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1370] The user shall be able to define user specific filters and shared filters in the Explorer Module.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

2.4.2 List View Component

[REQ-1380] The List View shall display a grid with rows of DEs with their properties as columns.

Reference: BMD-ARS-6513 / BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1390] The user shall be able to sort the List View by groups and by columns. When the List View includes groups, the column sorting shall be done within the groups (per group).

Reference: BMD-ARS-4654

[REQ-1400] The user shall be able to filter the List View by value per column.

Reference: BMD-ARS-4654

[REQ-1410] The user shall be able to hide and unhide columns in the List View.

Reference: BMD-ARS-4654

[REQ-1420] The user shall be able to display the columns using three predefined settings: Basic (the most basic set of properties), Extended (a useful set of properties including the ones from Basic) and All Columns.

Reference: BMD-ARS-4654

[REQ-1430] The user shall be able to define collapsible groups in the List View by dragging and dropping an attribute column header to a "Group By field". It shall be possible to add multiple tier groups by dragging additional column headers to the "Group By field". It shall also be possible to reorder the tiers in the groups and remove a tier from the groups.

Reference: BMD-ARS-4654

[REQ-1440] The user shall be able to perform free-text search against the content in the grid and have the search hits highlighted and rows filtered out.

Reference: BMD-ARS-4654

[REQ-1450] The user shall be able to change multiple properties of the current selection of DEs in one “bulk change” operation. The possible operations for each property shall depend on the field type. For instance, for string fields it shall be possible to use operations like update/append/prepend and for date fields is shall be possible to select a date from a date picker control.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1460] The user shall be able to duplicate a row and create a new DE with cell values from the copied row, except for label which must be unique (append with underscore and sequence number) and name (append with “ (Copy)”).

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1470] The List View shall include scroll bars for both vertical and horizontal scrolling that appears when the available data exceeds the current viewport.

Reference: BMD-ARS-4654

[REQ-1480] The List View shall allow both a horizontal and vertical split where each part can individually scroll the data set.

Reference: BMD-ARS-4654

[REQ-1490] The user shall be able to switch between the following display settings: List View (the default mode), Tiles View (displays a large icon and description), Extra Large View (displays a large thumbnail).

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1500] The user shall be able to format cells based on conditions (e.g. contains text, greater than, duplicates etc.).

Reference: BMD-ARS-4654

[REQ-1510] The user shall be able to access the Notes of a DE in the List View.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1520] The user shall be able to access the Attachments of a DE in the List View.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1530] The user shall be able to access the Comments of a DE in the List View.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1540] The List View shall have a charting functionality to allow users to present selected DEs on one or more charts.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654

[REQ-1550] The charting functionality shall support the following chart types: pie charts, horizontal and vertical bar charts, doughnut charts and counters.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654

[REQ-1560] The charting functionality shall allow a user to selection of the DE property by which to group DEs on the chart.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654

[REQ-1570] The user shall be able to export the data in the List View directly to a Microsoft Excel file. Note that hidden columns and rows shall not be exported.

Reference: BMD-ARS-7558 / BMD-ARS-8227 / BMD-ARS-8228 / BMD-ARS-5389 / BMD-ARS-8853 / BMD-ARS-947 / BMD-ARS-948 / BMD-ARS-5656

[REQ-1580] The user shall be able to load the Preview Panel with the main DE details when a DE is selected in the List View.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1590] The user shall be able to display nationality flags for DEs that have a nation attribute in the List View.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-1743

[REQ-1600] The user shall be able to display military APP-6D symbols for appropriate DEs in the List View.

Reference: BMD-ARS-4655

[REQ-1610] The user shall be able to switch the display of the List View between requirements and contributions (i.e. show capability and flag) of DEs of type Resource.

Reference: BMD-ARS-8822

2.4.3 Hierarchical View Component

[REQ-1620] The Hierarchical View shall be able to display the parent/child relationships of DEs as a tree grid structure.

Reference: BMD-ARS-8157 / BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1630] The Hierarchical View shall be able to display the C2 relationships of DEs of type Resource.

Reference: BMD-ARS-4773 / BMD-ARS-4774

[REQ-1640] The user shall be able to expand/collapse any or all nodes.

Reference: BMD-ARS-8157 / BMD-ARS-4654

[REQ-1650] The user shall be able to load the Preview Panel with the main DE details when a DE is selected in the Hierarchical View.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1660] The user shall be able to display military APP-6D symbols for appropriate DEs in the Hierarchical View.

Reference: BMD-ARS-4655

[REQ-1670] The user shall be able to switch the display of the Hierarchical View between requirements and contributions (i.e. show capability and flag) of DEs of type Resource.

Reference: BMD-ARS-8822

2.4.4 Relationship View Component

[REQ-1680] The Relationship View shall visualise how DEs are related in a network diagram.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1690] The Relationship View shall have support for different layout algorithms to include spring, tree, radial tree and chord diagram.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1700] The Relationship View shall include functionality for reducing clutter. The de-cluttering function shall include grouping/ combining of nodes by user-selected attributes. The grouped nodes shall depict glyphs informing about the nature of the grouping of nodes. The rendered size of the grouped nodes shall visually be distinguishable based on the number of nodes within the combined node.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1710] The user shall be able to filter the information in the Relationship View by utilizing the current List View filter, and then only show those nodes and any nodes that they are related to.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1720] The user shall be able to expand any node with all nodes it is linked to (e.g. by double-clicking, or right-clicking, a node).

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1730] The user shall be able to hide/unhide names and/or labels for the DEs and the relationships.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1740] The user shall be able to render nodes in the Relationship View as circles or as icons based on DE type.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1750] The user shall be able to decorate the symbols in Relationship View with nationality flags for DEs that have a nation attribute.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-1743

[REQ-1760] The user shall be able to load the Preview Panel with the main DE details when a DE is selected in the Relationship View.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1770] The user shall be able to display military APP-6D symbols for appropriate DEs in the Relationship View.

Reference: BMD-ARS-4655

2.4.5 StoryLine View Component

[REQ-1780] The StoryLine View shall visualise DEs with a time attribute on two panes: a timeline on the bottom where the horizontal axis shall represent the time dimension and shall display the DEs and an overview pane at the top which will show details of the selected DE in the timeline below.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1790] If a DE has multiple time attributes, the user shall be able to select the attribute to be used in the timeline.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1800] The user shall be able to zoom in and out of/ pan along the timeline.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1810] The user shall be able to move to the next or previous event and centre the timeline on that event.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1820] The StoryLine View plot area (canvas) shall have support for callout-boxes and other graphical shapes that can contain formatted text (i.e. font size, type, and colours is dynamically configurable) and pictures combined with text. The user shall be able to show DE symbols within the call-out box. The colours of the call-out boxes and the graphical shapes can be dynamically changed.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1830] The StoryLine View shall have support for automatic de-cluttering of the timeline. E.g. stacking callout boxes horizontally or vertically.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1840] When a user selects a DE in the Timeline View, the overview pane shall display the main details and image of the DE and a Quick Map when it is geolocated.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1850] It shall be possible to load the Preview Panel with the main DE details when a DE is selected in the StoryLine View

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

2.4.6 Quick Map Component

[REQ-1860] The Quick Map shall display geographical attributes of DEs on a map view.

Reference: BMD-ARS-6513 / BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1870] The Quick Map shall allow the user to create, update and delete the geographical attributes of DEs.

Reference: BMD-ARS-6513 / BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1880] The Quick Map shall allow the user to create, update and delete generic geographical objects unrelated to DEs.

Reference: TOPFAS

[032] The Quick Map shall include control functions for working with overlays.

[REQ-1890] The Quick Map View shall be able to create named and hierarchical overlays.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-1900] The Quick Map View shall be able remove an overlay and all features and objects within the overlay.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-1910] The Quick Map View shall be able to hide an overlay and all features and objects within the overlay.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-1920] The Quick Map View shall be able to unhide an overlay (and all its content).

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-1930] The Quick Map View shall be able to reorder the sequence of layers (from foreground to background).

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-1940] The Quick Map View shall be able to display layers provided by NCOP.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-1950] The Quick Map View shall be able to display NVG layers from services (e.g. AirC2IS).

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-1960] The Quick Map shall enable the easy identification of the DE and its associated geographical characteristics (e.g. links). For instance, the view shall allow the highlight or display of those links when the DE is selected. The semantic meaning of the links must be taken into account to control the extend of the highlight.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1970] The Quick Map shall display a scale indicator.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654

[REQ-1980] The Quick Map shall continuously display the current mouse coordinates in LatLong / MGRS / UTM.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654

[REQ-1990] It shall be possible to zoom in or out or pan the Quick Map.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654

[REQ-2000] The user shall be able to measure distances on the Quick Map.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654

[REQ-2010] The user shall be able to display LatLong / MGRS / UTM grids on the Quick Map.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654

[REQ-2020] When a DE is selected on the Quick Map, a popup will display label, name and coordinates of the DE and a link to open the Properties Panel.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2030] The user shall be able to show/hide DE labels on the Quick Map.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2040] The user shall be able to enable/disable decluttering of DEs on the Quick Map.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2050] The Quick Map shall be able to display background maps from CoreGIS (WMS/WMTS), any WMS provider, any WMTS provider, OpenStreetMap and offline map tiles.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-1634 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2060] The user shall be able to select the background map from a list of providers for the Quick Map.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-1634 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2070] The user shall be able to use a geocoder service to search for a location and mark the selected location on the Quick Map.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2080] The user shall be able to load the Preview Panel with the main DE details when a DE is selected on the Quick Map.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2090] The user shall be able to display heat maps of the DEs on the Quick Map. The scale radius of the heat maps shall be configurable.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2100] The user shall be able to display military APP-6D symbols for appropriate DEs on the Quick Map.

Reference: BMD-ARS-4655

[REQ-2110] The user shall be able to export any combination of overlays of the Quick Map to an NVG file.

Reference: BMD-ARS-8797 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2120] The user shall be able to switch the display of the Quick Map View between requirements and contributions (i.e. show capability and flag) of DEs of type Resource.

Reference: BMD-ARS-8822

2.4.7 Table View Component

[REQ-2130] The Table View shall display a summary table with rows of DEs with label and name as columns.

Reference: BMD-ARS-6513

[REQ-2140] The Table View shall include scroll bars for both vertical and horizontal scrolling that appears when the available data exceeds the current viewport.

Reference: BMD-ARS-4654

[REQ-2150] The user shall be able to export the data in the Table View directly to a Microsoft Excel file.

Reference: BMD-ARS-8797 / BMD-ARS-8800 / BMD-ARS-8807

[REQ-2160] The user shall be able to load the Preview Panel with the main DE details when a DE is selected in the Table View.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

2.4.8 OpsDesign View Component

[REQ-2170] The user shall be able to create multiple OpsDesigns diagrams within the OpsDesign View.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2180] The user shall be able to add DEs to an OpsDesign View.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2190] It shall be possible zoom in and out of the OpsDesign diagram.

Reference: BMD-ARS-4654

[REQ-2200] The OpsDesign View shall include scroll bars for both vertical and horizontal scrolling that appears when the available data exceeds the current viewport.

Reference: BMD-ARS-4654

[REQ-2210] The user shall be able to export the data in the OpsDesign View directly to a Microsoft PowerPoint / Adobe PDF / Image file, see also section 2.1.4.

Reference: BMD-ARS-8797 / BMD-ARS-8800 / BMD-ARS-8807

[REQ-2220] The user shall be able to load the Preview Panel with the main DE details when a DE is selected in the OpsDesign View.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

2.4.9 TimeLine View Component

[REQ-2230] The user shall be able to create multiple TimeLine diagrams within the TimeLine View. Each diagram shall consist of two panes: a data grid on the left with the DEs and a timeline on the right with a Gantt chart.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2240] The user shall be able to zoom in and out and pan within the timeline part of the TimeLine diagram.

Reference: BMD-ARS-4654

[REQ-2250] The user shall be able to render DEs with a timing aspect in the timeline part of the TimeLine diagram.
Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2260] The user shall be able to depict date lines in the timeline part of the TimeLine diagram.
Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2270] The user shall be able to view more the main properties of DEs in columns in the data grid part of the TimeLine diagram.
Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2280] The user shall be able to view the DEs in a hierarchy in the data grid part of the TimeLine diagram.
Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2290] The user shall be able to search for data in the grid part of the TimeLine diagram.
Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2300] The user shall be able to hide and un-hide columns in the grid part of the TimeLine diagram.
Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2310] The user shall be able to display either relative or calendar dates in the timeline part of the TimeLine diagram.
Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2320] The user shall be able to scroll horizontally and vertically in both the data grid part and the timeline part of the TimeLine diagram.
Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2330] The TimeLine View shall have a summary functionality to present selected DEs on a single line to highlight key planning objects of the TimeLine.
Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2340] The user shall be able to load the Preview Panel with the main DE details when a DE is selected in both the grid part and timeline part of the TimeLine diagram.
Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2350] The user shall be able to display military APP-6D symbols for appropriate DEs on the TimeLine diagram.
Reference: BMD-ARS-4655

[REQ-2360] The user shall be able to switch the display of the TimeLine View between requirements and contributions (i.e. show capability and flag) of DEs of type Resource.

Reference: BMD-ARS-8822

2.4.10 Map View Component

[REQ-2370] The user shall be able to create multiple maps within the Map View.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2380] The Map shall be able to display background maps from CoreGIS (WMS/WMTS), any WMS provider, any WMTS provider and OpenStreetMap.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-1634 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[033] The Map will include control functions for managing overlays.

[REQ-2390] The user shall be able to create named and hierarchical overlays.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2400] The user shall be able remove an overlay and all features and objects within the overlay.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2410] The user shall be able to turn visibility of an overlay and all features and objects within the overlay on/off.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2420] The user shall be able to reorder the sequence of layers (from foreground to background).

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2430] The user shall be able to display layers provided by NCOP.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2440] The user shall be able to display NVG layers from services (e.g. AirC2IS).

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2450] The user shall be able to display feature layers from DEs (System Element, GeoLoc, etc.).

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[034] The Map will include control functions for rendering features and objects.

[REQ-2460] The user shall be able to create/update/delete APP-6D symbols on the Map.

Reference: BMD-ARS-4655 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2470] The user shall be able to draw icons, pictures, and geometric shapes (with selectable styles like colour, fill pattern, line width etc.) on the Map.

Reference: BMD-ARS-4655 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2480] The Map shall be able to render NATO Vector Graphics (NVG) data and Keyhole Markup Language (KML) in overlays.

Reference: BMD-ARS-4655 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2490] The user shall be able to display and query features from CoreGIS (WMS and WFS).

Reference: BMD-ARS-4655 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2500] The user shall be able to hide/unhide labels for DEs.

Reference: BMD-ARS-4655 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2510] The user shall be able to remove features from the Map.

Reference: BMD-ARS-4655 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2520] The user shall be able to turn the visibility of features in the Map on/off.

Reference: BMD-ARS-4655 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[035] The Map will include control functions for selecting features.

[REQ-2530] The Application Framework shall detect when features are selected in the Map and subsequently identify the feature (e.g. as a particular DE) and display the main characteristics in the Preview Pane.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2540] The Application Framework shall be able to command the Map to select (and highlight) features when the user selects a DE.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2550] The Application Framework shall be able to query the Map for status information and receive information on which features in the Map are currently selected/visible.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[036] The Map will implement control functions to support searching and querying.

[REQ-2560] The user shall be able to click in the Map and use the location as the centre point of a circle with customizable radius to define a geolocation boundary and the Map shall display the selected features within the circle in a list.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2570] The user shall be able to draw an area in Map to define a geolocation boundary and the Map shall display the selected features within the area in a list.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2580] The user shall be able to perform location searches using a geocoder service and mark the selected location on the map.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2590] The user shall be able to perform location searches from a gazetteer service and mark the selected location on the map.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2600] The user shall be able to filter DE objects on the Map by one or more DE attributes, e.g. Units by Capability Code and nation, System Elements by type, Geolocs by nation etc.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[037] The Map will include control functions for selecting the view-port.

[REQ-2610] The user shall be able to incrementally zoom in and out of the Map.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654

[REQ-2620] The Map shall be able to detect that the zoom level has been changed from within the Map.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654

[REQ-2630] The user shall be able to re-centre the Map on a particular overlay.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654

[REQ-2640] The user shall be able to centre and zoom to a specific feature on the Map.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654

[REQ-2650] The user shall be able to centre the Map on a specific geolocation at a user-defined zoom-level.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654

[038] TOPFAS will include functions for exporting files from the Map and importing files to the Map.

[REQ-2660] The user shall be able to import NVG files and display as overlays in the Map.

Reference: BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2670] The user shall be able to import KML and zipped KML (KMZ) files and display them as overlays in the Map.

Reference: BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2680] The user shall be able to export the visual viewport of the Map as a PNG/JPG/BMP file.

Reference: BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2690] The user shall be able to export an overlay of the Map as an NVG file.

Reference: BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2700] The user shall be able to display LatLong, MGRS and UTM grids on the Map.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2710] The Map shall display a scale indicator.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2720] The Map shall continuously display the current mouse coordinates. The user shall be able to select the output format (LatLong/MGRS/UTM).

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2730] The user shall be able to load the Preview Panel with the main DE details when a DE is selected in the Map.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

2.4.11 Document View Component

[REQ-2740] The user shall be able to create multiple Documents within the Document Module.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

[REQ-2750] The user shall be able to add DEs to a Document. It shall be configurable which properties of the different DE types will be shown in the document.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

[REQ-2760] The Document View shall be able to export the document to Microsoft Word.

Reference: BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934 / see section 2.1.4

2.4.12 Forces View Component

[REQ-2770] The Forces View shall manage the Force requirements as a tree grid structure.

Reference: BMD-ARS-8008 / BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2780] The tree grid shall allow the operator to filter DEs by column values.

Reference: BMD-ARS-8009 / BMD-ARS-8030 / BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2790] The user shall be able to create Force requirements (Organisations/Resources) manually, from an ORBAT or from a Capability Code.

Reference: BMD-ARS-8008 / BMD-ARS-8028

[REQ-2800] The Forces View shall be able to display Force Contributions from EFGMT.

Reference: BMD-ARS-8822

[REQ-2810] The Forces View shall be able to switch the display between requirements and contributions (i.e. show capability and flag).

Reference: BMD-ARS-8822

[REQ-2820] The Force View shall allow the operator to compare two ORBATs and produce SOR lines for identified differences.

Reference: BMD-ARS-8709

2.4.13 SOR Management View Component

[REQ-2830] The user shall be able to manage Statement of Requirements (SORs), Allied Disposition Lists (ADLs) and Allied Forces Lists (AFLs). They shall support baselining and change tracking.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2840] The SOR Management View shall allow the planner to generate a new SOR. When the planner decides to update an existing SOR, the requirement data shall be merged with the existing SOR baseline.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-2850] The user shall be able to show the status of an SOR/ADL/AFL at a specific date.

Reference: BMD-ARS-8042 / BMD-ARS-8043 / BMD-ARS-8114

[REQ-2860] The user shall be able to show the differences of an SOR/ADL/AFL between two specific dates. It shall be possible to filter the results on any property of the SOR/ADL/AFL.

Reference: BMD-ARS-8110 / BMD-ARS-8114 / BMD-ARS-8113 / BMD-ARS-8112 / BMD-ARS-8708 / BMD-ARS-8821

[REQ-2870] The user shall be able to display force contributions filtered by status ‘Informal Offer’ or ‘Formal Offer’ from EFGMT in the SOR by using the FEL service (see [REQ-6170]).

Reference: BMD-ARS-8822

[REQ-2880] The SOR Management View shall be able to display any CRUD operation made to contributions in EFGMT automatically using the CJSOR services (see [REQ-6170]).

Reference: BMD-ARS-8822

[REQ-2890] The SOR Management View shall highlight changes to the CJSOR using icons that display ‘new’, ‘updated’ or ‘deleted’ for a configurable amount of time. When objects are deleted in EFGMT, they are highlighted as such in OPT, but not removed until the planner deliberately confirms the delete.

Reference: BMD-ARS-8822

[REQ-2900] The SOR Management View shall be able to highlight unfulfilled requirements (i.e. without ‘Informal Offer’ or ‘Formal Offer’)

Reference: BMD-ARS-8042 / BMD-ARS-8043 / BMD-ARS-8114

[REQ-2910] The user shall be able to generate a report containing unfulfilled requirements and associated Actions to support planners in re-planning the mission.

Reference: BMD-ARS-8042 / BMD-ARS-8043 / BMD-ARS-8114

[REQ-2920] The user shall be able to save the SOR as an ORBAT containing the requirements as generic Units.

Reference: BMD-ARS-8717

[REQ-2930] The user shall be able to export the SOR to a Microsoft Excel file.

Reference: BMD-ARS-7142 / see section 2.1.4

[REQ-2940] The user shall be able to export the SOR to an XML file using the latest FASInterop schema at the time of implementation.

Reference: BMD-ARS-7142 / see section 2.1.4

[REQ-2950] The user shall be able to export the AFL to an XML file using the latest FASInterop schema at the time of implementation.

Reference: BMD-ARS-7128 / see section 2.1.4

[REQ-2960] The user shall be able to import the AFL from an XML file using the latest FASInterop schema at the time of implementation.

Reference: BMD-ARS-7109 / BMD-ARS-8311

[REQ-2970] The user shall be able to export the ADL to an XML file using the latest FASInterop schema at the time of implementation.

Reference: BMD-ARS-7127 / see section 2.1.4

[REQ-2980] The user shall be able to import the ADL from an XML file using the latest FASInterop schema at the time of implementation.

Reference: MD-ARS-7109 / BMD-ARS-8311

2.4.14 EFGMT Views

[REQ-2990] EFGMT shall allow a force generator to select a CJSOR from OPT via the CJSOR service (see [REQ-6160]) and perform force generation on the selected CJSOR. The selected CJSOR will be common to both planners in OPT and force generators in EFGMT from this point onwards.

Reference: BMD-ARS-8008 / BMD-ARS-8009 / BMD-ARS-8030 / BMD-ARS-8028 / BMD-ARS-8026 / BMD-ARS-8042 / BMD-ARS-8043 / BMD-ARS-8041 / BMD-ARS-8040 / BMD-ARS-8037 / BMD-ARS-8820 / BMD-ARS-8114

[REQ-3000] EFGMT shall display any CRUD operation made to requirements of the CJSOR in OPT automatically using the CJSOR services (see [REQ-6160]).

Reference: BMD-ARS-8008 / BMD-ARS-8112

[REQ-3010] EFGMT shall highlight changes to the CJSOR using icons that display ‘new’, ‘updated’ or ‘deleted’ for a configurable amount of time. When objects are

deleted in OPT, they are highlighted as such in EFGMT, but not removed until the force generator deliberately confirms the delete.

Reference: BMD-ARS-8008 / BMD-ARS-8112

2.4.15 Missile Defence Module

[039] The Missile Defence Module has a collection of components to manage Assets, Defence Designs, IPB Reports, OPFOR TBM COAs and CALs/PCALs/JPCALs/JPDALs.

[REQ-3020] The Missile Defence Module shall allow a user to create JPDALs from selected JPCALs or Defence Designs.

Reference: TOPFAS

2.4.15.1 CAL/PCAL/JPCAL View Component

[REQ-3030] The CAL/PCAL/JPCAL View shall allow users to manage Critical Assets, allow changing the rank by ordering or calculation from CVRT (Criticality, Vulnerability, Recuperability and Threat) values and filtering by priority levels.

Reference: TOPFAS

2.4.15.2 JPDAL View Component

[REQ-3040] The JPDAL View shall allow users to provide a capability to manage Defended Assets, allow changing the rank by ordering or calculation from CVRT (Criticality, Vulnerability, Recuperability and Threat) values, filtering by priority levels and filtering by defended and at risk assets.

Reference: TOPFAS

2.4.15.3 OPFOR TBM COA View Component

[REQ-3050] The OPFOR TBM COA View shall allow the user to view OPFOR TBM COAs from Defence Designs. The view shall contain two panes. The left pane shall display a tree with a breakdown of the OPFOR TBM COA received from AirC2IS data sources. The right pane shall display a Quick Map of the OPFOR TBM COA.

Reference: TOPFAS

2.4.15.4 Defence Design View Component

[REQ-3060] The Defence Design View shall contain two panes. The left pane shall display a tree with a breakdown of Defence Design DEs received from AirC2IS data sources. The pane can show a Defence Resource-, Asset- or Threat-centric tree. The right pane shall display a Quick Map of the Defence Design and highlight selections made in the tree by the user.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

2.4.16 C2 Arrangement View Component

[REQ-3070] The user shall be able to create multiple C2 arrangement diagrams within the C2 Arrangement View.

Reference: BMD-ARS-4773

[REQ-3080] The user shall be able to create a C2 arrangement per phase of the operation.

Reference: BMD-ARS-4774

[REQ-3090] The user shall be able to select the phase of the operation and display the associated C2 arrangement diagram.

Reference: BMD-ARS-4774

[REQ-3100] The user shall be able to create one or more of the following types of C2 relations between units: Full Command, Functional Command, National Command, Administrative Control, LOGCON, OPCOM, OPCON, TACOM, TACON, Ad-Hoc, Cooperation, Coordination, Liaison, Supporting and Reporting.

Reference: BMD-ARS-4773 / BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-3110] The user shall be able to load the Preview Panel with the main unit details when a unit is selected in the C2 arrangement View.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

2.4.17 Template Organiser

[REQ-3120] The user shall be able to manage all document templates with the Template Organizer.

Reference: BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

[REQ-3130] The user shall be able to duplicate a document template with the Template Organizer.

Reference: BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

[REQ-3140] The user shall be able to import/export document templates with the Template Organizer.

Reference: BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

2.4.18 COA Comparison View Component

[REQ-3150] The user shall be able to compare COAs with the COA Comparison View. Supported types of comparison are:
- Advantages and Disadvantages;
- Friendly and Opposing COA;

- Commander’s Criteria Narrative;
- Commander’s Criteria Single Word;
- Commander’s Criteria Numerical Analysis;
- Commander’s Criteria Broad Categories.

Reference: BMD-ARS-8149 / BMD-ARS-8151 / BMD-ARS-8152 / BMD-ARS-8153 / BMD-ARS-8154

2.4.19 Holdings View Component

[REQ-3160] The user shall be able to display Force Holdings (number and type of equipment, personnel etc.) within the Holdings View.

Reference: BMD-ARS-8710

[REQ-3170] The Holdings View shall display different grids with unit, holdings (Items) and Reportable Item Code (RIC) information: By Category, By Item, By Category Details and By Unit.

Reference: BMD-ARS-8710

[REQ-3180] The user shall be able to sort the Holdings View by groups and by columns. When the Holdings View includes groups, the column sorting shall be done within the groups (per group).

Reference: BMD-ARS-4654

[REQ-3190] The user shall be able to hide and unhide columns in the Holdings View.

Reference: BMD-ARS-4654

[REQ-3200] The user shall be able to define collapsible groups in the Holdings View by dragging and dropping an attribute column header to a "Group By field". It shall be possible to add multiple tier groups by dragging additional column headers to the "Group By field". It shall also be possible to reorder the tiers in the groups and remove a tier from the groups.

Reference: BMD-ARS-4654

[REQ-3210] The user shall be able to assign a location to a Force Holding and display it in the properties and on the Quick Map View.

Reference: BMD-ARS-6515 / BMD-ARS-6516 / BMD-ARS-6517 / BMD-ARS-6518 / BMD-ARS-6519 / BMD-ARS-6520 / BMD-ARS-6521 / BMD-ARS-8157 / BMD-ARS-6522 / BMD-ARS-6523 / BMD-ARS-6524 / BMD-ARS-6525 / BMD-ARS-6526 / BMD-ARS-8817

[REQ-3220] It shall be possible to load the Preview Panel with the main unit details when a unit is selected in the Holdings View

Reference: BMD-ARS-8710

2.4.20 Readiness View Component

[REQ-3230] The user shall be able to display unit readiness information within the Readiness View.

Reference: BMD-ARS-8710

[REQ-3240] The Readiness View shall a grid with the different unit readiness categories (unit/personnel/equipment/ammunition/fuel/training).

Reference: BMD-ARS-8710

[REQ-3250] The user shall be able to select a readiness status date to display the readiness state as of the status date.

Reference: BMD-ARS-8710

[REQ-3260] It shall be possible to load the Preview Panel with the main unit details when a unit is selected in the Readiness View.

Reference: BMD-ARS-8710

2.4.21 ORBAT View Component

[REQ-3270] It shall be possible to display ORBATs (Friendly, OPFOR, BMOPFOR) within the ORBAT View.

Reference: BMD-ARS-8710 / BMD-ARS-6519 / BMD-ARS-6520 / BMD-ARS-6521 / BMD-ARS-6522 / BMD-ARS-8817

[REQ-3280] The ORBAT View shall have a Hierarchy view (see 2.4.3)

Reference: BMD-ARS-8157

[REQ-3290] The ORBAT View shall have a List view (see 2.4.2)

Reference: BMD-ARS-6519 / BMD-ARS-6521 / BMD-ARS-6522

[REQ-3300] The ORBAT View shall have a Quick Map view (see 2.4.6)

Reference: BMD-ARS-8710 / BMD-ARS-6519 / BMD-ARS-6520 / BMD-ARS-6521 / BMD-ARS-6522 / BMD-ARS-8817

[REQ-3310] The ORBAT View shall have a C2 Diagram view (see 2.4.16), but without planning phase-dependent C2 relationships.

Reference: BMD-ARS-8710 / BMD-ARS-6519 / BMD-ARS-6520 / BMD-ARS-6521 / BMD-ARS-6522 / BMD-ARS-8817

[REQ-3320] The ORBAT View shall have a Holdings view (see 2.4.19)

Reference: BMD-ARS-8710 / BMD-ARS-6519 / BMD-ARS-6520 / BMD-ARS-6521 / BMD-ARS-6522 / BMD-ARS-8817

[REQ-3330] The ORBAT View shall have a Readiness view (see 2.4.20)

Reference: BMD-ARS-8710 / BMD-ARS-6519 / BMD-ARS-6520 / BMD-ARS-6521 / BMD-ARS-6522 / BMD-ARS-8817

[REQ-3340] The ORBAT View shall be able to receive Friendly ORBATs from an AirC2IS data source (see section 2.5.1.2). The ORBAT can consist of ‘full’ (i.e. real) or generic Units. It shall be possible to only import a subset of an ORBAT via selection of the units in the source.

Reference: BMD-ARS-8710 / BMD-ARS-8713

[REQ-3350] The user shall be able to export Friendly ORBATs. The ORBAT can consist of ‘full’ (i.e. real) or generic Units.

Reference: BMD-ARS-8711

[REQ-3360] The ORBAT View shall be able to aggregate a collection of individual OPFOR BM Force information into a higher echelon OPFOR ORBAT unit. The aggregation shall only be done in the user interface of the ORBAT View, the underlying data shall remain unchanged. The links between the individual OPFOR BM Force information and the aggregated Force shall be maintained, but not be visible in any tree view, map view etc.

Reference: BMD-ARS-8818

[REQ-3370] The ORBAT View shall be able to aggregate individual OPFOR BM holdings into an aggregated holding and to associate it with an existing OPFOR ORBAT unit. The aggregation shall only be done in the user interface, the underlying data shall remain unchanged. The links between the individual OPFOR BM holdings and the aggregated holding shall be maintained, but not be visible in any tree view, map view etc.

Reference: BMD-ARS-8819

[REQ-3380] The ORBAT View shall automatically update OPFOR BM Force and Holdings information when the data source to INTEL-FS gets updated (see section 2.5.1.1).

Reference: BMD-ARS-8818 / BMD-ARS-8819

[REQ-3390] The user shall be able to compare two ORBATs and save the output to a Microsoft Excel file. It shall be possible to filter the results on any property of the ORBAT.

Reference: BMD-ARS-8708 / BMD-ARS-8821

[REQ-3400] The user shall be able to integrate OPFOR BM ORBAT information into the Enemy ORBAT.

Reference: BMD-ARS-8817

2.5 BMD Scenario Building Module

2.5.1 Data Sources

[040] To utilize data from external systems, TOPFAS will use Data Sources.

[REQ-3410] Any information that is provided via a service or direct database connection shall be automatically updated in TOPFAS when the source information is updated. Any information that is provided via file exchange shall be manually updated in TOPFAS by the user by importing a new file.

Reference: TOPFAS

[REQ-3420] Any information from a Data Source shall not be changed in TOPFAS.

Reference: TOPFAS

2.5.1.1 INTEL-FS

[REQ-3430] The TOPFAS operator shall be able to interface with INTEL-FS and be presented with an entry point into INTEL-FS.

Reference: BMD-ARS-8814

[REQ-3440] The TOPFAS operator shall be able to select from a list of BMOPFORCOAs and BMOPFORORBATs the relevant ones to be added to the Data Source.

Reference: BMD-ARS-8814

[REQ-3450] TOPFAS shall be able to decompose the BMOPFORCOAs and BMOPFORORBATs in the Data Source and load the content into filters of the Explorer Module component for the DE types: Area at Risk, BMOA, BM Types, OPFORORBAT and OPFORBMForce.

Reference: BMD-ARS-6508 / BMD-ARS-5979 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-6515 / BMD-ARS-6517 / BMD-ARS-6523 / BMD-ARS-6525 / BMD-ARS-6511 / BMD-ARS-6512

[REQ-3460] TOPFAS shall update an existing Data Source with the latest data from INTEL-FS automatically.

Reference: BMD-ARS-6508 / BMD-ARS-6516 / BMD-ARS-6518 / BMD-ARS-6524 / BMD-ARS-6526 / BMD-ARS-6511 / BMD-ARS-6512

2.5.1.2 AirC2IS

[REQ-3470] The TOPFAS operator shall be able to interface with AirC2IS and be presented with an entry point into AirC2IS.

Reference: BMD-ARS-5415 / BMD-ARS-5416 / BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-6186 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6192 / BMD-ARS-6457 / BMD-ARS-6933 / BMD-ARS-6934 / BMD-ARS-8026 / BMD-ARS-8027 / BMD-ARS-8042 / BMD-ARS-8248 / BMD-ARS-8800 / BMD-ARS-8809

[REQ-3480] The TOPFAS operator shall be able to select from a list of missions the relevant ones to be added to the Data Source.

Reference: BMD-ARS-5415 / BMD-ARS-5416 / BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-6186 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6192 / BMD-ARS-6457 / BMD-ARS-6933 / BMD-ARS-6934 / BMD-ARS-8026 / BMD-ARS-8027 / BMD-ARS-8042 / BMD-ARS-8248 / BMD-ARS-8800 / BMD-ARS-8809

[REQ-3490] TOPFAS shall be able to decompose the mission in the Data Source and load the content into filters of the Explorer Module component for the DE types: OPFOR TBM COA, Friendly ORBAT, Defence Design, Asset, PCAL, JPCAL and JPDAL.

Reference: BMD-ARS-5415 / BMD-ARS-5416 / BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-6186 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6192 / BMD-ARS-6457 / BMD-ARS-6933 / BMD-ARS-6934 / BMD-ARS-8026 / BMD-ARS-8027 / BMD-ARS-8042 / BMD-ARS-8248 / BMD-ARS-8800 / BMD-ARS-8809 / BMD-ARS-8280 / BMD-ARS-8281

[REQ-3500] TOPFAS shall update an existing Data Source with the latest data from AirC2IS automatically.

Reference: BMD-ARS-5415 / BMD-ARS-5416 / BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-6186 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6192 / BMD-ARS-6457 / BMD-ARS-6933 / BMD-ARS-6934 / BMD-ARS-8026 / BMD-ARS-8027 / BMD-ARS-8042 / BMD-ARS-8248 / BMD-ARS-8800 / BMD-ARS-8809

2.5.1.3 CBRN-FS

[REQ-3510] The TOPFAS operator shall be able to interface with CBRN-FS and be presented with an entry point into CBRN-FS.

Reference: BMD-ARS-8796 / BMD-ARS-8798 / BMD-ARS-8799 / BMD-ARS-8803 / BMD-ARS-8804 / BMD-ARS-8146 / BMD-ARS-8152 / BMD-ARS-2411 / BMD-ARS-8720 / BMD-ARS-2505 / BMD-ARS-8722 / BMD-ARS-8719 / BMD-ARS-8793 / BMD-ARS-8794 / BMD-ARS-7642 / BMD-ARS-7643

[REQ-3520] The TOPFAS operator shall be able to select from a list of Areas at Risk with CBRN Annotations the relevant ones to be added to the Data Source.

Reference: BMD-ARS-8720

[REQ-3530] TOPFAS shall be able to decompose the mission in the Data Source and load the content into an Areas at Risk with CBRN Annotations filter of the Explorer Module component.

Reference: BMD-ARS-8796 / BMD-ARS-8798 / BMD-ARS-8799 / BMD-ARS-8803 / BMD-ARS-8804 / BMD-ARS-8146 / BMD-ARS-8152 / BMD-ARS-2411 / BMD-ARS-8720 / BMD-ARS-2505 / BMD-ARS-8722 / BMD-ARS-8719 / BMD-ARS-8793 / BMD-ARS-8794 / BMD-ARS-7642 / BMD-ARS-7643

[REQ-3540] TOPFAS shall update an existing Data Source with the latest data from CBRN-FS automatically.

Reference: BMD-ARS-8796 / BMD-ARS-8798 / BMD-ARS-8799 / BMD-ARS-8803 / BMD-ARS-8804 / BMD-ARS-8146 / BMD-ARS-8152 / BMD-ARS-2411 / BMD-ARS-8720 / BMD-ARS-2505 / BMD-ARS-8722 / BMD-ARS-8719 / BMD-ARS-8793 / BMD-ARS-8794 / BMD-ARS-7642 / BMD-ARS-7643

2.5.2 Manage local DEs

[041] As well as getting DEs from external systems through Data Sources, it is possible to manage DEs in local TOPFAS storage, i.e. local DEs.

[REQ-3550] The user shall be able to manage BMOAs. During create and update it shall be possible to use the Property Panel to define the BMOA either by drawing on the Quick Map or by entering coordinates.

Reference: BMD-ARS-5979

[REQ-3560] The user shall be able to import BMOAs from an XML file.

Reference: BMD-ARS-6919

[REQ-3570] The user shall be able to manage BM Types.

Reference: BMD-ARS-5981

[REQ-3580] The user shall be able to manage Area at Risk. During create and update it shall be possible to use the Property Panel to define the Area at Risk either by drawing on the Quick Map or by entering coordinates.

Reference: BMD-ARS-6146

[REQ-3590] The user shall be able to import Area at Risk from an XML file.

Reference: BMD-ARS-6921

[REQ-3600] The user shall be able to manage BMOPFORCOAs.

Reference: BMD-ARS-6075

[REQ-3610] The user shall be able to import BMOPFORCOAs from an XML file.

Reference: BMD-ARS-6920

[REQ-3620] The user shall be able to associate a BM Type to a BMOA in the Scenario Building View (see section 2.5.5).

Reference: BMD-ARS-5980

[REQ-3630] The user shall be able to associate a BMOA to an Area at Risk in the Scenario Building module (see section 2.5.5) if the BMOA and the BM types within the BMOA are compatible with the Area at Risk (i.e., the Area at Risk is completely within the maximum range of the related BMs within the BMOA as determined by the CoreGIS geo-processing service). If they are not compatible, the module shall display a warning to the operator and the association shall not be saved.

Reference: BMD-ARS-6918

[REQ-3640] The user shall be able to modify an Area at Risk in the Scenario Building module (see section 2.5.5), if the changes are not making the Area incompatible with existing BMOA associations (i.e., the Area At Risk is completely within the maximum range of the related BMs within the associated BMOAs as determined by the CoreGIS geo-processing service). If the

changes make the Area incompatible, the module shall display a warning to the user and not allow the changes to be saved.

Reference: BMD-ARS-6918

[041(i)] For the future NATO BMD capability, 2 distinct steps are foreseen for AirC2 IS in the context of BMD defence planning:

(a) The proper development of the defence design, including the OPFOR BM forces, own BMD forces with their deployment, their tasks etc.
(b) Based on that, a defence design evaluation capability (D2A) that is planned to produce metrics indicating how “good” the defence design is

The term “defence design results” refers to the first step. Using the “defence design results” the operator should be able to associate the complete defence design (which could be a large structure) with a COA and / or would have the opportunity to associate key attributes of the defence design (e.g. number of BMD systems, kinds of BMD systems) with the COA which could also be used for COA comparison. Therefore term “defence design results” relates both to defence design as a whole and/or parts of it that the operator may choose to include..

Defence design evaluation results are the metrics produced by the defence design evaluation capability of the future AirC2 IS.

[REQ-3650] The user shall be able to associate a TBMD/BMD Defence Design result with COAs.

Reference: BMD-ARS-8143

[REQ-3660] The user shall be able to associate a TBMD/BMD Defence Design evaluation result with COAs.

Reference: BMD-ARS-8144

[REQ-3670] The user shall be able to associate a BMOPFORCOA with Red COAs. A Red COA can only be associated with one BMOPFORCOA. When making the association, the operator shall be able to select which aspects of the BMOPFORCOA are used in the Red COA.

Reference: BMD-ARS-8170 / BMD-ARS-8171 / BMD-ARS-8813 / BMD-ARS-8816

[REQ-3680] TOPFAS shall store BMOPFORCOAs with greater than or equal to 150 threats.

Reference: BMD-ARS-6509

2.5.3 Explorer Module

2.5.3.1 DE Property Panels

[REQ-3690] The BMD Scenario Building module shall include DE Property Panels as defined in section 2.2.2 to edit DEs managed by the application.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

2.5.3.2 DE Preview Panel

[REQ-3700] The BMD Scenario Building module shall support the DE Preview Panels as defined in section 2.2.3 to display the main properties of a selected DE.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

2.5.3.3 List View

[REQ-3710] The BMD Scenario Building module shall use the List View Component with all its features as defined in section 2.4.2.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

2.5.3.4 Hierarchical View

[REQ-3720] The BMD Scenario Building module shall use the Hierarchical View Component with all its features as defined in section 2.4.3.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

2.5.3.5 Quick Map View

[REQ-3730] The BMD Scenario Building module shall use the Quick Map View component with all its features as defined in section 2.4.6 for the DEs that have a geospatial aspect.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-3740] The Quick Map View shall show all the BMOAs as red filled shapes.

Reference: BMD-ARS-5979 / BMD-ARS-5408

[REQ-3750] When the user clicks a BMOA on the Quick Map View, a tooltip shall be shown with the BMOA name and all Threat BMs in the BMOA with their minimum and maximum ranges.

Reference: BMD-ARS-3548 / BMD-ARS-5408

2.5.3.6 Table View

[REQ-3760] The BMD Scenario Building module shall use the table View Component with all its features as defined in section 2.4.7.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

2.5.4 Map View

[REQ-3770] The BMD Scenario Building module shall use the Map View component as described in section 2.4.10.

Reference: BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-3780] The user shall be able to display an overlay with the BMOPFORCOA (Area at Risk, BMOA, BM Types, Launcher positions, OPFORORBAT and OPFORBMForce or a subset of these DE types).

Reference: BMD-ARS-5408 / BMD-ARS-6513

[REQ-3790] The user shall be able to display an overlay with the Critical Areas and Assets.
Reference: BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-8799

[REQ-3800] The user shall be able to display an overlay with the maximum range of the interceptors as range rings.
Reference: BMD-ARS-6187

2.5.5 Scenario Building View

[REQ-3810] The Scenario Building View shall be able to visualize a BMOPFORCOA in a structured manner. The view shall contain two panes: on the left a tree grid with the BMOPFORCOA and its constituent DEs and on the right a Quick Map which will display the active selection of the left pane.
Reference: BMD-ARS-8815

[REQ-3820] The Scenario Building View shall be able to visualize display BMOPFORCOA in <= 1 second.
Reference: BMD-ARS-6510

[REQ-3830] The tree grid of the Scenario Building View shall be allow the following operations: expand/collapse/open DE properties.
Reference: BMD-ARS-4654

[REQ-3840] The user shall be able to display the BMOAs of the selected BMOPFORCOA on the Quick Map.
Reference: BMD-ARS-5408

[REQ-3850] The Scenario Building View shall provide a clear indication that any DE information was entered locally within TOPFAS and did not originate from a Data Source.
Reference: BMD-ARS-8810

2.6 BMD Threat Identification Module

2.6.1 Geo-processing service

[042] TOPFAS shall rely on CoreGIS to provide spatial information on territories (including marine areas), countries (NATO Countries and Third States) and areas corresponding to the first administrative level below the National level (e.g. states, departments, provinces etc.).

[REQ-3860] TOPFAS shall provide a geo-processing service that can consume a set of source locations (e.g. Threat BM sites, interceptor sites, etc.) with or without ranges and azimuth and provide both an overlay and a list of target territories (including marine areas), countries (NATO Countries and Third States) and areas corresponding to the first administrative level below the National level

(e.g. states, departments, provinces etc.) that can be impacted by BMs or overflown by own interceptors.

Reference: BMD-ARS-5667 / BMD-ARS-5405 / BMD-ARS-5661

[REQ-3870] TOPFAS shall provide a geo-processing service that can consume a set of territories (including marine areas), countries (NATO Countries and Third States) etc. and a set of Areas at Risk/Areas at Risk with CBRN Annotations and provide both an overlay and a list of territories that are overlapping with the Areas at Risk/Areas at Risk with CBRN Annotations.

Reference: BMD-ARS-8811 / BMD-ARS-8796

[REQ-3880] TOPFAS shall provide a geo-processing service that can consume a set of source location (e.g. Threat BM sites) with a range and a list of target locations and areas (e.g. Critical Areas and Assets) and provide a lists of targets can be impacted by BMs.

Reference: BMD-ARS-5415

[REQ-3890] TOPFAS shall provide a geo-processing service that can consume a set of BMOAs and BM locations plus ranges and an Area at Risk and determine if the Area at Risk is completely within the maximum range of the BMs.

Reference: BMD-ARS-6918

2.6.2 Threat Identification View

[REQ-3900] The Threat Identification View shall be able to visualize threats in a structured manner. It will consist of two panes and have different types of content:

(1) When viewing the BMOPFORCOA, the left pane shall show a tree grid with the BMOPFORCOA and its constituent DEs and the right pane either a Quick Map or a Table View which will display the active selection of the left pane.

(2) When viewing territories (including marine areas) and countries (NATO Countries and Third States), the left pane shall show a tree grid with the territories and countries and the right pine either a Quick Map or a Table View which will display the active threats to the selection of the left pane.

(3) When viewing Critical Assets and Areas from the CAAL (Critical Area and Asset List), the left pane shall show a tree grid with the Critical Assets and Areas and the right pane either a Quick Map or a Table View which will display the active threats to the selection of the left pane.

(4) When viewing Areas at Risk/Areas at Risk with CBRN Annotations, the left pane shall show a tree grid with the Areas and the right pine either a Quick Map or a Table View which will display the active threats to the selection of the left pane.

Reference: BMD-ARS-6075 / BMD-ARS-3548 / BMD-ARS-6002 / BMD-ARS-6187 / BMD-ARS-5408 / BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-6186 / BMD-ARS-8798 / BMD-ARS-8799 / BMD-ARS-8801 / BMD-ARS-8802 / BMD-ARS-8803 / BMD-ARS-8804 / BMD-ARS-8806 / BMD-ARS-8808

[REQ-3910] The Quick Map shall allow the operator to create areas to be used as possible threatened areas for the threat identification.

Reference: BMD-ARS-6918 / BMD-ARS-3548 / BMD-ARS-5667 / BMD-ARS-8811 / BMD-ARS-6002 / BMD-ARS-8805

[REQ-3920] The Threat Identification View shall provide a clear indication that any DE information was entered locally within TOPFAS and did not originate from a Data Source.

Reference: BMD-ARS-8810

2.6.2.1 Performance Based Threat Identification

[REQ-3930] The Quick Map shall allow the operator to display the BM threat as range rings. The analysis should be based on performance data of the Threat BMs and the BMOAs in which they are located and the maximum and minimum ranges of those Threat BMs.

Reference: BMD-ARS-3548

[REQ-3940] The Threat Identification View shall allow the operator to determine territories and countries (Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas) which could be impacted by Threat Ballistic Missiles (BMs). The calculation shall be based on Threat BM maximum Ranges and taking into account the shape of the BMOA (point, circle, polygon).

Reference: BMD-ARS-5667

[REQ-3950] The Threat Identification View shall allow the operator to associate the results from the analysis of affected territories based on Threat BM maximum Ranges and taking into account the shape of the BMOA (point, circle, polygon) to COAs.

Reference: BMD-ARS-8147

[REQ-3960] The Quick Map shall allow the operator to display the results from the analysis of affected territories based on Threat BM maximum Ranges and taking into account the shape of the BMOA (point, circle, polygon).

Reference: BMD-ARS-3548

[REQ-3970] The Quick Map shall allow the operator to filter the results from the analysis of affected territories based on Threat BM maximum Ranges and taking into account the shape of the BMOA (point, circle, polygon) by the types of area to be display: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.

Reference: BMD-ARS-3548

[REQ-3980] The Table View shall allow the operator to display the results from the analysis of affected territories based on Threat BM maximum Ranges and taking into

account the shape of the BMOA (point, circle, polygon). The Table View shall display the names of each affected area/territory.

Reference: BMD-ARS-3548

[REQ-3990] The Table View shall allow the operator to filter the results from the analysis of affected territories based on Threat BM maximum Ranges and taking into account the shape of the BMOA (point, circle, polygon) by the types of area to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.

Reference: BMD-ARS-3548

[REQ-4000] The Threat Identification View shall allow the operator to determine territories (including marine areas) and countries (NATO Countries and Third States) which could be overflown by own interceptors. The operator shall be able to limit the potentially overflown areas by own interceptors by an operator-defined azimuth area for each interceptor type and deployment location. The calculation shall be based on the characteristics of the interceptors.

Reference: BMD-ARS-5405 / BMD-ARS-5661

[REQ-4010] The Threat Identification View shall allow the operator to associate the results from the analysis of territories which could be overflown by own interceptors based on the characteristics of the interceptors to COAs.

Reference: BMD-ARS-8147

[REQ-4020] The Quick Map shall allow the operator to display the results from the analysis of territories which could be overflown by own interceptors based on the characteristics of the interceptors.

Reference: BMD-ARS-6187

[REQ-4030] The Quick Map shall allow the operator to filter the results from the analysis of territories which could be overflown by own interceptors based on the characteristics of the interceptors by the types of area to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.

Reference: BMD-ARS-6187

[REQ-4040] The Quick Map shall allow the operator to display the results from the analysis of territories which could be overflown by own interceptors based on the characteristics of the interceptors. It shall be possible to display the maximum range of the interceptors as range rings.

Reference: BMD-ARS-6187

[REQ-4050] The Table View shall allow the operator to display the results from the analysis of territories which could be overflown by own interceptors based on the

characteristics of the interceptors. The Table View shall display the names of each territory that can be overflown by own interceptors.

Reference: BMD-ARS-6187

[REQ-4060] The Table View shall allow the operator to filter the results from the analysis of territories which could be overflown by own interceptors based on the characteristics of the interceptors by the types of area to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.

Reference: BMD-ARS-6187

[REQ-4070] The Threat Identification View shall allow the operator to identify the Critical Assets and Areas from the CAAL (Critical Area and Asset List) that could be impacted by Threat Ballistic Missiles (BMs). The calculation shall be based on performance data of the BMOAs in which are located and the maximum and minimum ranges of those Threat BMs. The calculations shall be performed with and without taking the BM Targeting Strategy into account. The BM Targeting Strategy is part of the OPFOR BM COA and contains amongst other information Asset Types that could be targeted.

Reference: BMD-ARS-5415 / BMD-ARS-5991

[REQ-4080] The Threat Identification View shall allow the operator to determine the type of Threat BM and in particular the Warhead Type that each Critical Asset and Area could be impacted by.

Reference: BMD-ARS-5416 / BMD-ARS-5415

[REQ-4090] The Threat Identification View shall allow the operator to associate the results from the analysis of affected Critical Areas and Assets based on performance data of the Threat BMs and the BMOAs in which they are located and the maximum and minimum ranges of those Threat BMs (with or without taking the BM Targeting Strategy into account) to COAs.

Reference: BMD-ARS-8148

[REQ-4100] The Quick Map shall allow the operator to display the results of the calculation based on performance data of the Threat BMs and the BMOAs in which they are located and the maximum and minimum ranges of those Threat BMs (with or without taking the BM Targeting Strategy into account).

Reference: BMD-ARS-5990 / BMD-ARS-6186 / BMD-ARS-5991 / BMD-ARS-8809

[REQ-4110] The Quick Map shall allow the operator to filter the results of the calculation based on performance data of the Threat BMs and the BMOAs in which they are located and the maximum and minimum ranges of those Threat BMs (with or without taking the BM Targeting Strategy into account) by the asset type (political or military assets), Threat BM Type and Warhead Types.

Reference: BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-6186 / BMD-ARS-8809

[REQ-4120] The Table View shall allow the operator to display the results of the calculation based on performance data of the Threat BMs and the BMOAs in which they are located and the maximum and minimum ranges of those Threat BMs (with or without taking the BM Targeting Strategy into account). The Table View shall display for each Critical Asset and Area the name and the associated Threat BM Types and the Warhead Types according to the selected filters.

Reference: BMD-ARS-5990

[REQ-4130] The Table View shall allow the operator to filter the results of the calculation based on performance data of the Threat BMs and the BMOAs in which they are located and the maximum and minimum ranges of those Threat BMs (with or without taking the BM Targeting Strategy into account) by the asset type (political or military assets), Threat BM Type and Warhead Types and the BM Targeting Strategy.

Reference: BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-8809 / BMD-ARS-6186

[REQ-4140] The Threat Identification View shall allow the operator to select a territory or country (Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas) and determine the Threat Ballistic Missiles (BMs) that can impact it. The calculation shall be based on maximum Ranges and taking into account the shape of the BMOA (point, circle, polygon) and Areas At Risk.

Reference: BMD-ARS-8801

[REQ-4150] The Quick Map shall allow the operator to display the Threat Ballistic Missiles (BMs) that can impact the selected territory.

Reference: BMD-ARS-8801

[REQ-4160] The Quick Map shall allow the operator to filter the Threat Ballistic Missiles (BMs) that can impact the selected territory by the BMOAs.

Reference: BMD-ARS-8801

[REQ-4170] The Table View shall allow the operator to display the Threat Ballistic Missiles (BMs) that can impact the selected territory. The Table View shall display the details of the Threat BMs and the associated BMOAs.

Reference: BMD-ARS-8801

[REQ-4180] The Threat Identification View shall allow the operator to select a Critical Asset or Area and determine the Threat Ballistic Missiles (BMs) that can impact it. The calculation shall be based on maximum Ranges and taking into account the shape of the BMOA (point, circle, polygon) and Areas At Risk.

Reference: BMD-ARS-8802

[REQ-4190] The Quick Map shall allow the operator to display the Threat Ballistic Missiles (BMs) that can impact the selected Critical Asset or Area.

Reference: BMD-ARS-8802

[REQ-4200] The Table View shall allow the operator to display the Threat Ballistic Missiles (BMs) that can impact the selected Critical Asset or Area. The Table View shall display the details of the Threat BMs and associated BMOAs.

Reference: BMD-ARS-8802

[REQ-4210] The Threat Identification View shall allow the operator to select a territory or country (Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas) and determine the Threat BM Types and the Warhead Types it is threatened by. The calculation shall be based on performance data of the Threat BMs and the BMOAs in which they are located and the maximum and minimum ranges of those Threat BMs.

Reference: BMD-ARS-8805

[REQ-4220] The Table View shall allow the operator to display the Threat BM Types and the Warhead Types that can threaten the selected territory based on performance data of the Threat BMs and the BMOAs in which they are located and the maximum and minimum ranges of those Threat BMs. The Table View shall display the names of each territory and the associated Threat BM Types and the Warhead Types.

Reference: BMD-ARS-8806

2.6.2.2 Area at Risk Based Threat Identification

[REQ-4230] The Threat Identification View shall allow the operator to determine territories and countries (Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas) which could be impacted by Threat Ballistic Missiles (BMs). The operator shall be able to select the types of areas to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas. The calculation shall be based on the Areas at Risk.

Reference: BMD-ARS-8811

[REQ-4240] The Threat Identification View shall allow the operator to associate the results from the analysis of affected territories based on the Areas at Risk to COAs.

Reference: BMD-ARS-8147

[REQ-4250] The Quick Map shall allow the operator to display the results from the analysis of affected territories based on the Areas at Risk.

Reference: BMD-ARS-6002

[REQ-4260] The Quick Map shall allow the operator to filter the results from the analysis of affected territories based on the Areas at Risk by the types of areas to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.

Reference: BMD-ARS-6002

[REQ-4270] The Table View shall allow the operator to display the results from the analysis of affected territories based on the Areas at Risk. The Table View shall display for each Area at Risk the name and territories/countries.

Reference: BMD-ARS-6002

[REQ-4280] The Table View shall allow the operator to filter the results from the analysis of affected territories based on the Areas at Risk by the type of area to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.

Reference: BMD-ARS-6002

[REQ-4290] The Threat Identification View shall allow the operator to identify the Critical Assets and Areas that could be impacted by Threat Ballistic Missiles (BMs) based on Areas At Risk. This data is contained in the DE “Areas at Risk” from INTEL-FS.

Reference: BMD-ARS-5990

[REQ-4300] The Quick Map shall allow the operator to display the results from the analysis of the Critical Assets and Areas that could be impacted by Threat Ballistic Missiles (BMs) based on Areas At Risk.

Reference: BMD-ARS-5990

[REQ-4310] The Quick Map shall allow the operator to filter the results from the analysis of the Critical Assets and Areas that could be impacted by Threat Ballistic Missiles (BMs) based on Areas At Risk by asset type (political or military assets) and Areas at Risk.

Reference: BMD-ARS-5990

[REQ-4320] The Table View shall allow the operator to display the results from the analysis of the Critical Assets and Areas that could be impacted by Threat Ballistic Missiles (BMs) based on Areas At Risk. The Table View shall display the name of each Critical Asset and Area and the name of the associated Area At Risk according to the selected filters.

Reference: BMD-ARS-5990

[REQ-4330] The Table View shall allow the operator to filter the results from the analysis of the Critical Assets and Areas that could be impacted by Threat Ballistic Missiles (BMs) based on Areas At Risk by asset type (political or military assets) and Areas at Risk.

Reference: BMD-ARS-5990 / BMD-ARS-8809

[REQ-4340] The Threat Identification View shall allow the operator to determine territories and countries which could be impacted by COI/COE/CONI effects. The operator shall be able to select the types of areas to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first

administrative level below the National level and operator defined areas. The calculation shall be based on Areas At Risk with CBRN Annotations.

Reference: BMD-ARS-8796

[REQ-4350] The Threat Identification View shall allow the operator to associate the results from the analysis of territories which could be impacted by COI/COE/CONI effects based on Areas At Risk with CBRN Annotations to COAs.

Reference: BMD-ARS-8146

[REQ-4360] The Quick Map shall allow the operator to display the results from the analysis of territories which could be impacted by COI/COE/CONI effects based on Areas At Risk with CBRN Annotations.

Reference: BMD-ARS-8798

[REQ-4370] The Quick Map shall allow the operator to filter the results from the analysis of territories which could be impacted by COI/COE/CONI effects based on Areas At Risk with CBRN Annotations by the types of areas to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.

Reference: BMD-ARS-8798

[REQ-4380] The Table View shall allow the operator to display the results from the analysis of territories which could be impacted by COI/COE/CONI effects based on Areas At Risk with CBRN Annotations. The Table View shall display for each Area at Risk with CBRN Annotations the name and territories/countries.

Reference: BMD-ARS-8798

[REQ-4390] The Table View shall allow the operator to filter the results from the analysis of territories which could be impacted by COI/COE/CONI effects based on Areas At Risk with CBRN Annotations by the type of area to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.

Reference: BMD-ARS-8798

[REQ-4400] The Table View shall allow the operator to export the results from the analysis of territories which could be impacted by COI/COE/CONI effects based on Areas At Risk with CBRN Annotations using the active filtering parameters.

Reference: BMD-ARS-8797

[REQ-4410] The Threat Identification View shall allow the operator to identify the Critical Assets and Areas from the CAAL (Critical Area and Asset List) that could be impacted by COI/COE/CONI effects. This data is contained in the in the DE “Areas at Risk with CBRN Annotations” from CBRN-FS.

Reference: BMD-ARS-8799

[REQ-4420] The Threat Identification View shall allow the operator to associate the results from the analysis of the Critical Assets and Areas from the CAAL that could be impacted by COI/COE/CONI effects to COAs.

Reference: BMD-ARS-8146

[REQ-4430] The Quick Map shall allow the operator to display the results from the analysis of the Critical Assets and Areas from the CAAL that could be impacted by COI/COE/CONI effects.

Reference: BMD-ARS-8799

[REQ-4440] The Quick Map shall allow the operator to filter the results from the analysis of the Critical Assets and Areas from the CAAL that could be impacted by COI/COE/CONI effects by Areas at Risk with CBRN Annotations.

Reference: BMD-ARS-8799

[REQ-4450] The Table View shall allow the operator to display the results from the analysis of the Critical Assets and Areas from the CAAL that could be impacted by COI/COE/CONI effects. The Table View shall display for each Area at Risk with CBRN Annotations the Critical Assets and Areas.

Reference: BMD-ARS-8799

[REQ-4460] The Table View shall allow the operator to filter the results from the analysis of the Critical Assets and Areas from the CAAL that could be impacted by COI/COE/CONI effects by Areas at Risk with CBRN Annotations.

Reference: BMD-ARS-8799

[REQ-4470] The Table View shall allow the operator to export the results from the analysis of the Critical Assets and Areas from the CAAL that could be impacted by COI/COE/CONI effects using the active filtering parameters.

Reference: BMD-ARS-8800

[REQ-4480] The Threat Identification View shall allow the operator to select a territory or country (Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas) and show the COI/COE/CONI effects it could be impacted by based on Areas At Risk with CBRN Annotations it in the Table View.

Reference: BMD-ARS-8803

[REQ-4490] The Threat Identification View shall allow the operator to select a Critical Asset or Area and show the COI/COE/CONI effects it could be impacted by based on Areas At Risk with CBRN Annotations it in the Table View.

Reference: BMD-ARS-8804

[REQ-4500] The Threat Identification View shall allow the operator to select a territory or country (Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas)

and determine the Threat BM Types and the Warhead Types it is threatened by. The calculation shall be based on Areas At Risk.

Reference: BMD-ARS-8805

[REQ-4510] The Table View shall allow the operator to display the Threat BM Types and the Warhead Types that can threaten the selected territory based on Areas At Risk. The Table View shall display the name of the territory and the associated Threat BM Types and the Warhead Types.

Reference: BMD-ARS-8806

[REQ-4520] The Table View shall allow the operator to export the Threat BM Types and the Warhead Types that can threaten the selected territory based on Areas At Risk.

Reference: BMD-ARS-8807

[REQ-4530] The Threat Identification View shall allow the operator to select a territory or country (Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas) and show the applicable operational tempo information based on the relevant Areas at Risk in the Table View. The calculation shall be based on Areas At Risk.

Reference: BMD-ARS-8808

[REQ-4540] The Threat Identification View shall allow the operator to display the Areas at Risk with CBRN Annotations on the Quick Map.

Reference: BMD-ARS-2411 / BMD-ARS-6513

[REQ-4550] The Threat Identification View shall allow the operator to filter Areas at Risk with CBRN Annotations on the Quick Map by associated BMOAs, associated BM types, associated OPFOR BM COAs, intersection with a Critical Assets and Areas and intersection with a geospatial feature of interest.

Reference: BMD-ARS-8719 / BMD-ARS-8793

[REQ-4560] The Threat Identification View shall allow the operator to display the Areas at Risk with CBRN Annotations on the Table View. The Table View shall display the details of the Areas at Risk with CBRN Annotations and parameters of the associated OPFOR Ballistic Missile COAs (e.g. location).

Reference: BMD-ARS-8722

[REQ-4570] The Threat Identification View shall display the predictions within 1 second from execution of the display command.

Reference: BMD-ARS-2505

[REQ-4580] The Threat Identification View shall allow the operator to display system elements and geospatial feature of interest that intersect with the selected Areas at Risk with CBRN Annotations in the Table View. The operator shall be

able to filter by Areas at Risk with CBRN Annotations and system element types.

Reference: BMD-ARS-8794

2.7 BMD Requirements Management

[REQ-4590] The Forces View shall allow the operator to manage the BMD capability requirements.

Reference: BMD-ARS-8008

[REQ-4600] The Forces View shall allow the operator to distinguish between BMD, TBMD and other requirements.

Reference: BMD-ARS-8009

[REQ-4610] The Forces View shall allow the operator to clearly distinguish the BMD requirements in terms of functions (e.g. sensing/engaging/supporting).

Reference: BMD-ARS-8030

[REQ-4620] The Forces View shall be able to include the capability requirements identified in the defence design from an AirC2IS data source.

Reference: BMD-ARS-8026 / BMD-ARS-8110

[REQ-4630] The Defence Design View shall allow the operator to display the planned usage of each BMD force requirement and their role in the planned defence designs, e.g. defended assets and threats being countered

Reference: BMD-ARS-8027

[REQ-4640] The Defence Design View shall allow the operator to identify unfulfilled BMD force requirements and display the planned usage of these BMD force requirement and their role in the planned defence designs.

Reference: BMD-ARS-8027

[REQ-4650] The SOR Management View shall display the fulfilment level of each BMD capability requirement.

Reference: BMD-ARS-8042 / BMD-ARS-8114

[REQ-4660] TOPFAS shall allow the user to receive and manage impact reports from AirC2IS.

Reference: BMD-ARS-8042

[REQ-4670] The EFGMT shall be able to manage the apportioned to nations of each BMD capability requirement.

Reference: BMD-ARS-8041

[REQ-4680] The SOR Management View shall be able to display apportionment of nations to each BMD capability requirement.

Reference: BMD-ARS-8041

[REQ-4690] The EFGMT shall be able to display the shortfalls of each BMD capability requirement.

Reference: BMD-ARS-8043

[REQ-4700] The SOR Management View shall be able to display shortfalls of each BMD capability requirement from EFGMT taking time filters into account.

Reference: BMD-ARS-8043

[REQ-4710] The Defence Design View shall be able to display shortfalls of each BMD capability requirement from EFGMT taking time filters into account.

Reference: BMD-ARS-8043

[REQ-4720] The Defence Design View shall be able to display shortfalls of each BMD capability requirement from EFGMT in space.

Reference: BMD-ARS-8043

[REQ-4730] TOPFAS shall allow the user to receive and manage analysis of shortfalls in BMD capabilities both in time and space reports from AirC2IS.

Reference: BMD-ARS-8043

[REQ-4740] The EFGMT shall allow the operator to generate the ACTWARN Force Request message for BMD requirements.

Reference: BMD-ARS-8040

[REQ-4750] The EFGMT shall be able to process national BMD force contribution (FORCEPREP) messages.

Reference: BMD-ARS-8039 / BMD-ARS-8114

[REQ-4760] TOPFAS shall disseminate the information on forces contribution to component systems.

Reference: BMD-ARS-8039

[REQ-4770] The EFGMT shall be able to manage associations of caveats to (BMD) national force contributions and related Friendly Order of Battle units.

Reference: BMD-ARS-8037 / BMD-ARS-8820 / BMD-ARS-8114

[REQ-4780] OPT shall be able to retrieve caveats associated to Friendly Order of Battle units from EFGMT and display them on the Forces View and SOR Management View.

Reference: BMD-ARS-8820 / BMD-ARS-8114

[REQ-4790] OMT shall be able to retrieve caveats associated to Friendly Order of Battle units from EFGMT and display them on the ORBAT View.

Reference: BMD-ARS-8820 / BMD-ARS-8114

[REQ-4800] The EFGMT shall be able to show the impact of a new operation on the standing BMD mission. When BMD contributions are allocated during force

sensing to another mission, EFGMT shall show an indication on the requirement and on the contribution in both missions.

Reference: BMD-ARS-8035

[REQ-4810] OPT shall be able to retrieve the impact of a new operation on the standing BMD mission from EFGMT and display it on the SOR Management View.

Reference: BMD-ARS-8035

[REQ-4820] OPT shall be able to show the impact of a new operation on the standing BMD mission and display it on the Defence Design View.

Reference: BMD-ARS-8035

[REQ-4830] OPT shall be able to compare Defended Asses Lists and show the differences in Defended Assets. The differences shall include the level of protection (i.e. the defence status).

Reference: BMD-ARS-8714 / BMD-ARS-8715

[REQ-4840] OPT shall be able to store the comparison between Defended Asses Lists as a document.

Reference: BMD-ARS-8716

2.8 BMD Reporting Module

2.8.1 Document Views

[REQ-4850] The user shall be able to add a BMOPFORCOA to a document as a paragraph and as a table with the following information:

(1) BMOPFORCOA Label, Name, Description, COA Type, Actor
(2) For each BMOA: The OperatingAreaId, LocationCountry, Status, Operational Tempo, Period Of Validity Start, Period Of Validity End, Threat Launchers Present, Threat Missiles Present
(3) For each OPFORBMForce: Label, Name, Description, Location

Reference: BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

[REQ-4860] The user shall be able to add a table to a document with territories and countries which could be impacted by Threat BMs with the following information: the area/country name, the Threat BM Type and the Warhead Type.

Reference: BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

[REQ-4870] The user shall be able to add a table to a document with the expected raid size per threatened area with the following information: the area/country name, expected raid size.

Reference: BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

[REQ-4880] The user shall be able to add a table to a document with the territories and countries which could be which could be overflown by own interceptors with the following information: the area/country name, interceptor deployment location, interceptor maximum range.

Reference: BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

[REQ-4890] The user shall be able to add a table to a document with the Critical Assets and Areas that could be impacted by Threat BMs with the following information: for each Critical Asset/Area the name, the Threat BM Types and the Warhead Types and whether or not the BM Targeting Strategy was taken into account for the calculation.

Reference: BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

[REQ-4900] The user shall be able to add a table to a document with territories and countries which could be impacted by Threat BMs based on Areas at Risk with the following information: for each Area at Risk the name and the territories/countries.

Reference: BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

[REQ-4910] The user shall be able to add a table to a document with the Critical Assets and Areas that could be impacted by Threat BMs based on Areas at Risk with the following information: for each Area at Risk the name and all the Critical Asset/Area names impacted.

Reference: BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

[REQ-4920] The user shall be able to develop SACEURs Strategic Military Advice (SMA) in accordance with the NATO Crisis Response System Manual (NCRSM) in the Document View.

Reference: BMD-ARS-6190

[REQ-4930] The user shall be able to add the following content to the SMA: Assets, Critical Asset List (CAL), Prioritised Critical Asset List (PCAL), Joint Prioritised Critical Asset List (JPCAL) and Joint Prioritised Defended Asset List (JPDAL).

Reference: BMD-ARS-6190

[REQ-4940] The user shall be able to generate the SMA in accordance with the NATO Crisis Response System Manual (NCRSM).

Reference: BMD-ARS-5204

[REQ-4950] TOPFAS shall contain SMA process and document templates including BMD specific content.

Reference: BMD-ARS-5204

[REQ-4960] The user shall be able to develop SACEUR's Strategic Assessment (SSA) in accordance with the COPD in the Document View.

Reference: BMD-ARS-6191

[REQ-4970] The user shall be able to add the following content to the SSA: Assets, Critical Asset List (CAL), Prioritised Critical Asset List (PCAL), Joint Prioritised Critical Asset List (JPCAL) and Joint Prioritised Defended Asset List (JPDAL).

Reference: BMD-ARS-6191

[REQ-4980] The user shall be able to generate the SSA in accordance with the COPD.

Reference: BMD-ARS-5207

[REQ-4990] TOPFAS shall contain SSA process and document templates including BMD specific content.

Reference: BMD-ARS-5207

[REQ-5000] The user shall be able to develop the Standing Defence Plan (SDP) regarding BMD specific content in the Document View.

Reference: BMD-ARS-6195

[REQ-5010] TOPFAS shall contain SDP process and document templates including BMD specific content.

Reference: BMD-ARS-6195 / BMD-ARS-6196 / BMD-ARS-8849

[REQ-5020] The user shall be able to export the SDP to Word either including or excluding passive defence content.

Reference: BMD-ARS-6196 / BMD-ARS-8849

[REQ-5030] The user shall be able to develop Military Response Options (MROs) in accordance with the COPD.

Reference: BMD-ARS-6192

[REQ-5040] The user shall be able to add the following content to the MRO: Assets, Critical Asset List (CAL), Prioritised Critical Asset List (PCAL), Joint Prioritised Critical Asset List (JPCAL) and Joint Prioritised Defended Asset List (JPDAL).

Reference: BMD-ARS-6192

[REQ-5050] The user shall be able to export MROs to Word either including or excluding passive defence content in accordance with the COPD.

Reference: BMD-ARS-5209 / BMD-ARS-8850

[REQ-5060] The user shall be able to export selected parts of the MROs to PowerPoint either including or excluding passive defence content in accordance with the COPD.

Reference: BMD-ARS-5209 / BMD-ARS-8850

[REQ-5070] TOPFAS shall contain MRO process and document templates including BMD specific content.

Reference: BMD-ARS-6192

[REQ-5080] The user shall be able to develop the Course of Action (COA) Decision Briefing in accordance with the COPD.

Reference: BMD-ARS-6933

[REQ-5090] The user shall be able to add the following content to the COA Decision Briefing: Assets, Critical Asset List (CAL), Prioritised Critical Asset List (PCAL), Joint Prioritised Critical Asset List (JPCAL) and Joint Prioritised Defended Asset List (JPDAL).

Reference: BMD-ARS-6933

[REQ-5100] The user shall be able to create the COA Decision Briefing with TOPFAS content in PowerPoint, either including or excluding passive defence content in accordance with the COPD.

Reference: BMD-ARS-6929 / BMD-ARS-8851

[REQ-5110] The user shall be able to develop the Mission Analysis Briefing (MAB) in accordance with the COPD.

Reference: BMD-ARS-6934

[REQ-5120] The user shall be able to add the following content to the MAB: Assets, Critical Asset List (CAL), Prioritised Critical Asset List (PCAL), Joint Prioritised Critical Asset List (JPCAL) and Joint Prioritised Defended Asset List (JPDAL).

Reference: BMD-ARS-6934

[REQ-5130] The user shall be able to create the Mission Analysis Briefing (MAB) with TOPFAS content in PowerPoint, either including or excluding passive defence content in accordance with the COPD.

Reference: BMD-ARS-6928 / BMD-ARS-8852

2.8.2 COA Comparison View

[REQ-5140] The user shall be able to include TBMD/BMD Defence Design results in the COA Comparison View to compare COAs.

Reference: BMD-ARS-8149

[REQ-5150] The user shall be able to include TBMD/BMD Defence Design evaluation results in the COA Comparison View to compare COAs.

Reference: BMD-ARS-8151

[REQ-5160] The user shall be able to include CBRN hazard analysis results in the COA Comparison View to compare COAs. The details shall display territories and countries which could be impacted by COI/COE/CONI effects (see [REQ-4360]) and the Critical Assets and Areas from the CAAL (Critical Area and Asset List) which could be impacted by COI/COE/CONI effects (see [REQ-4430]).

Reference: BMD-ARS-8152

[REQ-5170] The user shall be able to include affected Nations analysis results in the COA Comparison View to compare COAs. The details shall display nations which could be impacted by Threat (BMs) based on BM maximum range (see [REQ-3960]), the nations which could be impacted by Threat (BMs) based on Areas At Risk (see [REQ-4230]) and the nations which could be overflown by own interceptors (see [REQ-4020]).

Reference: BMD-ARS-8153

[REQ-5180] The user shall be able to include affected Critical Areas and Assets in the COA Comparison View to compare COAs. The details shall display Critical Areas and Assets which could be impacted by Threat (BMs) based on BM maximum range (see [REQ-4090]) and the Critical Areas and Assets which could be impacted by Threat (BMs) based on Areas At Risk (see [REQ-6470])

Reference: BMD-ARS-8154

2.9 BMD Catalogue Services

[043] A catalogue is a collection of reference Data Entities with all their properties.

[044] Reserved

[REQ-5190] TOPFAS shall provide a queryable CRM (Crisis Response Measures) catalogue service. The service shall be implemented as a REST service (see section 2.1.3).

Reference: BMD-ARS-8837 / BMD-ARS-7310

[REQ-5200] TOPFAS shall provide a queryable ROE (Rule of Engagement) catalogue service. The service shall be implemented as a REST service (see section 2.1.3).

Reference: BMD-ARS-7310

[REQ-5210] TOPFAS shall provide a queryable Capability Code catalogue service. The service shall be implemented as a REST service (see section 2.1.3).

Reference: BMD-ARS-8028

[REQ-5220] The catalogue services shall support multiple versions for each catalogue.

Reference: BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028

[REQ-5230] The catalogue services shall be integrated in all relevant TOPFAS applications.
Reference: BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028

[REQ-5240] TOPFAS shall provide a catalogue browser to access the catalogue services.
Reference: BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028

[REQ-5250] The catalogue browser shall be semantically aware of the data context to display all relevant properties of catalogue items.
Reference: BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028

[REQ-5260] The catalogue browser shall be semantically aware of the data context and display of the data shall have relevant grouping, filtering and sorting.
Reference: BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028

[REQ-5270] The catalogue browser shall be semantically aware of the data context to allow searching for catalogue items.
Reference: BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028

[REQ-5280] TOPFAS shall have a Catalogue Management web app that shall allow a user to manage the catalogues, based on the user permissions.
Reference: BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028

[REQ-5290] The Catalogue Management app shall allow management of catalogues on all TOPFAS applications.
Reference: BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028

2.10 CRM Management Module

[REQ-5300] OPT shall support the Crisis Response Measure Procedures to allow the user to identify CRMs to be declared in the context of an operation or exercise. This includes:
- select CRMs from the CRM catalogue during the planning process
- allow the creation of Annex JJ of the OPLAN
Reference: BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-8837

[REQ-5310] NCRS shall allow the users to retrieve the approved list of CRMs from OPT to support CRM life-cycle management.
Reference: BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-8837

2.11 TOPFAS Training and Exercise Management App

[045] The Education, Training, Exercises and Evaluation Functional Services (ETEE-FS) provides collective training and exercise capabilities to the BMD community for the preparation, conduct and analysis of their weekly training and periodic exercises. TOPFAS shall be able to interface with the ETEE-FS during preparation and execution of training and exercises for the latter to be able to release planning

Training Components (DEs, diagrams, containers, files, EFGMT/NCRS messages etc.) at scripted times into TOPFAS.

[045(i)] ETEE-FS uses the concept of “content update file” that should be generated and consumed by TOPFAS. The generated file is to be considered an "instruction set" defining an intended update and/or actions to be taken TOPFAS when the file is released by ETEE-FS. The file will be made available by TOPFAS to ETEE FS for attaching it to an exercise script element. At the scheduled time in the exercise script, ETEE FS will send the file to TOPFAS for processing.

[045(ii)] There is no predefined structure of the content update file and ETEE FS is agnostic of its content. The content update file can contain small payloads/updates in addition to the instruction set (total size max 10MB). Larger payloads shall be managed separately by TOPFAS. Training Components can be considered a payload.

[046] User roles for the TEM need to be defined at design time based on the functional requirements.

[REQ-5320] TOPFAS shall have an exercise/training preparation web app TEM (Training and Exercise Management) that shall allow management of Training Components to be used by ETEE-FS during the planning and execution of trainings and exercises.

Reference: BMD-ARS-8873 / BMD-ARS-7307 / BMD-ARS-7276

[REQ-5330] The TEM shall allow the user to create Training Components (TCs). These TCs can be internal TOPFAS objects, e.g. ORBATS and COAs or external input, e.g. AIFS (Allied Information Flow System) and email messages to be send to EFGMT/RRT/NCRS, files to be imported etc.

Reference: BMD-ARS-8873 / BMD-ARS-7254

[REQ-5340] TOPFAS shall use different databases for operational use and exercise/training, with the exception of NCRS (see [REQ-5370])

Reference: BMD-ARS-8877 / BMD-ARS-8879 / BMD-ARS-8880 / BMD-ARS-8881 / BMD-ARS-7309

[REQ-5350] NCRS shall use the operational database for exercise and training. Filtering shall be used for operational, exercise and training sessions to ensure separation of data sources and information.

Reference: BMD-ARS-8877 / BMD-ARS-8879 / BMD-ARS-8880 / BMD-ARS-8881 / BMD-ARS-7309

[REQ-5360] The TEM shall allow the user to interface with ETEE-FS and be presented with an entry point into ETEE-FS.

Reference: BMD-ARS-7267 / BMD-ARS-7272 / BMD-ARS-7288 / BMD-ARS-8876

[REQ-5370] The TEM shall allow the user to select a training or exercise scenario in ETEE-FS to be used for linking of the Training Components. If no connection to ETEE-FS is available, it shall be possible to create a scenario in the TEM.

Reference: BMD-ARS-8873 / BMD-ARS-7267 / BMD-ARS-7272 / BMD-ARS-7288 / BMD-ARS-8876

[REQ-5380] The TEM shall allow the user to select Training Components (see [REQ-5350]) and add them to the selected scenario which will generate a unique token that links the Training Component with the selected scenario. This shall set the activation state of each Training Components in the scenario to ‘not published’.

Reference: BMD-ARS-7317 / BMD-ARS-7276 / BMD-ARS-7284 / BMD-ARS-7318

[REQ-5390] The Training Components shall be marked as “Training” or “Exercise” in their metadata in addition to any standard security and exercise markers that are normally be present to mitigate the likelihood of operational use of training data.

Reference: BMD-ARS-7301 / BMD-ARS-7302 / BMD-ARS-7304 / BMD-ARS-8875

[REQ-5400] The Training Components shall have the following activation states:

(1) not published: not published to ETEE-FS;
(2) published: published to ETEE-FS and the scenario is not active yet.
(3) pending release: published to ETEE-FS and waiting for ETEE-FS to release to the training audience and the scenario is active;
(4) released: released by ETEE-FS to the training audience.
(5) deleted: soft deleted from the scenario, revocation sent to ETEE-FS.

Reference: BMD-ARS-8873 / BMD-ARS-7276 / BMD-ARS-7267 / BMD-ARS-7269 / BMD-ARS-7272

[REQ-5410] The Training Components shall have the following modification states:

(1) modification required: still requires modification;
(2) modification in progress: waiting for modification to be completed;
(3) modification ready: modification completed.

Reference: BMD-ARS-7278

[REQ-5420] The TEM shall have a list control showing all the Training Components of the selected scenario with label, name, type, visibility (visible to TEM users only or to all users), activation state (not published/published/pending release/released) and modification state (required/in progress/ready). The TEM shall allow the user to reorder the Training Components in the list.

Reference: BMD-ARS-8873

[REQ-5430] The TEM shall allow the user to filter on Training Component type, visibility, activation state and modification state.

Reference: BMD-ARS-4654

[REQ-5440] The TEM shall allow the user to search by Training Component label and name.

Reference: BMD-ARS-4654

[REQ-5450] The TEM shall allow the user to make a selection of Training Components and turn the visibility for TOPFAS operators on or off.

Reference: BMD-ARS-8873

[REQ-5460] The TEM list control shall allow the user to make a selection of Training Components and publish the tokens to ETEE-FS in the order of the list control. This shall set the activation state of each Training Components in the scenario to ‘published’.

Reference: BMD-ARS-8873

[REQ-5470] The TEM shall be able to receive a notification from ETEE-FS to set the scenario state to active once the training or exercise starts. This shall set the activation state of each Training Components in the scenario with state ‘published’ to ‘pending release’.

Reference: BMD-ARS-8873

[REQ-5480] The TEM shall allow the user to manually set the scenario state to active once the training or exercise starts. This shall set the activation state of each Training Components in the scenario with state ‘published’ to ‘pending release’.

Reference: BMD-ARS-8873

[REQ-5490] The TEM shall allow the user to set the scenario state to inactive. This shall set the activation state of each Training Components in the scenario with state ‘pending release’ to ‘published’.

Reference: BMD-ARS-8873

[REQ-5500] The TEM list control shall allow the user to make a selection of Training Components and set the activation state to any value.

Reference: BMD-ARS-8873

[REQ-5510] The TEM list control shall allow the user to make a selection of Training Components and notify ETEE-FS that the selected Training Components need modification using the other TOPFAS applications including an estimated time of completion of the modification for each Training Component. This shall set the modification state of each selected Training Components to ‘modification required’.

Reference: BMD-ARS-7260

[REQ-5520] The TEM list control shall allow the user to make a selection of Training Components and notify ETEE-FS that the modification of the selected Training

Components is in progress. This shall set the modification state of each selected Training Components to ‘modification in progress’.

Reference: BMD-ARS-7260 / BMD-ARS-7278

[REQ-5530] The TEM list control shall allow the user to make a selection of Training Components and notify ETEE-FS that the modification of the selected Training Components has been completed and they can be activated in ETEE-FS again. This shall set the modification state of each selected Training Components to ‘modification ready’.

Reference: BMD-ARS-7260

[046(i)] A "Recorded message" is an operational message, data file, or document prepared during the preparation phase of a training or exercise event. Recorded messages can be considered "Training Components".

[REQ-5540] Recorded Messages shall replicate operational messages.

Reference: BMD-ARS-7255

[REQ-5550] The TEM shall have a service component that can be invoked by ETEE-FS to send activation messages containing the tokens for Training Components to be released.

Reference: BMD-ARS-7259 / BMD-ARS-7277 / BMD-ARS-8876

[REQ-5560] The user shall be able to configure TEM to either automatically process incoming activation messages from ETEE-FS or to use manually processing in the TEM client application.

Reference: BMD-ARS-8876

[REQ-5570] The TEM service shall process all incoming activation messages from ETEE-FS and set the associated Training Components activation state to ‘released’. This will either turn the visibility on to the training audience in TOPFAS or send the TC to the training audience in TOPFAS (e.g. email messages). Upon successful activation of each Training Component, a notification shall be send to ETEE-FS.

Reference: BMD-ARS-7259 / BMD-ARS-7267 / BMD-ARS-7269 / BMD-ARS-7270 / BMD-ARS-7272 / BMD-ARS-7310 / BMD-ARS-7311 / BMD-ARS-7277 / BMD-ARS-8876

[REQ-5580] The TEM list control shall allow the user to make a selection of Training Components and delete them from the scenario. If the deleted Training Components have been published to ETEE-FS, the TEM shall send revocation notifications to ETEE-FS to delete the Training Components.

Reference: BMD-ARS-7261 / BMD-ARS-7279

[REQ-5590] The TEM list control shall allow the user to make a selection of deleted Training Components and either permanently delete them from the scenario or set the status back to ‘not published’.

Reference: BMD-ARS-7261 / BMD-ARS-7279

[REQ-5600] The user shall be able to export/import TOPFAS DMT business object specifications (e.g. ExtendedAttribute / ExtendedAttributeGroup) and domain values to facilitate Training Component exchange between TOPFAS databases.

Reference: BMD-ARS-7307

[REQ-5610] The user shall be able to export/import Training Component between TOPFAS databases.

Reference: BMD-ARS-7307

[REQ-5620] The TEM shall log the following events (scenario, timestamp, TC type, token identifier, source system, target system):

(1) Training Component added to scenario
(2) Training Component removed from scenario
(3) Training Component ownership changed to/from users and/or groups with the TEM Admin role
(4) Training Component published to ETEE-FS
(5) Notification of modification required of Training Component sent to ETEE-FS
(6) Notification of modification in progress of Training Component sent to ETEE-FS
(7) Notification of modification completion of Training Component sent to ETEE-FS
(8) Incoming activation token received from ETEE-FS
(9) Pending activation processed
(10) Training Component revocation sent to ETEE-FS

Reference: BMD-ARS-7286 / BMD-ARS-7287

[REQ-5630] The TEM shall have a log viewer that displays all log messages belonging to a scenario.

Reference: BMD-ARS-7286 / BMD-ARS-7287

[REQ-5640] The log viewer shall allow sorting and filtering on different properties of the log entries.

Reference: BMD-ARS-4654

[REQ-5650] The TEM shall allow the operator to make a selection of logs and send them to ETEE-FS.

Reference: BMD-ARS-7288

[REQ-5660] TOPFAS shall mark displays with a "Training" or "Exercise" caveat when the user is logged into a training or exercise session.

Reference: BMD-ARS-8883

[REQ-5670] TOPFAS shall mark any data produced whilst the user is logged into a training session with a "Training" or "Exercise" caveat in the data object meta-data.

Reference: BMD-ARS-7305

[REQ-5680] TOPFAS shall be able to load fictitious geo-spatial data sets.

Reference: BMD-ARS-1634

[REQ-5690] TOPFAS shall be able to load fictitious nation data sets.

Reference: BMD-ARS-1743

[REQ-5700] TOPFAS shall be able to load received Training Components.

Reference: BMD-ARS-7314

[REQ-5710] The TEM shall allow a user to time-shift DEs of training/exercise packages automatically, e.g. shift all dates with 1 year, so the database content and documents stay current and not use fixed dates that will go more-and-more out of date as time passes.

Reference: BMD-ARS-398 / BMD-ARS-399 / BMD-ARS-403 / BMD-ARS-400 / BMD-ARS-401 / BMD-ARS-1637 / BMD-ARS-1638 / BMD-ARS-402 / BMD-ARS-8873

[REQ-5720] TOPFAS shall be able to initialize with fictitious state actors/non-state actors/ORBATs/defence designs/assets/threat systems/OPFOR COAs/security markings.

Reference: BMD-ARS-398 / BMD-ARS-399 / BMD-ARS-403 / BMD-ARS-400 / BMD-ARS-401 / BMD-ARS-1637 / BMD-ARS-1638 / BMD-ARS-402

[REQ-5730] TOPFAS shall be able to process Intelligence Information Entities that include fictitious state and non-state actors.

Reference: BMD-ARS-4321

[REQ-5740] TOPFAS shall be able to process Intelligence Information Entities that include fictitious weapon and sensor systems.

Reference: BMD-ARS-4322

[REQ-5750] TOPFAS shall be able to process Intelligence Information Entities that include fictitious security markings.

Reference: BMD-ARS-4323

[REQ-5760] TOPFAS shall be able to process fictitious Opposing Forces Ballistic Missile Order of Battle (OPFOR BM ORBAT).

Reference: BMD-ARS-4324

[REQ-5770] TOPFAS shall be able to process fictitious Opposing Forces Ballistic Missile Order of Battle (OPFOR BM ORBAT) as an information product.
Reference: BMD-ARS-5384

[REQ-5780] TOPFAS shall have capacity for >= 4000 Recorded Messages.
Reference: BMD-ARS-7265

[REQ-5790] TOPFAS shall process Recorded Message commands within <= 1 seconds from the user initiating a command.
Reference: BMD-ARS-7266

[REQ-5800] TOPFAS shall have capacity for >= 5 Training Components.
Reference: BMD-ARS-7285

[REQ-5810] TOPFAS shall send Recorded Messages within <= 1 second from execution of the send command.
Reference: BMD-ARS-7273

[REQ-5820] TOPFAS shall have capacity for >= 1,000,000 recorded messages.
Reference: BMD-ARS-7289

[REQ-5830] TOPFAS shall transmit the recorded message logs to ETEE-FS within <= 1 second after the send command.
Reference: BMD-ARS-7290

[REQ-5840] TOPFAS shall support >= 5 sessions to run concurrently.
Reference: BMD-ARS-7296

[REQ-5850] Reserved
Reference:

[REQ-5860] TOPFAS shall initialise with fictitious geo-spatial data in <= 15 minutes on execution of the initialise command.
Reference: BMD-ARS-1636

[REQ-5870] TOPFAS shall initialise with fictitious nations data in <= 15 minutes on execution of the initialise command.
Reference: BMD-ARS-1746

[REQ-5880] TOPFAS shall load received TCs within <= 15 seconds of receipt of data.
Reference: BMD-ARS-7316

[REQ-5890] TOPFAS shall initialise with fictitious components in <= 15 minutes for execution of initialise command.
Reference: BMD-ARS-404

[REQ-5900] TOPFAS shall send selected Training Components to the Training Audience within <= 1 second from execution of send command.

Reference: BMD-ARS-7312

2.12 Data Exchange

[REQ-5901] TOPFAS shall be able to import both APP-6D and APP-6A/B/C data. The latter shall be mapped to APP-6D and the original APP-6A/B/C value shall be maintained so that during export, the original value can be included in the output again. This will prevent data loss when repeatedly exchanging data back and forth with systems that do not support version APP-6D yet.

Reference: BMD-ARS-4655 / BMD-ARS-8710 / BMD-ARS-8711 / BMD-ARS-8713 / BMD-ARS-8717 / BMD-ARS-6515 / BMD-ARS-6516 / BMD-ARS-8298 / BMD-ARS-7704 / BMD-ARS-7631

2.12.1 Use of FASInterop schema for XML data exchange

[REQ-5910] Any requirement related to XML data exchange based on the FASInterop schema shall use the latest FASInterop schema.

Reference: BMD-ARS-4655 / BMD-ARS-7142 / BMD-ARS-7128 / BMD-ARS-7109 / BMD-ARS-7127 / BMD-ARS-8822 / BMD-ARS-8710 / BMD-ARS-8711 / BMD-ARS-8713 / BMD-ARS-8717

[REQ-5920] Any requirement related to data exchange with XML using the latest FASInterop schema shall be implemented in TOPFAS Desktop and TOPFAS Online where applicable, in order to maintain interoperability.

Reference: TOPFAS

2.12.2 Sharing data

2.12.2.1 Share via e-mail / SFTP / TOPFAS Collaboration Apps

[047] For sharing information, TOPFAS shall be able to save data products to a file. Structured data shall be exported in XML, non-structured data in suitable Microsoft Office formats.

[048] For sharing information, TOPFAS shall be able to generate links to data products that can either point to the TOPFAS Collaboration Apps or to registered TOPFAS Desktop applications.

[REQ-5930] TOPFAS shall be able to:
- Save the Additional Defence Resource Response to a file in suitable Microsoft Office formats so the user can:
  (1) attach it to an e-mail in a standard e-mail client;
  (2) send it via a standard SFTP client;
  (3) upload it to TOPFAS Collaboration Apps.
- Generate a link to the Additional Defence Resource Response so the user can:

(1) insert it into an e-mail in a standard e-mail client;
(2) publish the link on TOPFAS Collaboration Apps.

Reference: BMD-ARS-7122

[REQ-5940] TOPFAS shall be able to:
- Save the Allied Disposition List to a file in XML format so the user can:
(1) attach it to an e-mail in a standard e-mail client;
(2) send it via a standard SFTP client;
(3) upload it to TOPFAS Collaboration Apps.
- Generate a link to the Allied Disposition List so the user can:
(1) insert it into an e-mail in a standard e-mail client;
(2) publish the link on TOPFAS Collaboration Apps.

Reference: BMD-ARS-7127

[REQ-5950] TOPFAS shall be able to:
- Save the Allied Force List to a file in XML format so the user can:
(1) attach it to an e-mail in a standard e-mail client;
(2) send it via a standard SFTP client;
(3) upload it to TOPFAS Collaboration Apps.
- Generate a link to the Allied Force List so the user can:
(1) insert it into an e-mail in a standard e-mail client;
(2) publish the link on TOPFAS Collaboration Apps.

Reference: BMD-ARS-7128

[REQ-5960] TOPFAS shall be able to:
- Save the BMD force requirement per COA to a file in suitable Microsoft Office formats so the user can:
(1) attach it to an e-mail in a standard e-mail client;
(2) send it via a standard SFTP client;
(3) upload it to TOPFAS Collaboration Apps.
- Generate a link to the BMD force requirement per COA so the user can:
(1) insert it into an e-mail in a standard e-mail client;
(2) publish the link on TOPFAS Collaboration Apps.

Reference: BMD-ARS-7129

[REQ-5970] TOPFAS shall be able to:
- Save the Crisis Response Measures to a file in suitable Microsoft Office formats so the user can:
(1) attach it to an e-mail in a standard e-mail client;
(2) send it via a standard SFTP client;
(3) upload it to TOPFAS Collaboration Apps.
- Generate a link to the Crisis Response Measures so the user can:
(1) insert it into an e-mail in a standard e-mail client;
(2) publish the link on TOPFAS Collaboration Apps.

Reference: BMD-ARS-8837

[REQ-5980] TOPFAS shall be able to:
- Save the Friendly Order of Battle to a file in XML and Excel formats so the user can:
  (1) attach it to an e-mail in a standard e-mail client;
  (2) send it via a standard SFTP client;
  (3) upload it to TOPFAS Collaboration Apps.
- Generate a link to the Friendly Order of Battle so the user can:
  (1) insert it into an e-mail in a standard e-mail client;
  (2) publish the link on TOPFAS Collaboration Apps.

Reference: BMD-ARS-8298

[REQ-5990] TOPFAS shall be able to:
- Save the Military Response Options to a file in suitable Microsoft Office formats so the user can:
  (1) attach it to an e-mail in a standard e-mail client;
  (2) send it via a standard SFTP client;
  (3) upload it to TOPFAS Collaboration Apps.
- Generate a link to the Military Response Options so the user can:
  (1) insert it into an e-mail in a standard e-mail client;
  (2) publish the link on TOPFAS Collaboration Apps.

Reference: BMD-ARS-8307

[REQ-6000] TOPFAS shall be able to:
- Save the Operation Plan to a file in suitable Microsoft Office formats so the user can:
  (1) attach it to an e-mail in a standard e-mail client;
  (2) send it via a standard SFTP client;
  (3) upload it to TOPFAS Collaboration Apps.
- Generate a link to the Operation Plan so the user can:
  (1) insert it into an e-mail in a standard e-mail client;
  (2) publish the link on TOPFAS Collaboration Apps.

Reference: BMD-ARS-8836

[REQ-6010] TOPFAS shall be able to:
- Save the Operational CONOPS to a file in suitable Microsoft Office formats so the user can:
  (1) attach it to an e-mail in a standard e-mail client;
  (2) send it via a standard SFTP client;
  (3) upload it to TOPFAS Collaboration Apps.
- Generate a link to the Operational CONOPS so the user can:
  (1) insert it into an e-mail in a standard e-mail client;
  (2) publish the link on TOPFAS Collaboration Apps.

Reference: BMD-ARS-7131

[REQ-6020] TOPFAS shall be able to:
- Save the Prioritised Defended Asset List to a file in XML format so the user can:
  (1) attach it to an e-mail in a standard e-mail client;

(2) send it via a standard SFTP client;
(3) upload it to TOPFAS Collaboration Apps.
- Generate a link to the Prioritised Defended Asset List so the user can:
(1) insert it into an e-mail in a standard e-mail client;
(2) publish the link on TOPFAS Collaboration Apps.

Reference: BMD-ARS-7138

[REQ-6030] TOPFAS shall be able to:
- Save a Recorded Message Template to a file in XML format so the user can:
(1) attach it to an e-mail in a standard e-mail client;
(2) send it via a standard SFTP client;
(3) upload it to TOPFAS Collaboration Apps.
- Generate a link to a Recorded Message Template so the user can:
(1) insert it into an e-mail in a standard e-mail client;
(2) publish the link on TOPFAS Collaboration Apps.

Reference: BMD-ARS-2039

[REQ-6040] TOPFAS shall be able to:
- Save the SACEUR's Strategic Assessment to a file in suitable Microsoft Office formats so the user can:
(1) attach it to an e-mail in a standard e-mail client;
(2) send it via a standard SFTP client;
(3) upload it to TOPFAS Collaboration Apps.
- Generate a link to the SACEUR's Strategic Assessment so the user can:
(1) insert it into an e-mail in a standard e-mail client;
(2) publish the link on TOPFAS Collaboration Apps.

Reference: BMD-ARS-8835

[REQ-6050] TOPFAS shall be able to:
- Save the Statement of Required Force / Capabilities Requirement to a file in XML format so the user can:
(1) attach it to an e-mail in a standard e-mail client;
(2) send it via a standard SFTP client;
(3) upload it to TOPFAS Collaboration Apps.
- Generate a link to the Statement of Required Force / Capabilities Requirement so the user can:
(1) insert it into an e-mail in a standard e-mail client;
(2) publish the link on TOPFAS Collaboration Apps.

Reference: BMD-ARS-7142

[REQ-6060] TOPFAS shall be able to:
- Save the Strategic CONOPS to a file in suitable Microsoft Office formats so the user can:
(1) attach it to an e-mail in a standard e-mail client;
(2) send it via a standard SFTP client;
(3) upload it to TOPFAS Collaboration Apps.
- Generate a link to the Strategic CONOPS so the user can:

(1) insert it into an e-mail in a standard e-mail client;
(2) publish the link on TOPFAS Collaboration Apps.

Reference: BMD-ARS-8838

[REQ-6070] TOPFAS shall be able to:
- Save the Strategic Planning Directive to a file in suitable Microsoft Office formats so the user can:
(1) attach it to an e-mail in a standard e-mail client;
(2) send it via a standard SFTP client;
(3) upload it to TOPFAS Collaboration Apps.
- Generate a link to the Strategic Planning Directive so the user can:
(1) insert it into an e-mail in a standard e-mail client;
(2) publish the link on TOPFAS Collaboration Apps.

Reference: BMD-ARS-8308

2.12.2.2 Share via services

[049] TOPFAS shall provide RESTful based services to enable data exchange with other systems.

[050] Reserved.

[REQ-6080] TOPFAS shall provide a service to access the Allied Disposition List. The service shall be implemented as Rest services (see section 2.1.3).

Reference: BMD-ARS-7127

[REQ-6090] TOPFAS shall provide a service to access the Allied Force List. The service shall be implemented as Rest services (see section 2.1.3).

Reference: BMD-ARS-7128

[REQ-6100] TOPFAS shall provide a service to access the BMD force requirement per COA. The service shall be implemented as Rest services (see section 2.1.3).

Reference: BMD-ARS-7129

[REQ-6110] TOPFAS shall provide a service to access the Friendly Order of Battle including C2 relationships by phase. The service shall be implemented as Rest services (see section 2.1.3).

Reference: BMD-ARS-8298

[REQ-6120] TOPFAS shall provide a service to access the Prioritised Defended Asset List. The service shall be implemented as Rest services (see section 2.1.3).

Reference: BMD-ARS-7138

[REQ-6130] TOPFAS shall provide a service to access the Recorded Message Template. The service shall be implemented as Rest services (see section 2.1.3).

Reference: BMD-ARS-2039

[REQ-6140] TOPFAS shall provide a service to access the Statement of Required Force / Capabilities Requirement and their baselines from OPT. The service shall be implemented as Rest services (see section 2.1.3).

Reference: BMD-ARS-7142

[REQ-6150] TOPFAS shall provide a CJSOR/AFL service that exposes CJSORs and AFLs and their baselines from EFGMT.

Reference: BMD-ARS-8008 / BMD-ARS-8009 / BMD-ARS-8030 / BMD-ARS-8028 / BMD-ARS-8026 / BMD-ARS-8042 / BMD-ARS-8043 / BMD-ARS-8041 / BMD-ARS-8040 / BMD-ARS-8037 / BMD-ARS-8820 / BMD-ARS-8114

2.12.3 Consuming data

2.12.3.1 Consume via e-mail / SFTP / TOPFAS Collaboration Apps

[051] For consuming information, TOPFAS shall be able to consume data products provided as a file by either creating an attachment (for non-structured data in Microsoft Office and PDF formats) to a planning object or importing into a plan (for structured data in XML format).

[052] For consuming information, TOPFAS shall be able to attach links to TOPFAS Collaboration Apps to a planning object.

[REQ-6160] TOPFAS shall be able to import the Allied Disposition List from a file in XML format into a plan.

Reference: BMD-ARS-7109 / BMD-ARS-8311

[REQ-6170] TOPFAS shall be able to:
- Import Background Information from a file in Microsoft Office or PDF format and attach it to a planning object;
- Add a hyperlink to Background Information in TOPFAS Collaboration Apps to a planning object.

Reference: BMD-ARS-1924 / BMD-ARS-7634

[REQ-6180] TOPFAS shall be able to:
- Import BMD force requirements per COA from a file in Microsoft Office or PDF format and attach it to a planning object;
- Add a hyperlink to BMD force requirements per COA in TOPFAS Collaboration Apps to a planning object.

Reference: BMD-ARS-8290 / BMD-ARS-8330

[REQ-6190] TOPFAS shall be able to:
- Import a Decision Sheet from a file in Microsoft Office or PDF format and attach it to a planning object;
- Add a hyperlink to a Decision Sheet in TOPFAS Collaboration Apps to a planning object.

Reference: BMD-ARS-8831 / BMD-ARS-8832

[REQ-6200] TOPFAS shall be able to:
- Import an Exercise Specification from a file in Microsoft Office or PDF format and attach it to a planning object;
- Add a hyperlink to an Exercise Specification in TOPFAS Collaboration Apps to a planning object.

Reference: BMD-ARS-2837 / BMD-ARS-7909

[REQ-6210] TOPFAS shall be able to:
- Import a Force Activation Directive from a file in Microsoft Office or PDF format and attach it to a planning object;
- Add a hyperlink to a Force Activation Directive in TOPFAS Collaboration Apps to a planning object.

Reference: BMD-ARS-7112 / BMD-ARS-8339

[REQ-6220] TOPFAS shall be able to:
- Import a Force Planning Ceiling from a file in Microsoft Office or PDF format and attach it to a planning object;
- Add a hyperlink to a Force Planning Ceiling in TOPFAS Collaboration Apps to a planning object.

Reference: BMD-ARS-7113 / BMD-ARS-8340

[REQ-6230] TOPFAS shall be able to:
- Import Military Response Options from a file in Microsoft Office or PDF format and attach it to a planning object;
- Add a hyperlink to Military Response Options in TOPFAS Collaboration Apps to a planning object.

Reference: BMD-ARS-7114 / BMD-ARS-8349

[REQ-6240] TOPFAS shall be able to:
- Import the NAC Execution Directive from a file in Microsoft Office or PDF format and attach it to a planning object;
- Add a hyperlink to the NAC Execution Directive in the Collaboration Space.

Reference: BMD-ARS-8825 / BMD-ARS-8826

[REQ-6250] TOPFAS shall be able to:
- Import the NAC Initiating Directive from a file in Microsoft Office or PDF format and attach it to a planning object;
- Add a hyperlink to the NAC Initiating Directive in TOPFAS Collaboration Apps to a planning object.

Reference: BMD-ARS-8823 / BMD-ARS-8824

[REQ-6260] TOPFAS shall be able to:
- Import National Caveats from a file in Microsoft Office or PDF format and attach it to a planning object;
- Add a hyperlink to National Caveats in TOPFAS Collaboration Apps to a planning object.

Reference: BMD-ARS-7115 / BMD-ARS-8350

[REQ-6270] TOPFAS shall be able to:
- Import the Operational CONOPS from a file in Microsoft Office or PDF format and attach it to a planning object;
- Add a hyperlink to the Operational CONOPS in TOPFAS Collaboration Apps to a planning object.

Reference: BMD-ARS-7116 / BMD-ARS-8354

[REQ-6280] TOPFAS shall be able to import the Recorded Message Trigger from a file in XML format into the TEM.

Reference: BMD-ARS-1929 / BMD-ARS-7920

[REQ-6290] TOPFAS shall be able to:
- Import the Request for additional defence resources from a file in Microsoft Office or PDF format and attach it to a planning object;
- Add a hyperlink to the Request for additional defence resources in TOPFAS Collaboration Apps to a planning object.

Reference: BMD-ARS-7119 / BMD-ARS-8359

[REQ-6300] TOPFAS shall be able to:
- Import the Strategic CONOPS from a file in Microsoft Office or PDF format and attach it to a planning object;
- Add a hyperlink to the Strategic CONOPS in TOPFAS Collaboration Apps to a planning object.

Reference: BMD-ARS-7120 / BMD-ARS-8365

[REQ-6310] TOPFAS shall be able to:
- Import the Strategic Planning Directive from a file in Microsoft Office or PDF format and attach it to a planning object;
- Add a hyperlink to the Strategic Planning Directive in TOPFAS Collaboration Apps to a planning object.

Reference: BMD-ARS-7121 / BMD-ARS-8366

[REQ-6320] TOPFAS shall be able to:
- Import the Strategic Situation from a file in Microsoft Office or PDF format and attach it to a planning object;
- Add a hyperlink to the Strategic Situation in TOPFAS Collaboration Apps to a planning object.

Reference: BMD-ARS-2852 / BMD-ARS-7632

2.12.3.2 Consume via Services

[053] TOPFAS shall be able to exchange data with other systems using RESTful based services. Additional SOAP services will only be implemented if required.

[054] For source systems that do not exist / are not accessible at time of development, the Contractor shall develop and use stubs to allow testing of requirements.

[REQ-6330] TOPFAS shall be able to consume the Allied Disposition List service and import the data into a plan.

Reference: BMD-ARS-7109 / BMD-ARS-8311

[REQ-6340] TOPFAS shall be able to consume the Areas at Risk service and import the data into a plan.

Reference: BMD-ARS-8169 / BMD-ARS-8328

[REQ-6350] TOPFAS shall be able to consume the Areas at Risk with CBRN annotations service and import the data into a plan.

Reference: BMD-ARS-7642 / BMD-ARS-7643

[REQ-6360] TOPFAS shall be able to consume BMD force requirements per COA service and import the data into a plan.

Reference: BMD-ARS-8290 / BMD-ARS-8330

[054(i)] The difference between Defence Design (BC) and Defence Design (BMD) can be characterized by the definitions of the 2 corresponding System Data Element (SDE) descriptions from the BMD ADD.

Defence Design (BC): The set/collection of tasks that have been assigned to the units (sensors and weapon systems). In Baseline Capability TBMD/BMD, a task is defined as a triplet which consists of the unit providing defence, the asset being defended, and the threat being defended against. Units can be assigned multiple tasks.

Defence Design (BMD): Includes one or more Pre Planned Response/s (PPRs). In BMD a task consists of a triplet, participation in LOR [Launch on Remote] (whether an engagement will be supported by LOR), and participation in Peer-to-Peer engagement coordination (what other systems the resources should be coordinating with for the engagement).

The BMD Architecture introduces primary/assigned and secondary/cover tasking. Primary/assigned task is defined as the task the resource should execute as specified in the PPR (i.e. assigned). Secondary/cover task is defined as the task the resource should be prepared to execute as specified in the PPR (i.e. cover).

The BMD architecture Defence Design (DD) can contain the assignment of multiple alternative sets of tasks to units in a single DD. Each unique set of alternative tasks in a DD is referred to as PPR. PPRs define the potential changes to the UL sensor and weapon system tasks in a DD that may be triggered by specific events.

AirC2IS is planned to provide both SDEs.

[REQ-6370] TOPFAS shall be able to consume the Defence Design (BC) service and import the data into a plan.

Reference: BMD-ARS-6457 / BMD-ARS-8248

[REQ-6380] TOPFAS shall be able to consume the Defence Design (BMD) service and import the data into a plan.

Reference: BMD-ARS-2064 / BMD-ARS-7947

[REQ-6390] TOPFAS shall be able to consume the Friendly ORBAT service and import the data into TOPFAS.

Reference: TOPFAS

[REQ-6400] TOPFAS shall be able to consume Geospatial Information service and display it in TOPFAS.

Reference: BMD-ARS-7830 / BMD-ARS-7831

[REQ-6410] TOPFAS shall be able to consume Geospatial Information (Exercise) service and display it in TOPFAS.

Reference: BMD-ARS-7829 / BMD-ARS-7635

[REQ-6420] TOPFAS shall be able to consume the Intelligence Report service and import the data into a plan.

Reference: BMD-ARS-7396 / BMD-ARS-7951

[REQ-6430] TOPFAS shall be able to consume the Mission Scheduling Information service and import the data into a plan.

Reference: BMD-ARS-8833 / BMD-ARS-8834

[REQ-6440] TOPFAS shall be able to consume the NATO Common Operational Picture service and display it in TOPFAS.

Reference: BMD-ARS-3572 / BMD-ARS-4953

[REQ-6450] TOPFAS shall be able to consume the OPFOR Ballistic Missile COA service and import the data into a plan.

Reference: BMD-ARS-4769 / BMD-ARS-7630

[REQ-6460] TOPFAS shall be able to consume the OPFOR Ballistic Missile ORBAT service and import the data into a plan.

Reference: BMD-ARS-7704 / BMD-ARS-7631

[REQ-6470] TOPFAS shall be able to consume the OPFOR TBM COA service and import the data into a plan.

Reference: BMD-ARS-8280 / BMD-ARS-8281

[REQ-6480] TOPFAS shall be able to consume the Prioritised Defended Asset List service and import the data into a plan.

Reference: BMD-ARS-2857 / BMD-ARS-8268

[REQ-6490] TOPFAS shall be able to consume the Recorded Message Trigger service and import the data into the TEM.

Reference: BMD-ARS-1929 / BMD-ARS-7920

[REQ-6500] TOPFAS shall be able to consume the Request for additional defence resources service and import the data into a plan.

Reference: BMD-ARS-7119 / BMD-ARS-8359

2.13 Documentation & Training

2.13.1 Documentation

[REQ-6510] The TOPFAS Help Centre shall implement the help information as Markdown documents.

Reference: BMD-ARS-4665 / BMD-ARS-4667

[REQ-6520] The online help shall include a full text and topic search function.

Reference: BMD-ARS-4665

[REQ-6530] From the help source material, it shall be possible to generate a user manual in PDF format. The content shall be integrated with the TOPFAS Help Centre.

Reference: BMD-ARS-4665 / BMD-ARS-4667 / BMD-ARS-5339

2.13.2 Training

[REQ-6540] The TOPFAS training packages and instruction videos shall be integrated within the TOPFAS Help Centre.

Reference: BMD-ARS-5338 / BMD-ARS-5340 / BMD-ARS-5341 / BMD-ARS-5342 / BMD-ARS-5343

[REQ-6550] TOPFAS shall be provided with a set of in-application workflows that guide the users through the applications with step-by-step instructions for the completion of common tasks.

Reference: BMD-ARS-5338 / BMD-ARS-5340 / BMD-ARS-5341 / BMD-ARS-5342 / BMD-ARS-5343

[REQ-6560] TOPFASS shall provide simulation tutorials to guide users through the steps and screens to achieve the outcomes of the COPD Phase 1 flows defined in the Architecture Definition Document (ADD) using the capability from [REQ-6570].

Reference: BMD-ARS-5338

[REQ-6570] TOPFASS shall provide simulation tutorials to guide users through the steps and screens to achieve the outcomes of the COPD Phase 2 flows defined in the Architecture Definition Document (ADD) using the capability from [REQ-6570].

Reference: BMD-ARS-5340

[REQ-6580] TOPFASS shall provide simulation tutorials to guide users through the steps and screens to achieve the outcomes of the COPD Phase 3 flows defined in

the Architecture Definition Document (ADD) using the capability from [REQ-6570].

Reference: BMD-ARS-5341

[REQ-6590] TOPFASS shall provide simulation tutorials to guide users through the steps and screens to achieve the outcomes of the COPD Phase 4 flows defined in the Architecture Definition Document (ADD) using the capability f from [REQ-6570].

Reference: BMD-ARS-5342

[REQ-6600] TOPFASS shall provide simulation tutorials to guide users through the steps and screens to achieve the outcomes of the COPD Phase 5 flows defined in the Architecture Definition Document (ADD) using the capability from [REQ-6570].

Reference: BMD-ARS-5343

3 Non-functional Requirements

[055] Non-Functional Requirements (NFR) quality requirements is defined in accordance with ISO-25010 standard, and definitions in this chapter are based on ISO/IEC 25010:2011(E) - System and software quality models.

[056] TOPFAS shall comply with the NFRs. In general all NFRs are relevant for all applications and modules delivered.

3.1 Transverse Non-Functional Requirements

[REQ-6610] TOPFAS shall be self-sustaining for a 30-day period when deployed into an out-of-area operation.

Reference: BMD-ARS-7150

[REQ-6620] TOPFAS shall comply with STANAG 5067 Standard for interconnection of IPV4 Networks at Mission Secret and Unclassified Security Levels, Edition 1.

Reference: BMD-ARS-4744

[REQ-6630] TOPFAS shall comply with STANAG 5500 Concept Of NATO Message Text Formatting System (CONFORMETS), Edition 7 - ADatP-3 Baseline 11.0 [STANAG-5500].

Reference: BMD-ARS-4748

[REQ-6640] TOPFAS shall comply with STANAG 7149 NATO Message Catalogue, Edition 6 - APP-11 Edition D [APP-11].

Reference: BMD-ARS-4910

[REQ-6650] TOPFAS shall comply with STANAG 5500 Concept Of NATO Message Text Formatting System (CONFORMETS), Edition 7 - ADatP-3 Baseline 11.0.

Reference: BMD-ARS-7151

[REQ-6660] TOPFAS shall comply with NATO guidelines to ensure adequate margin for scalability and growth within the framework of life-cycle cost analysis and control.

Reference: BMD-ARS-1685

[REQ-6670] TOPFAS shall comply with the NATO Network Enabled Capability concept for new developments of BMC3I systems.

Reference: BMD-ARS-7147

[REQ-6680] TOPFAS shall comply with NATO policy, doctrine and concepts.

Reference: BMD-ARS-7149

[REQ-6690] TOPFAS shall employ the World Geodetic System-84 as defined in NIMA TR8350.2, Third Edition, Amendment 1, dated 3 January 2000 [NIMA-TR8350.2].

Reference: BMD-ARS-4909

[REQ-6700] TOPFAS shall support an in-service life of 30 years by combination of design for non-obsolescence and technology insertion.

Reference: BMD-ARS-3579

[REQ-6710] TOPFAS shall not have to reinitialise when operational systems leave or join the Architecture.

Reference: BMD-ARS-3582

3.2 Architectural Non-Functional Requirements

[REQ-6720] TOPFAS shall be able to achieve planning function availability in operational sites' local area network (LAN), static and deployed, 24 hours a day, seven days a week, with an availability rate of 99.5%. Measurements of availability shall not include failures resulting from factors determined to be external to the capability (e.g., loss of domain controller, loss of servers or loss of network connectivity).

Reference: BMD-ARS-1699

[REQ-6730] TOPFAS shall be able to achieve planning function loss of availability frequency of <= once per week.

Reference: BMD-ARS-1700

[REQ-6740] TOPFAS shall be able to achieve consultancy function availability in operational sites' local area network (LAN), static and deployed, 24 hours a day, seven days a week, with an availability rate of 99.5%. Measurements of availability shall not include failures resulting from factors determined to be external to the capability (e.g., loss of domain controller, loss of servers or loss of network connectivity).

Reference: BMD-ARS-1703

[REQ-6750] TOPFAS shall be able to achieve consultancy function loss of availability frequency of <= once per week.

Reference: BMD-ARS-1704

[REQ-6760] TOPFAS shall achieve intelligence function availability in operational sites' local area network (LAN), static and deployed, 24 hours a day, seven days a week, with an availability rate of 99.5%. Measurements of availability shall not include failures resulting from factors determined to be external to the capability (e.g., loss of domain controller, loss of servers or loss of network connectivity).

Reference: BMD-ARS-1705

[REQ-6770] TOPFAS shall achieve intelligence function loss of availability frequency of <= once per week.

Reference: BMD-ARS-1706

[REQ-6780] TOPFAS shall be able to achieve passive defence function availability in operational sites' local area network (LAN), static and deployed, 24 hours a

day, seven days a week, with an availability rate of 99.5%. Measurements of availability shall not include failures resulting from factors determined to be external to the capability (e.g., loss of domain controller, loss of servers or loss of network connectivity).

Reference: BMD-ARS-1707

[REQ-6790] TOPFAS shall be able to achieve passive defence function loss of availability frequency of <= once per week.

Reference: BMD-ARS-1708

[REQ-6800] TOPFAS shall be able to achieve education, training, exercises and evaluation function availability in operational sites' local area network (LAN), static and deployed, 24 hours a day, seven days a week, with an availability rate of 99.5%. Measurements of availability shall not include failures resulting from factors determined to be external to the capability (e.g., loss of domain controller, loss of servers or loss of network connectivity).

Reference: BMD-ARS-1711

[REQ-6810] TOPFAS shall be able to achieve education, training, exercises and evaluation function loss of availability frequency of <= once per week.

Reference: BMD-ARS-1712

[REQ-6820] Common environmental definitions must be the basis for all assets and areas that constitute PC(A)AL, RJPD(A)AL, JPD(A)AL and associated tasks.

Reference: BMD-ARS-1717

3.3 Functional Suitability

[057] ISO 25010: This characteristic represents the degree to which a product or system provides functions that meet stated and implied needs when used under specified conditions.

3.3.1 Functional completeness

[058] ISO 25010: Degree to which the set of functions covers all the specified tasks and user objectives.

[REQ-6830] All requirements that have been included in the SRS are implemented (functional implementation completeness).

Reference: TOPFAS

[REQ-6840] All requirements that have been implemented have undergone a test process (functional test completeness).

Reference: TOPFAS

3.3.2 Functional correctness

[059] ISO 25010: Degree to which a product or system provides the correct results with the needed degree of precision.

[REQ-6850] TOPFAS shall provide accuracy of location better than 1 meter (i.e., sub-meter accuracy) for translation of values (UTM, Latitude/Longitudes, others).

Reference: TOPFAS

[REQ-6860] TOPFAS shall provide accuracy of timing (e.g. for timestamps) to one second or better for the timestamps for auditing purposes. Note: The precision of the timestamps shall be the one provided by the operating system.

Reference: TOPFAS

3.3.3 Functional appropriateness

[060] ISO 25010: Degree to which the functions facilitate the accomplishment of specified tasks and objectives.

[REQ-6870] TOPFAS shall fulfil all usage objectives (functional adequacy).

Reference: TOPFAS

[REQ-6880] TOPFAS shall support printing of generated information products, documents and reports through the standard operating system printing functionality.

Reference: TOPFAS

[REQ-6890] TOPFAS shall ensure consistency of all data displayed on all open views within the same application framework.

Reference: TOPFAS

[REQ-6900] TOPFAS shall ensure consistency throughout its interface and generated products.

Reference: TOPFAS

3.3.4 Compliance

[REQ-6910] Output generated in Microsoft Office shall be compliant with: Office Open XML, ISO/IEC 29500:2008.

Reference: TOPFAS

[REQ-6920] Output generated in PDF-Format shall be compliant with: PDF-Format 1.4 ed.1 (PDF/A-1, ISO 19005-1:2005).

Reference: TOPFAS

[REQ-6930] TOPFAS shall use and store data internally as Zulu time (i.e. GMT) as standard time and allow the user to choose an additional time zone for display purposes.

Reference: TOPFAS

3.4 Performance Requirements

[061] ISO 25010: This characteristic represents the performance relative to the amount of resources used under stated conditions.

3.4.1 Time Behaviour

[062] ISO 25010: Degree to which the response and processing times and throughput rates of a product or system, when performing its functions, meet requirements.

[REQ-6940] The time from restarting all servers until all services are restored and fully operational again shall be less than 5 minutes for at least 99.5% of the Operational Time

Reference: TOPFAS

[REQ-6950] TOPFAS's user functionality shall be available, within ten seconds after launching each application.

Reference: TOPFAS

[REQ-6960] The loading of any view, dialog or web part or view shall not take more than five seconds on average, with 90% of views loading in less than 2 seconds under normal usage and load conditions.

Reference: TOPFAS

[REQ-6970] The web applications shall score good ("Green") on all 6 criteria (First Contentful Paint, Speed Index, Largest Contentful Paint, Total Blocking Time, Time to Interactive and Cumulative Layout Shift) of the Google Lighthouse (V6 or newer) performance scoring tool as available in Chromium browsers.

Reference: TOPFAS

[REQ-6980] TOPFAS's performance shall be optimised for used on the NATO operational networks. This includes but is not limited to:
- aggressive caching of resources
- maximised usage according to best practices of minification, bundling and compression of all application assets
- usage of web sockets when appropriate
- lazy loading and rendering
- etc.

Reference: TOPFAS

3.4.2 Resource Utilization

[063] ISO 25010: Degree to which the amounts and types of resources used by a product or system, when performing its functions, meet requirements.

[REQ-6990] TOPFAS shall not suffer from any memory leaks. This also includes managing the memory efficiently (e.g. caching strategy) making sure that the memory pressure never goes beyond a set threshold (to be defined during design phase).

Reference: TOPFAS

3.4.3 Capacity

[064] ISO 25010: Degree to which the maximum limits of a product or system parameter meet requirements.

[REQ-7000] TOPFAS shall support concurrent use of up to 50 editors and 200 readers on a single site/database, without noticeable performance impact or degradation in response times.

Reference: TOPFAS

[REQ-7010] TOPFAS's database shall be dimensioned to support all the relevant data based on current estimates of numbers and sizes of data elements, and provide a 50% of additional space a year for five years.

Reference: TOPFAS

3.5 Compatibility

[065] ISO 25010: Compatibility. Degree to which a product, system or component can exchange information with other products, systems or components, and/or perform its required functions, while sharing the same hardware or software environment.

3.5.1 Co-existence

[066] ISO 25010: Degree to which a product can perform its required functions efficiently while sharing a common environment and resources with other products, without detrimental impact on any other product.

[REQ-7020] The implemented applications and services shall be capable of operating within the NS and MS WAN environment (including servers, network, services and workstations) in the presence of the latest approved NATO Security Settings, without impact on other applications nor services. The target version to be provided by the Purchaser during the design stage. Any deviations from the approved security settings shall be identified by the Contractor prior to testing and shall be subject to approval of the Purchaser.

Reference: TOPFAS

[REQ-7030] TOPFAS shall support access to the underlying file system using Windows standards, including long file names and all legal naming characters.

Reference: TOPFAS

3.5.2 Interoperability

[067] ISO 25010: Degree to which two or more systems, products or components can exchange information and use the information that has been exchanged.

[REQ-7040] Web-based applications shall be compatible with

Operating System	Microsoft Windows 10 64-bit editions and later
Components	Microsoft Edge LTS (87 and later) Mozilla Firefox ESR (91 and later)

Reference: TOPFAS

[REQ-7050] TOPFAS shall support the following environment configurations for the Desktop applications:

Operating System	Microsoft Windows 10 64-bit editions and later
Microsoft Office	Professional Plus 2016 and later
Microsoft SharePoint Server	2016 and later

Reference: TOPFAS

[REQ-7060] TOPFAS shall support the following environment configurations for the server components:

Operating System	Microsoft Windows Server 2019 and later (normal and Core versions)
Database Server	Microsoft SQL Server 2019 and later
Web Server	Internet Information Services (IIS) version as per OS version used.

Reference: TOPFAS

[REQ-7070] TOPFAS shall provide a file-based data exchange interface to enable the exchange of information between applications for reasons of legacy, security, capability, efficiency, connectivity or lack thereof.

Reference: TOPFAS

[REQ-7080] The file-based data exchange file formats shall use XML or JSON as the primary mechanism for file-level information exchange and shall be based, where possible, on existing data format standards or adapted revisions thereof.

Reference: TOPFAS

[REQ-7090] TOPFAS shall validate the format and contents of all incoming and outgoing data exchange against the documented format or schemas published by the suppliers or originators of the data, this includes data exchange initiated from

own capabilities. The capability shall report with explicit warning messages when validation is unsuccessful.

Reference: TOPFAS

[REQ-7100] The data exchange interface shall use commonly used formats for exchanging specific types of data such as images.

Reference: TOPFAS

[REQ-7110] TOPFAS shall provide integration with Core and Enabling Services including:

(1) Email / Exchange
(2) Microsoft Office Applications
(3) CoreGIS (Map Service Provider)
(4) Integrated Windows Authentication / Active Directory (IWA/AD)
(5) Active Directory Federated Services (ADFS)
(6) SAML authentication Secure Token Server (STS)

Reference: TOPFAS

[REQ-7111] TOPFAS shall be compatible with the latest versions of external capabilities and services, and their latest interface control documents and service definitions, as long as the latest relevant interface control document is available a minimum of 12 months prior to a planned release of TOPFAS.

Reference: TOPFAS

3.6 Usability/Learnability

[068] ISO 25010: Degree to which a product or system can be used by specified users to achieve specified goals with effectiveness, efficiency and satisfaction in a specified context of use.

3.6.1 Appropriateness recognisability

[069] ISO 25010: Degree to which users can recognize whether a product or system is appropriate for their needs.

[REQ-7120] TOPFAS requires a user-friendly interface for operators who vary considerably in their experience in the domain, technical skills, and frequency and time spent using the capability. In order to help the user feel at ease with the capability, some general principles are to be followed.

Reference: TOPFAS

[REQ-7130] TOPFAS shall comply with the following criteria for information presentation:
- Clarity: information shall be conveyed quickly and accurately;
- Discriminability: information shall be able to be distinguished accurately;
- Consistency: the same information shall be presented in the same way throughout the application;
- Detectability: the user's attention shall be directed to the information required;
- Legibility: information shall be easy to read;

- Comprehensibility: the meaning of the information shall be clearly understandable.

Reference: TOPFAS

[REQ-7140] Visual elements and interaction schemes of the user interface shall be reused for similar functions and features. Uniformity is created this way, which helps users to understand where they are and what they can do

Reference: TOPFAS

[REQ-7150] TOPFAS shall be optimised to provide direct feedback in views, dialogs and controls and reduce the amount of popups or dialogs containing errors, warnings or information notifications or messages. This includes limiting the number of popups and dialogs to the extent that they do not to show the same message, for the same occasion, multiple times

Reference: TOPFAS

[REQ-7160] TOPFAS‘s user interface shall clearly distinguish between display/visualisation views, dialogs, panels, etc. and editable views, dialogs, panels, etc. Each type requiring specific design, i.e. editable forms rendered read-only are not considered suitable visualisations.

Reference: TOPFAS

3.6.2 Learnability

[070] ISO 25010: Degree to which a product or system can be used by specified users to achieve specified goals of learning to use the product or system with effectiveness, efficiency, freedom from risk and satisfaction in a specified context of use.

[REQ-7170] TOPFAS shall support and guide the user in understanding and learning how to use its functions.

Reference: TOPFAS

[REQ-7180] TOPFAS‘s user guidance information shall be readily distinguishable from other displayed information, e.g. data. This user guidance information shall be provided to the user through feedback, status information and error management:

(1) Feedback provides information in response to the user's input. In general, users can be expected to make mistakes while entering data; they shall not be considered errors and should be caught by input field validation rules;
(2) Status information indicates the current state of the application or processes;
(3) Error management provides information in responses to failures.

Reference: TOPFAS

3.6.3 Operability

[071] ISO 25010: Degree to which a product or system has attributes that make it easy to operate and control.

[REQ-7190] TOPFAS shall use United Kingdom Standard English as the default language. This shall apply to all applications and supporting components, including all user interfaces (e.g. views, dialogs, help screens, tooltips, etc.), error / notification / warning messages, training material and documentation.

Reference: BMD-ARS-4654

[REQ-7200] TOPFAS shall support context menus (i.e. right button mouse click, or equivalent menus). General and common functions shall also be accessible through the function bar, ribbon, view or dialog buttons.

Reference: TOPFAS

[REQ-7210] For the ribbon or toolbars, (context) menus and buttons, the following aspects shall be considered:

(1) Structure, such as logical categories, grouping options and ordering items;
(2) Navigation, including titles and access time;
(3) Option selection and execution, including selection methods, use of the keyboard;
(4) Presentation, including placement and use of icons.

Reference: TOPFAS

[REQ-7220] Popup dialogs used to report errors, warnings, information or any other notification or message shall be closable with a single click.

Reference: TOPFAS

[REQ-7230] TOPFAS shall offer undo/redo (not limited to formatting) support for all operations. Exceptions shall be agreed with the Purchaser.

Reference: BMD-ARS-4654

[REQ-7240] TOPFAS's user interface shall be structured so that options, features and functions of applications are organised in a way that reflects their relationships (i.e., similar things shall be organised in similar ways).

Reference: TOPFAS

[REQ-7250] TOPFAS shall support editing of information in a logical order. In the user interface, dialogs shall be navigable using the tab key in a logical order.

Reference: TOPFAS

[REQ-7260] TOPFAS shall use labels that are context-dependent, meaningful and descriptive to the function or action at hand.

Reference: TOPFAS

[REQ-7270] TOPFAS shall use a consistent user interface font.

Reference: TOPFAS

[REQ-7280] TOPFAS shall use domain terminology consistent with the subject area handbooks and directives

Reference: TOPFAS

[REQ-7290] TOPFAS shall provide scrollbars and/or panning shall be available when information does not fit within the current view.

Reference: TOPFAS

[REQ-7300] Within TOPFAS, it shall be unambiguous and clear what information in what format is required for each field. The expected input format on all dialog or view fields shall be shown if it is not already clear from the label.

Reference: TOPFAS

[REQ-7310] TOPFAS shall be tolerant to the input format including location formats (e.g. latitude/longitude could be entered as degrees-minutes-seconds, decimal degrees, etc.) and date formats (e.g. yyyy-mm-dd could also be entered as yyyymmdd or yy-mm-dd without error or picked from a calendar) and shall apply automatic layout (format) of data where possible (e.g. correct format of dates). Military DTG support shall be provided where relevant.

Reference: TOPFAS

[REQ-7320] Clickable (selectable) text (e.g. links) shall be clearly distinguishable from non-clickable text.

Reference: TOPFAS

[REQ-7330] TOPFAS shall support selections using:

(1) Menu (Select All);
(2) Context Menu;
(3) Accelerators (Ctrl+A);
(4) Mouse;
(5) Arrow keys.

Reference: TOPFAS

[REQ-7340] TOPFAS shall support extended selection by Ctrl (i.e. individual selected items) and Shift (i.e. select from-to) keys.

Reference: TOPFAS

[REQ-7350] TOPFAS shall support multi-select in grid controls, tree controls / views and hierarchal tree grids.

Reference: TOPFAS

[REQ-7360] TOPFAS shall notify the user who has initiated a prolonged action that processing of the action has started and convey the sense of processing progress (by means of a progress indicator).

Reference: BMD-ARS-4654

[REQ-7370] TOPFAS shall provide information tooltips within views, dialogs and controls to provide further explanation about specific fields or options. However, it should not be required to include these tooltips for every field or option; dialogs and views should be self-descriptive.

Reference: TOPFAS

[REQ-7380] TOPFAS shall support tooltips on all icons and ribbon buttons that offer additional explanation and assistance.

Reference: TOPFAS

[REQ-7390] TOPFAS shall include, for significant user interface elements, from the tooltips further links to training materials in the online help sections and videos of the TOFPAS Help Centre.

Reference: BMD-ARS-4665 / BMD-ARS-4667

[REQ-7400] Tooltips shall be easily accessible, not intrusive and shall only be shown after a short initial delay. The tooltips will disappear after a certain amount of time and will not show-up again before the user hoovers over a different user interface element with the mouse pointer or returns to the same element after leaving it first. When the user hoovers from one element to another while the tooltip is still visible, the tooltip will first disappear and only appear again for the new element after a short initial delay.

Reference: TOPFAS

[REQ-7410] For tabular or lists of information, TOPFAS shall allow the user to navigate:

(1) One row at a time;
(2) By paging.

Reference: TOPFAS

[REQ-7420] For hierarchical (tree) and grid views, TOPFAS shall support the full range of capabilities including sorting, filtering (Excel filter style), column selector, grouping, banded view, column ordering, column width selection, etc. The availability of those features may depend on the grid usage i.e. not all features are required for all grids based on the information content displayed.

Reference: TOPFAS

[REQ-7430] TOPFAS shall provide zoom functions for views or diagrams that contain or can contain large amounts of data or information objects. The zoom function shall include a proportional zoom control that allows the user to zoom to any zoom-level (zoom in and zoom out) and provide a number of pre-sets, including fit to current window and full-page size, or equivalent.

Reference: TOPFAS

[REQ-7440] TOPFAS shall provide a date-time picker supporting the user entering and using dates and timings in absolute format or in relative format, when relative date-time is required.

Reference: TOPFAS

[REQ-7450] The user interface of TOPFAS shall support a minimum resolution of 1280x1024 or wide-screen equivalent.

Reference: TOPFAS

[REQ-7460] TOPFAS shall allow the user to launch more than one instance of an application on the same workstation.

Reference: TOPFAS

[REQ-7470] The design of the user interface shall be based on a single theme with variations, and have a common look and feel carried across the entire user interface of an application.

Reference: TOPFAS

[REQ-7480] TOPFAS shall provide an appropriate level of prompts (i.e. allow cancellation or confirmation) when input or changes may be lost due to closing a window, view, dialog, or application.

Reference: TOPFAS

3.6.4 User error protection

[072] ISO 25010: Degree to which a system protects users against making errors.

[REQ-7490] TOPFAS shall notify the user for potential loss of information objects during change of any data element or information product. The user shall be able choose the action that has to be taken by the application, identified by a warning notification, which provides information about the data that might be lost.

Reference: TOPFAS

[REQ-7500] The application’s messages (e.g. error, warning, notification or informational messages) shall be provided in context and directed towards the user. The message shall contain initiating module information, context information, suggested (corrective) actions or guidance on where to find answers and solutions.

Reference: TOPFAS

[REQ-7510] TOPFAS shall highlight or mark empty required fields by means of “error” providers in dialogs and views once the user tries to save the information within the dialog or view. No information shall be lost when saving fails and the users is completing the remaining fields, before saving again.

Reference: TOPFAS

[REQ-7520] TOPFAS's user interface shall be tolerant to input mistakes. The user shall be given guidance and suggestions to help them correct or overcome mistakes they have already made.

Reference: TOPFAS

[REQ-7530] TOPFAS shall for all textual entry fields spell-check the entered text, visually highlight spelling errors, and suggest spelling corrections.

Reference: BMD-ARS-4654

[REQ-7540] TOPFAS shall provide data defaults where applicable.

Reference: TOPFAS

[REQ-7550] TOPFAS's user interface shall use predefined drop-down or pull-down lists or controls in appropriate situations based on configured domain values to speed up the entry of information and prevent input mistakes.

Reference: BMD-ARS-4654

3.6.5 User interface aesthetics

[073] ISO 25010: Degree to which a user interface enables pleasing and satisfying interaction for the user.

[REQ-7560] TOPFAS shall use the latest Microsoft Office theme look and feel (Microsoft Office 2021 / Office 365 2021) for desktop and web applications. This includes upgrading existing Office 2016 theming to Office 2021 for desktop and web applications. Use of a common library of user interface components shall be favoured for each technology stack (desktop and web).

Reference: BMD-ARS-4654

[REQ-7570] TOPFAS User Interface shall be compatible with high DPI displays without blur or other artefacts. This includes the use of a common set of scalable vector icons for all user interface elements and replacement of bitmap icons by their scalable vector equivalent when applicable.

Reference: TOPFAS

[REQ-7580] TOPFAS shall save the positions of the user interface elements for each user between application sessions and restore the user interface on starting another session.

Reference: TOPFAS

[REQ-7590] TOPFAS shall restore the tree expansion state of a tree control/view as well as the last selected item. When the item does not exist anymore, the next level up shall be used instead. On opening the first time, a tree control/view shall be expanded to the second level (first and second level shall be visible). These settings shall be persisted per user and over application sessions.

Reference: TOPFAS

[REQ-7600] TOPFAS shall pre-populate editable combo boxes using previously entered data.

Reference: TOPFAS

[REQ-7610] TOPFAS's messages (e.g. error, warning, notification or informational messages) shall be properly formatted. This means that presented text shall not exceed 80 characters per line and a carriage return is inserted between the last two words before reaching 80 characters. The display of long text shall not exceed more than 3 lines and in case it is longer, the text will be shorted and a marking (e.g. "…") is added indicating the text is shortened. In case the long text does not consist of words, but is for example a long file path, the text is shown on one line only and the text is shorted in the middle showing the beginning of the path and the end of the path with the marker in the middle (for example "C:\My\Very\Very\...\Very\Long\FileName.doc").

Reference: TOPFAS

[REQ-7620] The use of acronyms within the applications and documentation shall be limited in order not to affect readability and comprehension negatively.

Reference: TOPFAS

3.6.6 Accessibility

[074] ISO 25010: Degree to which a product or system can be used by people with the widest range of characteristics and capabilities to achieve a specified goal in a specified context of use.

[REQ-7630] Use of colour or sound alone does not indicate status or errors.

Reference: TOPFAS

[REQ-7640] The system shall avoid the use of colour combinations that impact the use of the applications by colour-blind users, or accompany such use by additional graphics.

Reference: TOPFAS

[REQ-7650] The system shall ensure all images in web applications include alternate (alt) text description (e.g. for actions).

Reference: TOPFAS

3.7 Reliability

[075] ISO 25010: Degree to which a system, product or component performs specified functions under specified conditions for a specified period of time.

3.7.1 Maturity

[076] ISO 25010: Degree to which a system, product or component meets needs for reliability under normal operation.

[REQ-7660] The capability shall have a Mean-Time between Failures (MTBF) > 168 hours. The Time between Failures (TBF) is defined as the difference between the start of unplanned downtime and the start of uptime. MTBF (mean time between failures) is defined as the mean time between two consecutive failures:

$$\text{Mean time between failures} = \text{MTBF} = \frac{\sum(\text{start of downtime} - \text{start of uptime})}{\text{number of failures}}.$$

Reference: TOPFAS

[REQ-7670] TOPFAS shall maintain integrity between data elements both within application as well as within storage.

Reference: TOPFAS

3.7.2 Availability

[077] ISO 25010: Degree to which a system, product or component is operational and accessible when required for use.

[REQ-7680] TOPFAS shall be available in operational sites' local area network (LAN), static and deployed, 24 hours a day, seven days a week, with an availability rate of 99.5%. Measurements of availability shall not include failures resulting from factors determined to be external to the capability (e.g., loss of domain controller, loss of servers or loss of network connectivity).

Reference: TOPFAS

[REQ-7690] TOPFAS shall automatically detect the availability and re-establishment of network connectivity.

Reference: TOPFAS

[REQ-7700] TOPFAS applications shall be upgradable without an outage of more than 1 hour.

Reference: TOPFAS

[REQ-7710] Replicated TOPFAS databases shall be upgradable without an outage of more than 1 day.

Reference: TOPFAS

3.7.3 Fault Tolerance

[078] ISO 25010: Degree to which a system, product or component operates as intended despite the presence of hardware or software faults.

[REQ-7720] TOPFAS shall handle errors in a way that helps users rather than disturb or otherwise hinder their work.

Reference: TOPFAS

[REQ-7730] TOPFAS shall ensure availability to users so that they do not experience interruption of services as a result of intermittent connection. Intermittent

connection is defined as loss of connectivity that is less than thirty (30) seconds.

Reference: TOPFAS

[REQ-7740] TOPFAS shall gracefully degrade in the condition where externally provided services (such as Core-GIS, E-mail, etc.) are not available. Gracefully degrade means that applications shall not raises exceptions, or even crash, but elegantly notify the users and if possible, continues to provide some functions using local cache.

Reference: TOPFAS

[REQ-7750] TOPFAS shall gracefully degrade in the condition where the networking services are not available. Gracefully degrade means that applications shall not raises exceptions, or even crash, but elegantly notify the users and if possible, continues to provide some functions using local cache.

Reference: TOPFAS

3.7.4 Recoverability

[079] ISO 25010: Degree to which, in the event of an interruption or a failure, a product or system can recover the data directly affected and re-establish the desired state of the system.

[REQ-7760] TOPFAS shall provide the administrators with the ability to perform full and incremental backups of the data repositories and software without impacting the availability.

Reference: BMD-ARS-4871

[REQ-7770] TOPFAS shall provide a database maintenance plan for automatically handling backups at a configurable frequency and conducted required database health operations (e.g. rebuilding indexes). This includes a retention policy for backups.

Reference: BMD-ARS-4871

[REQ-7780] TOPFAS shall allow the system administrators to restore backups of data repositories and software with no data loss (i.e. only not yet committed transactions can be lost in case of a crash).

Reference: BMD-ARS-4871

[080] The MTTR to be considered is the Mean Time needed To Restore services after a failure in the operative condition, excluding administrative and logistics delay times.

Table 3-1 Maintainability by Failure Criticality

Failure Type	**MTTR**
Critical Failure	1 hours
Failure	2 hours
Critical Failure in replicated database	8 hours

Failure in replicated database	8 hours

[REQ-7790] On the hypothesis of an operational time of 24/7/365 (24 hours per day, 7 days a week, 365 days per year), the MTTR shall not exceed the time limits defined in the table above for each single maintenance action.

Reference: TOPFAS

3.8 Security

[081] ISO 25010: Degree to which a product or system protects information and data so that persons or other products or systems have the degree of data access appropriate to their types and levels of authorization. This characteristic is composed of the following sub-characteristics: confidentiality, integrity, non-repudiation, accountability and authenticity.

[REQ-7800] The web applications and services shall implement relevant security techniques to protect against any security vulnerabilities as identified by Open Web Application Security Project (OWASP), see [OWASP].

Reference: TOPFAS

[REQ-7810] In line with [AC/322-N(2011)0130], the security classification construct shall include at least:

(1) Policy Identifier/Information Ownership: e.g. NATO, NATO/EAPC (Euro-Atlantic Partnership Council), ISAF (International Security Assistance Force);
(2) Classification Marking: e.g. Unclassified, RΞSTRICTED, CONFIDΞNTIAL, SΞCRET;
(3) Category/Caveats: e.g. one or more Releasability statements such as Releasable to Finland, Sweden, Releasable to ISAF; Releasable to PfP.

Reference: BMD-ARS-7857

[REQ-7820] TOPFAS shall ensure that a security classification construct is automatically included into each shown or generated information product, showing the highest classification marking of information it contains.

Reference: BMD-ARS-7855

[REQ-7830] The security classification construct shall be assembled from domain values and shall include the standardised (NATO) colour scheme to differentiate the various security classifications.

Reference: BMD-ARS-4654

[REQ-7840] TOPFAS shall show the security classification construct at the top of the application framework, showing the relevant security classification of the data visible on the screen. The security classification construct shall use the defined colour scheme to differentiate the various security classifications.

Reference: BMD-ARS-4654

[REQ-7850] Components within an application shall be configured to provide only required capabilities (least functionality). Components which are not required are either uninstalled, not installed or disabled.

Reference: BMD-ARS-7852

[REQ-7860] If digital certificates are required by an application, they shall be NATO certificates, provided by NATO PKI.

Reference: BMD-ARS-8864

[REQ-7870] The validity of PKI certificates shall be verified (that they are neither expired nor revoked) before they are used.

Reference: BMD-ARS-7845

[REQ-7880] All software packages shall be delivered with latest security updates.

Reference: BMD-ARS-7842

[REQ-7890] TOPFAS shall only use versions of software that are supported with security patches and do not require an obsolete version of OS, libraries and dependencies to function.

Reference: BMD-ARS-7843

[REQ-7900] TOPFAS shall properly apply encryption mechanisms to protect credentials and similar highly sensitive information.

Reference: BMD-ARS-7849

[REQ-7910] TOPFAS shall use custom error pages to prevent server error messages from being disclosed.

Reference: BMD-ARS-7850

[REQ-7920] TOPFAS shall not disclose sensitive information in error responses, including system/application details, session identifiers or account information.

Reference: BMD-ARS-7851

[REQ-7930] Any sensitive/classified pieces of information (e.g. passwords, IP-addresses etc.) shall not be hard-coded in any source code.

Reference: BMD-ARS-7867

[REQ-7940] TOPFAS shall be compliant with the security rules as defined by the NCIRC. This includes protection for SQL injection, cross-site scripting prevention, authentication, etc.

Reference: TOPFAS

[REQ-7950] TOPFAS shall protect passwords in storage. All passwords shall be stored in a hashed and salted form to protect them from exposure, regardless of where they are stored.

Reference: TOPFAS

3.9 Maintainability

[082] ISO 25010: This characteristic represents the degree of effectiveness and efficiency with which a product or system can be modified to improve it, correct it or adapt it to changes in environment, and in requirements. This characteristic is composed of the following sub-characteristics: modularity, reusability, analysability, modifiability and testability.

[REQ-7960] The full TOPFAS application suite, with the exception of NCRS and EFGMT, shall be migrated from .Net Framework and/or updated to the latest .NET and C#.

Reference: TOPFAS

[REQ-7970] The software shall be designed and structured for good testability. This includes usage of patterns such as, for example, decoupling, test data generation and dependency injection to enable unit testing.

Reference: TOPFAS

[REQ-7980] The design, software architecture and development environment shall be properly documented to allow for future maintenance of the capability.

Reference: TOPFAS

[REQ-7990] TOPFAS shall use a standard naming convention for the database design.

Reference: TOPFAS

[REQ-8000] TOPFAS shall comply with latest versions of the Microsoft Windows operating system available and supported by the Bi-SC AIS servers and workstations. This shall include all versions of the operating systems planned to become available prior to final acceptance testing.

Reference: TOPFAS

[REQ-8010] Source code artefacts developed for the applications shall be written using US Standard English (e.g. for Classes, Methods, Variables etc.).

Reference: TOPFAS

[REQ-8020] Source code artefacts developed for the application shall be documented with in-line comments using United Kingdom Standard English. Industry best practices shall be used in the level of commenting. Comments shall, at a minimum, be provided for publicly visible:

(1) class definition explaining what the class represents;
(2) member function explaining what the function does;
(3) member (input/output) variable explaining what the variable means;

(4) type definition (enumeration) explaining what the type represents.

Reference: TOPFAS

[REQ-8030] Source code developed for the applications shall be documented with comments, which can be extracted and formatted to augment technical documentation. The comments shall be formatted according to the “XML Comments” format (i.e., beginning with three forward slashes '///').

Reference: TOPFAS

[REQ-8040] The security classification of any example data that is displayed in any documentation, including online help, shall not exceed the level of NATO UNCLASSIFIED.

Reference: TOPFAS

[REQ-8050] Hardcoding of, or embedding of, resources, configuration settings, or any other non-binary artefacts (URL, DNS, IP addresses, file path, drive letters, etc.) shall NOT be implemented/used.

Reference: TOPFAS

[REQ-8060] New View components shall be implemented as reusable web components that can be used in many of the TOPFAS applications, in order to provide a homogenous interface across both desktop and web applications, unless specified otherwise and agreed with the Purchaser.

Reference: TOPFAS

[REQ-8070] New components for the desktop applications shall be implemented entirely using .NET Core and C#.

Reference: TOPFAS

[REQ-8080] New backend components for the desktop and web applications shall be implemented entirely using the latest .NET Core and C#.

Reference: TOPFAS

[REQ-8090] The web-based applications frontend, with the exception of NCRS and EFGMT, shall be implemented entirely using a single TypeScript-based technology stack, HTML5, and cascading style sheets (CSS).

Reference: TOPFAS

[REQ-8100] TOPFAS shall standardize on the (off-the-shelf) development components. The introduction of new off-the-shelf components shall be approved by the Purchaser.

Reference: TOPFAS

[REQ-8110] Use of components (free, open source, or commercial or government) shall not limit the deployment or use of the capability in any way and shall not require the release of code developed for the capability.

Reference: TOPFAS

[REQ-8120] Any component shall be verified for compliance to other non-functional requirements, including security requirements.

Reference: TOPFAS

3.10 Portability

[083] ISO 25010: Degree of effectiveness and efficiency with which a system, product or component can be transferred from one hardware, software or other operational or usage environment to another. This characteristic is composed of the following sub-characteristics: adaptability, installability and replaceability.

[REQ-8130] All usage of the Windows registry and user profile by TOPFAS shall be fully documented. TOPFAS shall not use Windows registry hives other than HKEY_LOCAL_MACHINE during installation and HKEY_CURRENT_USER during application operation. The use of the Windows registry shall be avoided.

Reference: TOPFAS

[REQ-8140] TOPFAS shall store temporary files only in the user's temporary folder.

Reference: TOPFAS

[REQ-8150] TOPFAS shall operate well and be compliant with a virtualised server environment (e.g. Microsoft Hyper-V, VMware virtual servers) as well as physical environments.

Reference: TOPFAS

[REQ-8160] TOPFAS shall use an architecture that allows vertical scalability and allows the various components to be deployed on separate machines.

Reference: TOPFAS

[REQ-8170] TOPFAS applications shall be provided with their own and separated installation package. The installation packages shall also support the uninstallation of the complete application.

Reference: TOPFAS

[REQ-8180] TOPFAS web apps shall not require any client installation and be directly usable from a web browser.

Reference: TOPFAS

[REQ-8190] TOPFAS’s installation packages shall detect its environment and run all necessary checks (appropriately address the correct Microsoft Windows and SQL Server version, disk space, etc.). Note: This includes the installation on non-English operating system versions.

Reference: TOPFAS

[REQ-8200] In case of cancellation or error during the installation process leaving the installation in an incomplete state, TOPFAS's installation package shall allow the (re)-installation to complete without error.

Reference: TOPFAS

[REQ-8210] TOPFAS installation packages shall allow multiple instances of TOPFAS (e.g. operations, exercise and training).

Reference: TOPFAS

[REQ-8220] TOPFAS's installation packages shall provide an option to completely uninstall components of the capability. Only system files, shared files and files containing user specific settings shall be retained, if appropriate. The installation package shall not adversely impact other applications or the system when the full capability or one of its components is de-installed.

Reference: TOPFAS

[REQ-8230] It shall be possible to run fully automated installation and/or uninstallation of the applications and services.

Reference: TOPFAS

[REQ-8240] It shall be possible to replace a previous release with a new release in a fully automated way without loss of any data and configuration settings using a blue-green or canary deployment strategy.

Reference: TOPFAS

Annex A - Software Requirements Specifications - SRS Matrix

Revision	17 March 2023
SRS Baseline	NU_CO-115498-TOPFAS-BMD-Book-II-Part-IV-SOW-Annex-A-SRS.docx Version 2.1 This matrix complements the Annex A SRS document Changes compared to Version 2.0: * [REQ-5850] removed

REQ ID	REQUIREMENT	WORK PACKAGE	MoSCoW	ARS REFERENCE
[REQ-0010]	The evolution of the TOPFAS Application Suite, while incorporating the requirements specified herein, shall be based on the principle of no regression (no loss of functionality and no loss of non-functional qualities), unless specified otherwise and agreed with the Purchaser.	1	MUST	TOPFAS
[REQ-0011]	The TOPFAS capabilities specified in this SRS are to be implemented in the TOPFAS Desktop and TOPFAS Online apps where applicable. All modules and components not specifically mentioned are subject to potential modification if they are impacted by any of the requirements.	1	MUST	TOPFAS
[REQ-0012]	The TOPFAS Desktop application modules that are web-based (existing and new to be developed) shall be implemented and integrated in TOPFAS Online with the same functionality.	1	MUST	TOPFAS
[REQ-0013]	The TOPFAS Desktop Explorer, List and Map components shall be migrated to be web-based with all their existing functionality and integrated in TOPFAS Online.	1	MUST	TOPFAS
[REQ-0014]	The BMD specific modules, existing and new, (e.g. Missile Defence - Assets/Asset List/PCAL/JPCAL/JPDAL/IPB Report/Defence Design/OPFOR TBM COA) shall be web-based and shall be integrated in both TOPFAS Desktop and TOPFAS Online with the same functionality.	1	MUST	TOPFAS
	Any requirement related to force requirements shall be implemented in TOPFAS Desktop and TOPFAS Online (e.g. TOPFAS OMT, TOPFAS RRT and/or TOPFAS eFGMT) where applicable.	1	MUST	TOPFAS
[REQ-0016]	Any requirement related to Education, Training, Exercises and Evaluation and ETEE-FS shall be implemented in TOPFAS TEM, and relevant applications/apps of TOPFAS Desktop and TOPFAS Online.	1	MUST	TOPFAS
[REQ-0017]	Any requirement related to user documentation and online help shall be implemented in the relevant application.	1	MUST	TOPFAS
[REQ-0018]	Any requirement related to user and system documentation, online help and training material shall be implemented/integrated in the TOPFAS Help Centre.	1	MUST	TOPFAS
[REQ-0020]	The TOPFAS architecture shall contain the implementation of the management of structured Data Entities (DEs, see paragraph 2.2) as micro services using containers. These services shall be utilized by TOPFAS itself and be exposed for consumption by other systems.	1	MUST	TOPFAS
[REQ-0030]	All containers must be able to be deployed onto Kubernetes.	1	MUST	TOPFAS
[REQ-0040]	Containers must be built using the NATO Trusted Container process (defined by [TCLM]) on NSF. For this they will need to be derived from approved and hardened base images. Exceptionally, if containers cannot be based on these (e.g. for COTS containers), the trusted import process must be followed as defined in the NATO trusted container process.	1	MUST	TOPFAS
[REQ-0050]	The system will utilize infrastructure as code and configuration as code for deployment and configuration. Hardcoding of, or embedding of, resources, configuration settings, or any other non-binary artefacts (URL, DNS, IP addresses, file path, drive letters, etc.) shall NOT be implemented / used.	1	MUST	TOPFAS
[REQ-0060]	For the infrastructure layer (deployment of VMs, clusters, storage), Terraform shall be used in line with agency guidance to provide agnostic cloud service support.	1	MUST	TOPFAS
[REQ-0070]	Kubernetes YAML shall be used for containers deployments/orchestration.	1	MUST	TOPFAS
[REQ-0080]	For installation of software (on VMs) and configuration, Ansible shall be used.	1	MUST	TOPFAS
[REQ-0090]	Test-automation, Continuous Integration (CI) and Continuous Delivery (CD) processes shall be implemented for the services and these shall feed in to the pipeline stages for staging, security scanning, container signing, base image registration, etc.	1	MUST	TOPFAS
[REQ-0100]	The TOPFAS API shall deliver versioned REST APIs.	1	MUST	TOPFAS
[REQ-0110]	The services shall return a standard, programming language-agnostic, interface description which allows both humans and computers to discover and understand the capabilities of a service without requiring access to source code, additional documentation, or inspection of network traffic. That means the services shall return the contract specifying the API interface compliant to [OAS 3.0.1, 2017] in both JSON (JavaScript Object Notation) and in YAML (Yet Another Mark-up Language) formats.	1	MUST	TOPFAS
[REQ-0120]	The services shall collect statistics on the API usage to log files. The statistics shall include metrics on the API latencies (response times), frequency of use (down to the granularity of the Data Entities type), the URI requested, the requester, the action, etc.	2	MUST	BMD-ARS-2291
[REQ-0130]	The services shall, for all exposed Data Entities, implement full entity lifecycle management (create, read, update, soft-delete, hard-delete, un-delete etc.)	1	MUST	TOPFAS
[REQ-0140]	The services shall, for all exposed Data Entities, implement the full set of query operators and filters appropriate to the types of the Data Entity properties (numeric, string, datetime, enumeration, etc.)	1	MUST	TOPFAS
[REQ-0150]	The services shall, for all exposed Data Entities, implement extent management (paging, top, skip, etc.)	1	MUST	TOPFAS
[REQ-0160]	The services shall, for all exposed Data Entities, implement Partial GETs.	1	MUST	TOPFAS
[REQ-0170]	The services shall, for all exposed Data Entities, implement partial updates (PATCH).	1	MUST	TOPFAS
[REQ-0180]	The services shall, for all exposed Data Entities, implement 'navigation properties' for entity relationships.	1	MUST	TOPFAS
[REQ-0190]	The services shall, for all exposed Data Entities, provide optimistic concurrency (ETag).	1	MUST	TOPFAS
[REQ-0200]	The services shall, for all exposed Data Entities, provide batching of operations (functions and actions) / queries.	1	MUST	TOPFAS
[REQ-0210]	The services API implementation shall enforce the authorisation / validation rules. Services shall prevent commands succeeding in case of validation error.	2	MUST	BMD-ARS-8865 / BMD-ARS-7859
[REQ-0220]	The services shall mark the data being created such that exercise-related and training-related information are distinguishable from operational information.	2	SHOULD	BMD-ARS-7304 / BMD-ARS-7305
[REQ-0230]	The services shall, whenever a Data Entity through the service API is created, updated or deleted, publish an appropriate Data Entity Create / Update / Delete / etc. event notification for potential subscribers.	1	MUST	TOPFAS
[REQ-0240]	The service API shall for all Data Entity actions, support individual actions on a single Data Entity as well as applying the action on a list of Data Entities (e.g. soft-deleting many Data Entities in one operation).	1	MUST	TOPFAS
[REQ-0250]	All services shall, implement observability interfaces and services to support central management, accessing and analysis of the service logs and metrics.	1	MUST	TOPFAS
[REQ-0260]	At a minimum, all activities / actions / queries of all service consumers (persons, integration partners, other services, etc.) shall be logged for auditing purposes (i.e. enabling full audit traceability of identifiable client activities / actions). Note this includes all read actions on all data entities; i.e. identification of which identity received the data entity and at what time.	1	MUST	TOPFAS
[REQ-0270]	Fault / error logs shall contain required information in order to provide the support staff with interpretable and comprehensive information about the cause and nature of the fault / error.	1	MUST	TOPFAS
[REQ-0280]	The relevant TOPFAS services (i.e. all Data Entities services consumed or exchanged with other systems) shall be made available as published services onto the SOA & IdM Platform.	2	MUST	[BMD-IDD] / BMD-ARS-7127 / BMD-ARS-7128 / BMD-ARS-7129 / BMD-ARS-8298 / BMD-ARS-7138 / BMD-ARS-2039 / BMD-ARS-7142 / BMD-ARS-8837 / BMD-ARS-7310
[REQ-0290]	All published services shall be hosted upon the SOA & IdM Platform, and re-use and / or integrate with the SOA & IdM Platform services.	2	MUST	[BMD-IDD] / BMD-ARS-7127 / BMD-ARS-7128 / BMD-ARS-7129 / BMD-ARS-8298 / BMD-ARS-7138 / BMD-ARS-2039 / BMD-ARS-7142 / BMD-ARS-8837 / BMD-ARS-7310
[REQ-0300]	All published services implementations shall derive from the SOA & IdM Platform provided, pre-canned service base images.	2	MUST	[BMD-IDD] / BMD-ARS-7127 / BMD-ARS-7128 / BMD-ARS-7129 / BMD-ARS-8298 / BMD-ARS-7138 / BMD-ARS-2039 / BMD-ARS-7142 / BMD-ARS-8837 / BMD-ARS-7310
[REQ-0310]	For all published services, the build pipeline shall result in self-contained (all dependencies are included with the exception of runtime parameterisation) base images that target the SOA & IdM Platform Container Image Registry and are compatible with the SOA & IdM Platform Application Runtimes, see [SOA-IdM-SDS].	2	MUST	[BMD-IDD] / BMD-ARS-7127 / BMD-ARS-7128 / BMD-ARS-7129 / BMD-ARS-8298 / BMD-ARS-7138 / BMD-ARS-2039 / BMD-ARS-7142 / BMD-ARS-8837 / BMD-ARS-7310
[REQ-0320]	All published services shall use the SOA & IdM Platform Configuration Server for the complete lifecycle management of their runtime parameterisation, see [SOA-IdM-SDS].	2	MUST	[BMD-IDD] / BMD-ARS-7127 / BMD-ARS-7128 / BMD-ARS-7129 / BMD-ARS-8298 / BMD-ARS-7138 / BMD-ARS-2039 / BMD-ARS-7142 / BMD-ARS-8837 / BMD-ARS-7310
[REQ-0330]	All published services shall conform to the SOA & IdM Hosted Services Implementation Contract, see [SOA-IdM-SDS].	2	MUST	[BMD-IDD] / BMD-ARS-7127 / BMD-ARS-7128 / BMD-ARS-7129 / BMD-ARS-8298 / BMD-ARS-7138 / BMD-ARS-2039 / BMD-ARS-7142 / BMD-ARS-8837 / BMD-ARS-7310
[REQ-0340]	The published services shall work consistently with the quality of service characteristics facilitated by the SOA & IdM Platform including observability, elasticity/ scale-out, resilience, etc.	2	MUST	[BMD-IDD] / BMD-ARS-7127 / BMD-ARS-7128 / BMD-ARS-7129 / BMD-ARS-8298 / BMD-ARS-7138 / BMD-ARS-2039 / BMD-ARS-7142 / BMD-ARS-8837 / BMD-ARS-7310
[REQ-0350]	All published services shall make use of the identity management, authentication and authorization services provided by the SOA & IdM Platform in addition to the current TOPFAS Application Suite capabilities.	2	MUST	BMD-ARS-8865 / BMD-ARS-7861
[REQ-0360]	TOPFAS shall ensure that the highest security classification and the most restricted releasability of the data is captured in the metadata of the exported file.	1	MUST	BMD-ARS-7558
[REQ-0370]	TOPFAS shall implement the confidentiality metadata label specification defined by [ADatP-4774].	2	MUST	BMD-ARS-8227

[REQ-0380]	TOPFAS shall implement the metadata label binding specification defined by [ADatP-4778].	2	MUST	BMD-ARS-8228
[REQ-0390]	TOPFAS shall always require the user to specify/confirm the highest security classification and most restricted releasability of the file before saving an export file. Attempts to export without a classification shall not be accepted. The system shall alert the user that a selected export classification level is lower than the classification level of the data selected for export.	1	MUST	BMD-ARS-5389 / BMD-ARS-8853
[REQ-0400]	TOPFAS shall ensure that the file name conveys the security classification as a prefix (e.g. using an (NR) prefix for files with NATO RESTRICTED information).	1	MUST	BMD-ARS-947
[REQ-0410]	TOPFAS shall insert a security classification construct into headers/footers of generated, created and/or exported reports, Microsoft Office files and PDF files. For file formats that do not use or support headers/footers, the capability shall include a security classification construct into an appropriate part, preferably at or close to the top of the file so that it is clearly visible to the user.	1	MUST	BMD-ARS-947
[REQ-0420]	TOPFAS shall head all exported files with metadata including: (1) The user who carried out the export; (2) The date and time of the export; (3) The system and database the data was exported from; (4) The version numbers of the objects being exported if applicable.	1	MUST	BMD-ARS-948
[REQ-0430]	TOPFAS shall log all exports with the metadata in a human readable format.	1	MUST	BMD-ARS-5656
[REQ-0440]	The web-based applications shall require only a Chromium-based web browser present on the Approved Fielded Product List (AFPL) at the time of deployment, and shall not require the installation of additional software, components or plug-ins on the user workstation.	1	MUST	TOPFAS
[REQ-0450]	The TOPFAS Desktop applications (client component) shall not require the installation of additional software, components or plug-ins on the user workstation, unless explicitly approved by the Purchaser.	1	MUST	TOPFAS
[REQ-0460]	The UI shall adapt to the individual users roles and privileges (e.g., a user with only read privileges shall not have access to create/update/delete functionalities, a user with no privilege to access an application shall not be able to log in, etc.).	2	MUST	BMD-ARS-7847 / BMD-ARS-7848
[REQ-0470]	TOPFAS shall only provide access to data based on user roles and privileges (e.g. a user with no access to particular data shall not see the data).	2	MUST	BMD-ARS-7846
[REQ-0480]	TOPFAS shall display the expected input format on all form fields to the user if the label is not clear enough (e.g. date input format - ddmmyyyy or dd-mm-yyyy). This shall be done via tooltips, greyed-out example content or watermarks, additional labels, or other suitable, non-intrusive, means.	2	MUST	BMD-ARS-4654
[REQ-0490]	TOPFAS control actions shall be simple and direct, whereas potentially destructive control actions shall require extended user attention such that they are not easily acted on (e.g., "are you sure" queries).	2	MUST	BMD-ARS-4654
[REQ-0500]	TOPFAS's user guidance information shall be readily distinguishable from other displayed information, e.g. data. This user guidance information shall be provided to the user through feedback, status information and error management: (1) Feedback provides information in response to the user's input. In general, users can be expected to make mistakes while entering data; they shall not be considered errors and should be caught by input field validation rules; (2) Status information indicates the current state of the application or processes; (3) Error management provides the users with meaningful error messages and information about the actions they need to take in order to fix or at least to report the problem.	2	MUST	BMD-ARS-4654
[REQ-0510]	TOPFAS shall include a visual label that at all times inform the user of which mission or database the user is connected to (i.e. operational mission, training database, exercise database, ...)	2	SHOULD	BMD-ARS-8883
[REQ-0520]	The UI shall run successfully independent of environment regional settings (e.g. decimal symbol, date/time format).	2	MUST	BMD-ARS-4654
[REQ-0530]	Where the user is entering (or changing) data, the user interface shall detect invalid and missing entries. The invalid or missing entries shall be highlighted or marked so that the user can be quickly identify and correct them. The validation (and subsequent highlighting) of the value in an entry field shall take place "dynamically" upon moving to the next entry field.	2	MUST	BMD-ARS-8863
[REQ-0540]	For all attributes related to geographic co-ordinates, TOPFAS shall allow the user to enter geographic co-ordinates using a gazetteer function. The user shall be able to: (1) Select a gazetteer (or optionally use the default gazetteer), and (2) Select a place/area name from the gazetteer.	2	MUST	BMD-ARS-4654 / BMD-ARS-8008
[REQ-0550]	TOPFAS shall provide prompts (i.e., allow cancellation or confirmation) when input or changes may be lost due to navigation or logging out.	2	MUST	BMD-ARS-4654
[REQ-0560]	Any user interface shall support normal Microsoft (MS) Windows Accelerators. These shall include: CTRL+C (Copy), CTRL+X (Cut), CTRL+V (Paste), CTRL+Z (Undo), CTRL+Y (Redo) and Delete.	1	MUST	BMD-ARS-5385
[REQ-0570]	TOPFAS shall allow the user to cut, copy and paste textual or tabulated data between (to and from) the TOPFAS applications and Microsoft Office applications.	1	MUST	BMD-ARS-5385
[REQ-0580]	TOPFAS shall support Microsoft Office 2016 and later versions (latest Microsoft Office version available from Microsoft at initiation phase).	1	MUST	BMD-ARS-7736
[REQ-0590]	TOPFAS shall allow the display, import and export of NATO Vector Graphics (NVG). It shall maintain the currently supported versions and shall implement the latest draft version at the time of implementation.	1	SHOULD	BMD-ARS-8873 / BMD-ARS-7276 / BMD-ARS-7318 / BMD-ARS-7277 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-0600]	For all attributes related to geographic coordinates, TOPFAS shall allow the user to enter geographic coordinates in a single text field (not requiring the user to copy/paste more than once to input a geographic value). TOPFAS shall be able to automatically identify and parse the location formats as listed in the Table 2-1 below.	2	MUST	BMD-ARS-4654
[REQ-0610]	The TOPFAS user interface shall be in line with the current TOPFAS interface style.	2	MUST	BMD-ARS-4654
[REQ-0620]	The TOPFAS user interface shall provide theme support with a light and dark theme.	2	MUST	BMD-ARS-4654
[REQ-0630]	All TOPFAS user interfaces shall automatically updated whenever a user makes a change that has an impact on the information presented in the UI.	2	MUST	BMD-ARS-4654
[REQ-0640]	TOPFAS shall, for all multi-select actions, support consecutive item selection by selecting first and last item in a list or tree (e.g. by shift-key plus left mouse click) and support adding individual (non-consecutive) items to the multi-selected set (e.g. by control-key plus left mouse click).	2	MUST	BMD-ARS-4654
[REQ-0650]	TOPFAS shall, for all panels and dialog windows containing data entry fields, support navigation between entry fields using the Tab key (i.e. Tab key to move cursor to next entry field and Shift-Tab key to move curser to previous entry field)	2	MUST	BMD-ARS-4654
[REQ-0660]	TOPFAS shall provide single sign-on capabilities with the following services: - Integrated Windows Authentication / Active Directory (IWA/AD); - Active Directory Federated Services (ADFS); - OAuth2 / OpenID Connect (OIDC).	2	MUST	BMD-ARS-8865
[REQ-0670]	TOPFAS shall allow the enabling of one or multiple authentication services and to configure each of them.	2	MUST	BMD-ARS-8865
[REQ-0680]	TOPFAS shall require users to identify themselves before being allowed to perform any other actions, and shall use a protected mechanism for uniquely identifying and authenticating users.	2	MUST	BMD-ARS-7858
[REQ-0690]	TOPFAS shall implement role-based access control as a method of restricting access to applications, functions and information to authenticated users as defined by their assigned roles or individually assigned privileges, and shall ensure that these are enforced correctly throughout the application.	2	MUST	BMD-ARS-7859
[REQ-0700]	TOPFAS shall obscure authenticator feedback information from the user during the authentication process.	2	MUST	BMD-ARS-7861
[REQ-0710]	TOPFAS shall protect user credentials in transit. The applications shall employ encryption of the entire login transaction using SSL or similar technologies.	2	MUST	BMD-ARS-7868
[REQ-0720]	TOPFAS shall enforce a "strong passwords" policy in accordance with the "Technical and Implementation Directive on CIS Security [AC-322-D0048-REV3]".	2	MUST	BMD-ARS-7862
[REQ-0730]	TOPFAS shall enforce a maximum password age policy that determines the period of time (in days) users can keep a password before they are required to change. By default, passwords do not age. Furthermore, administrator accounts are excluded from this policy completely.	2	MUST	BMD-ARS-7863
[REQ-0740]	TOPFAS shall allow a user to view and update their user account profile, including their password. TOPFAS shall enforce password change control policy, meaning the user shall be required to provide both their current password and the new password. The new password shall be entered twice to avoid mistakes when entering the new password.	2	MUST	BMD-ARS-7864
[REQ-0750]	TOPFAS shall prohibit password reuse for 10 generations (i.e. users cannot re-use their last 10 passwords).	2	MUST	BMD-ARS-7865

[REQ-0760]	TOPFAS shall allow a user to reset their password using a Self-service Password Reset, when they do not remember their password or when they have locked it. When their account was locked after failed login attempts, the account shall be unlocked once the password has been changed.	2	MUST	BMD-ARS-7865
[REQ-0770]	A Self-service Password Reset request shall expire after 10 minutes; after 10 minutes, the user will have to request a new reset of their password. Existing passwords shall not change before the user has changed their password.	2	MUST	BMD-ARS-7865
[REQ-0780]	When the user changes their password, either from within TOPFAS or after requesting a reset, then TOPFAS shall send an email notification that their password has been changed.	2	MUST	BMD-ARS-7865
[REQ-0790]	TOPFAS shall implement a policy to lock a user account for which a configurable number of failed login attempts have been made and await action to unlock the account. Administrator accounts shall be excluded from this policy, though a progressive delay shall be implemented after the third sequential failed login attempt before administrator credentials can be entered again.	2	MUST	BMD-ARS-7866
[REQ-0800]	TOPFAS shall provide a "Self-service Sign-up" for users to request an account, provide details (including email address) and justification for the account request.	2	MUST	BMD-ARS-7858
[REQ-0810]	TOPFAS shall provide user administrators with the ability to review and approve or deny accounts requests. This includes notification of pending requests (by email and through a specific indicator in the user interface when logged in as a user administrator) and management of the list of pending requests in UMT interface.	2	MUST	BMD-ARS-7858
[REQ-0820]	Upon approval or rejection of an account request, TOPFAS shall send an email notification to the user requesting an account with the result of the request.	2	MUST	BMD-ARS-7858
[REQ-0830]	TOPFAS shall provide a user with the ability to request access to a plan using a form to provide details (including email address) and justification for the access request.	2	MUST	BMD-ARS-7859
[REQ-0840]	TOPFAS shall provide functional managers with the ability to review and approve or deny access requests to those plans they are administrators of. This includes notification of pending requests (by email and through a specific indicator in the user interface when logged in) and management of the list of pending requests in the TOPFAS user interface.	2	MUST	BMD-ARS-7859
[REQ-0850]	Upon approval or rejection of an access request, TOPFAS shall send an email notification to the user requesting access with the result of the request.	2	MUST	BMD-ARS-7859
[REQ-0860]	The TOPFAS applications shall log the following activities: authentication events (successful and failed logins etc.), file events; export and import events; user account events (change of role, group membership etc.) to security logs.	1	MUST	BMD-ARS-8135 / BMD-ARS-8136 / BMD-ARS-8137 / BMD-ARS-5656
[REQ-0870]	The TOPFAS applications shall log application errors and faults automatically to application logs with technical and debug information.	1	MUST	BMD-ARS-8141
[REQ-0880]	TOPFAS logs shall contain as a minimum: timestamp; event, status and/or error codes; service/command/application; name/user(s) or system account(s) associated with an event; device used (e.g. MAC address, source and destination IP address, web browser).	1	MUST	BMD-ARS-8138
[REQ-0890]	TOPFAS logs shall be only accessible by users with Administrator privileges.	1	MUST	BMD-ARS-8139
[REQ-0900]	TOPFAS shall provide a UI for viewing logs with sorting and filtering capabilities on all log events.	1	MUST	BMD-ARS-8135 / BMD-ARS-5656
[REQ-0910]	The TOPFAS applications' logging configuration settings shall be only accessible by users with Administrator privileges.	1	MUST	BMD-ARS-8140
[REQ-0920]	The TOPFAS applications' logging configuration settings shall include options to specify log size, log recycling, log level details etc.	1	MUST	BMD-ARS-8135
[REQ-0930]	TOPFAS shall provide a UI for managing logging configuration settings.	1	MUST	BMD-ARS-8135
[REQ-0940]	TOPFAS shall present an archive option prior to logs being automatically overwritten if configured as such.	1	MUST	BMD-ARS-7885
[REQ-0950]	TOPFAS shall provide auditing and logging mechanisms for all database activities.	1	MUST	BMD-ARS-7886
[REQ-0960]	TOPFAS shall provide an Application Performance Monitoring (APM) capability by providing reports to a Service Quality Management (SQM) application. This capability shall be compatible with the current enterprise monitoring service.	2	MUST	BMD-ARS-2291
[REQ-0970]	TOPFAS shall gather data on the use and performance of the applications, i.e. how often features and commands are used, measurements of start-up time and processing time, hardware utilization, application crashes, and general usage statistics and/or user behaviour (TOPFAS telemetry component).	2	MUST	BMD-ARS-2291
[REQ-0980]	TOPFAS shall allow a system administrator to view, analyse and export the telemetry.	2	MUST	BMD-ARS-2291
[REQ-0990]	TOPFAS shall adhere to the guidelines for the preservation of information of permanent value in accordance with [AC/324-D(2014)0008] - Directive on the Preservation of NATO Digital Information of Permanent Value.	2	MUST	BMD-ARS-7839
[REQ-1000]	TOPFAS shall have a User Management web app that shall allow management of the user accounts / groups and user roles within each application database.	2	MUST	BMD-ARS-7249
[REQ-1010]	TOPFAS shall allow a privileged user to create new data repositories: Plans, Engagement Spaces, Areas of Interest, ORBATs and Data Sources, CJSORs etc.	2	MUST	BMD-ARS-7249
[REQ-1020]	TOPFAS shall allow a privileged user to manage user roles and permissions within a data repository.	2	MUST	BMD-ARS-7249
[REQ-1030]	TOPFAS shall have an Application and Service Configuration Management web app that shall allow management of the configuration of each application.	2	MUST	BMD-ARS-7251
[REQ-1040]	The applications shall implement user interfaces for managing all DEs that are identified through the requirements and use cases to be of relevance for the particular application.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1050]	The applications data entry form shall support the confidentiality metadata label syntax as defined by [ADatP-4774] for the DEs in accordance with the DE's confidentiality metadata attribute definitions.	2	MUST	BMD-ARS-8227
[REQ-1060]	The user shall be able to define default values for the applications data entry forms for the different DEs as per definition of the DE.	2	MUST	BMD-ARS-4654
[REQ-1070]	The application responsible for managing particular DE types shall enable an authorized user to select one or multiple DEs and tag them as soft-deleted.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1080]	The application responsible for managing particular DE types shall enable an authorized user to select one or multiple soft-deleted DEs and un-delete them (i.e. recycle bin functionality).	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1090]	The DE Property Panel shall be used for presenting all details of a selected DE (in read-only mode), and for editing all attributes of a DE (in edit mode).	2	MUST	BMD-ARS-4654
[REQ-1100]	The user shall be able to manage rich-text Notes of a DE in the property panel.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1110]	The user shall be able to add/open/delete Attachments (files or URIs) of a DE in the property panel. One attachment (image) can be made the primary image displayed in e.g. DE preview visualization.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1120]	The user shall be able to add/reply to/delete Comments of a DE in the property panel.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1130]	The user shall be able to view the relations between the DE and other DEs/Views in the property panel and open the related DE/View directly from the dialog.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-8722
[REQ-1140]	The user shall be able to view the Audit Trail of the DE in the property panel.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7886
[REQ-1150]	The user shall be able to view a small quick map in the property panel for DEs that are geo-located.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1160]	The user shall be able to display nationality flags for DEs that have a nation attribute in the property panel.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-1743
[REQ-1170]	The user shall be able to manage military APP-6D symbols for appropriate DEs in the property panel.	2	MUST	BMD-ARS-4655
[REQ-1180]	The DE Preview Panel shall be used for presenting the main details of a selected DE in read-only mode.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1190]	The user shall be able to open the Property Panel of the DE from a hyperlink in the Preview Panel.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1200]	The user shall be able to view the relations between the DE and other DEs/Views in the preview panel.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1210]	The user shall be able to open the Property Panel of a related DE from a hyperlink in the Preview Panel.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1220]	The user shall be able to open a view related to the DE from a hyperlink in the Preview Panel.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1230]	The user shall be able to view a small quick map in the preview panel for DEs that are geolocated.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1240]	The user shall be able to display nationality flags for DEs that have a nation attribute in the preview panel.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-1743
[REQ-1250]	The user shall be able to display military APP-6D symbols for appropriate DEs in the preview panel.	2	MUST	BMD-ARS-4655
[REQ-1260]	The user shall be able to search for and select one or multiple draft application-specific DEs and request for the selected DEs to be proposed/approved/rejected.	2	MUST	BMD-ARS-2179 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934
[REQ-1270]	The user shall be able to search for, filter, and sort application-specific proposed DEs, select one or multiple such DEs, and approve or reject the DEs.	2	MUST	BMD-ARS-2179 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

[REQ-1280]	The user shall be able to search, filter, and sort application-specific DEs where the approval has been rejected. It shall then be possible to update the DEs and set the status to draft or proposed, or delete them.	2	MUST	BMD-ARS-2179 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934
[REQ-1290]	TOPFAS shall maintain an Audit Trail for each DE. This audit trail shall contain details about any modifications to the DE: the action (create/update), the time it was carried out and the user who carried it out.	1	MUST	BMD-ARS-7886
[REQ-1300]	TOPFAS applications shall provide a global Audit View. This view shall contain details about any modifications to DEs: the action (create/update/delete), the time it was carried out and the user who carried it out. It shall also contain application login audits.	1	MUST	BMD-ARS-7886
[REQ-1310]	The user shall be able to filter the audit by action (e.g., create, update, delete, login, etc.), information attributes, users, context (e.g. Plan, Engagement Space, CJSOR, etc.) as well as selecting a period to view changes within the specified timeframe.	1	MUST	BMD-ARS-7886
[REQ-1320]	The user shall be able to sort the audit information.	1	MUST	BMD-ARS-7886
[REQ-1330]	The user shall be able to search the audit information.	1	MUST	BMD-ARS-7886
[REQ-1340]	The Explorer Module shall contain two panes. The left pane shall display a tree of filters. Each filter can be defined with a rule that determines which type of DE will be loaded in the filter as well as possible conditions on properties of the DE. The right pane shall display different visualisations of the DE in the selected filter: the List View (see section 2.4.2), the Hierarchical View (see section 2.4.3), the Relationship View (see section 2.4.4), the Story Line View (see section 2.4.5), the Quick Map View (see section 2.4.6) and the Table View (see section 2.4.7).	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1350]	Each filter shall display the number of DEs matching the filter's rule.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1360]	The user shall be able to organize the filters in the Explorer Module in folders.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1370]	The user shall be able to define user specific filters and shared filters in the Explorer Module.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1380]	The List View shall display a grid with rows of DEs with their properties as columns.	1	MUST	BMD-ARS-6513 / BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1390]	The user shall be able to sort the List View by groups and by columns. When the List View includes groups, the column sorting shall be done within the groups (per group).	2	MUST	BMD-ARS-4654
[REQ-1400]	The user shall be able to filter the List View by value per column.	2	MUST	BMD-ARS-4654
[REQ-1410]	The user shall be able to hide and unhide columns in the List View.	2	MUST	BMD-ARS-4654
[REQ-1420]	The user shall be able to display the columns using three predefined settings: Basic (the most basic set of properties), Extended (a useful set of properties including the ones from Basic) and All Columns.	2	MUST	BMD-ARS-4654
[REQ-1430]	The user shall be able to define collapsible groups in the List View by dragging and dropping an attribute column header to a "Group By field". It shall be possible to add multiple tier groups by dragging additional column headers to the "Group By field". It shall also be possible to reorder the tiers in the groups and remove a tier from the groups.	2	MUST	BMD-ARS-4654
[REQ-1440]	The user shall be able to perform free-text search against the content in the grid and have the search hits highlighted and rows filtered out.	2	MUST	BMD-ARS-4654
[REQ-1450]	The user shall be able to change multiple properties of the current selection of DEs in one "bulk change" operation. The possible operations for each property shall depend on the field type. For instance, for string fields it shall be possible to use operations like update/append/prepend and for date fields is shall be possible to select a date from a date picker control.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1460]	The user shall be able to duplicate a row and create a new DE with cell values from the copied row, except for label which must be unique (append with underscore and sequence number) and name (append with " (Copy)").	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1470]	The List View shall include scroll bars for both vertical and horizontal scrolling that appears when the available data exceeds the current viewport.	2	MUST	BMD-ARS-4654
[REQ-1480]	The List View shall allow both a horizontal and vertical split where each part can individually scroll the data set.	2	MUST	BMD-ARS-4654
[REQ-1490]	The user shall be able to switch between the following display settings: List View (the default mode), Tiles View (displays a large icon and description), Extra Large View (displays a large thumbnail).	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1500]	The user shall be able to format cells based on conditions (e.g. contains text, greater than, duplicates etc.).	2	MUST	BMD-ARS-4654
[REQ-1510]	The user shall be able to access the Notes of a DE in the List View.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1520]	The user shall be able to access the Attachments of a DE in the List View.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1530]	The user shall be able to access the Comments of a DE in the List View.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1540]	The List View shall have a charting functionality to allow users to present selected DEs on one or more charts.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654
[REQ-1550]	The charting functionality shall support the following chart types: pie charts, horizontal and vertical bar charts, doughnut charts and counters.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654
[REQ-1560]	The charting functionality shall allow a user to selection of the DE property by which to group DEs on the chart.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654
[REQ-1570]	The user shall be able to export the data in the List View directly to a Microsoft Excel file. Note that hidden columns and rows shall not be exported.	1	MUST	BMD-ARS-7558 / BMD-ARS-8227 / BMD-ARS-8228 / BMD-ARS-5389 / BMD-ARS-8853 / BMD-ARS-947 / BMD-ARS-948 / BMD-ARS-5656
[REQ-1580]	The user shall be able to load the Preview Panel with the main DE details when a DE is selected in the List View.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1590]	The user shall be able to display nationality flags for DEs that have a nation attribute in the List View.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-1743
[REQ-1600]	The user shall be able to display military APP-6D symbols for appropriate DEs in the List View.	2	MUST	BMD-ARS-4655
[REQ-1610]	The user shall be able to switch the display of the List View between requirements and contributions (i.e. show capability and flag) of DEs of type Resource.	2	MUST	BMD-ARS-8822
[REQ-1620]	The Hierarchical View shall be able to display the parent/child relationships of DEs as a tree grid structure.	1	MUST	BMD-ARS-8157 / BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1630]	The Hierarchical View shall be able to display the C2 relationships of DEs of type Resource.	2	MUST	BMD-ARS-4773 / BMD-ARS-4774
[REQ-1640]	The user shall be able to expand/collapse any or all nodes.	1	MUST	BMD-ARS-8157 / BMD-ARS-4654
[REQ-1650]	The user shall be able to load the Preview Panel with the main DE details when a DE is selected in the Hierarchical View.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1660]	The user shall be able to display military APP-6D symbols for appropriate DEs in the Hierarchical View.	2	MUST	BMD-ARS-4655
[REQ-1670]	The user shall be able to switch the display of the Hierarchical View between requirements and contributions (i.e. show capability and flag) of DEs of type Resource.	2	MUST	BMD-ARS-8822
[REQ-1680]	The Relationship View shall visualise how DEs are related in a network diagram.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1690]	The Relationship View shall have support for different layout algorithms to include spring, tree, radial tree and chord diagram.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1700]	The Relationship View shall include functionality for reducing clutter. The de-cluttering function shall include grouping/ combining of nodes by user-selected attributes. The grouped nodes shall depict glyphs informing about the nature of the grouping of nodes. The rendered size of the grouped nodes shall visually be distinguishable based on the number of nodes within the combined node.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1710]	The user shall be able to filter the information in the Relationship View by utilizing the current List View filter, and then only show those nodes and any nodes that they are related to.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1720]	The user shall be able to expand any node with all nodes it is linked to (e.g. by double-clicking, or right-clicking, a node).	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1730]	The user shall be able to hide/unhide names and/or labels for the DEs and the relationships.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1740]	The user shall be able to render nodes in the Relationship View as circles or as icons based on DE type.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1750]	The user shall be able to decorate the symbols in Relationship View with nationality flags for DEs that have a nation attribute.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-1743
[REQ-1760]	The user shall be able to load the Preview Panel with the main DE details when a DE is selected in the Relationship View.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1770]	The user shall be able to display military APP-6D symbols for appropriate DEs in the Relationship View.	2	MUST	BMD-ARS-4655
[REQ-1780]	The StoryLine View shall visualise DEs with a time attribute on two panes: a timeline on the bottom where the horizontal axis shall represent the time dimension and shall display the DEs and an overview pane at the top which will show details of the selected DE in the timeline below.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1790]	If a DE has multiple time attributes, the user shall be able to select the attribute to be used in the timeline.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1800]	The user shall be able to zoom in and out of/ pan along the timeline.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1810]	The user shall be able to move to the next or previous event and centre the timeline on that event.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146

[REQ-1820]	The StoryLine View plot area (canvas) shall have support for callout-boxes and other graphical shapes that can contain formatted text (i.e. font size, type, and colours is dynamically configurable) and pictures combined with text. The user shall be able to show DE symbols within the call-out box. The colours of the call-out boxes and the graphical shapes can be dynamically changed.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1830]	The StoryLine View shall have support for automatic de-cluttering of the timeline. E.g. stacking callout boxes horizontally or vertically.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1840]	When a user selects a DE in the Timeline View, the overview pane shall display the main details and image of the DE and a Quick Map when it is geolocated.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1850]	It shall be possible to load the Preview Panel with the main DE details when a DE is selected in the StoryLine View	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1860]	The Quick Map shall display geographical attributes of DEs on a map view.	1	MUST	BMD-ARS-6513 / BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1870]	The Quick Map shall allow the user to create, update and delete the geographical attributes of DEs.	1	MUST	BMD-ARS-6513 / BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1880]	The Quick Map shall allow the user to create, update and delete generic geographical objects unrelated to DEs.	1	MUST	TOPFAS
[REQ-1890]	The Quick Map View shall be able to create named and hierarchical overlays.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-1900]	The Quick Map View shall be able remove an overlay and all features and objects within the overlay.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-1910]	The Quick Map View shall be able to hide an overlay and all features and objects within the overlay.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-1920]	The Quick Map View shall be able to unhide an overlay (and all its content).	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-1930]	The Quick Map View shall be able to reorder the sequence of layers (from foreground to background).	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-1940]	The Quick Map View shall be able to display layers provided by NCOP.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-1950]	The Quick Map View shall be able to display NVG layers from services (e.g. AirC2IS).	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-1960]	The Quick Map shall enable the easy identification of the DE and its associated geographical characteristics (e.g. links). For instance, the view shall allow the highlight or display of those links when the DE is selected. The semantic meaning of the links must be taken into account to control the extend of the highlight.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-1970]	The Quick Map shall display a scale indicator.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654
[REQ-1980]	The Quick Map shall continuously display the current mouse coordinates in LatLong / MGRS / UTM.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654
[REQ-1990]	It shall be possible to zoom in or out or pan the Quick Map.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654
[REQ-2000]	The user shall be able to measure distances on the Quick Map.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654
[REQ-2010]	The user shall be able to display LatLong / MGRS / UTM grids on the Quick Map.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654
[REQ-2020]	When a DE is selected on the Quick Map, a popup will display label, name and coordinates of the DE and a link to open the Properties Panel.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2030]	The user shall be able to show/hide DE labels on the Quick Map.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2040]	The user shall be able to enable/disable decluttering of DEs on the Quick Map.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2050]	The Quick Map shall be able to display background maps from CoreGIS (WMS/WMTS), any WMS provider, any WMTS provider, OpenStreetMap and offline map tiles.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-1634 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2060]	The user shall be able to select the background map from a list of providers for the Quick Map.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-1634 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2070]	The user shall be able to use a geocoder service to search for a location and mark the selected location on the Quick Map.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2080]	The user shall be able to load the Preview Panel with the main DE details when a DE is selected on the Quick Map.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2090]	The user shall be able to display heat maps of the DEs on the Quick Map. The scale radius of the heat maps shall be configurable.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2100]	The user shall be able to display military APP-6D symbols for appropriate DEs on the Quick Map.	2	MUST	BMD-ARS-4655
[REQ-2110]	The user shall be able to export any combination of overlays of the Quick Map to an NVG file.	1	MUST	BMD-ARS-8797 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2120]	The user shall be able to switch the display of the Quick Map View between requirements and contributions (i.e. show capability and flag) of DEs of type Resource.	2	MUST	BMD-ARS-8822
[REQ-2130]	The Table View shall display a summary table with rows of DEs with label and name as columns.	1	MUST	BMD-ARS-6513
[REQ-2140]	The Table View shall include scroll bars for both vertical and horizontal scrolling that appears when the available data exceeds the current viewport.	2	MUST	BMD-ARS-4654
[REQ-2150]	The user shall be able to export the data in the Table View directly to a Microsoft Excel file.	2	MUST	BMD-ARS-8797 / BMD-ARS-8800 / BMD-ARS-8807
[REQ-2160]	The user shall be able to load the Preview Panel with the main DE details when a DE is selected in the Table View.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2170]	The user shall be able to create multiple OpsDesigns diagrams within the OpsDesign View.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2180]	The user shall be able to add DEs to an OpsDesign View.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2190]	It shall be possible zoom in and out of the OpsDesign diagram.	2	MUST	BMD-ARS-4654
[REQ-2200]	The OpsDesign View shall include scroll bars for both vertical and horizontal scrolling that appears when the available data exceeds the current viewport.	2	MUST	BMD-ARS-4654
[REQ-2210]	The user shall be able to export the data in the OpsDesign View directly to a Microsoft PowerPoint / Adobe PDF / Image file, see also section 2.1.4.	2	MUST	BMD-ARS-8797 / BMD-ARS-8800 / BMD-ARS-8807
[REQ-2220]	The user shall be able to load the Preview Panel with the main DE details when a DE is selected in the OpsDesign View.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2230]	The user shall be able to create multiple TimeLine diagrams within the TimeLine View. Each diagram shall consist of two panes: a data grid on the left with the DEs and a timeline on the right with a Gantt chart.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2240]	The user shall be able to zoom in and out and pan within the timeline part of the TimeLine diagram.	2	MUST	BMD-ARS-4654
[REQ-2250]	The user shall be able to render DEs with a timing aspect in the timeline part of the TimeLine diagram.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2260]	The user shall be able to depict date lines in the timeline part of the TimeLine diagram.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2270]	The user shall be able to view more the main properties of DEs in columns in the data grid part of the TimeLine diagram.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2280]	The user shall be able to view the DEs in a hierarchy in the data grid part of the TimeLine diagram.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2290]	The user shall be able to search for data in the grid part of the TimeLine diagram.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2300]	The user shall be able to hide and un-hide columns in the grid part of the TimeLine diagram.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2310]	The user shall be able to display either relative or calendar dates in the timeline part of the TimeLine diagram.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2320]	The user shall be able to scroll horizontally and vertically in both the data grid part and the timeline part of the TimeLine diagram.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2330]	The TimeLine View shall have a summary functionality to present selected DEs on a single line to highlight key planning objects of the TimeLine.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2340]	The user shall be able to load the Preview Panel with the main DE details when a DE is selected in both the grid part and timeline part of the TimeLine diagram.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2350]	The user shall be able to display military APP-6D symbols for appropriate DEs on the TimeLine diagram.	2	MUST	BMD-ARS-4655
[REQ-2360]	The user shall be able to switch the display of the TimeLine View between requirements and contributions (i.e. show capability and flag) of DEs of type Resource.	2	MUST	BMD-ARS-8822
[REQ-2370]	The user shall be able to create multiple maps within the Map View.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2380]	The Map shall be able to display background maps from CoreGIS (WMS/WMTS), any WMS provider, any WMTS provider and OpenStreetMap.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-1634 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2390]	The user shall be able to create named and hierarchical overlays.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2400]	The user shall be able remove an overlay and all features and objects within the overlay.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2410]	The user shall be able to turn visibility of an overlay and all features and objects within the overlay on/off.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2420]	The user shall be able to reorder the sequence of layers (from foreground to background).	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2430]	The user shall be able to display layers provided by NCOP.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635

[REQ-2440]	The user shall be able to display NVG layers from services (e.g. AirC2IS).	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2450]	The user shall be able to display feature layers from DEs (System Element, GeoLoc, etc.).	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2460]	The user shall be able to create/update/delete APP-6D symbols on the Map.	1	MUST	BMD-ARS-4655 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2470]	The user shall be able to draw icons, pictures, and geometric shapes (with selectable styles like colour, fill pattern, line width etc.) on the Map.	1	MUST	BMD-ARS-4655 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2480]	The Map shall be able to render NATO Vector Graphics (NVG) data and Keyhole Markup Language (KML) in overlays.	1	MUST	BMD-ARS-4655 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2490]	The user shall be able to display and query features from CoreGIS (WMS and WFS).	1	MUST	BMD-ARS-4655 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2500]	The user shall be able to hide/unhide labels for DEs.	1	MUST	BMD-ARS-4655 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2510]	The user shall be able to remove features from the Map.	1	MUST	BMD-ARS-4655 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2520]	The user shall be able to turn the visibility of features in the Map on/off.	1	MUST	BMD-ARS-4655 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635 / BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2530]	The Application Framework shall detect when features are selected in the Map and subsequently identify the feature (e.g. as a particular DE) and display the main characteristics in the Preview Pane.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2540]	The Application Framework shall be able to command the Map to select (and highlight) features when the user selects a DE.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2550]	The Application Framework shall be able to query the Map for status information and receive information on which features in the Map are currently selected/visible.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2560]	The user shall be able to click in the Map and use the location as the centre point of a circle with customizable radius to define a geolocation boundary and the Map shall display the selected features within the circle in a list.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2570]	The user shall be able to draw an area in Map to define a geolocation boundary and the Map shall display the selected features within the area in a list.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2580]	The user shall be able to perform location searches using a geocoder service and mark the selected location on the map.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2590]	The user shall be able to perform location searches from a gazetteer service and mark the selected location on the map.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2600]	The user shall be able to filter DE objects on the Map by one or more DE attributes, e.g. Units by Capability Code and nation, System Elements by type, Geolocs by nation etc.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2610]	The user shall be able to incrementally zoom in and out of the Map.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654
[REQ-2620]	The Map shall be able to detect that the zoom level has been changed from within the Map.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654
[REQ-2630]	The user shall be able to re-centre the Map on a particular overlay.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654
[REQ-2640]	The user shall be able to centre and zoom to a specific feature on the Map.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654
[REQ-2650]	The user shall be able to centre the Map on a specific geolocation at a user-defined zoom-level.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-4654
[REQ-2660]	The user shall be able to import NVG files and display as overlays in the Map.	1	SHOULD	BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2670]	The user shall be able to import KML and zipped KML (KMZ) files and display them as overlays in the Map.	1	SHOULD	BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2680]	The user shall be able to export the visual viewport of the Map as a PNG/JPG/BMP file.	1	SHOULD	BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2690]	The user shall be able to export an overlay of the Map as an NVG file.	1	SHOULD	BMD-ARS-7830 / BMD-ARS-7831 / BMD-ARS-7829 / BMD-ARS-7635
[REQ-2700]	The user shall be able to display LatLong, MGRS and UTM grids on the Map.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2710]	The Map shall display a scale indicator.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2720]	The Map shall continuously display the current mouse coordinates. The user shall be able to select the output format (LatLong/MGRS/UTM).	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2730]	The user shall be able to load the Preview Panel with the main DE details when a DE is selected in the Map.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2740]	The user shall be able to create multiple Documents within the Document Module.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934
[REQ-2750]	The user shall be able to add DEs to a Document. It shall be configurable which properties of the different DE types will be shown in the document.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934
[REQ-2760]	The Document View shall be able to export the document to Microsoft Word.	2	MUST	BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934 / see section 2.1.4
[REQ-2770]	The Forces View shall manage the Force requirements as a tree grid structure.	1	MUST	BMD-ARS-8008 / BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2780]	The tree grid shall allow the operator to filter DEs by column values.	1	MUST	BMD-ARS-8009 / BMD-ARS-8030 / BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2790]	The user shall be able to create Force requirements (Organisations/Resources) manually, from an ORBAT or from a Capability Code.	2	MUST	BMD-ARS-8008 / BMD-ARS-8028
[REQ-2800]	The Forces View shall be able to display Force Contributions from EFGMT.	2	MUST	BMD-ARS-8822
[REQ-2810]	The Forces View shall be able to switch the display between requirements and contributions (i.e. show capability and flag).	2	MUST	BMD-ARS-8822
[REQ-2820]	The Force View shall allow the operator to compare two ORBATs and produce SOR lines for identified differences.	2	MUST	BMD-ARS-8709
[REQ-2830]	The user shall be able to manage Statement of Requirements (SORs), Allied Disposition Lists (ADLs) and Allied Forces Lists (AFLs). They shall support baselining and change tracking.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2840]	The SOR Management View shall allow the planner to generate a new SOR. When the planner decides to update an existing SOR, the requirement data shall be merged with the existing SOR baseline.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-2850]	The user shall be able to show the status of an SOR/ADL/AFL at a specific date.	2	MUST	BMD-ARS-8042 / BMD-ARS-8043 / BMD-ARS-8114
[REQ-2860]	The user shall be able to show the differences of an SOR/ADL/AFL between two specific dates. It shall be possible to filter the results on any property of the SOR/ADL/AFL.	2	MUST	BMD-ARS-8110 / BMD-ARS-8114 / BMD-ARS-8113 / BMD-ARS-8112 / BMD-ARS-8708 / BMD-ARS-8821
[REQ-2870]	The user shall be able to display force contributions filtered by status 'Informal Offer' or 'Formal Offer' from EFGMT in the SOR by using the FEL service (see [REQ-6170]).	2	MUST	BMD-ARS-8822
[REQ-2880]	The SOR Management View shall be able to display any CRUD operation made to contributions in EFGMT automatically using the CJSOR services (see [REQ-6170]).	2	MUST	BMD-ARS-8822
[REQ-2890]	The SOR Management View shall highlight changes to the CJSOR using icons that display 'new', 'updated' or 'deleted' for a configurable amount of time. When objects are deleted in EFGMT, they are highlighted as such in OPT, but not removed until the planner deliberately confirms the delete.	2	MUST	BMD-ARS-8822
[REQ-2900]	The SOR Management View shall be able to highlight unfulfilled requirements (i.e. without 'Informal Offer' or 'Formal Offer')	2	MUST	BMD-ARS-8042 / BMD-ARS-8043 / BMD-ARS-8114
[REQ-2910]	The user shall be able to generate a report containing unfulfilled requirements and associated Actions to support planners in re-planning the mission.	2	MUST	BMD-ARS-8042 / BMD-ARS-8043 / BMD-ARS-8114
[REQ-2920]	The user shall be able to save the SOR as an ORBAT containing the requirements as generic Units.	2	MUST	BMD-ARS-8717
[REQ-2930]	The user shall be able to export the SOR to a Microsoft Excel file.	1	SHOULD	BMD-ARS-7142 / see section 2.1.4
[REQ-2940]	The user shall be able to export the SOR to an XML file using the latest FASInterop schema at the time of implementation.	1	SHOULD	BMD-ARS-7142 / see section 2.1.4
[REQ-2950]	The user shall be able to export the AFL to an XML file using the latest FASInterop schema at the time of implementation.	1	MUST	BMD-ARS-7128 / see section 2.1.4
[REQ-2960]	The user shall be able to import the AFL from an XML file using the latest FASInterop schema at the time of implementation.	1	MUST	BMD-ARS-7109 / BMD-ARS-8311
[REQ-2970]	The user shall be able to export the ADL from an XML file using the latest FASInterop schema at the time of implementation.	1	MUST	BMD-ARS-7127 / see section 2.1.4
[REQ-2980]	The user shall be able to import the ADL to an XML file using the latest FASInterop schema at the time of implementation.	1	MUST	MD-ARS-7109 / BMD-ARS-8311
[REQ-2990]	EFGMT shall allow a force generator to select a CJSOR from OPT via the CJSOR service (see [REQ-6160]) and perform force generation on the selected CJSOR. The selected CJSOR will be common to both planners in OPT and force generators in EFGMT from this point onwards.	2	MUST	BMD-ARS-8008 / BMD-ARS-8009 / BMD-ARS-8030 / BMD-ARS-8028 / BMD-ARS-8026 / BMD-ARS-8042 / BMD-ARS-8043 / BMD-ARS-8041 / BMD-ARS-8040 / BMD-ARS-8037 / BMD-ARS-8820 / BMD-ARS-8114
[REQ-3000]	EFGMT shall display any CRUD operation made to requirements of the CJSOR in OPT automatically using the CJSOR services (see [REQ-6160]).	2	MUST	BMD-ARS-8008 / BMD-ARS-8112
[REQ-3010]	EFGMT shall highlight changes to the CJSOR using icons that display 'new', 'updated' or 'deleted' for a configurable amount of time. When objects are deleted in OPT, they are highlighted as such in EFGMT, but not removed until the force generator deliberately confirms the delete.	2	MUST	BMD-ARS-8008 / BMD-ARS-8112
[REQ-3020]	The Missile Defence Module shall allow a user to create JPDALs from selected JPCALs or Defence Designs.	1	MUST	TOPFAS
[REQ-3030]	The CAL/PCAL/JPCAL View shall allow users to manage Critical Assets, allow changing the rank by ordering or calculation from CVRT (Criticality, Vulnerability, Recuperability and Threat) values and filtering by priority levels.	1	MUST	TOPFAS

[REQ-3040]	The JPDAL View shall allow users to provide a capability to manage Defended Assets, allow changing the rank by ordering or calculation from CVRT (Criticality, Vulnerability, Recuperability and Threat) values, filtering by priority levels and filtering by defended and at risk assets.	1	MUST	TOPFAS
[REQ-3050]	The OPFOR TBM COA View shall allow the user to view OPFOR TBM COAs from Defence Designs. The view shall contain two panes. The left pane shall display a tree with a breakdown of the OPFOR TBM COA received from AirC2IS data sources. The right pane shall display a Quick Map of the OPFOR TBM COA.	1	MUST	TOPFAS
[REQ-3060]	The Defence Design View shall contain two panes. The left pane shall display a tree with a breakdown of Defence Design DEs received from AirC2IS data sources. The pane can show a Defence Resource-, Asset- or Threat-centric tree. The right pane shall display a Quick Map of the Defence Design and highlight selections made in the tree by the user.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-3070]	The user shall be able to create multiple C2 arrangement diagrams within the C2 Arrangement View.	2	MUST	BMD-ARS-4773
[REQ-3080]	The user shall be able to create a C2 arrangement per phase of the operation.	2	MUST	BMD-ARS-4774
[REQ-3090]	The user shall be able to select the phase of the operation and display the associated C2 arrangement diagram.	2	MUST	BMD-ARS-4774
[REQ-3100]	The user shall be able to create one or more of the following types of C2 relations between units: Full Command, Functional Command, National Command, Administrative Control, LOGCON, OPCOM, OPCON, TACOM, TACON, Ad-Hoc, Cooperation, Coordination, Liaison, Supporting and Reporting.	1	MUST	BMD-ARS-4773 / BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-3110]	The user shall be able to load the Preview Panel with the main unit details when a unit is selected in the C2 arrangement View.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-3120]	The user shall be able to manage all document templates with the Template Organizer.	2	MUST	BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934
[REQ-3130]	The user shall be able to duplicate a document template with the Template Organizer.	2	MUST	BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934
[REQ-3140]	The user shall be able to import/export document templates with the Template Organizer.	2	MUST	BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934
[REQ-3150]	The user shall be able to compare COAs with the COA Comparison View. Supported types of comparison are: - Advantages and Disadvantages; - Friendly and Opposing COA; - Commander's Criteria Narrative; - Commander's Criteria Single Word; - Commander's Criteria Numerical Analysis; - Commander's Criteria Broad Categories.	2	MUST	BMD-ARS-8149 / BMD-ARS-8151 / BMD-ARS-8152 / BMD-ARS-8153 / BMD-ARS-8154
[REQ-3160]	The user shall be able to display Force Holdings (number and type of equipment, personnel etc.) within the Holdings View.	2	MUST	BMD-ARS-8710
[REQ-3170]	The Holdings View shall display different grids with unit, holdings (Items) and Reportable Item Code (RIC) information: By Category, By Item, By Category Details and By Unit.	2	MUST	BMD-ARS-8710
[REQ-3180]	The user shall be able to sort the Holdings View by groups and by columns. When the Holdings View includes groups, the column sorting shall be done within the groups (per group).	2	MUST	BMD-ARS-4654
[REQ-3190]	The user shall be able to hide and unhide columns in the Holdings View.	2	MUST	BMD-ARS-4654
[REQ-3200]	The user shall be able to define collapsible groups in the Holdings View by dragging and dropping an attribute column header to a "Group By field". It shall be possible to add multiple tier groups by dragging additional column headers to the "Group By field". It shall also be possible to reorder the tiers in the groups and remove a tier from the groups.	2	MUST	BMD-ARS-4654
[REQ-3210]	The user shall be able to assign a location to a Force Holding and display it in the properties and on the Quick Map View.	1	MUST	BMD-ARS-6515 / BMD-ARS-6516 / BMD-ARS-6517 / BMD-ARS-6518 / BMD-ARS-6519 / BMD-ARS-6520 / BMD-ARS-6521 / BMD-ARS-8157 / BMD-ARS-6522 / BMD-ARS-6523 / BMD-ARS-6524 / BMD-ARS-6525 / BMD-ARS-6526 / BMD-ARS-8817
[REQ-3220]	It shall be possible to load the Preview Panel with the main unit details when a unit is selected in the Holdings View	2	MUST	BMD-ARS-8710
[REQ-3230]	The user shall be able to display unit readiness information within the Readiness View.	2	MUST	BMD-ARS-8710
[REQ-3240]	The Readiness View shall a grid with the different unit readiness categories (unit/personnel/equipment/ammunition/fuel/training).	2	MUST	BMD-ARS-8710
[REQ-3250]	The user shall be able to select a readiness status date to display the readiness state as of the status date.	2	MUST	BMD-ARS-8710
[REQ-3260]	It shall be possible to load the Preview Panel with the main unit details when a unit is selected in the Readiness View.	2	MUST	BMD-ARS-8710
[REQ-3270]	It shall be possible to display ORBATs (Friendly, OPFOR, BMOPFOR) within the ORBAT View.	1	MUST	BMD-ARS-8710 / BMD-ARS-6519 / BMD-ARS-6520 / BMD-ARS-6521 / BMD-ARS-6522 / BMD-ARS-8817
[REQ-3280]	The ORBAT View shall have a Hierarchy view (see 2.4.3)	1	MUST	BMD-ARS-8157
[REQ-3290]	The ORBAT View shall have a List view (see 2.4.2)	1	MUST	BMD-ARS-6519 / BMD-ARS-6521 / BMD-ARS-6522
[REQ-3300]	The ORBAT View shall have a Quick Map view (see 2.4.6)	1	MUST	BMD-ARS-8710 / BMD-ARS-6519 / BMD-ARS-6520 / BMD-ARS-6521 / BMD-ARS-6522 / BMD-ARS-8817
[REQ-3310]	The ORBAT View shall have a C2 Diagram view (see 2.4.16), but without planning phase-dependent C2 relationships.	1	MUST	BMD-ARS-8710 / BMD-ARS-6519 / BMD-ARS-6520 / BMD-ARS-6521 / BMD-ARS-6522 / BMD-ARS-8817
[REQ-3320]	The ORBAT View shall have a Holdings view (see 2.4.19)	1	MUST	BMD-ARS-8710 / BMD-ARS-6519 / BMD-ARS-6520 / BMD-ARS-6521 / BMD-ARS-6522 / BMD-ARS-8817
[REQ-3330]	The ORBAT View shall have a Readiness view (see 2.4.20)	1	MUST	BMD-ARS-8710 / BMD-ARS-6519 / BMD-ARS-6520 / BMD-ARS-6521 / BMD-ARS-6522 / BMD-ARS-8817
[REQ-3340]	The ORBAT View shall be able to receive Friendly ORBATs from an AirC2IS data source (see section 2.5.1.2). The ORBAT can consist of 'full' (i.e. real) or generic Units. It shall be possible to only import a subset of an ORBAT via selection of the units in the source.	2	MUST	BMD-ARS-8710 / BMD-ARS-8713
[REQ-3350]	The user shall be able to export Friendly ORBATs. The ORBAT can consist of 'full' (i.e. real) or generic Units.	2	MUST	BMD-ARS-8711
[REQ-3360]	The ORBAT View shall be able to aggregate a collection of individual OPFOR BM Force information into a higher echelon OPFOR ORBAT unit. The aggregation shall only be done in the user interface of the ORBAT View, the underlying data shall remain unchanged. The links between the individual OPFOR BM Force information and the aggregated Force shall be maintained, but not be visible in any tree view, map view etc.	1	MUST	BMD-ARS-8818
[REQ-3370]	The ORBAT View shall be able to aggregate individual OPFOR BM holdings into an aggregated holding and to associate it with an existing OPFOR ORBAT unit. The aggregation shall only be done in the user interface, the underlying data shall remain unchanged. The links between the individual OPFOR BM holdings and the aggregated holding shall be maintained, but not be visible in any tree view, map view etc.	1	MUST	BMD-ARS-8819
[REQ-3380]	The ORBAT View shall automatically update OPFOR BM Force and Holdings information when the data source to INTEL-FS gets updated (see section 2.5.1.1).	1	MUST	BMD-ARS-8818 / BMD-ARS-8819
[REQ-3390]	The user shall be able to compare two ORBATs and save the output to a Microsoft Excel file. It shall be possible to filter the results on any property of the ORBAT.	2	MUST	BMD-ARS-8708 / BMD-ARS-8821
[REQ-3400]	The user shall be able to integrate OPFOR BM ORBAT information into the Enemy ORBAT.	1	MUST	BMD-ARS-8817
[REQ-3410]	Any information that is provided via a service or direct database connection shall be automatically updated in TOPFAS when the source information is updated. Any information that is provided via file exchange shall be manually updated in TOPFAS by the user by importing a new file.	1	MUST	TOPFAS
[REQ-3420]	Any information from a Data Source shall not be changed in TOPFAS.	1	MUST	TOPFAS
[REQ-3430]	The TOPFAS operator shall be able to interface with INTEL-FS and be presented with an entry point into INTEL-FS.	1	MUST	BMD-ARS-8814
[REQ-3440]	The TOPFAS operator shall be able to select from a list of BMOPFORCOAs and BMOPFORORBATs the relevant ones to be added to the Data Source.	1	MUST	BMD-ARS-8814
[REQ-3450]	TOPFAS shall be able to decompose the BMOPFORCOAs and BMOPFORORBATs in the Data Source and load the content into filters of the Explorer Module component for the DE types: Area at Risk, BMOA, BM Types, OPFORORBAT and OPFORBMForce.	1	MUST	BMD-ARS-6508 / BMD-ARS-5979 / BMD-ARS-6075 / BMD-ARS-6146 / BMD-ARS-6515 / BMD-ARS-6517 / BMD-ARS-6523 / BMD-ARS-6525 / BMD-ARS-6511 / BMD-ARS-6512
[REQ-3460]	TOPFAS shall update an existing Data Source with the latest data from INTEL-FS automatically.	1	MUST	BMD-ARS-6508 / BMD-ARS-6516 / BMD-ARS-6518 / BMD-ARS-6524 / BMD-ARS-6526 / BMD-ARS-6511 / BMD-ARS-6512
[REQ-3470]	The TOPFAS operator shall be able to interface with AirC2IS and be presented with an entry point into AirC2IS.	1	MUST	BMD-ARS-5415 / BMD-ARS-5416 / BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-6186 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6192 / BMD-ARS-6457 / BMD-ARS-6933 / BMD-ARS-6934 / BMD-ARS-8026 / BMD-ARS-8027 / BMD-ARS-8042 / BMD-ARS-8248 / BMD-ARS-8800 / BMD-ARS-8809
[REQ-3480]	The TOPFAS operator shall be able to select from a list of missions the relevant ones to be added to the Data Source.	1	MUST	BMD-ARS-5415 / BMD-ARS-5416 / BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-6186 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6192 / BMD-ARS-6457 / BMD-ARS-6933 / BMD-ARS-6934 / BMD-ARS-8026 / BMD-ARS-8027 / BMD-ARS-8042 / BMD-ARS-8248 / BMD-ARS-8800 / BMD-ARS-8809

[REQ-3490]	TOPFAS shall be able to decompose the mission in the Data Source and load the content into filters of the Explorer Module component for the DE types: OPFOR TBM COA, Friendly ORBAT, Defence Design, Asset, PCAL, JPCAL, JPDAL and Interceptor.	1	MUST	BMD-ARS-5415 / BMD-ARS-5416 / BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-6186 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6192 / BMD-ARS-6457 / BMD-ARS-6933 / BMD-ARS-6934 / BMD-ARS-8026 / BMD-ARS-8027 / BMD-ARS-8042 / BMD-ARS-8248 / BMD-ARS-8800 / BMD-ARS-8809 / BMD-ARS-8280 / BMD-ARS-8281
[REQ-3500]	TOPFAS shall update an existing Data Source with the latest data from AirC2IS automatically.	1	MUST	BMD-ARS-5415 / BMD-ARS-5416 / BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-6186 / BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6192 / BMD-ARS-6457 / BMD-ARS-6933 / BMD-ARS-6934 / BMD-ARS-8026 / BMD-ARS-8027 / BMD-ARS-8042 / BMD-ARS-8248 / BMD-ARS-8800 / BMD-ARS-8809
[REQ-3510]	The TOPFAS operator shall be able to interface with CBRN-FS and be presented with an entry point into CBRN-FS.	2	MUST	BMD-ARS-8796 / BMD-ARS-8798 / BMD-ARS-8799 / BMD-ARS-8803 / BMD-ARS-8804 / BMD-ARS-8146 / BMD-ARS-8152 / BMD-ARS-2411 / BMD-ARS-8720 / BMD-ARS-2505 / BMD-ARS-8722 / BMD-ARS-8719 / BMD-ARS-8793 / BMD-ARS-8794 / BMD-ARS-7642 / BMD-ARS-7643
[REQ-3520]	The TOPFAS operator shall be able to select from a list of Areas at Risk with CBRN Annotations the relevant ones to be added to the Data Source.	2	MUST	BMD-ARS-8720
[REQ-3530]	TOPFAS shall be able to decompose the mission in the Data Source and load the content into an Areas at Risk with CBRN Annotations filter of the Explorer Module component.	2	MUST	BMD-ARS-8796 / BMD-ARS-8798 / BMD-ARS-8799 / BMD-ARS-8803 / BMD-ARS-8804 / BMD-ARS-8146 / BMD-ARS-8152 / BMD-ARS-2411 / BMD-ARS-8720 / BMD-ARS-2505 / BMD-ARS-8722 / BMD-ARS-8719 / BMD-ARS-8793 / BMD-ARS-8794 / BMD-ARS-7642 / BMD-ARS-7643
[REQ-3540]	TOPFAS shall update an existing Data Source with the latest data from CBRN-FS automatically.	2	MUST	BMD-ARS-8796 / BMD-ARS-8798 / BMD-ARS-8799 / BMD-ARS-8803 / BMD-ARS-8804 / BMD-ARS-8146 / BMD-ARS-8152 / BMD-ARS-2411 / BMD-ARS-8720 / BMD-ARS-2505 / BMD-ARS-8722 / BMD-ARS-8719 / BMD-ARS-8793 / BMD-ARS-8794 / BMD-ARS-7642 / BMD-ARS-7643
[REQ-3550]	The user shall be able to manage BMOAs. During create and update it shall be possible to use the Property Panel to define the BMOA either by drawing on the Quick Map or by entering coordinates.	1	MUST	BMD-ARS-5979
[REQ-3560]	The user shall be able to import BMOAs from an XML file.	1	MUST	BMD-ARS-6919
[REQ-3570]	The user shall be able to manage BM Types.	1	MUST	BMD-ARS-5981
[REQ-3580]	The user shall be able to manage Area at Risk. During create and update it shall be possible to use the Property Panel to define the Area at Risk either by drawing on the Quick Map or by entering coordinates.	1	MUST	BMD-ARS-6146
[REQ-3590]	The user shall be able to import Area at Risk from an XML file.	2	MUST	BMD-ARS-6921
[REQ-3600]	The user shall be able to manage BMOPFORCOAs.	1	MUST	BMD-ARS-6075
[REQ-3610]	The user shall be able to import BMOPFORCOAs from an XML file.	2	MUST	BMD-ARS-6920
[REQ-3620]	The user shall be able to associate a BM Type to a BMOA in the Scenario Building View (see section 2.5.5).	1	MUST	BMD-ARS-5980
[REQ-3630]	The user shall be able to associate a BMOA to an Area at Risk in the Scenario Building module (see section 2.5.5) if the BMOA and the BM types within the BMOA are compatible with the Area at Risk (i.e., the Area at Risk is completely within the maximum range of the related BMs within the BMOA as determined by the CoreGIS geo-processing service). If they are not compatible, the module shall display a warning to the operator and the association shall not be saved.	1	MUST	BMD-ARS-6918
[REQ-3640]	The user shall be able to modify an Area at Risk in the Scenario Building module (see section 2.5.5), if the changes are not making the Area incompatible with existing BMOA associations (i.e., the Area At Risk is completely within the maximum range of the related BMs within the associated BMOAs as determined by the CoreGIS geo-processing service). If the changes make the Area incompatible, the module shall display a warning to the user and not allow the changes to be saved.	1	MUST	BMD-ARS-6918
[REQ-3650]	The user shall be able to associate a TBMD/BMD Defence Design result with COAs.	2	MUST	BMD-ARS-8143
[REQ-3660]	The user shall be able to associate a TBMD/BMD Defence Design evaluation result with COAs.	2	MUST	BMD-ARS-8144
[REQ-3670]	The user shall be able to associate a BMOPFORCOA with Red COAs. A Red COA can only be associated with one BMOPFORCOA. When making the association, the operator shall be able to select which aspects of the BMOPFORCOA are used in the Red COA.	1	MUST	BMD-ARS-8170 / BMD-ARS-8171 / BMD-ARS-8813 / BMD-ARS-8816
[REQ-3680]	TOPFAS shall store BMOPFORCOAs with greater than or equal to 150 threats.	1	MUST	BMD-ARS-6509
[REQ-3690]	The BMD Scenario Building module shall include DE Property Panels as defined in section 2.2.2 to edit DEs managed by the application.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-3700]	The BMD Scenario Building module shall support the DE Preview Panels as defined in section 2.2.3 to display the main properties of a selected DE.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-3710]	The BMD Scenario Building module shall use the List View Component with all its features as defined in section 2.4.2.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-3720]	The BMD Scenario Building module shall use the Hierarchical View Component with all its features as defined in section 2.4.3.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-3730]	The BMD Scenario Building module shall use the Quick Map View component with all its features as defined in section 2.4.6 for the DEs that have a geospatial aspect.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-3740]	The Quick Map View shall show all the BMOAs as red filled shapes.	1	MUST	BMD-ARS-5979 / BMD-ARS-5408
[REQ-3750]	When the user clicks a BMOA on the Quick Map View, a tooltip shall be shown with the BMOA name and all Threat BMs in the BMOA with their minimum and maximum ranges.	2	MUST	BMD-ARS-3548 / BMD-ARS-5408
[REQ-3760]	The BMD Scenario Building module shall use the table View Component with all its features as defined in section 2.4.7.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-3770]	The BMD Scenario Building module shall use the Map View component as described in section 2.4.10.	1	MUST	BMD-ARS-5979 / BMD-ARS-5981 / BMD-ARS-6075 / BMD-ARS-6146
[REQ-3780]	The user shall be able to display an overlay with the BMOPFORCOA (Area at Risk, BMOA, BM Types, Launcher positions and OPFORBMForce or a subset of these DE types).	1	MUST	BMD-ARS-5408 / BMD-ARS-6513
[REQ-3790]	The user shall be able to display an overlay with the Critical Areas and Assets.	2	MUST	BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-8799
[REQ-3800]	The user shall be able to display an overlay with the maximum range of the interceptors as range rings.	2	MUST	BMD-ARS-6187
[REQ-3810]	The Scenario Building View shall be able to visualize a BMOPFORCOA in a structured manner. The view shall contain two panes: on the left a tree grid with the BMOPFORCOA and its constituent DEs and on the right a Quick Map which will display the active selection of the left pane.	1	MUST	BMD-ARS-8815
[REQ-3820]	The Scenario Building View shall be able to visualize display BMOPFORCOA in <= 1 second.	1	MUST	BMD-ARS-6510
[REQ-3830]	The tree grid of the Scenario Building View shall be allow the following operations: expand/collapse/open DE properties.	2	MUST	BMD-ARS-4654
[REQ-3840]	The user shall be able to display the BMOAs of the selected BMOPFORCOA on the Quick Map.	2	MUST	BMD-ARS-5408
[REQ-3850]	The Scenario Building View shall provide a clear indication that any DE information was entered locally within TOPFAS and did not originate from a Data Source.	2	MUST	BMD-ARS-8810
[REQ-3860]	TOPFAS shall provide a geo-processing service that can consume a set of source locations (e.g. Threat BM sites, interceptor sites, etc.) with or without ranges and azimuth and provide both an overlay and a list of target territories (including marine areas), countries (NATO Countries and Third States) and areas corresponding to the first administrative level below the National level (e.g. states, departments, provinces etc.) that can be impacted by BMs or overflown by own interceptors.	2	MUST	BMD-ARS-5667 / BMD-ARS-5405 / BMD-ARS-5661
[REQ-3870]	TOPFAS shall provide a geo-processing service that can consume a set of territories (including marine areas), countries (NATO Countries and Third States) etc. and a set of Areas at Risk/Areas at Risk with CBRN Annotations and provide both an overlay and a list of territories that are overlapping with the Areas at Risk/Areas at Risk with CBRN Annotations.	2	MUST	BMD-ARS-8811 / BMD-ARS-8796
[REQ-3880]	TOPFAS shall provide a geo-processing service that can consume a set of source location (e.g. Threat BM sites) with a range and a list of target locations and areas (e.g. Critical Areas and Assets) and provide a lists of targets can be impacted by BMs.	2	MUST	BMD-ARS-5415
[REQ-3890]	TOPFAS shall provide a geo-processing service that can consume a set of BMOAs and BM locations plus ranges and an Area at Risk and determine if the Area at Risk is completely within the maximum range of the BMs.	1	MUST	BMD-ARS-6918

[REQ-3900]	The Threat Identification View shall be able to visualize threats in a structured manner. It will consist of two panes and have different types of content: (1) When viewing the BMOPFORCOA, the left pane shall show a tree grid with the BMOPFORCOA and its constituent DEs and the right pane either a Quick Map or a Table View which will display the active selection of the left pane. (2) When viewing territories (including marine areas) and countries (NATO Countries and Third States), the left pane shall show a tree grid with the territories and countries and the right pine either a Quick Map or a Table View which will display the active threats to the selection of the left pane. (3) When viewing Critical Assets and Areas from the CAAL (Critical Area and Asset List), the left pane shall show a tree grid with the Critical Assets and Areas and the right pane either a Quick Map or a Table View which will display the active threats to the selection of the left pane. (4) When viewing Areas at Risk/Areas at Risk with CBRN Annotations, the left pane shall show a tree grid with the Areas and the right pine either a Quick Map or a Table View which will display the active threats to the selection of the left pane.	1	MUST	BMD-ARS-6075 / BMD-ARS-3548 / BMD-ARS-6002 / BMD-ARS-6187 / BMD-ARS-5408 / BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-6186 / BMD-ARS-8798 / BMD-ARS-8799 / BMD-ARS-8801 / BMD-ARS-8802 / BMD-ARS-8803 / BMD-ARS-8804 / BMD-ARS-8806 / BMD-ARS-8808
[REQ-3910]	The Quick Map shall allow the operator to create areas to be used as possible threatened areas for the threat identification.	1	MUST	BMD-ARS-6918 / BMD-ARS-3548 / BMD-ARS-5667 / BMD-ARS-8811 / BMD-ARS-6002 / BMD-ARS-8805
[REQ-3920]	The Threat Identification View shall provide a clear indication that any DE information was entered locally within TOPFAS and did not originate from a Data Source.	2	MUST	BMD-ARS-8810
[REQ-3930]	The Quick Map shall allow the operator to display the BM threat as range rings. The analysis should be based on performance data of the Threat BMs and the BMOAs in which are located and the maximum and minimum ranges of those Threat BMs.	2	MUST	BMD-ARS-3548
[REQ-3940]	The Threat Identification View shall allow the operator to determine territories and countries (Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas) which could be impacted by Threat Ballistic Missiles (BMs). The calculation shall be based on Threat BM maximum Ranges and taking into account the shape of the BMOA (point, circle, polygon).	2	MUST	BMD-ARS-5667
[REQ-3950]	The Threat Identification View shall allow the operator to associate the results from the analysis of affected territories based on Threat BM maximum Ranges and taking into account the shape of the BMOA (point, circle, polygon) to COAs.	2	MUST	BMD-ARS-8147
[REQ-3960]	The Quick Map shall allow the operator to display the results from the analysis of affected territories based on Threat BM maximum Ranges and taking into account the shape of the BMOA (point, circle, polygon).	2	MUST	BMD-ARS-3548
[REQ-3970]	The Quick Map shall allow the operator to filter the results from the analysis of affected territories based on Threat BM maximum Ranges and taking into account the shape of the BMOA (point, circle, polygon) by the types of area to be display: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.	2	MUST	BMD-ARS-3548
[REQ-3980]	The Table View shall allow the operator to display the results from the analysis of affected territories based on Threat BM maximum Ranges and taking into account the shape of the BMOA (point, circle, polygon). The Table View shall display the names of each affected area/territory.	2	MUST	BMD-ARS-3548
[REQ-3990]	The Table View shall allow the operator to filter the results from the analysis of affected territories based on Threat BM maximum Ranges and taking into account the shape of the BMOA (point, circle, polygon) by the types of area to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.	2	MUST	BMD-ARS-3548
[REQ-4000]	The Threat Identification View shall allow the operator to determine territories (including marine areas) and countries (NATO Countries and Third States) which could be overflown by own interceptors. The operator shall be able to limit the potentially overflown areas by own interceptors by an operator-defined azimuth area for each interceptor type and deployment location. The calculation shall be based on the characteristics of the interceptors.	2	MUST	BMD-ARS-5405 / BMD-ARS-5661
[REQ-4010]	The Threat Identification View shall allow the operator to associate the results from the analysis of territories which could be overflown by own interceptors based on the characteristics of the interceptors to COAs.	2	MUST	BMD-ARS-8147
[REQ-4020]	The Quick Map shall allow the operator to display the results from the analysis of territories which could be overflown by own interceptors based on the characteristics of the interceptors.	2	MUST	BMD-ARS-6187
[REQ-4030]	The Quick Map shall allow the operator to filter the results from the analysis of territories which could be overflown by own interceptors based on the characteristics of the interceptors by the types of area to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.	2	MUST	BMD-ARS-6187
[REQ-4040]	The Quick Map shall allow the operator to display the results from the analysis of territories which could be overflown by own interceptors based on the characteristics of the interceptors. It shall be possible to display the maximum range of the interceptors as range rings.	2	MUST	BMD-ARS-6187
[REQ-4050]	The Table View shall allow the operator to display the results from the analysis of territories which could be overflown by own interceptors based on the characteristics of the interceptors. The Table View shall display the names of each territory that can be overflown by own interceptors.	2	MUST	BMD-ARS-6187
[REQ-4060]	The Table View shall allow the operator to filter the results from the analysis of territories which could be overflown by own interceptors based on the characteristics of the interceptors by the types of area to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.	2	MUST	BMD-ARS-6187
[REQ-4070]	The Threat Identification View shall allow the operator to identify the Critical Assets and Areas from the CAAL (Critical Area and Asset List) that could be impacted by Threat Ballistic Missiles (BMs). The calculation shall be based on performance data of the BMOAs in which are located and the maximum and minimum ranges of those Threat BMs. The calculations shall be performed with and without taking the BM Targeting Strategy into account. The BM Targeting Strategy is part of the OPFOR BM COA and contains amongst other information Asset Types that could be targeted.	2	MUST	BMD-ARS-5415 / BMD-ARS-5991
[REQ-4080]	The Threat Identification View shall allow the operator to determine the type of Threat BM and in particular the Warhead Type that each Critical Asset and Area could be impacted by.	2	MUST	BMD-ARS-5416 / BMD-ARS-5415
[REQ-4090]	The Threat Identification View shall allow the operator to associate the results from the analysis of affected Critical Areas and Assets based on performance data of the Threat BMs and the BMOAs in which are located and the maximum and minimum ranges of those Threat BMs (with or without taking the BM Targeting Strategy into account) to COAs.	2	MUST	BMD-ARS-8148
[REQ-4100]	The Quick Map shall allow the operator to display the results of the calculation based on performance data of the Threat BMs and the BMOAs in which are located and the maximum and minimum ranges of those Threat BMs (with or without taking the BM Targeting Strategy into account).	2	MUST	BMD-ARS-5990 / BMD-ARS-6186 / BMD-ARS-5991 / BMD-ARS-8809
[REQ-4110]	The Quick Map shall allow the operator to filter the results of the calculation based on performance data of the Threat BMs and the BMOAs in which are located and the maximum and minimum ranges of those Threat BMs (with or without taking the BM Targeting Strategy into account) by the asset type (political or military assets), Threat BM Type and Warhead Types and the BM Targeting Strategy.	2	MUST	BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-6186 / BMD-ARS-8809
[REQ-4120]	The Table View shall allow the operator to display the results of the calculation based on performance data of the Threat BMs and the BMOAs in which are located and the maximum and minimum ranges of those Threat BMs (with or without taking the BM Targeting Strategy into account). The Table View shall display for each Critical Asset and Area the name and the associated Threat BM Types and the Warhead Types according to the selected filters.	2	MUST	BMD-ARS-5990
[REQ-4130]	The Table View shall allow the operator to filter the results of the calculation based on performance data of the Threat BMs and the BMOAs in which are located and the maximum and minimum ranges of those Threat BMs (with or without taking the BM Targeting Strategy into account) by the asset type (political or military assets), Threat BM Type and Warhead Types and the BM Targeting Strategy.	2	MUST	BMD-ARS-5990 / BMD-ARS-5991 / BMD-ARS-8809 / BMD-ARS-6186
[REQ-4140]	The Threat Identification View shall allow the operator to select a territory or country (Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas) and determine the Threat Ballistic Missiles (BMs) that can impact it. The calculation shall be based on maximum Ranges and taking into account the shape of the BMOA (point, circle, polygon) and Areas At Risk.	2	MUST	BMD-ARS-8801

[REQ-4150]	The Quick Map shall allow the operator to display the Threat Ballistic Missiles (BMs) that can impact the selected territory.	2	MUST	BMD-ARS-8801
[REQ-4160]	The Quick Map shall allow the operator to filter the Threat Ballistic Missiles (BMs) that can impact the selected territory by the BMOAs.	2	MUST	BMD-ARS-8801
[REQ-4170]	The Table View shall allow the operator to display the Threat Ballistic Missiles (BMs) that can impact the selected territory. The Table View shall display the details of the Threat BMs and the associated BMOAs.	2	MUST	BMD-ARS-8801
[REQ-4180]	The Threat Identification View shall allow the operator to select a Critical Asset or Area and determine the Threat Ballistic Missiles (BMs) that can impact it. The calculation shall be based on maximum Ranges and taking into account the shape of the BMOA (point, circle, polygon) and Areas At Risk.	2	MUST	BMD-ARS-8802
[REQ-4190]	The Quick Map shall allow the operator to display the Threat Ballistic Missiles (BMs) that can impact the selected Critical Asset or Area.	2	MUST	BMD-ARS-8802
[REQ-4200]	The Table View shall allow the operator to display the Threat Ballistic Missiles (BMs) that can impact the selected Critical Asset or Area. The Table View shall display the details of the Threat BMs and associated BMOAs.	2	MUST	BMD-ARS-8802
[REQ-4210]	The Threat Identification View shall allow the operator to select a territory or country (Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas) and determine the Threat BM Types and the Warhead Types it is threatened by. The calculation shall be based on performance data of the Threat BMs and the BMOAs in which are located and the maximum and minimum ranges of those Threat BMs.	2	MUST	BMD-ARS-8805
[REQ-4220]	The Table View shall allow the operator to display the Threat BM Types and the Warhead Types that can threaten the selected territory based on performance data of the Threat BMs and the BMOAs in which are located and the maximum and minimum ranges of those Threat BMs. The Table View shall display the names of each territory and the associated Threat BM Types and the Warhead Types.	2	MUST	BMD-ARS-8806
[REQ-4230]	The Threat Identification View shall allow the operator to determine territories and countries (Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas) which could be impacted by Threat Ballistic Missiles (BMs). The operator shall be able to select the types of areas to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas. The calculation shall be based on the Areas at Risk.	2	MUST	BMD-ARS-8811
[REQ-4240]	The Threat Identification View shall allow the operator to associate the results from the analysis of affected territories based on the Areas at Risk to COAs.	2	MUST	BMD-ARS-8147
[REQ-4250]	The Quick Map shall allow the operator to display the results from the analysis of affected territories based on the Areas at Risk.	2	MUST	BMD-ARS-6002
[REQ-4260]	The Quick Map shall allow the operator to filter the results from the analysis of affected territories based on the Areas at Risk by the types of areas to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.	2	MUST	BMD-ARS-6002
[REQ-4270]	The Table View shall allow the operator to display the results from the analysis of affected territories based on the Areas at Risk. The Table View shall display for each Area at Risk the name and territories/countries.	2	MUST	BMD-ARS-6002
[REQ-4280]	The Table View shall allow the operator to filter the results from the analysis of affected territories based on the Areas at Risk by the type of area to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.	2	MUST	BMD-ARS-6002
[REQ-4290]	The Threat Identification View shall allow the operator to identify the Critical Assets and Areas that could be impacted by Threat Ballistic Missiles (BMs) based on Areas At Risk. This data is contained in the DE "Areas at Risk" from INTEL-FS.	2	MUST	BMD-ARS-5990
[REQ-4300]	The Quick Map shall allow the operator to display the results from the analysis of the Critical Assets and Areas that could be impacted by Threat Ballistic Missiles (BMs) based on Areas At Risk.	2	MUST	BMD-ARS-5990
[REQ-4310]	The Quick Map shall allow the operator to filter the results from the analysis of the Critical Assets and Areas that could be impacted by Threat Ballistic Missiles (BMs) based on Areas At Risk by asset type (political or military assets) and Areas at Risk.	2	MUST	BMD-ARS-5990
[REQ-4320]	The Table View shall allow the operator to display the results from the analysis of the Critical Assets and Areas that could be impacted by Threat Ballistic Missiles (BMs) based on Areas At Risk. The Table View shall display the name of each Critical Asset and Area and the name of the associated Area At Risk according to the selected filters.	2	MUST	BMD-ARS-5990
[REQ-4330]	The Table View shall allow the operator to filter the results from the analysis of the Critical Assets and Areas that could be impacted by Threat Ballistic Missiles (BMs) based on Areas At Risk by asset type (political or military assets) and Areas at Risk.	2	MUST	BMD-ARS-5990 / BMD-ARS-8809
[REQ-4340]	The Threat Identification View shall allow the operator to determine territories and countries which could be impacted by COI/COE/CONI effects. The operator shall be able to select the types of areas to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas. The calculation shall be based on Areas At Risk with CBRN Annotations.	2	MUST	BMD-ARS-8796
[REQ-4350]	The Threat Identification View shall allow the operator to associate the results from the analysis of territories which could be impacted by COI/COE/CONI effects based on Areas At Risk with CBRN Annotations to COAs.	2	MUST	BMD-ARS-8146
[REQ-4360]	The Quick Map shall allow the operator to display the results from the analysis of territories which could be impacted by COI/COE/CONI effects based on Areas At Risk with CBRN Annotations.	2	MUST	BMD-ARS-8798
[REQ-4370]	The Quick Map shall allow the operator to filter the results from the analysis of territories which could be impacted by COI/COE/CONI effects based on Areas At Risk with CBRN Annotations by the types of areas to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.	2	MUST	BMD-ARS-8798
[REQ-4380]	The Table View shall allow the operator to display the results from the analysis of territories which could be impacted by COI/COE/CONI effects based on Areas At Risk with CBRN Annotations. The Table View shall display for each Area at Risk with CBRN Annotations the name and territories/countries.	2	MUST	BMD-ARS-8798
[REQ-4390]	The Table View shall allow the operator to filter the results from the analysis of territories which could be impacted by COI/COE/CONI effects based on Areas At Risk with CBRN Annotations by the type of area to be displayed: Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas.	2	MUST	BMD-ARS-8798
[REQ-4400]	The Table View shall allow the operator to export the results from the analysis of territories which could be impacted by COI/COE/CONI effects based on Areas At Risk with CBRN Annotations using the active filtering parameters.	2	MUST	BMD-ARS-8797
[REQ-4410]	The Threat Identification View shall allow the operator to identify the Critical Assets and Areas from the CAAL (Critical Area and Asset List) that could be impacted by COI/COE/CONI effects. This data is contained in the in the DE "Areas at Risk with CBRN Annotations" from CBRN-FS.	2	MUST	BMD-ARS-8799
[REQ-4420]	The Threat Identification View shall allow the operator to associate the results from the analysis of the Critical Assets and Areas from the CAAL that could be impacted by COI/COE/CONI effects to COAs.	2	MUST	BMD-ARS-8146
[REQ-4430]	The Quick Map shall allow the operator to display the results from the analysis of the Critical Assets and Areas from the CAAL that could be impacted by COI/COE/CONI effects.	2	MUST	BMD-ARS-8799
[REQ-4440]	The Quick Map shall allow the operator to filter the results from the analysis of the Critical Assets and Areas from the CAAL that could be impacted by COI/COE/CONI effects by Areas at Risk with CBRN Annotations.	2	MUST	BMD-ARS-8799
[REQ-4450]	The Table View shall allow the operator to display the results from the analysis of the Critical Assets and Areas from the CAAL that could be impacted by COI/COE/CONI effects. The Table View shall display for each Area at Risk with CBRN Annotations the Critical Assets and Areas.	2	MUST	BMD-ARS-8799
[REQ-4460]	The Table View shall allow the operator to filter the results from the analysis of the Critical Assets and Areas from the CAAL that could be impacted by COI/COE/CONI effects by Areas at Risk with CBRN Annotations.	2	MUST	BMD-ARS-8799
[REQ-4470]	The Table View shall allow the operator to export the results from the analysis of the Critical Assets and Areas from the CAAL that could be impacted by COI/COE/CONI effects using the active filtering parameters.	2	MUST	BMD-ARS-8800

[REQ-4480]	The Threat Identification View shall allow the operator to select a territory or country (Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas) and show the COI/COE/CONI effects it could be impacted by based on Areas At Risk with CBRN Annotations it in the Table View.	2	MUST	BMD-ARS-8803
[REQ-4490]	The Threat Identification View shall allow the operator to select a Critical Asset or Area and show the COI/COE/CONI effects it could be impacted by based on Areas At Risk with CBRN Annotations it in the Table View.	2	MUST	BMD-ARS-8804
[REQ-4500]	The Threat Identification View shall allow the operator to select a territory or country (Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas) and determine the Threat BM Types and the Warhead Types it is threatened by. The calculation shall be based on Areas At Risk.	2	MUST	BMD-ARS-8805
[REQ-4510]	The Table View shall allow the operator to display the Threat BM Types and the Warhead Types that can threaten the selected territory based on Areas At Risk. The Table View shall display the name of the territory and the associated Threat BM Types and the Warhead Types.	2	MUST	BMD-ARS-8806
[REQ-4520]	The Table View shall allow the operator to export the Threat BM Types and the Warhead Types that can threaten the selected territory based on Areas At Risk.	2	MUST	BMD-ARS-8807
[REQ-4530]	The Threat Identification View shall allow the operator to select a territory or country (Marine areas, NATO Countries, Third States, areas corresponding to first administrative level below the National level and operator defined areas) and show the applicable operational tempo information based on the relevant Areas at Risk in the Table View. The calculation shall be based on Areas At Risk.	2	MUST	BMD-ARS-8808
[REQ-4540]	The Threat Identification View shall allow the operator to display the Areas at Risk with CBRN Annotations on the Quick Map.	1	MUST	BMD-ARS-2411 / BMD-ARS-6513
[REQ-4550]	The Threat Identification View shall allow the operator to filter Areas at Risk with CBRN Annotations on the Quick Map by associated BMOAs, associated BM types, associated OPFOR BM COAs, intersection with a Critical Assets and Areas and intersection with a geospatial feature of interest.	2	MUST	BMD-ARS-8719 / BMD-ARS-8793
[REQ-4560]	The Threat Identification View shall allow the operator to display the Areas at Risk with CBRN Annotations on the Table View. The Table View shall display the details of the Areas at Risk with CBRN Annotations and parameters of the associated OPFOR Ballistic Missile COAs (e.g. location).	2	MUST	BMD-ARS-8722
[REQ-4570]	The Threat Identification View shall display the predictions within 1 second from execution of the display command.	2	MUST	BMD-ARS-2505
[REQ-4580]	The Threat Identification View shall allow the operator to display system elements and geospatial feature of interest that intersect with the selected Areas at Risk with CBRN Annotations in the Table View. The operator shall be able to filter by Areas at Risk with CBRN Annotations and system element types.	2	MUST	BMD-ARS-8794
[REQ-4590]	The Forces View shall allow the operator to manage the BMD capability requirements.	2	MUST	BMD-ARS-8008
[REQ-4600]	The Forces View shall allow the operator to distinguish between BMD, TBMD and other requirements.	2	MUST	BMD-ARS-8009
[REQ-4610]	The Forces View shall allow the operator to clearly distinguish the BMD requirements in terms of functions (e.g. sensing/engaging/supporting).	2	MUST	BMD-ARS-8030
[REQ-4620]	The Forces View shall be able to include the capability requirements identified in the defence design from an AirC2IS data source.	2	MUST	BMD-ARS-8026 / BMD-ARS-8110
[REQ-4630]	The Defence Design View shall allow the operator to display the planned usage of each BMD force requirement and their role in the planned defence designs, e.g. defended assets and threats being countered	2	MUST	BMD-ARS-8027
[REQ-4640]	The Defence Design View shall allow the operator to identify unfulfilled BMD force requirements and display the planned usage of these BMD force requirement and their role in the planned defence designs.	2	MUST	BMD-ARS-8027
[REQ-4650]	The SOR Management View shall display the fulfilment level of each BMD capability requirement.	2	MUST	BMD-ARS-8042 / BMD-ARS-8114
[REQ-4660]	TOPFAS shall allow the user to receive and manage impact reports from AirC2IS.	2	MUST	BMD-ARS-8042
[REQ-4670]	The EFGMT shall be able to manage the apportioned to nations of each BMD capability requirement.	2	MUST	BMD-ARS-8041
[REQ-4680]	The SOR Management View shall be able to display apportionment of nations to each BMD capability requirement.	2	MUST	BMD-ARS-8041
[REQ-4690]	The EFGMT shall be able to display the shortfalls of each BMD capability requirement.	2	MUST	BMD-ARS-8043
[REQ-4700]	The SOR Management View shall be able to display shortfalls of each BMD capability requirement from EFGMT taking time filters into account.	2	MUST	BMD-ARS-8043
[REQ-4710]	The Defence Design View shall be able to display shortfalls of each BMD capability requirement from EFGMT taking time filters into account.	2	MUST	BMD-ARS-8043
[REQ-4720]	The Defence Design View shall be able to display shortfalls of each BMD capability requirement from EFGMT in space.	2	MUST	BMD-ARS-8043
[REQ-4730]	TOPFAS shall allow the user to receive and manage analysis of shortfalls in BMD capabilities both in time and space reports from AirC2IS.	2	MUST	BMD-ARS-8043
[REQ-4740]	The EFGMT shall allow the operator to generate the ACTWARN Force Request message for BMD requirements.	2	MUST	BMD-ARS-8040
[REQ-4750]	The EFGMT shall be able to process national BMD force contribution (FORCEPREP) messages.	2	MUST	BMD-ARS-8039 / BMD-ARS-8114
[REQ-4760]	TOPFAS shall disseminate the information on forces contribution to component systems.	2	MUST	BMD-ARS-8039
[REQ-4770]	The EFGMT shall be able to manage associations of caveats to (BMD) national force contributions and related Friendly Order of Battle units.	2	MUST	BMD-ARS-8037 / BMD-ARS-8820 / BMD-ARS-8114
[REQ-4780]	OPT shall be able to retrieve caveats associated to Friendly Order of Battle units from EFGMT and display them on the Forces View and SOR Management View.	2	MUST	BMD-ARS-8820 / BMD-ARS-8114
[REQ-4790]	OMT shall be able to retrieve caveats associated to Friendly Order of Battle units from EFGMT and display them on the ORBAT View.	2	MUST	BMD-ARS-8820 / BMD-ARS-8114
[REQ-4800]	The EFGMT shall be able to show the impact of a new operation on the standing BMD mission. When BMD contributions are allocated during force sensing to another mission, EFGMT shall show an indication on the requirement and on the contribution in both missions.	2	MUST	BMD-ARS-8035
[REQ-4810]	OPT shall be able to retrieve the impact of a new operation on the standing BMD mission from EFGMT and display it on the SOR Management View.	2	MUST	BMD-ARS-8035
[REQ-4820]	OPT shall be able to show the impact of a new operation on the standing BMD mission and display it on the Defence Design View.	2	MUST	BMD-ARS-8035
[REQ-4830]	OPT shall be able to compare Defended Asses Lists and show the differences in Defended Assets. The differences shall include the level of protection (i.e. the defence status).	2	MUST	BMD-ARS-8714 / BMD-ARS-8715
[REQ-4840]	OPT shall be able to store the comparison between Defended Asses Lists as a document.	2	MUST	BMD-ARS-8716
[REQ-4850]	The user shall be able to add a BMOPFORCOA to a document as a paragraph and as a table with the following information: (1) BMOPFORCOA Label, Name, Description, COA Type, Actor (2) For each BMOA: The OperatingAreaId, LocationCountry, Status, Operational Tempo, Period Of Validity Start, Period Of Validity End, Threat Launchers Present, Threat Missiles Present (3) For each OPFORBMForce: Label, Name, Description, Location	2	MUST	BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934
[REQ-4860]	The user shall be able to add a table to a document with territories and countries which could be impacted by Threat BMs with the following information: the area/country name, the Threat BM Type and the Warhead Type.	2	MUST	BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934
[REQ-4870]	The user shall be able to add a table to a document with the expected raid size per threatened area with the following information: the area/country name, expected raid size.	2	MUST	BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934
[REQ-4880]	The user shall be able to add a table to a document with the territories and countries which could be which could be overflown by own interceptors with the following information: the area/country name, interceptor deployment location, interceptor maximum range.	2	MUST	BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934
[REQ-4890]	The user shall be able to add a table to a document with the Critical Assets and Areas that could be impacted by Threat BMs with the following information: for each Critical Asset/Area the name, the Threat BM Types and the Warhead Types and whether or not the BM Targeting Strategy was taken into account for the calculation.	2	MUST	BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934
[REQ-4900]	The user shall be able to add a table to a document with territories and countries which could be impacted by Threat BMs based on Areas at Risk with the following information: for each Area at Risk the name and the territories/countries.	2	MUST	BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934

[REQ-4910]	The user shall be able to add a table to a document with the Critical Assets and Areas that could be impacted by Threat BMs based on Areas at Risk with the following information: for each Area at Risk the name and all the Critical Asset/Area names impacted.	2	MUST	BMD-ARS-6190 / BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-6192 / BMD-ARS-6933 / BMD-ARS-6934
[REQ-4920]	The user shall be able to develop SACEURs Strategic Military Advice (SMA) in accordance with the NATO Crisis Response System Manual (NCRSM) in the Document View.	2	MUST	BMD-ARS-6190
[REQ-4930]	The user shall be able to add the following content to the SMA: Assets, Critical Asset List (CAL), Prioritised Critical Asset List (PCAL), Joint Prioritised Critical Asset List (JPCAL) and Joint Prioritised Defended Asset List (JPDAL).	2	MUST	BMD-ARS-6190
[REQ-4940]	The user shall be able to generate the SMA in accordance with the NATO Crisis Response System Manual (NCRSM).	1	MUST	BMD-ARS-5204
[REQ-4950]	TOPFAS shall contain SMA process and document templates including BMD specific content.	1	MUST	BMD-ARS-5204
[REQ-4960]	The user shall be able to develop SACEUR's Strategic Assessment (SSA) in accordance with the COPD in the Document View.	2	MUST	BMD-ARS-6191
[REQ-4970]	The user shall be able to add the following content to the SSA: Assets, Critical Asset List (CAL), Prioritised Critical Asset List (PCAL), Joint Prioritised Critical Asset List (JPCAL) and Joint Prioritised Defended Asset List (JPDAL).	2	MUST	BMD-ARS-6191
[REQ-4980]	The user shall be able to generate the SSA in accordance with the COPD.	1	MUST	BMD-ARS-5207
[REQ-4990]	TOPFAS shall contain SSA process and document templates including BMD specific content.	1	MUST	BMD-ARS-5207
[REQ-5000]	The user shall be able to develop the Standing Defence Plan (SDP) regarding BMD specific content in the Document View.	2	MUST	BMD-ARS-6195
[REQ-5010]	TOPFAS shall contain SDP process and document templates including BMD specific content.	1	MUST	BMD-ARS-6195 / BMD-ARS-6196 / BMD-ARS-8849
[REQ-5020]	The user shall be able to export the SDP to Word either including or excluding passive defence content.	1	MUST	BMD-ARS-6196 / BMD-ARS-8849
[REQ-5030]	The user shall be able to develop Military Response Options (MROs) in accordance with the COPD.	2	MUST	BMD-ARS-6192
[REQ-5040]	The user shall be able to add the following content to the MRO: Assets, Critical Asset List (CAL), Prioritised Critical Asset List (PCAL), Joint Prioritised Critical Asset List (JPCAL) and Joint Prioritised Defended Asset List (JPDAL).	2	MUST	BMD-ARS-6192
[REQ-5050]	The user shall be able to export MROs to Word either including or excluding passive defence content in accordance with the COPD.	1	MUST	BMD-ARS-5209 / BMD-ARS-8850
[REQ-5060]	The user shall be able to export selected parts of the MROs to PowerPoint either including or excluding passive defence content in accordance with the COPD.	1	MUST	BMD-ARS-5209 / BMD-ARS-8850
[REQ-5070]	TOPFAS shall contain MRO process and document templates including BMD specific content.	2	MUST	BMD-ARS-6192
[REQ-5080]	The user shall be able to develop the Course of Action (COA) Decision Briefing in accordance with the COPD.	2	MUST	BMD-ARS-6933
[REQ-5090]	The user shall be able to add the following content to the COA Decision Briefing: Assets, Critical Asset List (CAL), Prioritised Critical Asset List (PCAL), Joint Prioritised Critical Asset List (JPCAL) and Joint Prioritised Defended Asset List (JPDAL).	2	MUST	BMD-ARS-6933
[REQ-5100]	The user shall be able to create the COA Decision Briefing with TOPFAS content in PowerPoint, either including or excluding passive defence content in accordance with the COPD.	1	MUST	BMD-ARS-6929 / BMD-ARS-8851
[REQ-5110]	The user shall be able to develop the Mission Analysis Briefing (MAB) in accordance with the COPD.	2	MUST	BMD-ARS-6934
[REQ-5120]	The user shall be able to add the following content to the MAB: Assets, Critical Asset List (CAL), Prioritised Critical Asset List (PCAL), Joint Prioritised Critical Asset List (JPCAL) and Joint Prioritised Defended Asset List (JPDAL).	2	MUST	BMD-ARS-6934
[REQ-5130]	The user shall be able to create the Mission Analysis Briefing (MAB) with TOPFAS content in PowerPoint, either including or excluding passive defence content in accordance with the COPD.	1	MUST	BMD-ARS-6928 / BMD-ARS-8852
[REQ-5140]	The user shall be able to include TBMD/BMD Defence Design results in the COA Comparison View to compare COAs.	2	MUST	BMD-ARS-8149
[REQ-5150]	The user shall be able to include TBMD/BMD Defence Design evaluation results in the COA Comparison View to compare COAs.	2	MUST	BMD-ARS-8151
[REQ-5160]	The user shall be able to include CBRN hazard analysis results in the COA Comparison View to compare COAs. The details shall display territories and countries which could be impacted by COI/COE/CONI effects (see [REQ-4360]) and the Critical Assets and Areas from the CAAL (Critical Area and Asset List) which could be impacted by COI/COE/CONI effects (see [REQ-4430]).	2	MUST	BMD-ARS-8152
[REQ-5170]	The user shall be able to include affected Nations analysis results in the COA Comparison View to compare COAs. The details shall display nations which could be impacted by Threat (BMs) based on BM maximum range (see [REQ-3960]), the nations which could be impacted by Threat (BMs) based on Areas At Risk (see [REQ-4230]) and the nations which could be overflown by own interceptors (see [REQ-4020]).	2	MUST	BMD-ARS-8153
[REQ-5180]	The user shall be able to include affected Critical Areas and Assets in the COA Comparison View to compare COAs. The details shall display Critical Areas and Assets which could be impacted by Threat (BMs) based on BM maximum range (see [REQ-4090]) and the Critical Areas and Assets which could be impacted by Threat (BMs) based on Areas At Risk (see [REQ-6460])	2	MUST	BMD-ARS-8154
[REQ-5190]	TOPFAS shall provide a queryable CRM (Crisis Response Measures) catalogue service. The service shall be implemented as a REST service (see section 2.1.3).	1	MUST	BMD-ARS-8837 / BMD-ARS-7310
[REQ-5200]	TOPFAS shall provide a queryable ROE (Rule of Engagement) catalogue service. The service shall be implemented as a REST service (see section 2.1.3).	2	SHOULD	BMD-ARS-7310
[REQ-5210]	TOPFAS shall provide a queryable Capability Code catalogue service. The service shall be implemented as a REST service (see section 2.1.3).	2	MUST	BMD-ARS-8028
[REQ-5220]	The catalogue services shall support multiple versions for each catalogue.	1	MUST	BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028
[REQ-5230]	The catalogue services shall be integrated in all relevant TOPFAS applications.	1	MUST	BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028
[REQ-5240]	TOPFAS shall provide a catalogue browser to access the catalogue services.	1	MUST	BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028
[REQ-5250]	The catalogue browser shall be semantically aware of the data context to display all relevant properties of catalogue items.	1	MUST	BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028
[REQ-5260]	The catalogue browser shall be semantically aware of the data context and display of the data shall have relevant grouping, filtering and sorting.	1	MUST	BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028
[REQ-5270]	The catalogue browser shall be semantically aware of the data context to allow searching for catalogue items.	1	MUST	BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028
[REQ-5280]	TOPFAS shall have a Catalogue Management web app that shall allow a user to manage the catalogues, based on the user permissions.	1	MUST	BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028
[REQ-5290]	The Catalogue Management app shall allow management of catalogues on all TOPFAS applications.	1	MUST	BMD-ARS-8837 / BMD-ARS-7310 / BMD-ARS-8028
[REQ-5300]	OPT shall support the Crisis Response Measure Procedures to allow the user to identify CRMs to be declared in the context of an operation or exercise. This includes: - select CRMs from the CRM catalogue during the planning process - allow the creation of Annex JJ of the OPLAN	1	MUST	BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-8837
[REQ-5310]	NCRS shall allow the users to retrieve the approved list of CRMs from OPT to support CRM life-cycle management.	1	MUST	BMD-ARS-6191 / BMD-ARS-6195 / BMD-ARS-8837
[REQ-5320]	TOPFAS shall have an exercise/training preparation web app TEM (Training and Exercise Management) that shall allow management of Training Components to be used by ETEE-FS during the planning and execution of trainings and exercises.	2	SHOULD	BMD-ARS-8873 / BMD-ARS-7307 / BMD-ARS-7276
[REQ-5330]	The TEM shall allow the user to create Training Components (TCs). These TCs can be internal TOPFAS objects, e.g. ORBATS and COAs or external input, e.g. AIFS and email messages to be send to EFGMT/RRT/NCRS, files to be imported etc.	2	SHOULD	BMD-ARS-8873 / BMD-ARS-7254
[REQ-5340]	TOPFAS shall use different databases for operational use and exercise/training, with the exception of NCRS (see [REQ-5370])	2	SHOULD	BMD-ARS-8877 / BMD-ARS-8879 / BMD-ARS-8880 / BMD-ARS-8881 / BMD-ARS-7309
[REQ-5350]	NCRS shall use the operational database for exercise and training. Filtering shall be used for operational, exercise and training sessions to ensure separation of data sources and information.	2	SHOULD	BMD-ARS-8877 / BMD-ARS-8879 / BMD-ARS-8880 / BMD-ARS-8881 / BMD-ARS-7309
[REQ-5360]	The TEM shall allow the user to interface with ETEE-FS and be presented with an entry point into ETEE-FS.	2	SHOULD	BMD-ARS-7267 / BMD-ARS-7272 / BMD-ARS-7288 / BMD-ARS-8876
[REQ-5370]	The TEM shall allow the user to select a training or exercise scenario in ETEE-FS to be used for linking of the Training Components. If no connection to ETEE-FS is available, it shall be possible to create a scenario in the TEM.	2	SHOULD	BMD-ARS-8873 / BMD-ARS-7267 / BMD-ARS-7272 / BMD-ARS-7288 / BMD-ARS-8876
[REQ-5380]	The TEM shall allow the user to select Training Components (see [REQ-5350]) and add them to the selected scenario which will generate a unique token that links the Training Component with the selected scenario. This shall set the activation state of each Training Components in the scenario to 'not published'.	2	SHOULD	BMD-ARS-7317 / BMD-ARS-7276 / BMD-ARS-7284 / BMD-ARS-7318

[REQ-5390]	The Training Components shall be marked as “Training” or “Exercise” in their metadata in addition to any standard security and exercise markers that are normally be present to mitigate the likelihood of operational use of training data.	2	SHOULD	BMD-ARS-7301 / BMD-ARS-7302 / BMD-ARS-7304 / BMD-ARS-8875
[REQ-5400]	The Training Components shall have the following activation states: (1) not published: not published to ETEE-FS; (2) published: published to ETEE-FS and the scenario is not active yet. (3) pending release: published to ETEE-FS and waiting for ETEE-FS to release to the training audience and the scenario is active; (4) released: released by ETEE-FS to the training audience. (5) deleted: soft deleted from the scenario, revocation sent to ETEE-FS.	2	SHOULD	BMD-ARS-8873 / BMD-ARS-7276 / BMD-ARS-7267 / BMD-ARS-7269 / BMD-ARS-7272
[REQ-5410]	The Training Components shall have the following modification states: (1) modification required: still requires modification; (2) modification in progress: waiting for modification to be completed; (3) modification ready: modification completed.	2	SHOULD	BMD-ARS-7278
[REQ-5420]	The TEM shall have a list control showing all the Training Components of the selected scenario with label, name, type, visibility (visible to TEM users only or to all users), activation state (not published/published/pending release/released) and modification state (required/in progress/ready). The TEM shall allow the user to reorder the Training Components in the list.	2	SHOULD	BMD-ARS-8873
[REQ-5430]	The TEM shall allow the user to filter on Training Component type, visibility, activation state and modification state.	2	MUST	BMD-ARS-4654
[REQ-5440]	The TEM shall allow the user to search by Training Component label and name.	2	MUST	BMD-ARS-4654
[REQ-5450]	The TEM shall allow the user to make a selection of Training Components and turn the visibility for TOPFAS operators on or off.	2	SHOULD	BMD-ARS-8873
[REQ-5460]	The TEM list control shall allow the user to make a selection of Training Components and publish the tokens to ETEE-FS in the order of the list control. This shall set the activation state of each Training Components in the scenario to ‘published’.	2	SHOULD	BMD-ARS-8873
[REQ-5470]	The TEM shall be able to receive a notification from ETEE-FS to set the scenario state to active once the training or exercise starts. This shall set the activation state of each Training Components in the scenario with state ‘published’ to ‘pending release’.	2	SHOULD	BMD-ARS-8873
[REQ-5480]	The TEM shall allow the user to manually set the scenario state to active once the training or exercise starts. This shall set the activation state of each Training Components in the scenario with state ‘published’ to ‘pending release’.	2	SHOULD	BMD-ARS-8873
[REQ-5490]	The TEM shall allow the user to set the scenario state to inactive. This shall set the activation state of each Training Components in the scenario with state ‘pending release’ to ‘published’.	2	SHOULD	BMD-ARS-8873
[REQ-5500]	The TEM list control shall allow the user to make a selection of Training Components and set the activation state to any value.	2	SHOULD	BMD-ARS-8873
[REQ-5510]	The TEM list control shall allow the user to make a selection of Training Components and notify ETEE-FS that the selected Training Components need modification using the other TOPFAS applications including an estimated time of completion of the modification for each Training Component. This shall set the modification state of each selected Training Components to ‘modification required’.	2	SHOULD	BMD-ARS-7260
[REQ-5520]	The TEM list control shall allow the user to make a selection of Training Components and notify ETEE-FS that the modification of the selected Training Components is in progress. This shall set the modification state of each selected Training Components to ‘modification in progress’.	2	SHOULD	BMD-ARS-7260 / BMD-ARS-7278
[REQ-5530]	The TEM list control shall allow the user to make a selection of Training Components and notify ETEE-FS that the modification of the selected Training Components has been completed and they can be activated in ETEE-FS again. This shall set the modification state of each selected Training Components to ‘modification ready’.	2	SHOULD	BMD-ARS-7260
[REQ-5540]	Recorded Messages shall replicate operational messages.	2	SHOULD	BMD-ARS-7255
[REQ-5550]	The TEM shall have a service component that can be invoked by ETEE-FS to send activation messages containing the tokens for Training Components to be released.	2	SHOULD	BMD-ARS-7259 / BMD-ARS-7277 / BMD-ARS-8876
[REQ-5560]	The user shall be able to configure TEM to either automatically process incoming activation messages from ETEE-FS or to use manually processing in the TEM client application.	2	SHOULD	BMD-ARS-8876
[REQ-5570]	The TEM service shall process all incoming activation messages from ETEE-FS and set the associated Training Components activation state to ‘released’. This will either turn the visibility on to the training audience in TOPFAS or send the TC to the training audience in TOPFAS (e.g. email messages). Upon successful activation of each Training Component, a notification shall be send to ETEE-FS.	2	SHOULD	BMD-ARS-7259 / BMD-ARS-7267 / BMD-ARS-7269 / BMD-ARS-7270 / BMD-ARS-7272 / BMD-ARS-7310 / BMD-ARS-7311 / BMD-ARS-7277 / BMD-ARS-8876
[REQ-5580]	The TEM list control shall allow the user to make a selection of Training Components and delete them from the scenario. If the deleted Training Components have been published to ETEE-FS, the TEM shall send revocation notifications to ETEE-FS to delete the Training Components.	2	SHOULD	BMD-ARS-7261 / BMD-ARS-7279
[REQ-5590]	The TEM list control shall allow the user to make a selection of deleted Training Components and either permanently delete them from the scenario or set the status back to ‘not published’.	2	SHOULD	BMD-ARS-7261 / BMD-ARS-7279
[REQ-5600]	The user shall be able to export/import TOPFAS DMT business object specifications (e.g. ExtendedAttribute / ExtendedAttributeGroup) and domain values to facilitate Training Component exchange between TOPFAS databases.	2	SHOULD	BMD-ARS-7307
[REQ-5610]	The user shall be able to export/import Training Component between TOPFAS databases.	2	SHOULD	BMD-ARS-7307
[REQ-5620]	The TEM shall log the following events (scenario, timestamp, TC type, token identifier, source system, target system): (1) Training Component added to scenario (2) Training Component removed from scenario (3) Training Component ownership changed to/from users and/or groups with the TEM Admin role (4) Training Component published to ETEE-FS (5) Notification of modification required of Training Component sent to ETEE-FS (6) Notification of modification in progress of Training Component sent to ETEE-FS (7) Notification of modification completion of Training Component sent to ETEE-FS (8) Incoming activation token received from ETEE-FS (9) Pending activation processed (10) Training Component revocation sent to ETEE-FS	2	SHOULD	BMD-ARS-7286 / BMD-ARS-7287
[REQ-5630]	The TEM shall have a log viewer that displays all log messages belonging to a scenario.	2	SHOULD	BMD-ARS-7286 / BMD-ARS-7287
[REQ-5640]	The log viewer shall allow sorting and filtering on different properties of the log entries.	2	MUST	BMD-ARS-4654
[REQ-5650]	The TEM shall allow the operator to make a selection of logs and send them to ETEE-FS.	2	SHOULD	BMD-ARS-7288
[REQ-5660]	TOPFAS shall mark displays with a "Training" or "Exercise" caveat when the user is logged into a training or exercise session.	2	SHOULD	BMD-ARS-8883
[REQ-5670]	TOPFAS shall mark any data produced whilst the user is logged into a training session with a "Training" or "Exercise" caveat in the data object meta-data.	2	SHOULD	BMD-ARS-7305
[REQ-5680]	TOPFAS shall be able to load fictitious geo-spatial data sets.	2	SHOULD	BMD-ARS-1634
[REQ-5690]	TOPFAS shall be able to load fictitious nation data sets.	2	SHOULD	BMD-ARS-1743
[REQ-5700]	TOPFAS shall be able to load received Training Components.	2	SHOULD	BMD-ARS-7314
[REQ-5710]	The TEM shall allow a user to time-shift DEs of training/exercise packages automatically, e.g. shift all dates with 1 year, so the database content and documents stay current and not use fixed dates that will go more-and-more out of date as time passes.	2	SHOULD	BMD-ARS-398 / BMD-ARS-399 / BMD-ARS-403 / BMD-ARS-400 / BMD-ARS-401 / BMD-ARS-1637 / BMD-ARS-1638 / BMD-ARS-402 / BMD-ARS-8873
[REQ-5720]	TOPFAS shall be able to initialize with fictitious state actors/non-state actors/ORBATs/defence designs/assets/threat systems/OPFOR COAs/security markings.	2	SHOULD	BMD-ARS-398 / BMD-ARS-399 / BMD-ARS-403 / BMD-ARS-400 / BMD-ARS-401 / BMD-ARS-1637 / BMD-ARS-1638 / BMD-ARS-402
[REQ-5730]	TOPFAS shall be able to process Intelligence Information Entities that include fictitious state and non-state actors.	2	SHOULD	BMD-ARS-4321
[REQ-5740]	TOPFAS shall be able to process Intelligence Information Entities that include fictitious weapon and sensor systems.	2	SHOULD	BMD-ARS-4322
[REQ-5750]	TOPFAS shall be able to process Intelligence Information Entities that include fictitious security markings.	2	SHOULD	BMD-ARS-4323
[REQ-5760]	TOPFAS shall be able to process fictitious Opposing Forces Ballistic Missile Order of Battle (OPFOR BM ORBAT).	2	SHOULD	BMD-ARS-4324
[REQ-5770]	TOPFAS shall be able to process fictitious Opposing Forces Ballistic Missile Order of Battle (OPFOR BM ORBAT) as an information product.	2	SHOULD	BMD-ARS-5384
[REQ-5780]	TOPFAS shall have capacity for >= 4000 Recorded Messages.	2	SHOULD	BMD-ARS-7265
[REQ-5790]	TOPFAS shall process Recorded Message commands within <= 1 seconds from the user initiating a command.	2	SHOULD	BMD-ARS-7266
[REQ-5800]	TOPFAS shall have capacity for >= 5 Training Components.	2	SHOULD	BMD-ARS-7285

[REQ-5810]	TOPFAS shall send Recorded Messages within <= 1 second from execution of the send command.	2	SHOULD	BMD-ARS-7273
[REQ-5820]	TOPFAS shall have capacity for >= 1,000,000 recorded messages.	2	SHOULD	BMD-ARS-7289
[REQ-5830]	TOPFAS shall transmit the recorded message logs to ETEE-FS within <= 1 second after the send command.	2	SHOULD	BMD-ARS-7290
[REQ-5840]	TOPFAS shall support >= 5 sessions to run concurrently.	2	SHOULD	BMD-ARS-7296
[REQ-5850]	Reserved	RESERVED	WON'T	
[REQ-5860]	TOPFAS shall initialise with fictitious geo-spatial data in <= 15 minutes on execution of the initialise command.	2	SHOULD	BMD-ARS-1636
[REQ-5870]	TOPFAS shall initialise with fictitious nations data in <= 15 minutes on execution of the initialise command.	2	SHOULD	BMD-ARS-1746
[REQ-5880]	TOPFAS shall load received TCs within <= 15 seconds of receipt of data.	2	SHOULD	BMD-ARS-7316
[REQ-5890]	TOPFAS shall initialise with fictitious components in <= 15 minutes for execution of initialise command.	2	SHOULD	BMD-ARS-404
[REQ-5900]	TOPFAS shall send selected Training Components to the Training Audience within <= 1 second from execution of send command.	2	SHOULD	BMD-ARS-7312
[REQ-5901]	TOPFAS shall be able to import both APP-6D and APP-6A/B/C data. The latter shall be mapped to APP-6D and the original APP-6A/B/C value shall be maintained so that during export, the original value can be included in the output again. This will prevent data loss when repeatedly exchanging data back and forth with systems that do not support version APP-6D yet.	1	MUST	BMD-ARS-4655 / BMD-ARS-8710 / BMD-ARS-8711 / BMD-ARS-8713 / BMD-ARS-8717 / BMD-ARS-6515 / BMD-ARS-6516 / BMD-ARS-8298 / BMD-ARS-7704 / BMD-ARS-7631
[REQ-5910]	Any requirement related to XML data exchange based on the FASInterop schema shall use the latest FASInterop schema.	1	MUST	BMD-ARS-4655 / BMD-ARS-7142 / BMD-ARS-7128 / BMD-ARS-7109 / BMD-ARS-7127 / BMD-ARS-8822 / BMD-ARS-8710 / BMD-ARS-8711 / BMD-ARS-8713 / BMD-ARS-8717
[REQ-5920]	Any requirement related to data exchange with XML using the latest FASInterop schema shall be implemented in TOPFAS Desktop and TOPFAS Online where applicable, in order to maintain interoperability.	1	MUST	TOPFAS
[REQ-5930]	TOPFAS shall be able to: - Save the Additional Defence Resource Response to a file in suitable Microsoft Office formats so the user can: (1) attach it to an e-mail in a standard e-mail client; (2) send it via a standard SFTP client; (3) upload it to TOPFAS Collaboration Apps. - Generate a link to the Additional Defence Resource Response so the user can: (1) insert it into an e-mail in a standard e-mail client; (2) publish the link on TOPFAS Collaboration Apps.	1	SHOULD	BMD-ARS-7122
[REQ-5940]	TOPFAS shall be able to: - Save the Allied Disposition List to a file in XML format so the user can: (1) attach it to an e-mail in a standard e-mail client; (2) send it via a standard SFTP client; (3) upload it to TOPFAS Collaboration Apps. - Generate a link to the Allied Disposition List so the user can: (1) insert it into an e-mail in a standard e-mail client; (2) publish the link on TOPFAS Collaboration Apps.	1	MUST	BMD-ARS-7127
[REQ-5950]	TOPFAS shall be able to: - Save the Allied Force List to a file in XML format so the user can: (1) attach it to an e-mail in a standard e-mail client; (2) send it via a standard SFTP client; (3) upload it to TOPFAS Collaboration Apps. - Generate a link to the Allied Force List so the user can: (1) insert it into an e-mail in a standard e-mail client; (2) publish the link on TOPFAS Collaboration Apps.	1	MUST	BMD-ARS-7128
[REQ-5960]	TOPFAS shall be able to: - Save the BMD force requirement per COA to a file in suitable Microsoft Office formats so the user can: (1) attach it to an e-mail in a standard e-mail client; (2) send it via a standard SFTP client; (3) upload it to TOPFAS Collaboration Apps. - Generate a link to the BMD force requirement per COA so the user can: (1) insert it into an e-mail in a standard e-mail client; (2) publish the link on TOPFAS Collaboration Apps.	1	SHOULD	BMD-ARS-7129
[REQ-5970]	TOPFAS shall be able to: - Save the Crisis Response Measures to a file in suitable Microsoft Office formats so the user can: (1) attach it to an e-mail in a standard e-mail client; (2) send it via a standard SFTP client; (3) upload it to TOPFAS Collaboration Apps. - Generate a link to the Crisis Response Measures so the user can: (1) insert it into an e-mail in a standard e-mail client; (2) publish the link on TOPFAS Collaboration Apps.	1	MUST	BMD-ARS-8837
[REQ-5980]	TOPFAS shall be able to: - Save the Friendly Order of Battle to a file in XML and Excel formats so the user can: (1) attach it to an e-mail in a standard e-mail client; (2) send it via a standard SFTP client; (3) upload it to TOPFAS Collaboration Apps. - Generate a link to the Friendly Order of Battle so the user can: (1) insert it into an e-mail in a standard e-mail client; (2) publish the link on TOPFAS Collaboration Apps.	1	MUST	BMD-ARS-8298
[REQ-5990]	TOPFAS shall be able to: - Save the Military Response Options to a file in suitable Microsoft Office formats so the user can: (1) attach it to an e-mail in a standard e-mail client; (2) send it via a standard SFTP client; (3) upload it to TOPFAS Collaboration Apps. - Generate a link to the Military Response Options so the user can: (1) insert it into an e-mail in a standard e-mail client; (2) publish the link on TOPFAS Collaboration Apps.	1	MUST	BMD-ARS-8307
[REQ-6000]	TOPFAS shall be able to: - Save the Operation Plan to a file in suitable Microsoft Office formats so the user can: (1) attach it to an e-mail in a standard e-mail client; (2) send it via a standard SFTP client; (3) upload it to TOPFAS Collaboration Apps. - Generate a link to the Operation Plan so the user can: (1) insert it into an e-mail in a standard e-mail client; (2) publish the link on TOPFAS Collaboration Apps.	1	MUST	BMD-ARS-8836
[REQ-6010]	TOPFAS shall be able to: - Save the Operational CONOPS to a file in suitable Microsoft Office formats so the user can: (1) attach it to an e-mail in a standard e-mail client; (2) send it via a standard SFTP client; (3) upload it to TOPFAS Collaboration Apps. - Generate a link to the Operational CONOPS so the user can: (1) insert it into an e-mail in a standard e-mail client; (2) publish the link on TOPFAS Collaboration Apps.	1	MUST	BMD-ARS-7131
[REQ-6020]	TOPFAS shall be able to: - Save the Prioritised Defended Asset List to a file in XML format so the user can: (1) attach it to an e-mail in a standard e-mail client; (2) send it via a standard SFTP client; (3) upload it to TOPFAS Collaboration Apps. - Generate a link to the Prioritised Defended Asset List so the user can: (1) insert it into an e-mail in a standard e-mail client; (2) publish the link on TOPFAS Collaboration Apps.	1	MUST	BMD-ARS-7138
[REQ-6030]	TOPFAS shall be able to: - Save a Recorded Message Template to a file in XML format so the user can: (1) attach it to an e-mail in a standard e-mail client; (2) send it via a standard SFTP client; (3) upload it to TOPFAS Collaboration Apps. - Generate a link to a Recorded Message Template so the user can: (1) insert it into an e-mail in a standard e-mail client; (2) publish the link on TOPFAS Collaboration Apps.	1	SHOULD	BMD-ARS-2039

[REQ-6040]	TOPFAS shall be able to: - Save the SACEUR's Strategic Assessment to a file in suitable Microsoft Office formats so the user can: (1) attach it to an e-mail in a standard e-mail client; (2) send it via a standard SFTP client; (3) upload it to TOPFAS Collaboration Apps. - Generate a link to the SACEUR's Strategic Assessment so the user can: (1) insert it into an e-mail in a standard e-mail client; (2) publish the link on TOPFAS Collaboration Apps.	1	MUST	BMD-ARS-8835
[REQ-6050]	TOPFAS shall be able to: - Save the Statement of Required Force / Capabilities Requirement to a file in XML format so the user can: (1) attach it to an e-mail in a standard e-mail client; (2) send it via a standard SFTP client; (3) upload it to TOPFAS Collaboration Apps. - Generate a link to the Statement of Required Force / Capabilities Requirement so the user can: (1) insert it into an e-mail in a standard e-mail client; (2) publish the link on TOPFAS Collaboration Apps.	1	SHOULD	BMD-ARS-7142
[REQ-6060]	TOPFAS shall be able to: - Save the Strategic CONOPS to a file in suitable Microsoft Office formats so the user can: (1) attach it to an e-mail in a standard e-mail client; (2) send it via a standard SFTP client; (3) upload it to TOPFAS Collaboration Apps. - Generate a link to the Strategic CONOPS so the user can: (1) insert it into an e-mail in a standard e-mail client; (2) publish the link on TOPFAS Collaboration Apps.	1	MUST	BMD-ARS-8838
[REQ-6070]	TOPFAS shall be able to: - Save the Strategic Planning Directive to a file in suitable Microsoft Office formats so the user can: (1) attach it to an e-mail in a standard e-mail client; (2) send it via a standard SFTP client; (3) upload it to TOPFAS Collaboration Apps. - Generate a link to the Strategic Planning Directive so the user can: (1) insert it into an e-mail in a standard e-mail client; (2) publish the link on TOPFAS Collaboration Apps.	1	MUST	BMD-ARS-8308
[REQ-6080]	TOPFAS shall provide a service to access the Allied Disposition List. The service shall be implemented as Rest services (see section 2.1.3).	1	MUST	BMD-ARS-7127
[REQ-6090]	TOPFAS shall provide a service to access the Allied Force List. The service shall be implemented as Rest services (see section 2.1.3).	1	MUST	BMD-ARS-7128
[REQ-6100]	TOPFAS shall provide a service to access the BMD force requirement per COA. The service shall be implemented as Rest services (see section 2.1.3).	1	SHOULD	BMD-ARS-7129
[REQ-6110]	TOPFAS shall provide a service to access the Friendly Order of Battle including C2 relationships by phase. The service shall be implemented as Rest services (see section 2.1.3).	1	MUST	BMD-ARS-8298
[REQ-6120]	TOPFAS shall provide a service to access the Prioritised Defended Asset List. The service shall be implemented as Rest services (see section 2.1.3).	1	MUST	BMD-ARS-7138
[REQ-6130]	TOPFAS shall provide a service to access the Recorded Message Template. The service shall be implemented as Rest services (see section 2.1.3).	1	SHOULD	BMD-ARS-2039
[REQ-6140]	TOPFAS shall provide a service to access the Statement of Required Force / Capabilities Requirement and their baselines from OPT. The service shall be implemented as Rest services (see section 2.1.3).	1	SHOULD	BMD-ARS-7142
[REQ-6150]	TOPFAS shall provide a CJSOR/AFL service that exposes CJSORs and AFLs and their baselines from EFGMT.	2	MUST	BMD-ARS-8008 / BMD-ARS-8009 / BMD-ARS-8030 / BMD-ARS-8028 / BMD-ARS-8026 / BMD-ARS-8042 / BMD-ARS-8043 / BMD-ARS-8041 / BMD-ARS-8040 / BMD-ARS-8037 / BMD-ARS-8820 / BMD-ARS-8114
[REQ-6160]	TOPFAS shall be able to import the Allied Disposition List from a file in XML format into a plan.	1	MUST	BMD-ARS-7109 / BMD-ARS-8311
[REQ-6170]	TOPFAS shall be able to: - Import Background Information from a file in Microsoft Office or PDF format and attach it to a planning object; - Add a hyperlink to Background Information in TOPFAS Collaboration Apps to a planning object.	1	SHOULD	BMD-ARS-1924 / BMD-ARS-7634
[REQ-6180]	TOPFAS shall be able to: - Import BMD force requirements per COA from a file in Microsoft Office or PDF format and attach it to a planning object; - Add a hyperlink to BMD force requirements per COA in TOPFAS Collaboration Apps to a planning object.	1	SHOULD	BMD-ARS-8290 / BMD-ARS-8330
[REQ-6190]	TOPFAS shall be able to: - Import a Decision Sheet from a file in Microsoft Office or PDF format and attach it to a planning object; - Add a hyperlink to a Decision Sheet in TOPFAS Collaboration Apps to a planning object.	1	MUST	BMD-ARS-8831 / BMD-ARS-8832
[REQ-6200]	TOPFAS shall be able to: - Import an Exercise Specification from a file in Microsoft Office or PDF format and attach it to a planning object; - Add a hyperlink to an Exercise Specification in TOPFAS Collaboration Apps to a planning object.	1	SHOULD	BMD-ARS-2837 / BMD-ARS-7909
[REQ-6210]	TOPFAS shall be able to: - Import a Force Activation Directive from a file in Microsoft Office or PDF format and attach it to a planning object; - Add a hyperlink to a Force Activation Directive in TOPFAS Collaboration Apps to a planning object.	1	MUST	BMD-ARS-7112 / BMD-ARS-8339
[REQ-6220]	TOPFAS shall be able to: - Import a Force Planning Ceiling from a file in Microsoft Office or PDF format and attach it to a planning object; - Add a hyperlink to a Force Planning Ceiling in TOPFAS Collaboration Apps to a planning object.	1	MUST	BMD-ARS-7113 / BMD-ARS-8340
[REQ-6230]	TOPFAS shall be able to: - Import Military Response Options from a file in Microsoft Office or PDF format and attach it to a planning object; - Add a hyperlink to Military Response Options in TOPFAS Collaboration Apps to a planning object.	1	MUST	BMD-ARS-7114 / BMD-ARS-8349
[REQ-6240]	TOPFAS shall be able to: - Import the NAC Execution Directive from a file in Microsoft Office or PDF format and attach it to a planning object; - Add a hyperlink to the NAC Execution Directive in the Collaboration Space.	1	MUST	BMD-ARS-8825 / BMD-ARS-8826
[REQ-6250]	TOPFAS shall be able to: - Import the NAC Initiating Directive from a file in Microsoft Office or PDF format and attach it to a planning object; - Add a hyperlink to the NAC Initiating Directive in TOPFAS Collaboration Apps to a planning object.	1	MUST	BMD-ARS-8823 / BMD-ARS-8824
[REQ-6260]	TOPFAS shall be able to: - Import National Caveats from a file in Microsoft Office or PDF format and attach it to a planning object; - Add a hyperlink to National Caveats in TOPFAS Collaboration Apps to a planning object.	1	MUST	BMD-ARS-7115 / BMD-ARS-8350
[REQ-6270]	TOPFAS shall be able to: - Import the Operational CONOPS from a file in Microsoft Office or PDF format and attach it to a planning object; - Add a hyperlink to the Operational CONOPS in TOPFAS Collaboration Apps to a planning object.	1	MUST	BMD-ARS-7116 / BMD-ARS-8354

[REQ-6280]	TOPFAS shall be able to import the Recorded Message Trigger from a file in XML format into the TEM.	1	SHOULD	BMD-ARS-1929 / BMD-ARS-7920
[REQ-6290]	TOPFAS shall be able to: - Import the Request for additional defence resources from a file in Microsoft Office or PDF format and attach it to a planning object; - Add a hyperlink to the Request for additional defence resources in TOPFAS Collaboration Apps to a planning object.	1	SHOULD	BMD-ARS-7119 / BMD-ARS-8359
[REQ-6300]	TOPFAS shall be able to: - Import the Strategic CONOPS from a file in Microsoft Office or PDF format and attach it to a planning object; - Add a hyperlink to the Strategic CONOPS in TOPFAS Collaboration Apps to a planning object.	1	MUST	BMD-ARS-7120 / BMD-ARS-8365
[REQ-6310]	TOPFAS shall be able to: - Import the Strategic Planning Directive from a file in Microsoft Office or PDF format and attach it to a planning object; - Add a hyperlink to the Strategic Planning Directive in TOPFAS Collaboration Apps to a planning object.	1	MUST	BMD-ARS-7121 / BMD-ARS-8366
[REQ-6320]	TOPFAS shall be able to: - Import the Strategic Situation from a file in Microsoft Office or PDF format and attach it to a planning object; - Add a hyperlink to the Strategic Situation in TOPFAS Collaboration Apps to a planning object.	1	SHOULD	BMD-ARS-2852 / BMD-ARS-7632
[REQ-6330]	TOPFAS shall be able to consume the Allied Disposition List service and import the data into a plan.	1	MUST	BMD-ARS-7109 / BMD-ARS-8311
[REQ-6340]	TOPFAS shall be able to consume the Areas at Risk service and import the data into a plan.	1	MUST	BMD-ARS-8169 / BMD-ARS-8328
[REQ-6350]	TOPFAS shall be able to consume the Areas at Risk with CBRN annotations service and import the data into a plan.	2	MUST	BMD-ARS-7642 / BMD-ARS-7643
[REQ-6360]	TOPFAS shall be able to consume BMD force requirements per COA service and import the data into a plan.	1	SHOULD	BMD-ARS-8290 / BMD-ARS-8330
[REQ-6370]	TOPFAS shall be able to consume the Defence Design (BC) service and import the data into a plan.	1	MUST	BMD-ARS-6457 / BMD-ARS-8248
[REQ-6380]	TOPFAS shall be able to consume the Defence Design (BMD) service and import the data into a plan.	2	MUST	BMD-ARS-2064 / BMD-ARS-7947
[REQ-6390]	TOPFAS shall be able to consume the Friendly ORBAT service and import the data into TOPFAS.	1	MUST	TOPFAS
[REQ-6400]	TOPFAS shall be able to consume Geospatial Information service and display it in TOPFAS.	1	SHOULD	BMD-ARS-7830 / BMD-ARS-7831
[REQ-6410]	TOPFAS shall be able to consume Geospatial Information (Exercise) service and display it in TOPFAS.	1	SHOULD	BMD-ARS-7829 / BMD-ARS-7635
[REQ-6420]	TOPFAS shall be able to consume the Intelligence Report service and import the data into a plan.	1	MUST	BMD-ARS-7396 / BMD-ARS-7951
[REQ-6430]	TOPFAS shall be able to consume the Mission Scheduling Information service and import the data into a plan.	1	MUST	BMD-ARS-8833 / BMD-ARS-8834
[REQ-6440]	TOPFAS shall be able to consume the NATO Common Operational Picture service and display it in TOPFAS.	1	MUST	BMD-ARS-3572 / BMD-ARS-4953
[REQ-6450]	TOPFAS shall be able to consume the OPFOR Ballistic Missile COA service and import the data into a plan.	1	SHOULD	BMD-ARS-4769 / BMD-ARS-7630
[REQ-6460]	TOPFAS shall be able to consume the OPFOR Ballistic Missile ORBAT service and import the data into a plan.	1	MUST	BMD-ARS-7704 / BMD-ARS-7631
[REQ-6470]	TOPFAS shall be able to consume the OPFOR TBM COA service and import the data into a plan.	1	MUST	BMD-ARS-8280 / BMD-ARS-8281
[REQ-6480]	TOPFAS shall be able to consume the Prioritised Defended Asset List service and import the data into a plan.	1	MUST	BMD-ARS-2857 / BMD-ARS-8268
[REQ-6490]	TOPFAS shall be able to consume the Recorded Message Trigger service and import the data into the TEM.	1	SHOULD	BMD-ARS-1929 / BMD-ARS-7920
[REQ-6500]	TOPFAS shall be able to consume the Request for additional defence resources service and import the data into a plan.	1	SHOULD	BMD-ARS-7119 / BMD-ARS-8359
[REQ-6510]	The TOPFAS Help Centre shall implement the help information as Markdown documents.	2	MUST	BMD-ARS-4665 / BMD-ARS-4667
[REQ-6520]	The online help shall include a full text and topic search function.	2	MUST	BMD-ARS-4665
[REQ-6530]	From the help source material, it shall be possible to generate a user manual in PDF format. The content shall be integrated with the TOPFAS Help Centre.	2	MUST	BMD-ARS-4665 / BMD-ARS-4667 / BMD-ARS-5339
[REQ-6540]	The TOPFAS training packages and instruction videos shall be integrated within the TOPFAS Help Centre.	2	MUST	BMD-ARS-5338 / BMD-ARS-5340 / BMD-ARS-5341 / BMD-ARS-5342 / BMD-ARS-5343
[REQ-6550]	TOPFAS shall be provided with a set of in-application workflows that guide the users through the applications with step-by-step instructions for the completion of common tasks.	2	MUST	BMD-ARS-5338 / BMD-ARS-5340 / BMD-ARS-5341 / BMD-ARS-5342 / BMD-ARS-5343
[REQ-6560]	TOPFASS shall provide simulation tutorials to guide users through the steps and screens to achieve the outcomes of the COPD Phase 1 flows defined in the Architecture Definition Document (ADD) using the capability from [REQ-6550].	2	MUST	BMD-ARS-5338
[REQ-6570]	TOPFASS shall provide simulation tutorials to guide users through the steps and screens to achieve the outcomes of the COPD Phase 2 flows defined in the Architecture Definition Document (ADD) using the capability from [REQ-6550].	2	MUST	BMD-ARS-5340
[REQ-6580]	TOPFASS shall provide simulation tutorials to guide users through the steps and screens to achieve the outcomes of the COPD Phase 3 flows defined in the Architecture Definition Document (ADD) using the capability from [REQ-6550].	2	MUST	BMD-ARS-5341
[REQ-6590]	TOPFASS shall provide simulation tutorials to guide users through the steps and screens to achieve the outcomes of the COPD Phase 4 flows defined in the Architecture Definition Document (ADD) using the capability f from [REQ-6550].	2	MUST	BMD-ARS-5342
[REQ-6600]	TOPFASS shall provide simulation tutorials to guide users through the steps and screens to achieve the outcomes of the COPD Phase 5 flows defined in the Architecture Definition Document (ADD) using the capability from [REQ-6550].	2	MUST	BMD-ARS-5343
[REQ-6610]	TOPFAS shall be self-sustaining for a 30-day period when deployed into an out-of-area operation.	2	MUST	BMD-ARS-7150
[REQ-6620]	TOPFAS shall comply with STANAG 5067 Standard for interconnection of IPV4 Networks at Mission Secret and Unclassified Security Levels, Edition 1.	2	MUST	BMD-ARS-4744
[REQ-6630]	TOPFAS shall comply with STANAG 5500 Concept Of NATO Message Text Formatting System (CONFORMETS), Edition 7 - ADatP-3 Baseline 11.0 [STANAG-5500].	2	MUST	BMD-ARS-4748
[REQ-6640]	TOPFAS shall comply with STANAG 7149 NATO Message Catalogue, Edition 6 - APP-11 Edition D [APP-11].	2	MUST	BMD-ARS-4910
[REQ-6650]	TOPFAS shall comply with STANAG 5500 Concept Of NATO Message Text Formatting System (CONFORMETS), Edition 7 - ADatP-3 Baseline 11.0.	2	MUST	BMD-ARS-7151
[REQ-6660]	TOPFAS shall comply with NATO guidelines to ensure adequate margin for scalability and growth within the framework of life-cycle cost analysis and control.	2	MUST	BMD-ARS-1685
[REQ-6670]	TOPFAS shall comply with the NATO Network Enabled Capability concept for new developments of BMC3I systems.	2	MUST	BMD-ARS-7147
[REQ-6680]	TOPFAS shall comply with NATO policy, doctrine and concepts.	2	MUST	BMD-ARS-7149
[REQ-6690]	TOPFAS shall employ the World Geodetic System-84 as defined in NIMA TR8350.2, Third Edition, Amendment 1, dated 3 January 2000 [NIMA-TR8350.2].	2	MUST	BMD-ARS-4909
[REQ-6700]	TOPFAS shall support an in-service life of 30 years by combination of design for non-obsolescence and technology insertion.	2	MUST	BMD-ARS-3579
[REQ-6710]	TOPFAS shall not have to reinitialise when operational systems leave or join the Architecture.	2	MUST	BMD-ARS-3582
[REQ-6720]	TOPFAS shall be able to achieve planning function availability in operational sites' local area network (LAN), static and deployed, 24 hours a day, seven days a week, with an availability rate of 99.5%. Measurements of availability shall not include failures resulting from factors determined to be external to the capability (e.g., loss of domain controller, loss of servers or loss of network connectivity).	2	MUST	BMD-ARS-1699
[REQ-6730]	TOPFAS shall be able to achieve planning function loss of availability frequency of <= once per week.	2	MUST	BMD-ARS-1700
[REQ-6740]	TOPFAS shall be able to achieve consultancy function availability in operational sites' local area network (LAN), static and deployed, 24 hours a day, seven days a week, with an availability rate of 99.5%. Measurements of availability shall not include failures resulting from factors determined to be external to the capability (e.g., loss of domain controller, loss of servers or loss of network connectivity).	2	MUST	BMD-ARS-1703
[REQ-6750]	TOPFAS shall be able to achieve consultancy function loss of availability frequency of <= once per week.	2	MUST	BMD-ARS-1704

[REQ-6760]	TOPFAS shall achieve intelligence function availability in operational sites' local area network (LAN), static and deployed, 24 hours a day, seven days a week, with an availability rate of 99.5%. Measurements of availability shall not include failures resulting from factors determined to be external to the capability (e.g., loss of domain controller, loss of servers or loss of network connectivity).	2	MUST	BMD-ARS-1705
[REQ-6770]	TOPFAS shall achieve intelligence function loss of availability frequency of <= once per week.	2	MUST	BMD-ARS-1706
[REQ-6780]	TOPFAS shall be able to achieve passive defence function availability in operational sites' local area network (LAN), static and deployed, 24 hours a day, seven days a week, with an availability rate of 99.5%. Measurements of availability shall not include failures resulting from factors determined to be external to the capability (e.g., loss of domain controller, loss of servers or loss of network connectivity).	2	MUST	BMD-ARS-1707
[REQ-6790]	TOPFAS shall be able to achieve passive defence function loss of availability frequency of <= once per week.	2	MUST	BMD-ARS-1708
[REQ-6800]	TOPFAS shall be able to achieve education, training, exercises and evaluation function availability in operational sites' local area network (LAN), static and deployed, 24 hours a day, seven days a week, with an availability rate of 99.5%. Measurements of availability shall not include failures resulting from factors determined to be external to the capability (e.g., loss of domain controller, loss of servers or loss of network connectivity).	2	MUST	BMD-ARS-1711
[REQ-6810]	TOPFAS shall be able to achieve education, training, exercises and evaluation function loss of availability frequency of <= once per week.	2	MUST	BMD-ARS-1712
[REQ-6820]	Common environmental definitions must be the basis for all assets and areas that constitute PC(A)AL, RJPD(A)AL, JPD(A)AL and associated tasks.	2	MUST	BMD-ARS-1717
[REQ-6830]	All requirements that have been included in the SRS are implemented (functional implementation completeness).	1	MUST	TOPFAS
[REQ-6840]	All requirements that have been implemented have undergone a test process (functional test completeness).	1	MUST	TOPFAS
[REQ-6850]	TOPFAS shall provide accuracy of location better than 1 meter (i.e., sub-meter accuracy) for translation of values (UTM, Latitude/Longitudes, others).	1	MUST	TOPFAS
[REQ-6860]	TOPFAS shall provide accuracy of timing (e.g. for timestamps) to one second or better for the timestamps for auditing purposes. Note: The precision of the timestamps shall be the one provided by the operating system.	1	MUST	TOPFAS
[REQ-6870]	TOPFAS shall fulfil all usage objectives (functional adequacy).	1	MUST	TOPFAS
[REQ-6880]	TOPFAS shall support printing of generated information products, documents and reports through the standard operating system printing functionality.	1	MUST	TOPFAS
[REQ-6890]	TOPFAS shall ensure consistency of all data displayed on all open views within the same application framework.	1	MUST	TOPFAS
[REQ-6900]	TOPFAS shall ensure consistency throughout its interface and generated products.	1	MUST	TOPFAS
[REQ-6910]	Output generated in Microsoft Office shall be compliant with: Office Open XML, ISO/IEC 29500:2008.	1	MUST	TOPFAS
[REQ-6920]	Output generated in PDF-Format shall be compliant with: PDF-Format 1.4 ed.1 (PDF/A-1, ISO 19005-1:2005).	1	MUST	TOPFAS
[REQ-6930]	TOPFAS shall use and store data internally as Zulu time (i.e. GMT) as standard time and allow the user to choose an additional time zone for display purposes.	1	MUST	TOPFAS
[REQ-6940]	The time from restarting all servers until all services are restored and fully operational again shall be less than 5 minutes for at least 99.5% of the Operational Time	1	MUST	TOPFAS
[REQ-6950]	TOPFAS's user functionality shall be available, within ten seconds after launching each application.	1	MUST	TOPFAS
[REQ-6960]	The loading of any view, dialog or web part or view shall not take more than five seconds on average, with 90% of views loading in less than 2 seconds under normal usage and load conditions.	1	MUST	TOPFAS
[REQ-6970]	The web applications shall score good ("Green") on all 6 criteria (First Contentful Paint, Speed Index, Largest Contentful Paint, Total Blocking Time, Time to Interactive and Cumulative Layout Shift) of the Google Lighthouse (V6 or newer) performance scoring tool as available in Chromium browsers.	1	MUST	TOPFAS
[REQ-6980]	TOPFAS's performance shall be optimised for used on the NATO operational networks. This includes but is not limited to: - aggressive caching of resources - maximised usage according to best practices of minification, bundling and compression of all application assets - usage of web sockets when appropriate - lazy loading and rendering - etc.	1	MUST	TOPFAS
[REQ-6990]	TOPFAS shall not suffer from any memory leaks. This also includes managing the memory efficiently (e.g. caching strategy) making sure that the memory pressure never goes beyond a set threshold (to be defined during design phase).	1	MUST	TOPFAS
[REQ-7000]	TOPFAS shall support concurrent use of up to 50 editors and 200 readers on a single site/database, without noticeable performance impact or degradation in response times.	1	MUST	TOPFAS
[REQ-7010]	TOPFAS's database shall be dimensioned to support all the relevant data based on current estimates of numbers and sizes of data elements, and provide a 50% of additional space a year for five years.	1	MUST	TOPFAS
[REQ-7020]	The implemented applications and services shall be capable of operating within the NS and MS WAN environment (including servers, network, services and workstations) in the presence of the latest approved NATO Security Settings, without impact on other applications nor services. The target version to be provided by the Purchaser during the design stage. Any deviations from the approved security settings shall be identified by the Contractor prior to testing and shall be subject to approval of the Purchaser.	1	MUST	TOPFAS
[REQ-7030]	TOPFAS shall support access to the underlying file system using Windows standards, including long file names and all legal naming characters.	1	MUST	TOPFAS
[REQ-7040]	Web-based applications shall be compatible with Operating System Microsoft Windows 10 64-bit editions and later, Components Microsoft Edge LTS (87 and later), Mozilla Firefox ESR (91 and later)	1	MUST	TOPFAS
[REQ-7050]	TOPFAS shall support the following environment configurations for the Desktop applications: Operating System Microsoft Windows 10 64-bit editions and later, Microsoft Office Professional Plus 2016 and later, Microsoft SharePoint Server 2016 and later	1	MUST	TOPFAS
[REQ-7060]	TOPFAS shall support the following environment configurations for the server components: Operating System Microsoft Windows Server 2019 and later (normal and Core versions), Database Server Microsoft SQL Server 2019 and later, Web Server Internet Information Services (IIS) version as per OS version used.	1	MUST	TOPFAS
[REQ-7070]	TOPFAS shall provide a file-based data exchange interface to enable the exchange of information between applications for reasons of legacy, security, capability, efficiency, connectivity or lack thereof.	1	MUST	TOPFAS
[REQ-7080]	The file-based data exchange file formats shall use XML or JSON as the primary mechanism for file-level information exchange and shall be based, where possible, on existing data format standards or adapted revisions thereof.	1	MUST	TOPFAS
[REQ-7090]	TOPFAS shall validate the format and contents of all incoming and outgoing data exchange against the documented format or schemas published by the suppliers or originators of the data, this includes data exchange initiated from own capabilities. The capability shall report with explicit warning messages when validation is unsuccessful.	1	MUST	TOPFAS
[REQ-7100]	The data exchange interface shall use commonly used formats for exchanging specific types of data such as images.	1	MUST	TOPFAS
[REQ-7110]	TOPFAS shall provide integration with Core and Enabling Services including: (1) Email / Exchange (2) Microsoft Office Applications (3) CoreGIS (Map Service Provider) (4) Integrated Windows Authentication / Active Directory (IWA/AD) (5) Active Directory Federated Services (ADFS) (6) SAML authentication Secure Token Server (STS)	1	MUST	TOPFAS
[REQ-7111]	TOPFAS shall be compatible with the latest versions of external capabilities and services, and their latest interface control documents and service definitions, as long as the latest relevant interface control document is available a minimum of 12 months prior to a planned release of TOPFAS.	1	MUST	TOPFAS
[REQ-7120]	TOPFAS requires a user-friendly interface for operators who vary considerably in their experience in the domain, technical skills, and frequency and time spent using the capability. In order to help the user feel at ease with the capability, some general principles are to be followed.	1	MUST	TOPFAS

[REQ-7130]	TOPFAS shall comply with the following criteria for information presentation: - Clarity: information shall be conveyed quickly and accurately; - Discriminability: information shall be able to be distinguished accurately; - Consistency: the same information shall be presented in the same way throughout the application; - Detectability: the user's attention shall be directed to the information required; - Legibility: information shall be easy to read; - Comprehensibility: the meaning of the information shall be clearly understandable.	1	MUST	TOPFAS
[REQ-7140]	Visual elements and interaction schemes of the user interface shall be reused for similar functions and features. Uniformity is created this way, which helps users to understand where they are and what they can do	1	MUST	TOPFAS
[REQ-7150]	TOPFAS shall be optimised to provide direct feedback in views, dialogs and controls and reduce the amount of popups or dialogs containing errors, warnings or information notifications or messages. This includes limiting the number of popups and dialogs to the extent that they do not to show the same message, for the same occasion, multiple times	1	MUST	TOPFAS
[REQ-7160]	TOPFAS's user interface shall clearly distinguish between display/visualisation views, dialogs, panels, etc. and editable views, dialogs, panels, etc. Each type requiring specific design, i.e. editable forms rendered read-only are not considered suitable visualisations.	1	MUST	TOPFAS
[REQ-7170]	TOPFAS shall support and guide the user in understanding and learning how to use its functions.	1	MUST	TOPFAS
[REQ-7180]	TOPFAS's user guidance information shall be readily distinguishable from other displayed information, e.g. data. This user guidance information shall be provided to the user through feedback, status information and error management: (1) Feedback provides information in response to the user's input. In general, users can be expected to make mistakes while entering data; they shall not be considered errors and should be caught by input field validation rules; (2) Status information indicates the current state of the application or processes; (3) Error management provides information in responses to failures.	1	MUST	TOPFAS
[REQ-7190]	TOPFAS shall use United Kingdom Standard English as the default language. This shall apply to all applications and supporting components, including all user interfaces (e.g. views, dialogs, help screens, tooltips, etc.), error / notification / warning messages, training material and documentation.	2	MUST	BMD-ARS-4654
[REQ-7200]	TOPFAS shall support context menus (i.e. right button mouse click, or equivalent menus). General and common functions shall also be accessible through the function bar, ribbon, view or dialog buttons.	1	MUST	TOPFAS
[REQ-7210]	For the ribbon or toolbars, (context) menus and buttons, the following aspects shall be considered: (1) Structure, such as logical categories, grouping options and ordering items; (2) Navigation, including titles and access time; (3) Option selection and execution, including selection methods, use of the keyboard; (4) Presentation, including placement and use of icons.	1	MUST	TOPFAS
[REQ-7220]	Popup dialogs used to report errors, warnings, information or any other notification or message shall be closable with a single click.	1	MUST	TOPFAS
[REQ-7230]	TOPFAS shall offer undo/redo (not limited to formatting) support for all operations. Exceptions shall be agreed with the Purchaser.	2	MUST	BMD-ARS-4654
[REQ-7240]	TOPFAS's user interface shall be structured so that options, features and functions of applications are organised in a way that reflects their relationships (i.e., similar things shall be organised in similar ways).	1	MUST	TOPFAS
[REQ-7250]	TOPFAS shall support editing of information in a logical order. In the user interface, dialogs shall be navigable using the tab key in a logical order.	1	MUST	TOPFAS
[REQ-7260]	TOPFAS shall use labels that are context-dependent, meaningful and descriptive to the function or action at hand.	1	MUST	TOPFAS
[REQ-7270]	TOPFAS shall use a consistent user interface font.	1	MUST	TOPFAS
[REQ-7280]	TOPFAS shall use domain terminology consistent with the subject area handbooks and directives	1	MUST	TOPFAS
[REQ-7290]	TOPFAS shall provide scrollbars and/or panning shall be available when information does not fit within the current view.	1	MUST	TOPFAS
[REQ-7300]	Within TOPFAS, it shall be unambiguous and clear what information in what format is required for each field. The expected input format on all dialog or view fields shall be shown if it is not already clear from the label.	1	MUST	TOPFAS
[REQ-7310]	TOPFAS shall be tolerant to the input format including location formats (e.g. latitude/longitude could be entered as degrees-minutes-seconds, decimal degrees, etc.) and date formats (e.g. yyyy-mm-dd could also be entered as yyyymmdd or yy-mm-dd without error or picked from a calendar) and shall apply automatic layout (format) of data where possible (e.g. correct format of dates). Military DTG support shall be provided where relevant.	1	MUST	TOPFAS
[REQ-7320]	Clickable (selectable) text (e.g. links) shall be clearly distinguishable from non-clickable text.	1	MUST	TOPFAS
[REQ-7330]	TOPFAS shall support selections using: (1) Menu (Select All); (2) Context Menu; (3) Accelerators (Ctrl+A); (4) Mouse; (5) Arrow keys.	1	MUST	TOPFAS
[REQ-7340]	TOPFAS shall support extended selection by Ctrl (i.e. individual selected items) and Shift (i.e. select from-to) keys.	1	MUST	TOPFAS
[REQ-7350]	TOPFAS shall support multi-select in grid controls, tree controls / views and hierarchal tree grids.	1	MUST	TOPFAS
[REQ-7360]	TOPFAS shall notify the user who has initiated a prolonged action that processing of the action has started and convey the sense of processing progress (by means of a progress indicator).	2	MUST	BMD-ARS-4654
[REQ-7370]	TOPFAS shall provide information tooltips within views, dialogs and controls to provide further explanation about specific fields or options. However, it should not be required to include these tooltips for every field or option; dialogs and views should be self-descriptive.	1	MUST	TOPFAS
[REQ-7380]	TOPFAS shall support tooltips on all icons and ribbon buttons that offer additional explanation and assistance.	1	MUST	TOPFAS
[REQ-7390]	TOPFAS shall include, for significant user interface elements, from the tooltips further links to training materials in the online help sections and videos of the TOFPAS Help Centre.	2	MUST	BMD-ARS-4665 / BMD-ARS-4667
[REQ-7400]	Tooltips shall be easily accessible, not intrusive and shall only be shown after a short initial delay. The tooltips will disappear after a certain amount of time and will not show-up again before the user hoovers over a different user interface element with the mouse pointer or returns to the same element after leaving it first. When the user hoovers from one element to another while the tooltip is still visible, the tooltip will first disappear and only appear again for the new element after a short initial delay.	1	MUST	TOPFAS
[REQ-7410]	For tabular or lists of information, TOPFAS shall allow the user to navigate: (1) One row at a time; (2) By paging.	1	MUST	TOPFAS
[REQ-7420]	For hierarchical (tree) and grid views, TOPFAS shall support the full range of capabilities including sorting, filtering (Excel filter style), column selector, grouping, banded view, column ordering, column width selection, etc. The availability of those features may depend on the grid usage i.e. not all features are required for all grids based on the information content displayed.	1	MUST	TOPFAS
[REQ-7430]	TOPFAS shall provide zoom functions for views or diagrams that contain or can contain large amounts of data or information objects. The zoom function shall include a proportional zoom control that allows the user to zoom to any zoom-level (zoom in and zoom out) and provide a number of pre-sets, including fit to current window and full-page size, or equivalent.	1	MUST	TOPFAS
[REQ-7440]	TOPFAS shall provide a date-time picker supporting the user entering and using dates and timings in absolute format or in relative format, when relative date-time is required.	1	MUST	TOPFAS
[REQ-7450]	The user interface of TOPFAS shall support a minimum resolution of 1280x1024 or wide-screen equivalent.	1	MUST	TOPFAS
[REQ-7460]	TOPFAS shall allow the user to launch more than one instance of an application on the same workstation.	1	MUST	TOPFAS
[REQ-7470]	The design of the user interface shall be based on a single theme with variations, and have a common look and feel carried across the entire user interface of an application.	1	MUST	TOPFAS

[REQ-7480]	TOPFAS shall provide an appropriate level of prompts (i.e. allow cancellation or confirmation) when input or changes may be lost due to closing a window, view, dialog, or application.	1	MUST	TOPFAS
[REQ-7490]	TOPFAS shall notify the user for potential loss of information objects during change of any data element or information product. The user shall be able choose the action that has to be taken by the application, identified by a warning notification, which provides information about the data that might be lost.	1	MUST	TOPFAS
[REQ-7500]	The application's messages (e.g. error, warning, notification or informational messages) shall be provided in context and directed towards the user. The message shall contain initiating module information, context information, suggested (corrective) actions or guidance on where to find answers and solutions.	1	MUST	TOPFAS
[REQ-7510]	TOPFAS shall highlight or mark empty required fields by means of "error" providers in dialogs and views once the user tries to save the information within the dialog or view. No information shall be lost when saving fails and the users is completing the remaining fields, before saving again.	1	MUST	TOPFAS
[REQ-7520]	TOPFAS's user interface shall be tolerant to input mistakes. The user shall be given guidance and suggestions to help them correct or overcome mistakes they have already made.	1	MUST	TOPFAS
[REQ-7530]	TOPFAS shall for all textual entry fields spell-check the entered text, visually highlight spelling errors, and suggest spelling corrections.	2	MUST	BMD-ARS-4654
[REQ-7540]	TOPFAS shall provide data defaults where applicable.	1	MUST	TOPFAS
[REQ-7550]	TOPFAS's user interface shall use predefined drop-down or pull-down lists or controls in appropriate situations based on configured domain values to speed up the entry of information and prevent input mistakes.	2	MUST	BMD-ARS-4654
[REQ-7560]	TOPFAS shall use the latest Microsoft Office theme look and feel (Microsoft Office 2021 / Office 365 2021) for desktop and web applications. This includes upgrading existing Office 2016 theming to Office 2021 for desktop and web applications. Use of a common library of user interface components shall be favoured for each technology stack (desktop and web).	2	MUST	BMD-ARS-4654
[REQ-7570]	TOPFAS User Interface shall be compatible with high DPI displays without blur or other artefacts. This includes the use of a common set of scalable vector icons for all user interface elements and replacement of bitmap icons by their scalable vector equivalent when applicable.	1	MUST	TOPFAS
[REQ-7580]	TOPFAS shall save the positions of the user interface elements for each user between application sessions and restore the user interface on starting another session.	1	MUST	TOPFAS
[REQ-7590]	TOPFAS shall restore the tree expansion state of a tree control/view as well as the last selected item. When the item does not exist anymore, the next level up shall be used instead. On opening the first time, a tree control/view shall be expanded to the second level (first and second level shall be visible). These settings shall be persisted per user and over application sessions.	1	MUST	TOPFAS
[REQ-7600]	TOPFAS shall pre-populate editable combo boxes using previously entered data.	1	MUST	TOPFAS
[REQ-7610]	TOPFAS's messages (e.g. error, warning, notification or informational messages) shall be properly formatted. This means that presented text shall not exceed 80 characters per line and a carriage return is inserted between the last two words before reaching 80 characters. The display of long text shall not exceed more than 3 lines and in case it is longer, the text will be shorted and a marking (e.g. "…") is added indicating the text is shortened. In case the long text does not consist of words, but is for example a long file path, the text is shown on one line only and the text is shorted in the middle showing the beginning of the path and the end of the path with the marker in the middle (for example "C:\My\Very\Very\...\Very\Long\FileName.doc").	1	MUST	TOPFAS
[REQ-7620]	The use of acronyms within the applications and documentation shall be limited in order not to affect readability and comprehension negatively.	1	MUST	TOPFAS
[REQ-7630]	Use of colour or sound alone does not indicate status or errors.	1	MUST	TOPFAS
[REQ-7640]	The system shall avoid the use of colour combinations that impact the use of the applications by colour-blind users, or accompany such use by additional graphics.	1	MUST	TOPFAS
[REQ-7650]	The system shall ensure all images in web applications include alternate (alt) text description (e.g. for actions).	1	MUST	TOPFAS
[REQ-7660]	The capability shall have a Mean-Time between Failures (MTBF) > 168 hours. The Time between Failures (TBF) is defined as the difference between the start of unplanned downtime and the start of uptime. MTBF (mean time between failures) is defined as the mean time between two consecutive failures.	1	MUST	TOPFAS
[REQ-7670]	TOPFAS shall maintain integrity between data elements both within application as well as within storage.	1	MUST	TOPFAS
[REQ-7680]	TOPFAS shall be available in operational sites' local area network (LAN), static and deployed, 24 hours a day, seven days a week, with an availability rate of 99.5%. Measurements of availability shall not include failures resulting from factors determined to be external to the capability (e.g., loss of domain controller, loss of servers or loss of network connectivity).	1	MUST	TOPFAS
[REQ-7690]	TOPFAS shall automatically detect the availability and re-establishment of network connectivity.	1	MUST	TOPFAS
[REQ-7700]	TOPFAS applications shall be upgradable without an outage of more than 1 hour.	1	MUST	TOPFAS
[REQ-7710]	Replicated TOPFAS databases shall be upgradable without an outage of more than 1 day.	1	MUST	TOPFAS
[REQ-7720]	TOPFAS shall handle errors in a way that helps users rather than disturb or otherwise hinder their work.	1	MUST	TOPFAS
[REQ-7730]	TOPFAS shall ensure availability to users so that they do not experience interruption of services as a result of intermittent connection. Intermittent connection is defined as loss of connectivity that is less than thirty (30) seconds.	1	MUST	TOPFAS
[REQ-7740]	TOPFAS shall gracefully degrade in the condition where externally provided services (such as Core-GIS, E-mail, etc.) are not available. Gracefully degrade means that applications shall not raises exceptions, or even crash, but elegantly notify the users and if possible, continues to provide some functions using local cache.	1	MUST	TOPFAS
[REQ-7750]	TOPFAS shall gracefully degrade in the condition where the networking services are not available. Gracefully degrade means that applications shall not raises exceptions, or even crash, but elegantly notify the users and if possible, continues to provide some functions using local cache.	1	MUST	TOPFAS
[REQ-7760]	TOPFAS shall provide the administrators with the ability to perform full and incremental backups of the data repositories and software without impacting the availability.	2	MUST	BMD-ARS-4871
[REQ-7770]	TOPFAS shall provide a database maintenance plan for automatically handling backups at a configurable frequency and conducted required database health operations (e.g. rebuilding indexes). This includes a retention policy for backups.	2	MUST	BMD-ARS-4871
[REQ-7780]	TOPFAS shall allow the system administrators to restore backups of data repositories and software with no data loss (i.e. only not yet committed transactions can be lost in case of a crash).	2	MUST	BMD-ARS-4871
[REQ-7790]	On the hypothesis of an operational time of 24/7/365 (24 hours per day, 7 days a week, 365 days per year), the MTTR shall not exceed the time limits defined in the table above for each single maintenance action.	1	MUST	TOPFAS
[REQ-7800]	The web applications and services shall implement relevant security techniques to protect against any security vulnerabilities as identified by Open Web Application Security Project (OWASP), see [OWASP].	1	MUST	TOPFAS
[REQ-7810]	In line with [AC/322-N(2011)0130], the security classification construct shall include at least: (1) Policy Identifier/Information Ownership: e.g. NATO, NATO/EAPC (Euro-Atlantic Partnership Council), ISAF (International Security Assistance Force); (2) Classification Marking: e.g. Unclassified, R∃stricted, Confid∃ntial, S∃cret; (3) Category/Caveats: e.g. one or more Releasability statements such as Releasable to Finland, Sweden, Releasable to ISAF; Releasable to PfP.	2	MUST	BMD-ARS-7857
[REQ-7820]	TOPFAS shall ensure that a security classification construct is automatically included into each shown or generated information product, showing the highest classification marking of information it contains.	2	MUST	BMD-ARS-7855
[REQ-7830]	The security classification construct shall be assembled from domain values and shall include the standardised (NATO) colour scheme to differentiate the various security classifications.	2	MUST	BMD-ARS-4654
[REQ-7840]	TOPFAS shall show the security classification construct at the top of the application framework, showing the relevant security classification of the data visible on the screen. The security classification construct shall use the defined colour scheme to differentiate the various security classifications.	2	MUST	BMD-ARS-4654

[REQ-7850]	Components within an application shall be configured to provide only required capabilities (least functionality). Components which are not required are either uninstalled, not installed or disabled.	2	MUST	BMD-ARS-7852
[REQ-7860]	If digital certificates are required by an application, they shall be NATO certificates, provided by NATO PKI.	2	MUST	BMD-ARS-8864
[REQ-7870]	The validity of PKI certificates shall be verified (that they are neither expired nor revoked) before they are used.	2	MUST	BMD-ARS-7845
[REQ-7880]	All software packages shall be delivered with latest security updates.	2	MUST	BMD-ARS-7842
[REQ-7890]	TOPFAS shall only use versions of software that are supported with security patches and do not require an obsolete version of OS, libraries and dependencies to function.	2	MUST	BMD-ARS-7843
[REQ-7900]	TOPFAS shall properly apply encryption mechanisms to protect credentials and similar highly sensitive information.	2	MUST	BMD-ARS-7849
[REQ-7910]	TOPFAS shall use custom error pages to prevent server error messages from being disclosed.	2	MUST	BMD-ARS-7850
[REQ-7920]	TOPFAS shall not disclose sensitive information in error responses, including system/application details, session identifiers or account information.	2	MUST	BMD-ARS-7851
[REQ-7930]	Any sensitive/classified pieces of information (e.g. passwords, IP-addresses etc.) shall not be hard-coded in any source code.	2	MUST	BMD-ARS-7867
[REQ-7940]	TOPFAS shall be compliant with the security rules as defined by the NCIRC. This includes protection for SQL injection, cross-site scripting prevention, authentication, etc.	1	MUST	TOPFAS
[REQ-7950]	TOPFAS shall protect passwords in storage. All passwords shall be stored in a hashed and salted form to protect them from exposure, regardless of where they are stored.	1	MUST	TOPFAS
[REQ-7960]	The full TOPFAS application suite, with the exception of NCRS and EFGMT, shall be migrated from .Net Framework and/or updated to the latest .NET and C#.	1	MUST	TOPFAS
[REQ-7970]	The software shall be designed and structured for good testability. This includes usage of patterns such as, for example, decoupling, test data generation and dependency injection to enable unit testing.	1	MUST	TOPFAS
[REQ-7980]	The design, software architecture and development environment shall be properly documented to allow for future maintenance of the capability.	1	MUST	TOPFAS
[REQ-7990]	TOPFAS shall use a standard naming convention for the database design.	1	MUST	TOPFAS
[REQ-8000]	TOPFAS shall comply with latest versions of the Microsoft Windows operating system available and supported by the Bi-SC AIS servers and workstations. This shall include all versions of the operating systems planned to become available prior to final acceptance testing.	1	MUST	TOPFAS
[REQ-8010]	Source code artefacts developed for the applications shall be written using US Standard English (e.g. for Classes, Methods, Variables etc.).	1	MUST	TOPFAS
[REQ-8020]	Source code artefacts developed for the application shall be documented with in-line comments using United Kingdom Standard English. Industry best practices shall be used in the level of commenting. Comments shall, at a minimum, be provided for publicly visible: (1) class definition explaining what the class represents; (2) member function explaining what the function does; (3) member (input/output) variable explaining what the variable means; (4) type definition (enumeration) explaining what the type represents.	1	MUST	TOPFAS
[REQ-8030]	Source code developed for the applications shall be documented with comments, which can be extracted and formatted to augment technical documentation. The comments shall be formatted according to the "XML Comments" format (i.e., beginning with three forward slashes '///').	1	MUST	TOPFAS
[REQ-8040]	The security classification of any example data that is displayed in any documentation, including online help, shall not exceed the level of NATO UNCLASSIFIED.	1	MUST	TOPFAS
[REQ-8050]	Hardcoding of, or embedding of, resources, configuration settings, or any other non-binary artefacts (URL, DNS, IP addresses, file path, drive letters, etc.) shall NOT be implemented/used.	1	MUST	TOPFAS
[REQ-8060]	New View components shall be implemented as reusable web components that can be used in many of the TOPFAS applications, in order to provide a homogenous interface across both desktop and web applications, unless specified otherwise and agreed with the Purchaser.	1	MUST	TOPFAS
[REQ-8070]	New components for the desktop applications shall be implemented entirely using .NET Core and C#.	1	MUST	TOPFAS
[REQ-8080]	New backend components for the desktop and web applications shall be implemented entirely using the latest .NET Core and C#.	1	MUST	TOPFAS
[REQ-8090]	The web-based applications frontend, with the exception of NCRS and EFGMT, shall be implemented entirely using a single TypeScript-based technology stack, HTML5, and cascading style sheets (CSS).	1	MUST	TOPFAS
[REQ-8100]	TOPFAS shall standardize on the (off-the-shelf) development components. The introduction of new off-the-shelf components shall be approved by the Purchaser.	1	MUST	TOPFAS
[REQ-8110]	Use of components (free, open source, or commercial or government) shall not limit the deployment or use of the capability in any way and shall not require the release of code developed for the capability.	1	MUST	TOPFAS
[REQ-8120]	Any component shall be verified for compliance to other non-functional requirements, including security requirements.	1	MUST	TOPFAS
[REQ-8130]	All usage of the Windows registry and user profile by TOPFAS shall be fully documented. TOPFAS shall not use Windows registry hives other than HKEY_LOCAL_MACHINE during installation and HKEY_CURRENT_USER during application operation. The use of the Windows registry shall be avoided.	1	MUST	TOPFAS
[REQ-8140]	TOPFAS shall store temporary files only in the user's temporary folder.	1	MUST	TOPFAS
[REQ-8150]	TOPFAS shall operate well and be compliant with a virtualised server environment (e.g. Microsoft Hyper-V, VMware virtual servers) as well as physical environments.	1	MUST	TOPFAS
[REQ-8160]	TOPFAS shall use an architecture that allows vertical scalability and allows the various components to be deployed on separate machines.	1	MUST	TOPFAS
[REQ-8170]	TOPFAS applications shall be provided with their own and separated installation package. The installation packages shall also support the uninstallation of the complete application.	1	MUST	TOPFAS
[REQ-8180]	TOPFAS web apps shall not require any client installation and be directly usable from a web browser.	1	MUST	TOPFAS
[REQ-8190]	TOPFAS's installation packages shall detect its environment and run all necessary checks (appropriately address the correct Microsoft Windows and SQL Server version, disk space, etc.). Note: This includes the installation on non-English operating system versions.	1	MUST	TOPFAS
[REQ-8200]	In case of cancellation or error during the installation process leaving the installation in an incomplete state, TOPFAS's installation package shall allow the (re)-installation to complete without error.	1	MUST	TOPFAS
[REQ-8210]	TOPFAS installation packages shall allow multiple instances of TOPFAS (e.g. operations, exercise and training).	1	MUST	TOPFAS
[REQ-8220]	TOPFAS's installation packages shall provide an option to completely uninstall components of the capability. Only system files, shared files and files containing user specific settings shall be retained, if appropriate. The installation package shall not adversely impact other applications or the system when the full capability or one of its components is de-installed.	1	MUST	TOPFAS
[REQ-8230]	It shall be possible to run fully automated installation and/or uninstallation of the applications and services.	1	MUST	TOPFAS
[REQ-8240]	It shall be possible to replace a previous release with a new release in a fully automated way without loss of any data and configuration settings using a blue-green or canary deployment strategy.	1	MUST	TOPFAS

MoSCoW by Work Package	Column Labels			
Row Labels	**MUST**	**SHOULD**	**WON'T**	**Grand Total**
1	430	26		456
2	319	58		377
RESERVED			1	1
Grand Total	**749**	**84**	**1**	**834**

Total work package 1 & 2:	**833**

Attachment 2: Responses to Clariication Requests, Release Number 5

NCIA Index	IFB Ref.	Bidder's Question	NCI Agency Answer
CR1	SRS	We kindly request a clarification; whether or not Purchaser will provide referenced items in bidding period, listed in Table1-1. TOPFAS BMD ARS for instance.	The referenced documents in the SOW and SRS, except for referenced ISO/IEEE standards, will be provided on digital media that will be send to all bidders separately.
CR2	SRS	Typo... "...Collaboration Space tools (Task Planner, Video, Business Intelligence, Assessment, Documents (including WebDAV support), Calendar, Wiki, Collaboration Space." Missing closing brackets lead confusion.	The paragraph [009] should state: "(b) TOPFAS Online - server-hosted or web apps: web apps of SAT, OPT, CAT and OMT, TOPFAS eFGMT (Enhanced Force Generation Management Tool), TOPFAS RRT (Readiness Reporting Tool), TOPFAS RFI (Request For Information), TOPFAS NCRS (NATO Crisis Response System), TOPFAS TEM (Training and Exercise Management), TOPFAS Help Centre, TOPFAS Collaboration Apps and Services (Task Planner, Video, Business Intelligence, Assessment, Documents with WebDAV support, Calendar, Wiki, Collaboration Space)."
CR3	SOW	We kindly request a clarification; whether or not the DOORS will be Requirements Management Tool. If Yes, will the Purchaser provide access to the DOORs modules of TOPFAS artefacts(ARS, SOW, SRS, ...etc). Related to this question please clarify whether the Purchaser provide DOORS licences as Purchaser furnished item.	DOORS is not a mandated tool for Requirements Management. The only requirement regarding DOORS is defined in [SOW-611] and is about DRTM to DOORS import capability. Purchaser Furnished Property and Services are listed in SOW Section 2.1.
CR4	SOW	We kindly request a clarification; if there is any specified date or schedule for delivery of Interface Control Documents(ICDs) for external interfaces.	Most of the external capabilities to interface with are under development and all interfaces are expected to evolve. Exact timelines of availability of the ICDs is not known at this stage. The ICDs that are provided as part of the bidding phase are either current legacy, draft or initial future versions. These ICDs are provided only to support assessing the scope and complexity of the interfaces required. The intent is to be interoperable with the latest ICD of each external capability as long as the ICD is available a minimum of 12 months prior to a planned baseline delivery of TOPFAS.
CR5	Bidding Instructions	We kindly request a clarification; whether or not Purchaser will provide COTS tools regarding project management, software development, IPS... etc. or Contractor will procure/use his own tools?	Purchaser furnished properties and services are described in SOW Sections 2.1. Contractor responsibilities and requirements regarding Third-Party Software and Components are described in SOW Section 3.7. Furthermore, requirements regarding NSF are described in SOW Section 3.6.
CR6	SOW	We kindly request a clarification about "**Initial DRTM**" and DRTM: "Bidding Instruction, Par. 4.5.3.3" states the format and content of "Initial DRTM" and this section also refer to "SOW 6.10", which define the DRTM specification in detail. DRTM is going to be deliverd during the project execution period but "Initial DRTM" is going to be delivered with Bid Package. Question is, what will be the defference between "Initial DRTM" and DRTM? We assume the format and structure will be the same, but the content will be finalised during the project phase. Second question is will the Purchaser provide Initial / DRTM template to the Bidders during the Bidding period or will the Contractor be expected to prepare his own Initial and final DRTM format according the requirements?	Initial DRTM requirements (format and initial content) are described in Bidding Instructions (4.5.3.3). Purchaser will provide SRS matrix (Annex A) in Excel format as an input to the Initial DRTM. Remaining DRTM requirements are described in SOW (Section 6.10).

CR7	SRS	We kindly request a clarification; whether or not Purchaser will provide "Deliverables" list?	Purchaser will not provide a Deliverables list.
CR8	SRS	Can you please give some example “use case scenarios” for TOPFAS application suit	High level description of TOPFAS use cases is provided in SOW Annex B. More details were provided during Bidders Conference (See presentations session #9, #10 and #18).
CR9	Bidding Instructions	Which level of traceability is required during the IFB Phase? For instance SRS - to - E	Initial DRTM requirements (format and initial content) are described in Bidding Instructions (4.5.3.3).
CR10	Bidding Instructions	Is there a specific checklist for administrative evaluation (pass/fail)?	The check list used during the bid opening is not shared as part of the solicitation package but it verifies that the bidder has scrupulously followed the administrative requirements without taking any exception. Check list includes time of receipt of the bids, english language used, duly signed certificates provided, bid guarantee terms, etc
CR11	Bidding Instructions	Do you require traceability matrix from “IFB requirements” to “ Bid Package” for successful Bidding Package?	The requirements for Bid Package are defined in Book 1 - Bidding Instructions. The SRS matrix wil be provided in MS Excel format to ease the preparation of the initial DRTM.
CR12	Bidding Instructions	Does the existing template and definition of approach to BMD Scope Imp. Monitoring is enough for Bidding Phase? According to the SOW requirements, it is understood that all the value items, Value Points, etc….shall be defined during the Bidding Phase. Your presentation states that they will be defined in “ Initiation Phase". Please clarify.	The BMD Scope Implementation Monitoring (BSIM) approach is described in detail in SOW Section 3.9.9. The Progress Measurement Baseline (PMB) consists of value items (VI) (with associated value points) allocated over time to sprints. The PMB shall be baselined prior to the start of the first sprint. Specifically, [SOW-108] states "The Contractor shall agree with the Purchaser on the PMB for each work package prior to execution of the first iterative development cycle (first sprint) of the respective work package." Furthermore, in accordance with the exit-criteria for the initation phase (SOW 4.2.4, [SOW-178].9) the PMB shall be established during this phase.
CR13	SOW	Do you foresee number of “increments/releases” for “Iterative Development Phase”, or do you expect the Contractor will/shall propose it with his Bid?	In accordance with the iterative development approach and the continuous integration/continuous deployment, the release process shall be continuous. There shall be as many as needed releases to support the BMD activities as well other verification and validation events. Following PSA of Work Package 1, there shall also be maintenance and patch releases subject to exercise of the corresponding option.
CR14	Bidding Instructions	What is the anticipated Contract Award Date of EDC?	Contract Award / Effective Date of Contract is planned for end Q2/2023
CR15	SOW	There is a strong dependancy on SOA & IdM platform which is under development. What would be the course of action if the platform is not ready at EDC? Will it postpone the start of the project?	EDC is not dependent on the availability of the SOA & IdM platform.
CR16	SOW	Is there upper limit for ramp-up time?	It is essential to have a proper ramp-up period; the Initiation phase is kept relatively short. The Purchaser is anticipating ramp-up period duration of 3-5 months. In case the bidder would like to propose either a shorter or longer ramp-up period duration, it shall be supported with convincing justification. The bidders are reminded that not meeting the entry criteria for the Initiation phase will result in a missed milestone and immediate delays. Please note the SOW for ramp-up period requirements (specifically SOW sections 3.9.1 and 4.1), and the specific entry criteria for the Initation phase (SOW section 4.2.3, [SOW-177]). Furthermore, please note Book 1 - Bidding Instructions, paragraph 4.5.2.2.5. "…The approach shall include justifications and identify assumptions and constraints in order for the Purchaser to assess the feasibility of the approach within the proposed “ramp-up” period duration."
CR17	SOW	When increment 1 is deployed, will the existing and new TOPFAS run side by side in a manner that both applications are dealing with the same data set? Will there be a continuous data migration need in both directions?	Existing and new TOPFAS baselines shall be able to run side by side but there is no requirement that they do this on the same database. Data migration requirement is only from existing to the new baseline.

CR18	TOPFAS General	What is meant by “TOPFAS Desktop application modules that are web-based”?	Desktop application comprises multiple functional modules implemented using different technologies. Older modules are WinForms based. Newer modules are web-based running in a web browser and integrated within the Deskop applications.
CR19	TOPFAS General	Which companies were involved in the TOPFAS development in the past?	The Agency has developed the first part / prototype and it was then further developped by FCC, Spain selected for the industrialisation first increment under an international competitive bidding.
CR20	TOPFAS General	How much budget was spent to develop TOPFAS until now? For which time period?	This information is not assessed to be needed for the context of the bid. Several millions were spend from the genesis of the software under Agency program of work and then about 20 millions to industry for development over 15 years.
CR21	TOPFAS General	How many contracts were awarded to Industry for TOPFAS up to now?	4 contracts were awarded to industry for the development of TOPFAS Inc 1, Inc 1.1, Inc 2 and eRRS-RRT
CR22	SOW	What is the anticipated duration of ramp-up phase, considering that there are fixed delivery dates for T-25 etc.?	Regarding the duration of the ramp-up period, please note the answer for CR16; Expectation regarding T-25 delivery will be considered during pre-contract award phase.
CR23	SRS	The list of components is not complete, is it to be taken that unmentioned components will not be modified, only maintained as is? i.e. TBT, TOPFAS lite, CAT Analysis, CAT Data Entry, etc?	All components not specifically mentioned are subject to potential modification if they are impacted by other SRS requirements.
CR24	SRS	There is no mention of eFGMT, NCRS, OCC E&F, or RRT in the SRS. Is it to be assumed that there are no major changes/updates to these tools?	Coherence shall be ensured across the application suite. SRS in its entirety is applicable to all applications and modules.
CR25	SRS	Is there a plan to migrate desktop apps to web, or is it user’s choice? Are stored procedures still invested in? Do new functionalities require or rely on new stored procedures? Are there plans to eliminate stored procedures? How much of the whole stack is desktop based?	The SRS requires to maintain existing web-based modules, migrate some to be web based, and develop new web-based modules for new scope (see SRS section 2). The bidder is free to propose the migration of any other desktop module to be web-based e.g. to avoid duplication of the same module functionality in both desktop and web. TOPFAS Desktop custom data layer uses direct SQL queries and Stored procedures. Other applications are mostly using Microsoft Entity Framework data access. There is no plan to eliminate using stored procedures. The technology of each application has been presented during Bidders Conference, please refer to the presentations of session #9, #10 and #18.
CR26	TOPFAS General	What is Operational Planning Directive? Is it an artefact of daily use of application? How is it compared to user manuals?	The Comprehensive Operations Planning Directive (COPD) (and other military documents) describes the military doctrine (almost) independently of the tool where the user manual describes the tool (almost) independently of the doctrine. We could compare this with car user manual vs traffic regulation (doctrine).
CR27	SRS	Is there a GIS-enabled database behind? Are there GIS queries, etc.? Are all the web applications angular based, or are there legacy web applications as well?	MSSQL Server geography data types are used. Geo (map) data is provided by CoreGIS. eFGMT is using AngularJS, NCRS is using ASP.NET and part of the TOPFAS Web Portal is using ASP.NET MVC Razor pages. All other applications are in the latest Angular.

CR28	SRS	Is there any expectations/requirement to cover migration of the existing data of current TOPFAS System?	Data and database shall be fully migrated with no data loss; See [SOW-278], [SOW-291].
CR29	SRS	What does “Replicated TOPFAS database” mean? IS there any expectation to cover replication of the data over different sites?	Full replication of data across multiple sites is part of TOPFAS architecture and shall be maintained. Please refer to the Bidders Conference presentation session #18.
CR30	BMD	Regarding the new BMD features. Is there additional information available other that the written requirements? Mock-Ups? Presentations?	No further information is available.
CR31	NSF	When will the NSF DevSecOps Environmental for NATO RESTRICTED be operational?	The strategy to deploy NSF DevSecOps Environment for NATO RESTRICTED can be implemented as soon as the security directive for hosting NATO data in NR is approved by NATO Nations.
CR32	NSF	Will there be specific HW required to connect to the NSF NATO RESTRICTED?	No.
CR33	TOPFAS General	Is there any 3rd party library already identified that does not have a .NET Core version? Can you provide a complete list of 3rd party libraries used in the current TOPFAS?	At least the following: .NET Remoting, Teleplan Maria GDK component is currently .Net Framework only. Details provided in annex CR33 List of 3rd party libraries is attached (annex CR33)
CR34	TOPFAS General	Can you provide a technological roadmap for the applications? Will the razor web applications be migrated to SPA? Will all the server side applications/services be containerized to be hosted on SOA & IdM? Any other updates in relation to the technological roadmap?	Technological roadmap for TOPFAS application suite is not available. SRS [REQ-8110] requires all web-based application front-end, with the exception of NCRS and EFGMT, to be implemented to use a single front-end technology stack. All applications shall be deployable on a containerized environment. Further updates include upgrading to the latest version of the various components being used.
CR35	TOPFAS General	Is the TOPFAS portal developed using Microsoft SharePoint or is it customly developed from scratch? Regarding online spreadsheet/word processor applications, are this based on 3rd party components (open source or components licensed)?	The TOPFAS portal is not developed using SharePoint, it is custom development. The spreadsheet/word processor are currently based on the 3rd party component DevExpress.
CR36	TOPFAS General	Are web version of the desktop apps on par with desktop versions with regard to functionality they provide? If not, is it required or desired in the long term?	SAT, CAT, OPT, OMT Web ("TOPFAS Online") do not currently provide the full functionality of their desktop equivalent. They are mostly limited to read-only, but SAT also provides planning objects creation and editing. Adding creation and editing of other planning objects is also planned for other applications (OPT, CAT). UMT and DMT do not have web equivalents. UMT shall be migrated to be web based. Modules developed or modified as part of the scope are expected to provide the same functionality in desktop and web (simply because they should be the same web module in both).
CR37	NSF	Can all Azure services be used? Or only certain services are used to avoid cloud provider lock-in?	Azure services usage is limited to the services provided by the NATO Software Factory (Azure Devops and Azure DevTestLabs / associated services) for development and testing purposes. TOPFAS applications in production shall not rely on any Azure service (as Azure Cloud will not be accessible).

CR38	NSF	Are SonerQube reports available for all or some of the software components of TOPFAS? Can samples be provided during the IFB phase?	SonarQube reports are available for most of the TOPFAS applications. Detailed report is classified. However, we can indicate that SonarQube reports 1200 "bugs" and 665 days of technical debt for the desktop solution. See Annex CR.38
CR39	INTEL-FS	Will the INTEL- FS roadmap be provided during the IFB, or will be generalized and defined after?	Tentative INTEL-FS roadmap and delivery is provided in Bidders Conference Briefing #11.
CR40	SRS	Are “Content Update Files” what is referred to as “Recorded Messages” in the SRS?	No. "Content-Update files" (refering to Bidding Conference Briefing #14 ETEE-FS) are to be considered "instruction sets" for TOPFAS and describing the actions to undertake when the content-update file is released by ETEE-FS at the scheduled time in the exercise script and send back to TOPFAS (also note CR46). The content update file can contain small payloads/updates in addition to the instruction set (total size max 10MB). Larger payloads shall be managed separately by TOPFAS. "Recorded message" is an operational message, data file, or document prepared during the preparation phase of a training or exercise event. Recorded messages can be considered "Training Components" which can be considered a payload.
CR41	SOA&IDM	It was noted that SOA&IdM is currently deploying wave one. Will the full Roadmap be provided for the IFB?	SOA&IDM Platform is planned to be delivered across two waves. The first wave is due to complete by 2024 and the second wave is under planning.
CR42	Bidding Instructions	Can you provide the documents of TOPFAS, such as SSD, ICD, Database Model, Users Manuals, Architecture Design, Training Materials, etc.? In addition, can you provide the reference documents?	The referenced documents in the SOW and SRS, except for referenced ISO/IEEE standards, will be provided on digital media that will be send to all bidders separately. TOPFAS technical documentation, user manuals and training materials will only be provided to signatory of the NDA sent by email on 27 Jan 2023.
CR43	TOPFAS General	Is there any license to be considered as part of the offer for the 3rd party libraries & components; especially the ones to be migrated from .NET framework to .NET core?	Requirements related to Third party Software and Components are defined in SOW Section 3.7. For the status of .NET see clarification CR33.
CR44	TOPFAS General	What is the total size of the O&M team for the current TOPFAS system?	Operations (level 1 & 2 support): Approximately 5 people Maintenance and level 3 support: Approximately 20 people
CR45	TOPFAS General	What is the status of existing TOPFAS Apps in terms of adaption to NSF? Does it include the usage of SOA&IdM? Does it include Desktop Applications?	All TOPFAS applications including desktop applications are managed and deployed in NSF. There is currently no direct SOA&IdM usage in NSF for TOPFAS.
CR46	ETEE	Is there predefined structure of the “content update file” for ETEE interface? Is this file/structure use for two way integration?	There is no predefined structure of the “content update file”. ETEE FS is agnostic of the content. The file should be generated and consumed by TOPFAS. The generated file should define an intended update to TOPFAS and be available to an ETEE FS user for attaching to an Exercise Script element. At the scheduled time in the exercise script, ETEE FS will send the file by email to TOPFAS for processing.
CR47	SOA&IDM	When will be SOA IdM platform available for use with respect to EDC?	EDC is not dependent on the availability of the SOA & IdM platform. SOA&IDM Platform is planned to be delivered by 2024.
CR48	AIRC2IS	Which version (AirC2IS-1 or2) will be used in the integration between AirC2IS and TOPFAS?	TOPFAS shall interface and integrate with the most recent version of AirC2IS Increment-2 in order to meet BMD requirements. Backward compatibility with AirC2IS Incrment-1 shall be maintained.

CR49	SOW	To provide project schedule, can we assume that Purchaser Furnished Items will be provided at the beginning of the project, for instance EDC or EDC + 1 month? What about ICDs?	It is the Bidder/Contractor's responsibility to specify the expected availability, including assmptions and timelines, of Purchaser furnished property and services as part of Project Management Plan; See [SOW-530]. Regarding the availability of ICDs, please see the clarification provided at CR4.
CR50	SOA&IDM//NSF	How do NSF and SOA &IdM platforms separate responsibilities and collaborate together?	• NSF is responsible for managing and proving support for NSF common services such as (user accounts, VPN access, NSF toolchains (incl. trusted container pipeline and registry), and common infrastructure on NSF. • SOA-IDM is an additional service provided on top of NSF. • SOA-IDM service is responsible for managing and providing access to and support for the SOA-IDM platform on the NSF. • NSF provides support to customers during business hours CET. Outside of which support is on best effort basis except for critical security incidents.
CR51	AIRC2IS	Air C2IS Regarding the “Optional Capabilities” will the current capabilities will be kept and new AirC2IS capabilities will be implemented on top of that or all capabilities will be developed from scratch?	The question is not relevant to this IFB.
CR52	Bidding Instructions	Regarding the planned budget, the IFB says about 27 M Eur. The IFB contains a maximum of 22 M. Could you please explain from where the difference is coming from?	The overall budget estimation at 27 M€ as mentioned in the Notification of Intent to invite for bid included the lifespan of the contract with the optional In service support CLINS while the 22 M€ not to be exceeded for the CLINs 1 to 5 represents a ceiling on the investment part of the project calculated per the regulation to 125% of the estimate/authorised budget. The 27 M€ did not consider the 125% ceiling on CLINs 1 to 5.
CR53	SRS	When we look at the traceability matrix, the "ARS Reference Column" points to "TOPFAS", "BMD-ARS", etc. But we cannot comprehend functional capabilities of the TOPFAS applications from the perspective of the end-users using SAT, OPT, CAT etc. What does the reference "TOPFAS" refer too?	The ARS reference, in the form of "BMD-ARS-xxxx", indicates that the SRS requirement is derived from the BMD Architecture Requirements Specifications (BMD ARS) with reference/trace to the specific ARS requirements. The ARS reference "TOPFAS" is placeholder to indicate that the requirement is not derived from the BMD ARS.
CR54	SOW	Is the purpose of this project (bidding) to rewrite the whole TOPFAS application suite (both desktop and web) from scratch? If not how can we limit the scope?	Purchaser expects new capabilities delivered as enhancements and extensions of the current TOPFAS Application Suite, as per SOW paragraph [010]. Scope of the software requirements is defined in SRS.
CR55	GP	Will the Purchaser Background IPR be specified in detail that the contractor will be able to perform the obligations pursuant to article 30.1.3?	All the non COTS TOPFAS application suite components are exclusive property of NATO and will be provided as PFE to the Contractor, in accordance with SOW paragraph 2.1 [043]
CR56	SP/GP	Are we right in assuming that it is not a prerequisite that the Bid Guarantee and the Performance Guarantee (Stand By Letter of Credit) are governed by Belgian Law? May Bidders apply the applicable law of their country for the Bid Guarantee and the Performance Guarantee?	The Bid Guarantee and Performance Guarantee of governed by ISP98
CR57	SP	Could you please specify the required rights to use of purchased software under Article 24.2. as the reference to article 16 is not clear.	update SPs to refer to Article 20, Intellectual Property
CR58		When will the evaluation of CLIN 8 and CLIN 9 occur? What is the process for the evaluation of CLIN 8 and CLIN 9? Please explain.	CLIN8 and CLIN9 are non-evaluated optional CLINs (Reference: Bidding Sheets). They won't be evaluated to select the Bidder. However, they may be further assessed for exercise later on, during the contract lifespan.

CR59	Bidding Instructions	Our house bank is part of the UniCredit Group. As UniCredit S.p.A. is mentioned in Annex E Bidding Instructions, would a Bid Guarantee SLC issued by UniCredit Bank subsidiary be acceptable (without a further confirmation of UniCredit S.p.A.)?	No, the list of banks are provided by the national authorities at the Investment Committee
CR60	SP	With regard to the Performance Guarantee would it be possible to add specifically the UniCredit Bank subsidiary (as a part of UniCredit Group) to the list of acceptable banks to issue the performance guarantee (Annex D Contract Special Provisions)?	No, the list of banks are provided by the national authorities at the Investment Committee
CR61	SP	Will it be possible to agree on a limitation of total contract liability/indemnity for the contractor, for example 50% of the total contract value?	No.
CR62	SP	Liquidated Damages: Would it be acceptable for NCIA to reduce the 15% maximum for liquidated damages per payment milestone to 10% and the 10% maximum of the total contract value to 5%? Liquidated damages shall be payable from the first day of delinquency as of Art. 13.4 Contract Special Conditions -> Would a grace period of for example 4 weeks be acceptable for NCIA?	No.
CR63	GP	Would German Law for the future contract be acceptable to NCIA instead of Belgian Law?	No.
CR64	GP	Contractor shall assume liability for patent and copyright infringements “in any countries”. Is it possible to limit this obligation to certain countries?	No.
CR65		In the Legacy Software Suite, will the newly selected contractor be liable for legacy defects free of charge?	The Contractor shall be responsible for the full legacy TOPFAS Application Suite. The legacy TOPFAS Application Suite is provided "as-is".
CR66		Does the current version of the TOPFAS Applications fulfill the Non-Functional Requirements REQ-6630 – 8260: Performance, IT security, reliability of SW?	The current version of TOPFAS Application Suite does not fulfill all Non-Functional Requirements from the SRS.
CR67	Bidding Instructions	Volume II of the bid will be comprised of Bidding Sheets and the extracted Offer Summary sheet in PDF. In bidding package provided there is another file named 03_NU_IFB-CO-115498-TOPFAS-BMD-SSS_.xlsx with a content very close to the bidding sheets. As this file is not part of the Bid Volume II we would like to know what is the aim of this file and how should it be used during the bidding process	The file 03_NU_IFB-CO-115498-TOPFAS-BMD-SSS_.xlsx is part of the Book II prospective contract. It is not to be filled by the bidder at this stage but will be updated and part of the final contract if the bid is successful.
CR68	Bidding Instructions	Celling price is specified for CLINs 1-5 but now indication is provided for optional support and maintenance. Is there any celling price available for WP3 and optional CLINs?	No ceilings apply to WP3 and optional CLINS.
CR69	Bidding Instructions	“Failure to comply with paragraphs 3.4.1.2 and 3.4.1.3” – paragraph 3.4.1.3 does not exist in the document, though its sub-paragraph does.	remove 3.4.1.3.1
CR70	Bidding Instructions	Following the Bidding Instructions, all documents have a page limit that is usually between 50 or 30. The question is, does this page limit consider the document cover, tables of contents, annexes, etc.?	Page limit includes all document elements and annexes.

CR71	SRS	Could you please explain what a Defence Design result and a Defence Design evaluation result are? And which system/tool these results and evaluation results are made in or obtained from?	Please note the requirement numbers have been updated to REQ-3650, 3660, 5140, 5150 in SRS v3.0. For the future NATO BMD capability, 2 distinct steps are foreseen for AirC2 IS in the context of BMD defence planning: 1. The proper development of the defence design, including the OPFOR BM forces, own BMD forces with their deployment, their tasks etc. 2. Based on that, a defence design evaluation capability (D2A) that is planned to produce metrics indicating how "good" the defence design is The term "defence design results" refers to the first step. Using the "defence design results" the operator should be able to associate the complete defence design (which could be a large structure) with a COA and / or would have the opportunity to associate key attributes of the defence design (e.g. number of BMD systems, kinds of BMD systems) with the COA which could also be used for COA comparison. Therefore term "defence design results" relates both to defence design as a whole and/or parts of it that the operator may choose to include.. Defence design evaluation results are the metrics produced by the defence design evaluation capability of the future AirC2 IS.
CR72	SRS	What is a "BM Targeting Strategy"? Where is it defined?	From the ARS: "The BM Targeting Strategy is part of the OPFOR BM COA and contains amongst other information Asset Types that could be targeted."
CR73	SRS	Are these Recorded Messages the messages mentioned in REQ-5350?	Please refer to SRS v2.0 and follow-on revisions.
CR74	SRS	It is not clear which is the difference between these 2 requirements. Please, clarify.	REQ-5780 is the ability to create a fictitious OPFOR BM ORBAT. REQ-5790 is the subsequent use of the fictitious ORBAT on for example on a map view.
CR75	SRS	What does [COMPROMISE.AREA.1] and [COMPROMISE.AREA.3] refer to?	The compromise area requirement is a "Fault Tolerance" requirement. This requirement is to ensure that even when a fault event occurs and/or there is a lack of required data, the function can still be delivered albeit at potentially a degraded state. The COMPROMISE.AREA.x is a property such as time or accuracy or number of frequency. So the functionality will still perform but will be sub-optimal in relation to the defined AREA.x property e.g. it might run slower, manual instead of automated, less accurate, via another channel of communication). The specific property of [COMPROMISE.AREA.x] are classified values and are provided in the classified version of the BMD ADD.
CR76	SRS	Minutes or seconds?	REQ-5900: seconds REQ-5910: minutes

CR77	SRS	Which is the difference between the Defence Design (BC) and the Defence Design (BMD) services? Which systems is providing them?	The difference between Defence Design(BC) and Defence Design (BMD) can be characterized by the definitions of the 2 corresponding System Data Element (SDE) descriptions from the BMD ADD. Defence Design (BC) The set/collection of tasks that have been assigned to the units (sensors and weapon systems). In Baseline Capability TBMD/BMD a task is defined as a triplet which consists of the unit providing defence, the asset being defended, and the threat being defended against. Units can be assigned multiple tasks. Defence Design (BMD) Includes one or more Pre Planned Response/s (PPRs). In BMD a task consists of a triplet, participation in LOR [Launch on Remote] (whether an engagement will be supported by LOR), and participation in Peer-to-Peer engagement coordination (what other systems the resources should be coordinating with for the engagement). The BMD Architecture introduces primary/assigned and secondary/cover tasking. Primary/assigned task is defined as the task the resource should execute as specified in the PPR (i.e. assigned). Secondary/cover task is defined as the task the resource should be prepared to execute as specified in the PPR (i.e. cover). The BMD architecture Defence Design (DD) can contain the assignment of multiple alternative sets of tasks to units in a single DD. Each unique set of alternative tasks in a DD is referred to as PPR. PPRs define the potential changes to the UL sensor and weapon system tasks in a DD that may be triggered by specific events. AirC2 IS is planned to provide both SDEs.
CR78	CR38	In NCIA response to CR38 there is a statement "However, we can indicate that SonarQube reports 1200 "bugs" and 665 days of technical debt for the desktop solution. See Annex CR.38". We could not figure out where is the "Annex" of "CR 38". Can you please check?	Annex CR.38 is released with AMD5.
CR79	CR44	In NCIA response to CR44, you have stated that "Operations (level 1 & 2 support): Approximately 5 people Maintenance and level 3 support: Approximately 20 people" we kindly ask whether the 5, 20 people is from NCIA team or from current Contractor team?	Level 1 and 2 is currently fully covered by NCI Agency, Level 3 and maintenance is a mix of NCI Agency and Contractors.
CR80	CR66	Based on CR-66, which states that “The current version of TOPFAS Application Suite does not fulfill all Non-Functional Requirements from the SRS.”, Does the expection is the current TOPFAS baseline application suite will be modified and migrated by Contractor to comply with the Non-Functional Requirements(SRS 3.x)?	The TOPFAS Application Suite to be delivered under the contract shall comply with the non-functional requirements of the SRS.
CR81	SRS - REQ-0020	According to REQ-0020 in the SRS document, implementation of Micro Service architecture is required. Will this implementation cover the Micro Service transformation of existing services, or will only newly developed services be built with Micro Service architecture?	All the existing services falling within the scope of REQ-0020 shall be implemented as micro services.

NATO Communications and Information Agency

IFB-CO-115498-TOPFAS-BMD

Request for Information CR38 – Annex

SonarQube reports (as of 20 January 2023):

Application	Bugs	Code smells	Duplications	Lines
eFGMT	557	9.3K	9.0%	218K
eRRS	0	163	16.9%	125K
Desktop	1.2K	37K	8.8%	1.2M
NCRS	243	2.7K	4.1%	78K
OCC	28	1.9K	14.9%	55K
RRT	8	556	20.5%	167K
TOPFAS Web	13K	42K	7.6%	1.3M