5.8.2.2. Quick User Guide

Quick User Guide (QUG) is short form of System User Manuals.

[T1-R1838] *TRITON shall have a Quick User Guide (QUG) which describes the frequently-used user functions and main GUI windows.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection

[T1-R1839] *The TRITON QUG should be printed on a single page, double-sided, durable paper.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection

5.8.2.3. Briefing Manual

Briefing Manual is a presentation (in PDF and MS PowerPoint presentation) which describes the basic capabilities of TRITON and user functionality.

[T1-R1840] *TRITON shall have a Briefing Manual which provides a brief overview of TRITON user functionality and the processes that these functions support.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection

5.8.2.4. System Administrator Manual

System Administrator Manuals (SAM) help the System Administrators to install and maintain the system. TRITON SAM will include, but not limited to, the following subjects:

- All functions required for System Administration
- Configuring the system (using configuration settings and parameters)
- Managing user accounts
- Maintaining the access rights on Maritime Information Entities
- Maintaining the exchange of Maritime Information Entities between organizations
- Configuring the system for a specific Maritime Operation
- Maintaining and updating domain values (aka reference data)
- Installation and commissioning instructions
- Standard Operating Instructions (preparation, installation, starting, stopping, monitoring, de-installation)
- Procedures for handling geospatial data (e.g. importing maps from NATO Core GIS)
- Configuration
- Fault Finding Techniques
- Component list
- Reference OEM documentation.

[T1-R1841] *TRITON shall have a System Administrator Manual (SAM) which includes the subjects given in the Description.*

Requirement Property :

Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection

6. INTERFACE REQUIREMENTS

TRITON will use the existing interoperability profiles for MSA and provide any new profiles into the NATO Interoperability Standards and Profiles [ADatP-34] (NISP) volumes after all implementation is completed. The interfaces will basically use the TRITON Data Model, which will be compliant to NATO Core Metadata Specification.

Interfaces to external systems and services will be over Local Area Network as part of the operational network. The primary physical interface types are TCP/UDP IP, Web services, streaming and file transfer.

TRITON will provide well-defined interfaces and services so that Nations will be able to continue to interoperate with NATO to aid in the exchange of data for the compilation of the RMP.

6.1. Interfaces

6.1.1. System Interface Services

[T1-R1842] *TRITON shall implement a SIS Framework providing isolated processing capability. Utilisation of multiple CPUs and load balancing shall be considered during system design and deployment.*

Requirement Property :
- Domain for Static : Both
- Domain for Afloat: Both
- Baseline : BL 1
- Qualific. Method : Demonstration

6.1.2. Interface Control Description

TRITON will use the Interface Control Description (ICD) documents for other systems/services to implement an interface for each of them. TRITON itself will also have an ICD to describe its own external interfaces/services available to other systems/services. This ICD will include information on concept, standards, syntactic and semantic details, rules of exchanging data, recovery and security aspects. Services must be defined using SoaML [SoaML].

ICD Content:

The content of this ICD will include, where applicable, at least the following information:

- Description of the concept how and why the exchanged information is used
- A list of the applicable technical standards
- A catalogue of the services and interfaces exposed by TRITON
- A detailed description of the interfaces, including diagrams, data elements, data formats, performance values, communication protocols, security settings, etc. (using modelling languages)
- Descriptions of data elements (syntactic and semantic details)
- Units of measure required for the data element, such as seconds, meters, kilohertz, etc.
- Limit/range of values required for the data element (for constants provide the actual value)
- Accuracy required for the data element
- Precision or resolution required for the data element in terms of significant digits
- Data type, such as integer, ASCII, fixed, real, enumerated, etc.
- Data representation/format
- Frequency at which the data element is calculated or refreshed (e.g. 1 KHz or 5 message/second)
- Legality checks performed on the data element
- Priority of the data element

- Service Descriptors, identifying the services endpoints, a detailed description of the of the service operations and service parameters
- All related artefacts such as WSDL, schema files and descriptors
- Message descriptions
- Error codes and descriptions
- Interface priority
- Security aspects
- Communications protocol
- Recovery mechanisms.

[T1-R1843] *TRITON shall have an Interface Control Description (ICD) having the content given in the Description for its External Interfaces/Services. The External Interfaces/Services are described in Subsection 6.2.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection

6.1.3. Interface Mechanisms

The primary physical interface types are:

- Network Communication (TCP/UDP IP) (streaming)
- Web services
- File exchange
- Direct database access
- API.

6.1.3.1. Network Communication

TRITON will establish Network Communication using given network addresses, port numbers and protocols. Following are the applicable Network Communication Interface Standards:

Application Layer:

- Messaging : SMTP (RFC 821, 1869, 1870)
- Domain Name Service : DNS (IETF STD 13)
- File Transfer : FTP (IETF STD 9)
- Bulletin Board : Network News Transfer Protocol NNTP (RFC 977)
- Data interchange : XML (XML 1.0) JavaScript Object Notation (JSON) [RFC 7159]
- Instant Messaging and Presence : XMPP (RFC 6120, 6121, 6122)

Transport Layer:

- TCP (IETF STD 7)
- UDP (IETF STD 6)

Network Layer:

- Internetworking : IPv4, IPv6 Border Gateway Protocol (BGP4) (RFC 1771)

[T1-R1844] *TRITON shall comply with the Network Communication Interface Standards given in the Description.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1

Qualific. Method : Inspection

[T1-R1845] *TRITON shall be able to use TCP/IP or UDP/IP for interfacing external Network Addresses.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Demonstration

[T1-R1846] *TRITON shall be able to reconnect automatically within one second if the TCP/IP or UDP/IP connection is broken.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Test

[T1-R1847] *TRITON shall use configuration settings for Network Communication Parameters.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Demonstration

[T1-R1848] *TRITON shall allow the authorised user to alter the configuration settings for a Network Communication.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Test

6.1.3.2. Web Services

Web services are today's most widely used and popular implementation of SOA. They provide a standard means of interoperability between different software applications, services, components running on a variety of platforms and/or frameworks.

The architecture style defining a SOA describes a set of patterns and guidelines for creating loosely coupled systems that enable a clear separation between the Service Provider and Service Consumer. The Service Provider is the one, who publishes a service description and provides the implementation of the service; whereas the Service Consumer is the one who invokes the service without knowing any implementation details about the service. This approach not only enables a loosely coupling integration between systems, but also simplifies the integration by hiding the unnecessary implementation details.

Web services are intended to provide self-describing, self-contained, modular units of software application logic that provide defined business functionality. Web services are consumable software services that typically include some combination of business logic and data. Web services can be aggregated to establish a larger workflow or business transactions. Inherently, the architectural components of web services support messaging, services description, registries and loosely coupled interoperability.

TRITON support for Web services is required to enable applications to streamline the sharing of data across different functional services, support integration, and reduce development time of new capabilities.

TRITON will use Web services as part of its External Interfaces, to make data available for external access. All Service Inter-Operability Points (SIOP) (for the Web services) will have Service Interface Profiles (SIP) describing the service in a standard modelling language such as SoAML [SoaML].

[T1-R1849] *TRITON shall provide an implementation supported by Extensible Mark-up Language (XML) technology and standards for all external interfaces.*

Requirement Property :
- Domain for Static : Both
- Domain for Afloat: Both
- Baseline : BL 2
- Qualific. Method : Inspection

[T1-R1850] *All Web services published by TRITON shall adapt a single, consistent exception handling and error reporting mechanism within the SIS Framework as defined in its SIP.*

Requirement Property :
- Domain for Static : Both
- Domain for Afloat: Both
- Baseline : BL 2
- Qualific. Method : Demonstration

[T1-R1851] *TRITON Web service design shall consider alternative response mechanisms where a long running process between request and response results (e.g. sync-on-async pattern interaction).*

Requirement Property :
- Domain for Static : Both
- Domain for Afloat: Both
- Baseline : BL 2
- Qualific. Method : Inspection

[T1-R1852] *TRITON shall avoid the practice, as both a publisher and consumer, of treating Web services as a high frequency, pollable call.*

Requirement Property :
- Domain for Static : Both
- Domain for Afloat: Both
- Baseline : BL 2
- Qualific. Method : Inspection

[T1-R1853] *TRITON shall observe the best practice of preferring primitive types for Web service parameters.*

Requirement Property :
- Domain for Static : Both
- Domain for Afloat: Both
- Baseline : BL 2
- Qualific. Method : Inspection

[T1-R1854] *TRITON shall consider the best practice of avoiding long running Web services to be a design goal.*

Requirement Property :
- Domain for Static : Both
- Domain for Afloat: Both
- Baseline : BL 2
- Qualific. Method : Inspection

[T1-R1855] *TRITON shall observe best practice and prefer message-based interactions over the remote procedure call (RPC) style while implementing Web services.*

Requirement Property :
- Domain for Static : Both

Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1856] *TRITON Web services shall observe best practice in the design of chunky interfaces to realise the design goal of minimising round trips.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1857] *TRITON Web services shall be non-sticky (avoid maintaining server state between calls) in order to facilitate scaling out of web services.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1858] *TRITON shall incorporate a compression mechanism for both request and response payloads of Web services.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1859] *TRITON shall use the event-driven mechanisms compliant with OASIS WS-Notifications protocols to consume event driven, time sensitive and critical web services of other system.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1860] *TRITON shall provide Service Interface Profiles (SIP) for all its Service Inter-Operability Points (SIOP) (Web services) using service modelling language.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1861] *TRITON shall promote usage of SOA, by isolating the existing interfaces to the lowest level of communication and transforming information from these channels to SOA compatible means. (i.e. Legacy System Adapter concept in SOA, integration with legacy systems, protocols, etc.)*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

6.1.3.2.1. Web Service Standards

TRITON will use the standards by the following organizations:

- World Wide Web Consortium (W3C)
- Web Services Interoperability Organization (WS-I)
- Internet Engineering Task Force (IETF)
- Organization for the Advancement of Structured Information Standards (OASIS)

TRITON will use the ratified standards (WS-* and others) in the implementation of Web services. The references are given below:

- WS-I Basic Profile 1.1
- WS-I Basic Security Profile 1.1
- WS-I Simple SOAP Binding Profile 1.0
- WS-I Attachments Profile 1.0
- W3C, Web Services Security: SOAP Message Security 1.1, 1 February 2006.
- W3C, Web Services Security: SAML Token Profile 1.1, 1 February 2006.
- W3C, Web Services Security: X.509 Certificate Token Profile 1.1, 1 February 2006.
- W3C, XML Signature Syntax and Processing, 10 June 2008.

[T1-R1862] *TRITON shall use the standards given in the Description for the implementation of Web services.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1863] *TRITON shall be compliant with the W3C, Web Services Security standards given in the Description.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1864] *TRITON shall provide W3C XML schemas to express all XML file formats.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1865] *TRITON shall use the XML to facilitate publish and subscribe information brokering as a standard language.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1866] *TRITON shall be able to make all information exchanged across its boundaries available in XML format.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1867] *TRITON shall validate all received XML files against the schemas published by the suppliers.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1868] *TRITON shall have the syntax of the XML documents it accepts and produces in its ICD using models and XML schemas.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1869] *TRITON shall use the SOAP XML format to exchange information between the service provider and the service requester.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1870] *TRITON shall support both SOAP Web and RESTfull Services to exchange information between the service provider and the service requester.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1871] *TRITON shall use the Web Service Description Language (WSDL) XML format to describe the Web services provided.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1872] *TRITON shall use the Universal Description, Discovery and Integration (UDDI) protocol [OASIS-UDDI] to publish the Web service metadata.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1873] *TRITON shall use XPATH expressions or Schematron to specify semantics that cannot be captured by XML Schema.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1874] *TRITON shall prefer, where appropriate, XmlReader or SAX-based parsers over DOM type in-memory expansions.*

Requirement Property :

Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1875] *TRITON Web services shall be compliant with the W3C, XML Digital Signature Standard and Processing.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1876] *TRITON shall support XML, Namespaces, XPath, XSLT, XQuery to perform XML-level transformation of document instances. All XML W3C Recommendations shall be supported.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

6.1.3.2.2. Web Service - Service Level Agreement

TRITON will provide a Service Level Agreement (SLA) for the Web Services that it will expose. The SLA will include Quality of Service.

[T1-R1877] *Each TRITON Web service shall be delivered in conjunction with a Web Service - SLA.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1878] *TRITON Web Service SLA shall specify performance target values for Availability, Throughput and Response Time, including specification of local and wide-area network capability dependencies.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1879] *TRITON Web Service SLA shall specify security configurations for authentication, authorisation, confidentiality, integrity and non-repudiation.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1880] *TRITON Web Service SLA shall provide adequate documentation, using a service modelling language, for the meaning of the documents it produces or accepts (An adequate definition is one that enables a programmer or user to understand the meaning of the data and determine whether it is suitable for the intended use). This documentation shall be expressed as annotations on the XML schema for the XML payload.*

Requirement Property :

Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1881] *TRITON shall supply a text definition for every element, attribute, and enumeration value defined in the schema.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1882] *TRITON shall publish the XML schema for every external XML interface it defines.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

6.1.3.2.3. Web Service Performance

TRITON will provide External Interfaces based on the Web services concepts that will allow validated clients to access data and functionality. The non-functional performance requirements for Web services will be specified in their Web Service SLA.

[T1-R1883] *TRITON Web services shall meet the non-functional performance requirements specified in their Web Service SLA.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1884] *TRITON shall provide mechanisms to monitor and audit the performance, availability, throughput and response times of Web services that it publishes.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

6.1.3.2.4. Web Service Security

The non-functional security requirements for Web services will be specified in their Web Service SLA to include authentication, authorisation, confidentiality, integrity and non-repudiation.

[T1-R1885] *TRITON Web services shall meet the non-functional security requirements specified in their Web Service SLA.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1886] *TRITON Web services shall be compliant with [OASIS WS-Security] set of specifications for publishing and consuming web services.*

Requirement Property :

Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1887] *TRITON Web services shall support auditing and non-repudiation.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1888] *TRITON Web services shall support point-to-point integrity.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1889] *TRITON Web services shall support point-to-point confidentiality.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1890] *TRITON Web services shall incorporate authorisation according to the Role-Based Access mechanisms.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1891] *TRITON Web services shall incorporate authentication.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1892] *TRITON shall implement role-based access for accessing external services and service operations.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1893] *TRITON shall use approved X.509 certificates produced by the responsible security administrators.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1894] *TRITON shall sign a validated service request to external services using its Bi-SC AIS credentials defined in its X.509 certificate.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1895] *TRITON shall only accept data signed by external services with valid X.509 certificates.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

6.1.3.2.5. TRITON as a Service Consumer

TRITON will be able to consume services from other Functional Services on NS Domain. If commercial services are available on the Internet, TRITON-NU will be able to consume those services.

[T1-R1896] *TRITON shall use the Role-Based Access Mechanism for authorization and authentication purposes, for systems interfacing with TRITON.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1897] *TRITON shall be able to communicate with NATO Meta-data Registry and Repository to find the available services that it can interact with.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1898] *TRITON shall validate the received XML documents against the schemas published by external parties.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

6.1.3.2.6. TRITON as a Service Provider

TRITON will provide External Interfaces based on Web services.

[T1-R1899] *TRITON shall provide interfaces based on the Web services concept which will allow validated clients to access data and functionality. TRITON shall also provide Web service interfaces for the data that it will accept from external systems (e.g. Nations' input).*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1900] *TRITON shall support both read-only Web services with select and filter capabilities; and write Web services with insert, update, and delete capabilities.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1901] *TRITON shall register its Web services to the NATO Meta-data Registry and Repository. If this is not possible, then it shall build and maintain an XML Registry defining its XML interfaces.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1902] *TRITON shall publish the W3C XML schemas for every external XML interface it defines. Every element in the defined schema shall be documented using annotations and Interface Control Description document.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1903] *TRITON shall guarantee that the XML documents that are generated are valid according to the XML schema that has been published.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1904] *TRITON shall provide an implementation supported by XML technology for all external interfaces.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1905] *TRITON shall allow the authorised User to export a web service into an XML file in order its data would be consumed by disconnected external systems.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Inspection

[T1-R1906] *Every Web service method in TRITON shall also include a NATO Confidentiality Label field to determine the sensitivity of the data that is sent. This label will be used by NATO Information Exchange Gateway (IEG) in cross-domain data exchange.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both

Baseline : BL 2
Qualific. Method : Inspection

6.1.3.3. File Exchange

TRITON will require file exchange, in some instances, to enable the exchange of information with external systems for reasons of legacy, security, connectivity, capability or efficiency. Bespoke file formats, where possible, will use XML as the primary mechanism for file-level information exchange.

[T1-R1907] *TRITON shall use XML as the primary mechanism for file-level information exchange.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection

[T1-R1908] *TRITON shall provide adequate documentation for the content and meaning of the file formats it produces or accepts. An adequate definition is one that enables a programmer or user to understand the meaning of the data and determine whether it is suitable for its intended use. TRITON shall supply a definition for every element, attribute, and enumeration value defined in the file format.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection

[T1-R1909] *TRITON shall, to the extent possible, validate the format and contents of all incoming and outgoing files according to the documented format.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection

6.1.3.4. Direct Database Access

In TRITON, direct database access may be required to enable information exchange with external systems and components. TRITON will use a Direct Database Access Control Mechanism to allow such access. Authorised users can access the database.

[T1-R1910] *In TRITON, as a design rule, direct database access by external systems should be avoided.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection

[T1-R1911] *TRITON shall allow the authorised users to directly access the database used in TRITON.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection

[T1-R1912] *TRITON shall allow the controlled access of authenticated and authorised external systems or components to internal databases via the Direct Database Access Control Mechanism*

for information items (e.g. records, files) and structures (e.g. tables, directories) to perform an authorised function.

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection
Comment : Direct Database Access Control Mechanism will be proposed by the Bidders and finalised during Software Design.

6.1.3.5. Multi-lateral Interoperability Program Data Exchange Mechanism Information Exchange

Multi-lateral Interoperability Program (MIP) Data Exchange Mechanism (DEM) Information Exchange may become available to future Increments of TRITON. Therefore TRITON should have a growth potential to implement information exchange defined by MIP-DEM.

[T1-R1913] *TRITON "should" have a growth potential to implement information exchange defined by MIP-DEM.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: NS
Baseline : BL 3
Qualific. Method : Inspection

6.1.3.6. Application Programming Interface

TRITON may need to use Application Programming Interface (API) in some special cases. An adequate definition for an API is one that enables a software architect or developer to understand the meaning of the interface and determine whether it is suitable for its intended use. For each API component, TRITON will fully document the interface, including:

- Mechanisms for securely invoking the API
- Available methods and functionality
- Available information elements, including attributes and enumeration values
- Error handling.

[T1-R1914] *As a design rule, the use of an API "should" be minimized in TRITON to the extent possible.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection

[T1-R1915] *TRITON shall provide adequate documentation for any API it supports.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection

[T1-R1916] *TRITON shall allow authorised external systems or components to access the TRITON API.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1

Qualific. Method : Inspection

[T1-R1917] *TRITON shall allow the controlled access of authenticated and authorised external systems or components through its API.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection

6.1.4. Information Products

An Information Product is any final product in the form of information that a person needs to have. Information Products consists of several Information Elements and can be seen as any communications or representation of knowledge such as facts, data, or opinions in any medium or form.

The Information Products that TRITON will consume or produce are given in each interface. TRITON will be able to export selected information as an Information Product into a file in Recognised Export File Format.

During the System Requirements Analysis and Design phases, the detailed information about these products, their attributes and their relationship with other Functional Services will be identified in detail, and relevant functionality associated to attributes of incoming products will be implemented.

One of the primary Information Product for TRITON is a "Track". A set of attributes described in the Track Management function will be used to define a track as "TRITON Track Specification". This specification, defined for NS and NU Domains, will be used to exchange track information with external systems/services including Nations.

[T1-R1918] *TRITON shall be able to export selected information as an Information Product into a file in Recognised Export File Format. For example, a WSM Area can be saved into a Formatted Message as an Information Product.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1919] *TRITON shall use the "TRITON Track Specification - NS" to receive tracks from external systems and to make the RMP available as an Information Product to the external world on the NS Domain. The TRITON Track Specification - NS shall be documented in the TRITON ICD.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: NS
Baseline : BL 1
Qualific. Method : Inspection
Comment : TRITON Track Specification - NS will be finalised during the Software Requirements Analysis.

[T1-R1920] *TRITON shall use "TRITON Track Specification - NU" to receive tracks from the external world and to make the WP available as an Information Product to the external world on the NU Domain. The TRITON Track Specification - NU shall be documented in the TRITON ICD.*

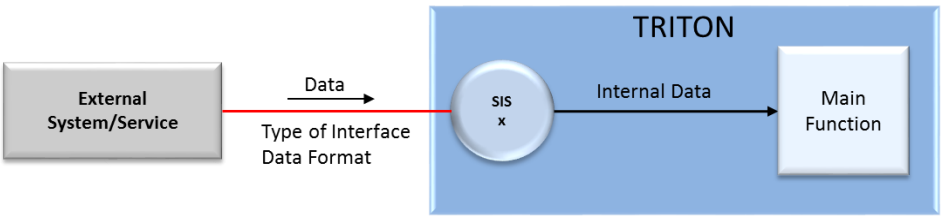
Requirement Property :
Domain for Static : NU
Domain for Afloat: NU

Baseline : BL 2
Qualific. Method : Inspection
Comment : TRITON Track Specification - NU will be finalised during the Software Requirements Analysis.

6.2. External Interface Requirements

TRITON has interfaces with external systems and services in order to be able to exchange information. Some of these interfaces are on the NS Domain, and some of them are on the NU Domain.

TRITON interface requirements for all external systems/services and how a SIS is used will be explained in this Section using a representation as given below:



A SIS may provide a Web service or establish a Network Communication with an external system or access a Web service of another system.

6.2.1. NATO Systems and Services

6.2.1.1. NATO Bi-SC AIS Core Services

TRITON will be compliant with the Core Enterprise Services (CES) Framework v1.2 and the recommended CES standards.

6.2.1.1.1. Windows Domain Services

MS Windows Domain Services provide Security and Directory Services to the Bi-SC AIS Domain. In case TRITON needs to be exposed to consumers external to the Bi-SC AIS domain, claims-based security will be applied, as described in "SOA Platform Information Assurance Services". TRITON will also be able to access services that make use of claims-based authorisation.

Directory data specific to TRITON will be stored using the Directory Storage Services (see "Directory Storage Services") instead of making use of the Bi-SC AIS Active Directory.

Standards:

- IETF STD 13:1987 / IETF RFC 1034:1987, Domain Names – Concepts and Facilities
- IETF RFC 1035:1987, Domain Names - Implementation and Specification.

[T1-R1921] *TRITON shall be integrated with the Bi-SC AIS Directory Services based on MS Windows Active Directory in compliance with the standards given in the Description.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1922] *TRITON shall interface with the Active Directory Forest on the NSWAN.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1

Qualific. Method : Demonstration

[T1-R1923] *If TRITON requires a schema change, these schema extensions shall be documented.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration
Comment : Any changes to the schema will be submitted for approval to the Purchaser during Software Design.

[T1-R1924] *TRITON shall be compatible with Windows Active Directory services and protocols (e.g. LDAP).*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1925] *TRITON shall support, as appropriate, Active Directory read, write, change operations.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1926] *TRITON shall support interoperability with the name resolution mechanism in the Directory Services.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1927] *TRITON shall support integration with MS Windows Server 2016 (or later) File and Print Services (including publishing and lookup through Active Directory).*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1928] *TRITON shall support integration with MS Windows Server 2016 (or later) built-in services (e.g. Internet Information Services, RUP, Terminal Server).*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1929] *TRITON shall support integration with MS Windows Server 2016 (or later) Security Services.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

Comment : Any reliance on legacy NTLM authentication will be submitted for approval to the Purchaser during the Software Design.

[T1-R1930] *TRITON shall support integration with Active Directory-supported Security Access Control (e.g. ACL, security groups).*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1931] *TRITON shall be able to operate with the latest security settings from the NATO Information Assurance Technical Centre (NIATC) without change.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration
Comment : Any changes to the standard security settings shall be submitted for approval to the Purchaser during the Software Design.

6.2.1.1.2. SOA Platform Information Assurance Services

TRITON will be able to use the Bi-SC AIS SOA Platform Information Assurance (IA) Services. The Service Interface Profiles given in [NCIA-06.02.01], [NCIA-06.02.02], [NCIA-06.02.03] and [NCIA-06.02.04] are applicable.

[T1-R1932] *TRITON shall provide for SAML-based authentication and authorization.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1933] *TRITON shall use a Policy Decision Point to evaluate a request and provide the authorisation decision for services.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1934] *TRITON shall use a Policy Enforcement Point as defined in [NCIA-06.02.04] to secure all Services.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1935] *TRITON shall use a Security Token Service as defined in [NCIA-06.02.02] to generate, validate and exchange security tokens.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1936] *TRITON shall be compatible with the Service Interface Profile for Security Services as defined in [NCIA-06.02.01], [NCIA-06.02.02], [NCIA-06.02.03] and [NCIA-06.02.04].*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1937] *If the Bi-SC AIS SOA Platform IA Services are not available, TRITON shall establish its own supporting services for the NS and NU Domains.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Demonstration

[T1-R1938] *TRITON shall ensure that no security warnings are generated in the applicable system log as a result of normal operation.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

6.2.1.1.3. Directory Storage Services

TRITON will be able to operate with NATO-wide Enterprise Directory Services (NEDS) through Lightweight Directory Access Protocol (LDAP) [RFC4510] and [ACP-133].

[T1-R1939] *TRITON shall interface with the NATO-wide Enterprise Directory Services (NEDS) through Lightweight Directory Access Protocol (LDAP) [RFC4510].*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1940] *TRITON shall be compatible with the Enterprise Directory Services SIP ~~(to be provided by the Purchaser)~~ [NCIA-06.02.05].*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1941] *TRITON shall include the necessary administration tool(s) to manage the interface with the NEDS if required by the NEDS Agreement.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1942] *TRITON shall be able to use the NEDS Directory as its own directory.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A

Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1943] *In case TRITON cannot use the NEDS Directory as its own directory, then it shall establish its own directory and that directory shall interface with the NEDS either through the NEDS Meta-Tool or directly by reading/writing into the NEDS Directory through LDAP, and as required by the agreement.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Demonstration

6.2.1.1.4. Enterprise Management System

TRITON will report its internal performance metrics (Key Performance Indicators), enterprise-level errors and suggestions to the Bi-SC AIS Enterprise Management System (EMS). Following are examples to the reported metrics:

- Status
- Fault rate
- Response time
- Load
- Availability

TRITON will also use its own error collection and reporting mechanism internally.

[T1-R1944] *TRITON shall report its internal performance metrics, enterprise-level errors and suggested corrective actions to the Bi-SC AIS EMS automatically.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1945] *TRITON shall be able to report its performance values (load, transaction ratio, active users, active sessions) to the NATO EMS environment (in addition to any project specific requirements).*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

6.2.1.1.5. E-mail Services

TRITON will be able to use the Bi-SC AIS E-mail Services.

[T1-R1946] *TRITON shall be integrated with the Bi-SC AIS E-mail Services based on MS Exchange.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1947] *TRITON shall be compatible with Bi-SC AIS E-mail Services and protocols (e.g. MAPI and SMTP).*

Requirement Property :

Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1948] *E-mail messages produced by TRITON to be provided to the Bi-SC AIS E-mail Services shall be compatible with the formats used in the Bi-SC AIS (e.g. classification header).*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

6.2.1.1.6. NATO Information Portal

When NATO Information Portal (NIP) is used for information management purposes, TRITON will be able to send or receive Information Products to/from the NIP. Current Increment will support the interface standards for the NIP for sending or receiving Information Products.

[T1-R1949] *TRITON shall support the information exchange interface standards for the NATO Information Portal.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Inspection

6.2.1.1.7. Metadata Repository Services

A metadata registry is a system that contains information that describes the structure, format and definitions of data. Typically, a registry is a software application that uses a database to store and search data, document formats, definitions of data, and relationships among data.

NATO is developing a NATO Metadata Registry and Repository (NMRR) to support implementation of federated network. The purpose of the NMRR is to provide a (conceptually) centralised source of technology-based representations of standards and Standardization Agreements in order to improve visibility and enable interoperability among and between various NATO, national and non-governmental organization (NGO) systems in a net-centric environment.

In the context of the NMRR, the registry would contain the so-called metacards (i.e. metadata that facilitates the discovery of the artefacts such as security information, resource description, format and content), whereas the repository would contain the artefacts themselves (e.g. the schemas describing the structure of a particular type of data, the semantics encapsulated in this structure and dependencies between individual schemas.

Metadata registration and service discovery capabilities interim to the delivery of the NMRR are anticipated. TRITON is therefore expected to register its Web Services and other artefacts in available metadata registry and service registry.

[T1-R1950] *TRITON Web Services shall support WSDL to specify the way to connect to supported Web Services, and the structure of messages that are exchanged with them.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection

[T1-R1951] *TRITON shall use, when applicable, the NATO Guidance for XML naming and design (see [EAPC(AC/322-SC/5-WG/4)N(2008)0004]) as a reference to work with XML artefacts.*

Requirement Property :
- Domain for Static : NS
- Domain for Afloat: Both
- Baseline : BL 1
- Qualific. Method : Inspection

[T1-R1952] *If available, TRITON shall use the NATO Metadata Registry and Repository (NMRR) or other metadata repository services on the related security domain.*

Requirement Property :
- Domain for Static : Both
- Domain for Afloat: Both
- Baseline : BL 1
- Qualific. Method : Demonstration

6.2.1.1.8. Service Discovery Services

Service Discovery Services (or Service Registry) provide a set of services that enable the formulation of search activities within shared space repositories (e.g. catalogues, directories, registries). It provides the means to articulate the required service arguments, provide search service capabilities, locate repositories to search and return search results.

[T1-R1953] *TRITON shall support discovery of Web Services via service discovery/registry mechanisms.*

Requirement Property :
- Domain for Static : NS
- Domain for Afloat: N/A
- Baseline : BL 1
- Qualific. Method : Inspection

[T1-R1954] *TRITON shall be able to communicate with the provided service discovery/registry mechanism to discover available services which it can utilise.*

Requirement Property :
- Domain for Static : NS
- Domain for Afloat: N/A
- Baseline : BL 1
- Qualific. Method : Inspection

6.2.1.1.9. Malware Detection Services

TRITON will be able to run with the available Malware Detection Services and anti-virus software.

[T1-R1955] *TRITON shall coexist (i.e. work correctly and not adversely impact other applications) with Bi-SC AIS standard Anti-Virus software during installation and operation.*

Requirement Property :
- Domain for Static : Both
- Domain for Afloat: Both
- Baseline : BL 1
- Qualific. Method : Inspection

[T1-R1956] *TRITON shall be equipped with security software that can detect malicious software contained in files of TRITON-delivered workstations and servers. The software shall have the ability to scan any file or directory to detect any malicious software. The supplied software shall be compatible with the NATO Anti-Virus management centre and approved by the Purchaser.*

Requirement Property :
- Domain for Static : Both

Domain for Afloat: Both
Baseline : BL 1
Qualific. Method : Inspection

6.2.1.1.10. Generic Security Services Application Programming Interface

TRITON will use security services provided by Core Enterprise Services.

[T1-R1957] *TRITON shall use Generic Security Services Application Program Interface (GSS-API), if possible, as the API for accessing security services.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1958] *TRITON security API shall be compliant with [RFC2078].*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1959] *TRITON primary security services (access control, confidentiality, integrity, authentication, and non-repudiation) shall be supported by X.509.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1960] *TRITON X.509 support to primary security services shall be compliant with NATO Public Key Infrastructure (NPKI).*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

6.2.1.2. NATO Bi-SC AIS Enabling Services

Enabling Services in C3 Taxonomy provides foundation for other Community of Interest Services (COI).

6.2.1.2.1. NIRIS

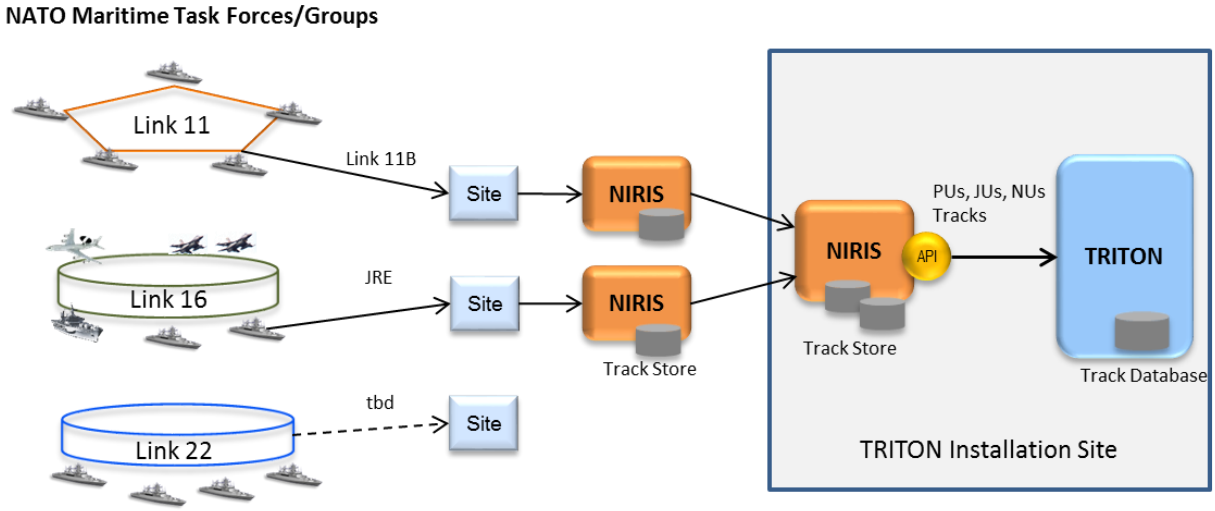
Networked Interoperable Real-time Information Services (NIRIS) is a C2 Enabling Service ensuring proper situational awareness via the provision of a set of services to enable data collection, dissemination and transformation to information in an interoperable manner based on NATO and commercial standards (e.g. Tactical Data Links).

NIRIS processes TDL messages, builds its Track Store, and provides tracks in a NIRIS-specific format (NIRIS TrackStore Synchronisation Server Format) or Web-service.

When a TDL network is established at sea, one of the Participating Units (PU) in the Link 11 network should forward Link 11 messages to Link 11B and transmit them to a static site over an IP network. Similarly, a Link 16 J-Units (JUs) should use Joint Range Extension (JRE) to pass TDL messages to a static site. Link 22 interfaces to pass NILE Unit (NU) data will be defined in the future. NIRIS deployments at those static sites can then access the TDL data, process the messages and built their own Track Stores.

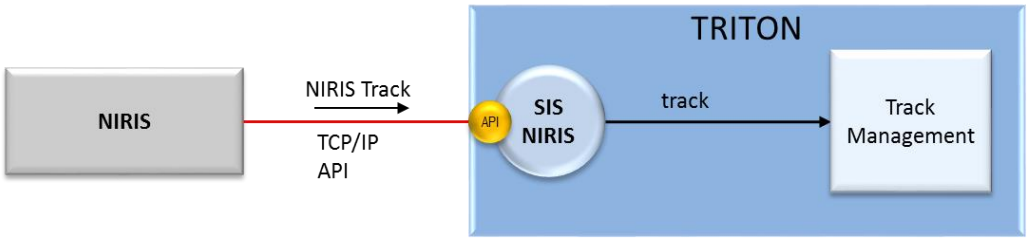
These Track Stores are then made available to client applications via NIRIS Application Program Interface (API).

TRITON can receive surface and subsurface track information along with PU/JU (NU in future) information from NIRIS. The connectivity of TDLs to TRITON via NIRIS is depicted in the following figure:



As NIRIS can receive tracks from several different track sources, SIS NIRIS will be able to handle the tracks coming from NIRIS with different source identification.

Following figure depicts how NIRIS will be interfaced:



[T1-R1961] *TRITON shall have a dedicated interface for NIRIS on the NS Domain.*

Requirement Property :
- Domain for Static : NS
- Domain for Afloat: N/A
- Baseline : BL 3
- Qualific. Method : Demonstration

[T1-R1962] *TRITON shall allow the authorised user to select which NIRIS Server will be used for interfacing.*

Requirement Property :
- Domain for Static : NS
- Domain for Afloat: N/A
- Baseline : BL 3
- Qualific. Method : Test

[T1-R1963] *TRITON shall be able to receive surface and subsurface tracks from NIRIS using the NIRIS API according to [NIRIS ICD].*

Requirement Property :
- Domain for Static : NS
- Domain for Afloat: N/A
- Baseline : BL 3
- Qualific. Method : Test

[T1-R1964] *TRITON shall be able to receive available tactical information from NIRIS using the NIRIS API according to [NIRIS ICD].*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R1965] *TRITON shall be able to handle multiple track sources coming from the same NIRIS interface.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

6.2.1.3. NATO Bi-SC AIS Functional Services

TRITON is required to communicate with a number of systems or Functional Services of Bi-SC AIS using the defined interface mechanisms. These Functional Services include:

- Environmental FS (ENV-FS)
- CBRN Defense FS (CBRN-FS)
- Intelligence FS (INTEL-FS)

6.2.1.3.1. Environmental FS

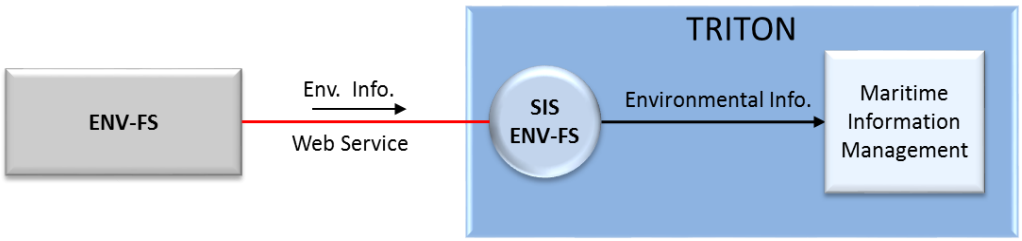
TRITON will have an interface with ENV-FS (if it is available) and receive the Environmental Information as defined below:

Environmental Information:

- Present Weather Assessment (WMS or KML)
- Wind direction and speed
- Observation Plots
  - Temperature
  - Pressure
- Weather Risks to Air, Land, Maritime Operations (WMS or KML)
- Astronomic Data such as Night Illumination (WMS or KML)

If Satellite or Radar Imagery is available in GeoTIFF or JPEG2000 format, TRITON will be able to receive them, have them processed by the available GIS Server and display them in the GeoView.

The TRITON interface with ENV-FS is depicted below:



If ENV-FS is not available, TRITON will interface with the interim solution called "VISUAL Meteorological Enclave" (VISME). The ENV-FS ICD will be used when it becomes available. The interface with VISME may be limited upon its capabilities at the time of TRITON implementation.

As a secondary option, if Environmental Information becomes available via NATO Core GIS as Web Map Service (WMS), TRITON will be able to use that service to retrieve information.

[T1-R1966] *TRITON shall have a dedicated interface for ENV-FS on the NS Domain and implement [ENV-FS ICD].*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Demonstration

[T1-R1967] *TRITON shall be able to receive Environmental Information, given in the Description, from ENV-FS according to [ENV-FS ICD] and process it in Environmental Information Management function. If Core GIS can provide it as a service, this service shall be used.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test
Comment : The availability of information will be determined at Software Requirements Analysis for BL3.

6.2.1.3.2. CBRN Defence FS

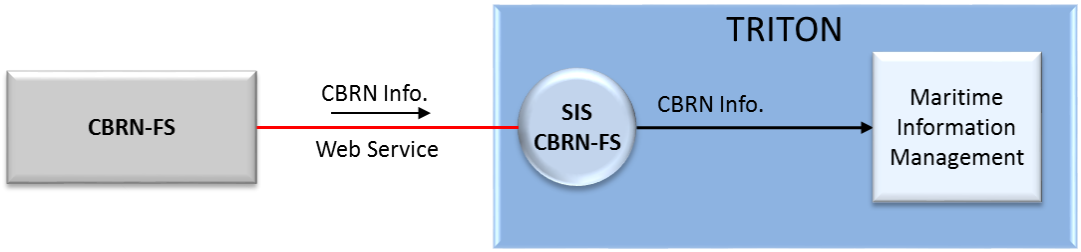
TRITON will have an interface with CBRN-FS (when it is available) and receive the CBRN Information as defined below:

CBRN Information:

TRITON will be able to receive the following CBRN Information from CBRN-FS (if it is available):

- CBRN Incidents
- CBRN Threats and Hazards
  - Hazard and contaminated areas
  - Areas of endemic diseases
  - Waste areas
- Roughness areas (topography)
- Safe areas.

The TRITON interface with CBRN-FS is depicted below:



[T1-R1968] *TRITON shall have a dedicated interface for CBRN-FS on the NS Domain and implement [CBRN-FS ICD].*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Demonstration

[T1-R1969] *TRITON shall be able to receive CBRN Information, given in the Description, from CBRN-FS according to [CBRN-FS ICD] and process it in CBRN Information Management function.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test
Comment : The availability of information will be determined at Software Requirements Analysis for BL3.

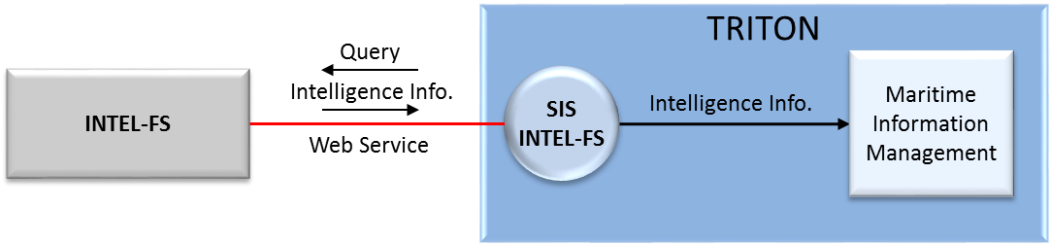
6.2.1.3.3. Intelligence FS

INTEL-FS Spiral 1 provides access to its information via Web Services. Some information products will be provided by Spiral 2. TRITON will have an interface with INTEL-FS and receive the Intelligence Information given below through the INTEL-FS Web Services:

Intelligence Information:

- Current Intelligence Situation
- Maritime Intelligence Report
- Maritime Intelligence Summary
- Enemy ORBAT
- Area Information

The TRITON interface with INTEL-FS is depicted below:



[T1-R1970] *TRITON shall have a dedicated interface for INTEL-FS on the NS Domain and implement [INTEL-FS ICD].*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Demonstration

[T1-R1971] *TRITON shall be able to receive the Intelligent Information given in the Description from INTEL-FS according to [INTEL-FS ICD] and process it in Intelligence Information Management function.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R1972] *TRITON shall be able to send a query to INTEL-FS prepared according to [INTEL-FS ICD] to request intelligence information on an object, and process the returned result in Intelligence Information Management function.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A

Baseline : BL 3
Qualific. Method : Test

6.2.1.4. NATO Systems and Capabilities

6.2.1.4.1. Message Handling System

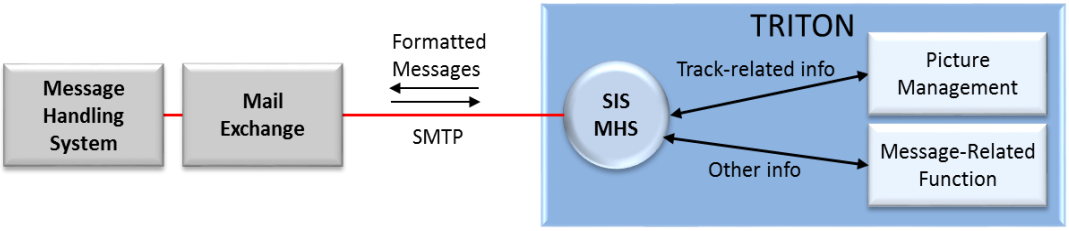
NATO uses a common military Message Handling System (MHS) to exchange text-based messages such as ADatP-11. TRITON will be able to exchange messages as electronic mail attachments with the MHS on the NS Domain using SMTP. Following Formatted Messages will be received from MHS:

- NAVSITSUM
- NAVSITREP
- MARINTSUM
- MARINTREP
- RMPSITSUM
- NAVPOSREP
- LOCATOR
- PURPLE
- OPSTAT UNIT
- SUBNOTE
- SUBNOTE CHANGE
- SUBNOTE REQ
- SUBNOTE CHANGE REQ
- BARNSTORM
- WSM ALLOCSTAT
- SUBDANGER
- SUBTASK
- SUBNOI
- UW OBJECT NOTE
- WSM REQ
- ROEREQ
- ROEAUTH
- ROEIMPL

Following Formatted Messages will be sent to MHS:

- NAVSITSUM
- NAVSITREP
- MARINTSUM
- MARINTREP
- RMPSITSUM
- NAPOSREP
- SUBNOTE
- SUBNOTE CHANGE
- BARNSTORM
- WSM ALLOCSTAT
- SUBTASK
- SUBNOI

Following figure depicts how MHS will be interfaced over Mail Exchange:



[T1-R1973] *TRITON shall have a dedicated interface for MHS over Mail Exchange on the NS Domain.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: NS
Baseline : BL 3
Qualific. Method : Demonstration

[T1-R1974] *TRITON shall be able to exchange Formatted Messages with Mail Exchange using SMTP.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: NS
Baseline : BL 3
Qualific. Method : Test

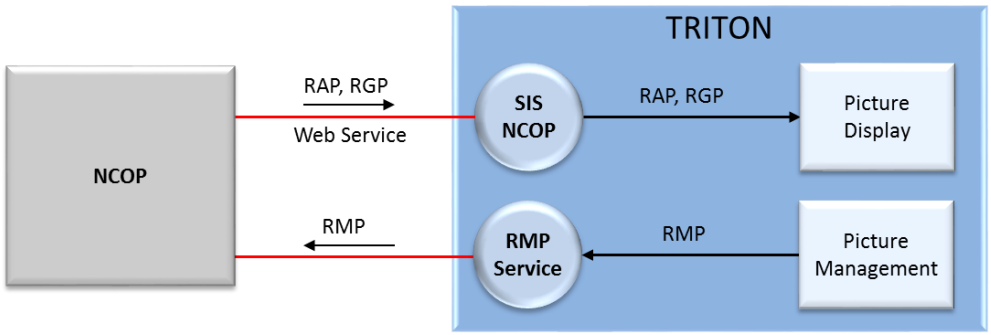
6.2.1.4.2. NCOP

NATO Common Operational Picture (NCOP) provides collective information related to the Operational Picture for a selected area/campaign. NCOP provides component pictures to other Functional Services. TRITON will make the RMP available for NCOP via its RMP Service.

TRITON will receive the following information from NCOP:

- Recognised Air Picture (RAP)
- Recognised Ground Picture (RGP)

The interface with NCOP is depicted below:



[T1-R1975] *TRITON shall have a dedicated interface for NCOP on the NS Domain.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Demonstration

[T1-R1976] *TRITON shall be able to receive RAP from NCOP via NCOP Web Service according to [NCOP ICD].*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3

Qualific. Method : Test

[T1-R1977] *TRITON shall be able to receive RGP from NCOP via NCOP Web Service according to [NCOP ICD].*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

6.2.1.4.3. MCCIS

MCCIS is the existing Maritime C2 System being used for operational and tactical levels. Until the complete retirement of this system, TRITON will have an interface with the existing MCCIS Server(s) to send or receive information using the OTH-T GOLD Messages.

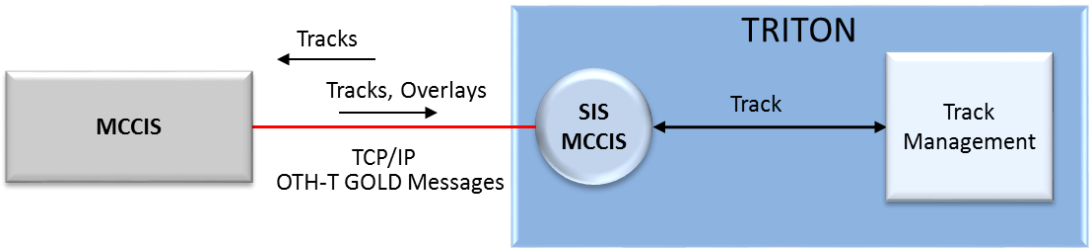
TRITON will be able to receive the following information from MCCIS:

- CONTACT REPORT
- ENHANCED CONTACT REPORT
- OVERLAY-2
- OVERLAY-3
- PIMTRACK

TRITON will be able to send the following information to MCCIS:

- CONTACT REPORT
- ENHANCED CONTACT REPORT

The interface with an MCCIS Server is depicted below:



If more than one MCCIS Server are needed to be interfaced for on different locations, a separate SIS will be instantiated with a unique identification. TRITON will be able handle information coming from different MCCIS Servers.

[T1-R1978] *TRITON shall have a dedicated interface for each MCCIS Server on the NS Domain.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Demonstration

[T1-R1979] *TRITON shall be able to receive track and overlay information from MCCIS Server using OTH-T GOLD Messages.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 1
Qualific. Method : Test

[T1-R1980] *TRITON shall be able to handle interfaces with more than one MCCIS Server.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R1981] *TRITON shall be able to send selected track information to the selected MCCIS Server using OTH-T GOLD Messages.*

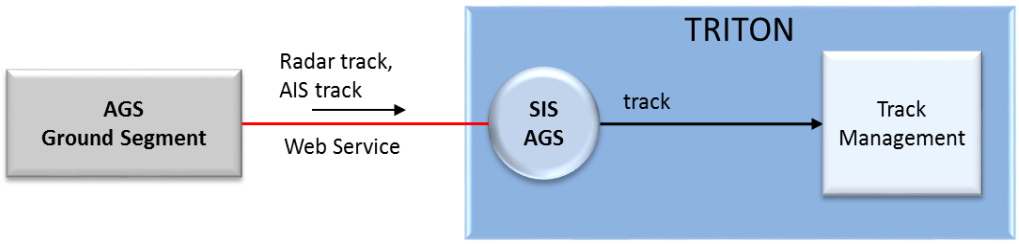
Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

6.2.1.4.4. Alliance Ground Surveillance System

Alliance Ground Surveillance (AGS) (CP 0A0201) provides a fully integrated capability of near real-time, continuous, releasable, raw (pre-exploited) data, and surveillance information in all weather conditions concerning friendly, neutral, and opposing forces from a stand-off position.

The Alliance Ground Surveillance Core System consisting of Air (assets), Ground (facilities and deployable capacities), and Support Segments.

TRITON will be able to receive track information from AGS Ground Segment using the provided Web service on the NS Domain. The interface with AGS is depicted below:



[T1-R1982] *TRITON shall have a dedicated interface for AGS on the NS Domain.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Demonstration

[T1-R1983] *TRITON shall be able to receive Track Data from AGS via a Web service if the [AGS ICD] is available at the time of implementation. If not, a generic Track Data interface shall be provided for test purposes.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R1984] *TRITON shall be able to receive AIS track data from AGS via a Web service. If AGS is not available at the time of implementation, the interface shall be tested with simulated AIS data.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

6.2.2. Non-NATO Systems and Services

TRITON will use data received from Non-NATO systems and services to build the WP. These sources include the following (all on the NU Domain):

- AIS Data Source
- MSSIS
- AIS Data Services (e.g. IHS Fairplay Services, exactEarth Services)
- LRIT Data Centre
- Space-Based Asset Source (AIS data and other services)
- Format Alfa (message-based reporting).

6.2.2.1. AIS Data Source

Automatic Identification System (AIS) is an automatic tracking system used on ships and by vessel traffic systems for identifying and locating vessels by electronically exchanging data with other nearby ships, AIS base stations, and satellites. AIS is designed to be capable of providing information about the ship to other ships and to coastal authorities automatically. The regulation requires AIS to be fitted aboard all ships of 300 gross tonnage and upwards engaged on international voyages, cargo ships of 500 gross tonnage and upwards not engaged on international voyages and all passenger ships irrespective of size.

An AIS transceiver sends data reports at the following intervals:

Ship at anchor or moored	: 3 min
Ship 0-14 knots	: 12 sec
Ship 0-14 knots and changing course	: 4 sec
Ship 14 – 23 knots	: 6 sec
Ship 14 – 23 knots and changing course	: 2 sec
Ship > 23 knots	: 3 sec
Ship > 23 knots and changing course	: 2 sec

An AIS transceiver sends the following data (in AIS Message Type 1):

- Maritime Mobile Service Identity (MMSI) number (a unique nine digit identification number)
- Navigation status ("at anchor", "under way using engine(s)", "not under command", etc.)
- Rate of Turn (right or left, from 0 to 720 degrees per minute)
- Speed Over Ground (SOG) (0.1-knot resolution from 0 to 102 knots)
- Position accuracy
- Longitude (with accuracy of 0.0001 minutes)
- Latitude (with accuracy of 0.0001 minutes)
- Course Over Ground (COG) (relative to true north with accuracy of to 0.1°)
- True Heading (0 to 359 degrees)
- Time Stamp (UTC Seconds, the seconds field of the UTC time when these data were generated)

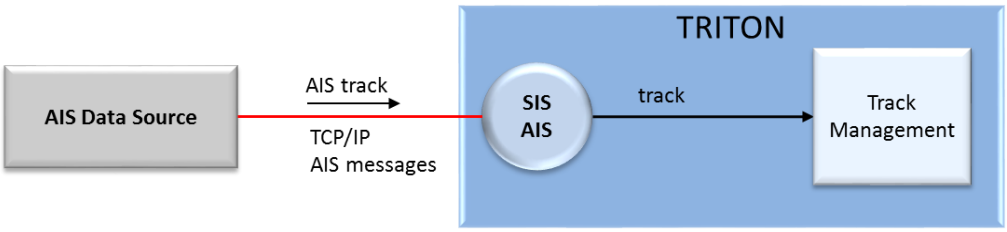
In addition, the following data (in AIS Message Type 5) are broadcast every 6 minutes:

- MMSI number
- AIS version
- IMO Number (a seven digit number that remains unchanged upon transfer of the ship's registration to another country)
- Call Sign (international radio call sign, up to seven characters, assigned to the vessel by its country of registry)
- Name (20 characters to represent the name of the vessel)

- Ship and Cargo (code of vessel classifications)
- Dimensions (distances from reference position to Bow, Stern, Port, Starboard in meters)
- Position Fix Type (code of classification of the method used to fix geographic position)
- Estimated Time of Arrival (ETA) at destination (UTC month, day, hour, minute)
- Draught (0.1 meter to 25.5 meters)
- Destination (max. 20 characters)
- Data terminal status

More information on AIS can be found in [IEC 62320].

TRITON will not have a direct interface to an AIS device, but it will be able to receive AIS messages or AIS tracks from a data source or a data centre over an IP network using a dedicated interface as depicted below:



TRITON will be able to receive data from any number of independent AIS Data Sources on either NS or NU Domain, depending on its operating domain.

The design should be scalable to handle large number of tracks.

[T1-R1985] *TRITON shall have a dedicated interface for each AIS Data Source specified on either NS or NU Domain.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Demonstration

[T1-R1986] *TRITON shall be able to receive AIS track data from a dedicated source on the NU Domain.*

Requirement Property :
Domain for Static : NU
Domain for Afloat: Both
Baseline : BL 2
Qualific. Method : Test

[T1-R1987] *TRITON shall be able to receive AIS track data from a dedicated source on the NS Domain if data source is available at the time of System Integration.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: Both
Baseline : BL 3
Qualific. Method : Inspection

6.2.2.2. MSSIS

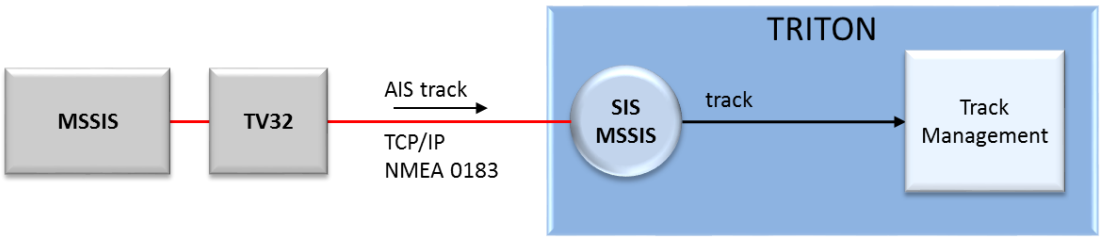
Maritime Safety and Security Information System (MSSIS) is a freely-shared, unclassified, near real-time data collection and distribution network. Its member countries (more than 70) share data from AIS, coastal radar, and other maritime-related systems.

MSSIS is intended to promote multilateral collaboration and data-sharing among international participants, with a primary goal of increasing maritime security and safety. Data sources may range

from a single sensor to an entire national vessel tracking network. MSSIS is perfectly suitable as a one-stop source for streaming global maritime data. Because the data distributed by MSSIS maintains its original, internationally recognised format and is delivered to users in near real-time, member organizations are able to utilize the feed to meet their specific mission requirements.

This Internet-based system is developed by US Department of Transportation (DOT) Volpe Center where a maritime picture of commercial activity (White Shipping) is freely shared in near real-time amongst partner maritime nations and organizations. The system tracks more than 62,000 vessel and distributes raw AIS data collected from world-wide sources (www.volpe.dot.gov) (2014). TeleView-32 (TV32) is the standard MSSIS interfacing software available to users.

MSSIS is one of the AIS data input for the current MSA/BRITE in NATO. TRITON will have a dedicated interface to MSSIS via its interfacing unit TV32 on the NU Domain, as shown below, to receive AIS tracks with NMEA 0183 format.



[T1-R1988] *TRITON shall have a dedicated interface for MSSIS via TV32 on the NU Domain.*

Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Demonstration

[T1-R1989] *TRITON shall be able to receive AIS messages from TV32 using NMEA 0183 format via TCP/IP connection over the Internet.*

Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Test

[T1-R1990] *TRITON shall be able to process all data received from MSSIS without any loss.*

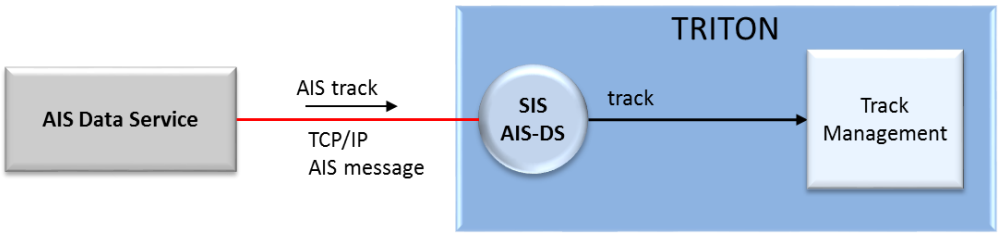
Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Test

6.2.2.3. AIS Data Services

TRITON will be able to use commercial AIS Data Services based on contract made by NATO. These services provide AIS data over the Internet. Following are examples to possible services:

- IHS Fairplay Data Services (Maritime Insight & Information, IHS Maritime) (www.ihs.com)
- exactEarth (exactAIS) (www.exactearth.com)

TRITON will have a dedicated interface for each contracted AIS Data Service on the NU Domain to receive AIS tracks as a stream and process them. A dedicated interface is depicted below:



There may be as many interfaces as the contracted data services, including their recovery services. TRITON will be able to receive live data or stored data from these services.

[T1-R1991] *TRITON shall have a dedicated interface for a contracted AIS Data Service on the NU Domain.*

Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Demonstration

[T1-R1992] *TRITON shall be able to receive AIS data from a contracted AIS Data Service via TCP/IP connection over the Internet.*

Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Test

[T1-R1993] *TRITON shall be able to process all data received from a AIS Data Service without any loss. Lost track reports shall be recorded as KPI.*

Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Test

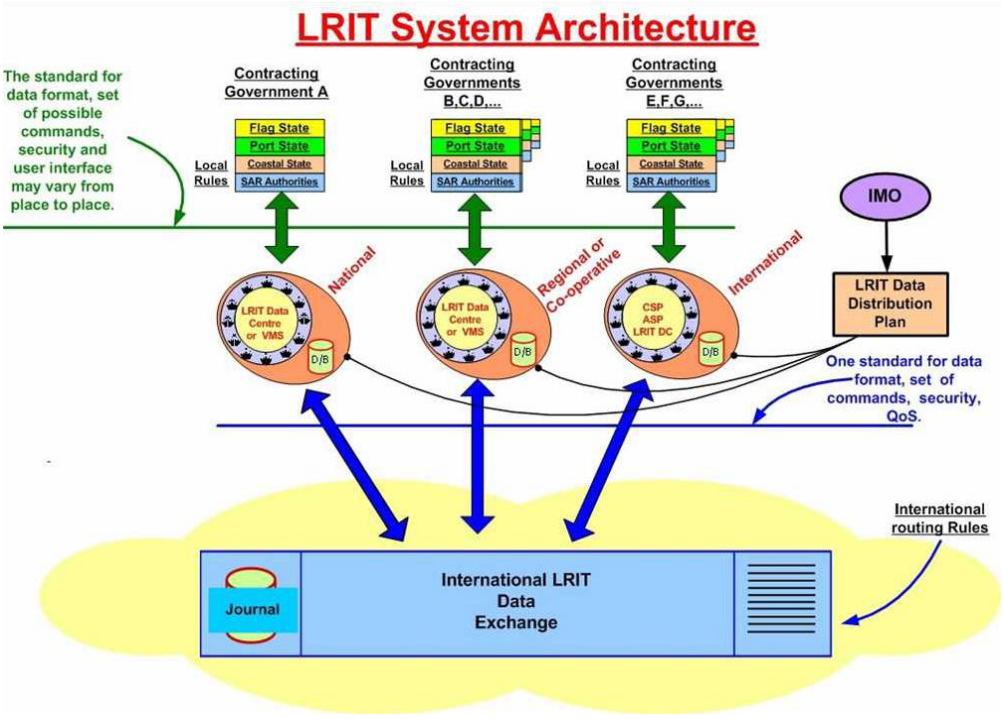
[T1-R1994] *TRITON shall allow the authorised user to adjust the update rate of tracks received from AIS Data sources.*

Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Test

6.2.2.4. LRIT Data Centre

Long-Range Identification and Tracking (LRIT) system provides for the global identification and tracking of ships. The obligations of ships to transmit LRIT information and the rights and obligations of SOLAS Contracting Governments and of Search and rescue services to receive LRIT information are established in regulation V/19-1 of the 1974 SOLAS Convention. The LRIT system consists of the shipborne LRIT information transmitting equipment, the Communication Service Provider(s), the Application Service Provider(s), the LRIT Data Centre(s), including any related Vessel Monitoring System(s), the LRIT Data Distribution Plan and the International LRIT Data Exchange. Certain aspects of the performance of the LRIT system are reviewed or audited by the LRIT Coordinator acting on behalf of all SOLAS Contracting Governments.

LRIT System Architecture is depicted below (www.imo.org):



Current regulations require vessels to automatically transmit identity and position with date/time at 6-hour intervals. Time interval between LRIT reports can be changed to a maximum frequency of every 15 minutes when necessary (i.e. when approaching to high traffic area). LRIT Position Reports sent by ships contain the following information:

- Latitude
- Longitude
- Time Stamp (Date and time of the position)
- Shipborne Equipment Id (an Identifier used by the shipborne equipment)

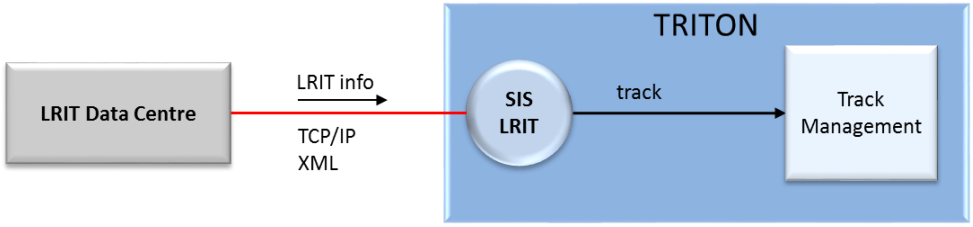
LRIT information is provided to Contracting Governments to the 1974 SOLAS Convention and Search and rescue services entitled to receive the information, upon request, through a system of National, Regional and Cooperative LRIT Data Centres using the International LRIT Data Exchange. The Technical Specifications are provided in www.imo.org.

LRIT Data Centre collects and provides LRIT information to its users according to the Data Distribution Plan (DDP). LRIT DDP defines rules and access rights (i.e. which users can receive what LRIT information). The DDP server is managed by IMO and is populated by SOLAS Contracting Governments, following IMO technical specifications.

International LRIT Data Exchange (IDE) routes LRIT information between LRIT Data Centres according to the DDP. TRITON will access the contracted LRIT Data Centre over Internet and receive the following LRIT information in XML format:

- IMO Number
- MMSI Number
- Name
- Latitude
- Longitude
- Time Stamp (Date and time of the position)
- Data provider

The interface with the LRIT Data Centre is depicted below:



[T1-R1995] *TRITON shall have a dedicated interface with a contracted LRIT Data Centre to receive LRIT Position Reports on the NU Domain.*

Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Demonstration

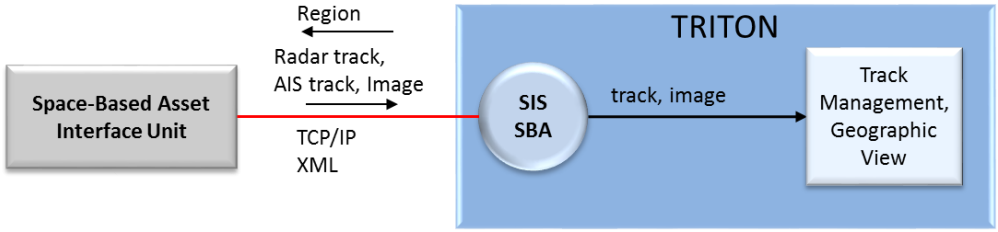
[T1-R1996] *TRITON shall extract track information from LRIT Position Reports, resolve identity of the vessel and process it as a new track or update an existing track.*

Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Test

6.2.2.5. Space-Based Asset Source

Space-Based Assets (SBA) like Satellite Radar or Satellite AIS (S-AIS) can be used as data sources to increase Maritime Situational Awareness. TRITON will be able to interface with a provided SBA through a contracted service. It is expected that the SBA services will be available through an Interfacing Unit (SBA-IU). This unit will provide tracks and images based on a regional request. TRITON will be able to send region request with a timeframe and receive radar and AIS track data for that region.

TRITON will provide a generic interface with minimum functions for future adaptation of SBA as depicted below:



Following data will be sent to the SBA-IU:

- Region (geographic position of rectangular vertices)
- Surveillance Timeframe (start DTG, end DTG)
- Minimum vessel size to be detected

Following data will be received from the SBA-IU:

- Available radar tracks (geographical position, heading, speed, size information)
- AIS tracks
- Image of the region (with geographical location information)

If the external service is not ready at the time of development, the interface will be tested with only test data.

[T1-R1997] *TRITON shall have a dedicated interface for a generic SBA-IU on the NU Domain.*

Requirement Property :
Domain for Static : NU
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Demonstration

[T1-R1998] *TRITON shall allow the authorised user to define a region with a timeframe and issue a surveillance request to the SBA-IU.*

Requirement Property :
Domain for Static : NU
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Test

[T1-R1999] *TRITON shall generate an XML file that includes the surveillance request and send it to the SBA-IU.*

Requirement Property :
Domain for Static : NU
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Test

[T1-R2000] *TRITON shall be able to receive track data in XML file or as a stream from the SBA-IU.*

Requirement Property :
Domain for Static : NU
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Test

[T1-R2001] *TRITON shall be able to receive an image file from the SBA-IU with geospatial data and display it in the GeoView in a separate Layer.*

Requirement Property :
Domain for Static : NU
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Test

[T1-R2002] *TRITON shall provide an SBA-IU Simulator for interface test purposes.*

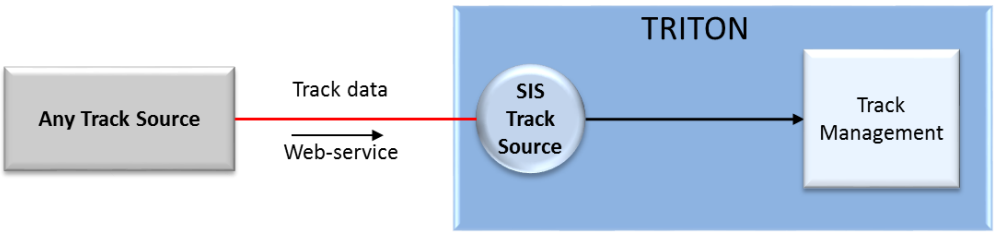
Requirement Property :
Domain for Static : NU
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Demonstration

[T1-R2003] *TRITON SBA-IU Simulator shall be able to receive surveillance area request from TRITON, and send a predefined image file and at least one-hundred (100) radar and one-hundred (100) AIS tracks in the surveillance region.*

Requirement Property :
Domain for Static : NU
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Test

6.2.2.6. Generic Track Source

TRITON will provide a generic interface to be used for integration of additional track sources. The Generic Track Source Interface is depicted below:



The Generic Interface Module, "SIS Track Source", will be a re-usable software module which consists of a standard part and a modifiable part to implement an interface for a particular track source. The SIS will convert the external track data into internal data format. The modifiable part can be developed and introduced to the system by using the configuration capability of the System Management. There may be more than one track source interface that can be added to a TRITON instance. The configurable track interfacing capability may have certain limitations as the internal data format cannot be changed.

[T1-R2004] *TRITON shall provide a Generic Track Source Interface module which can be implemented according to a particular external system interface specification.*

Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 3
- Qualific. Method : Demonstration

[T1-R2005] *TRITON Generic Interface Module shall have a re-usable software module which consists of a standard and a modifiable part to implement an interface for a particular track source. The interface module shall be introduced to the system by configuring the System Management.*

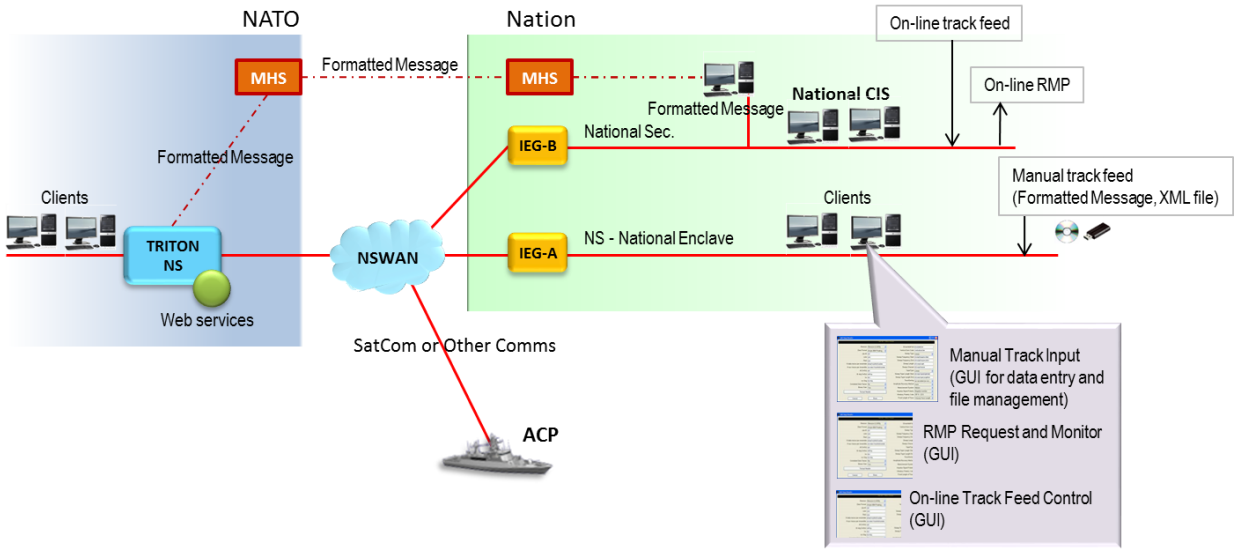
Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 3
- Qualific. Method : Demonstration

6.2.3. Nation Interfaces

Nation Interfaces have two forms: Static and Afloat. Static Interfaces are used to exchange information with Nations (HQs) on both NS and NU Domains. Afloat Interfaces are used to exchange information with Command Ship systems on both NS and NU Domains.

6.2.3.1. Nation Interface - NS

All Nations as users of TRITON on the NS Domain will be able to access TRITON services using TRITON Clients as Web-based User Applications. In addition, TRITON will provide an interface for each Nation to send or receive information. The conceptual information exchange with Nations on the NS Domain is shown below:

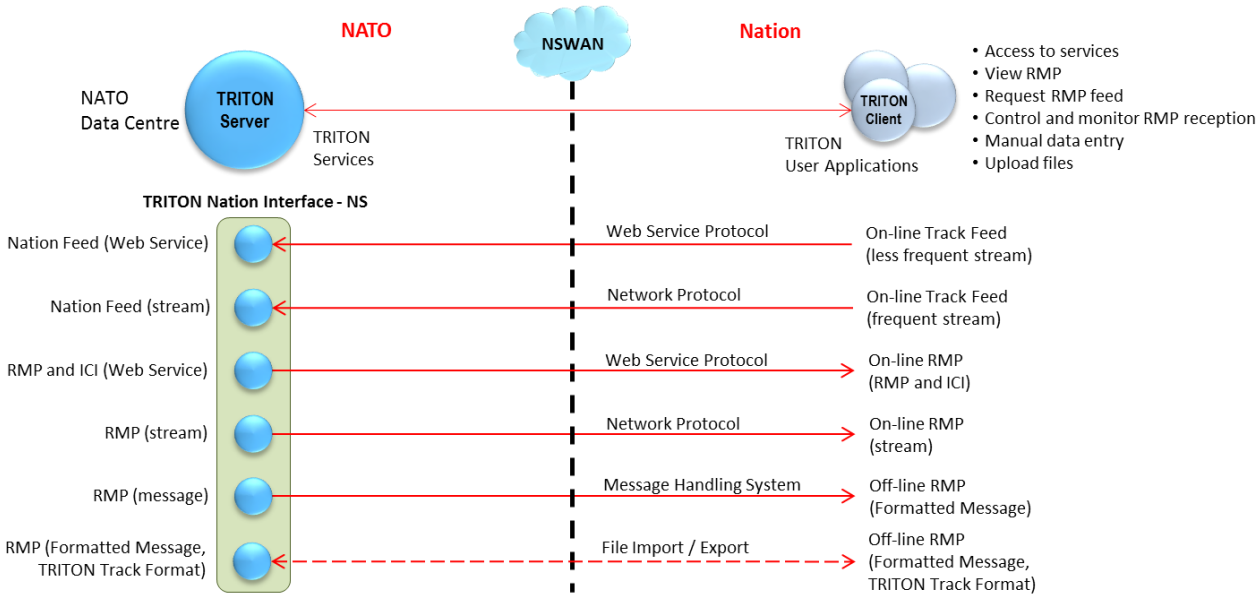


If on-line connectivity exists between NSWAN and National CIS, the information can be exchanged on-line via Web services or stream on TCP/UDP/IP. If there is no on-line connectivity, then the data can be entered into TRITON manually by using the Web-based User Application or by uploading an existing file, provided that the file is previously uploaded on the NS Domain.

While a new information exchange mechanism for track streaming will be used, the existing OTH-T GOLD messages will also be used for backward compatibility. TRITON will be able to send and receive at least the following Formatted Messages to/from Nations:

- CONTACT REPORT
- ENHANCED CONTACT REPORT

Following figure depicts the possible information exchange options:



TRITON Nation Interface - NS will have the capability to receive the following information from a Nation's system:

- Track Feed (Nation's RMP) as a stream, according to the TRITON Track Specification - NS
- Track Feed with Formatted Messages

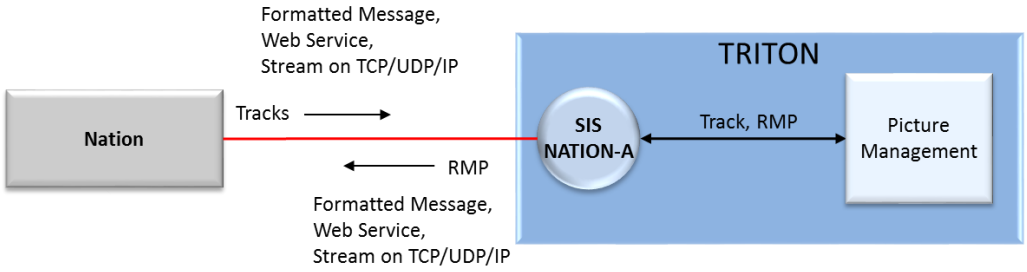
TRITON Nation Interface will have the capability to send the following information to a Nation:

- RMP as a stream on TCP/UDP/IP, in compliance with the TRITON Track Specification - NS

- RMP with Formatted Messages.

Note that a Nation is actually a "National System".

The interface is depicted below:



Nations will be able to receive the RMP according to the following RMP Specification:

- Indication of Maritime Operation
- Filter Criteria on Maritime Operational Objects (Tracks, Vessels, Reference Objects)
- Full RMP, MP or WP components
- RMP Region
- Timelate (1 minute to 24 hours)
- Update rate (1 minute to 60 minutes)
- Requester address

The Nation Interface will have the capability to provide all or filtered Maritime Operational Objects within an RMP Region as specified in the RMP Request. Maritime Operational Objects can be filtered according to their attributes such as Ship Designator, country. A specific vessel can also be requested by indicating its key attributes (e.g. country and vessel name).

[T1-R2006] *TRITON shall have a dedicated interface per Nation as a service on the NS Domain.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Demonstration

[T1-R2007] *TRITON shall allow the authorised user to control and monitor each Nation Interface - NS.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2008] *TRITON shall allow a National System to register to the Nation Interface with the RMP Specification as given in the Description.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2009] *TRITON shall make the RMP available according to the RMP Specification via the Nation Interface - NS as a Web Service.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3

Qualific. Method : Demonstration

[T1-R2010] *TRITON shall be able to send the RMP to a registered Nation as a stream on TCP/UDP/IP in compliance with the TRITON Track Specification - NS.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2011] *TRITON shall be able to receive track reports from a Nation as a Web Service in compliance with the TRITON Track Specification - NS.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2012] *TRITON shall be able to receive track reports from a Nation as a stream on TCP/UDP/IP in compliance with the TRITON Track Specification - NS.*

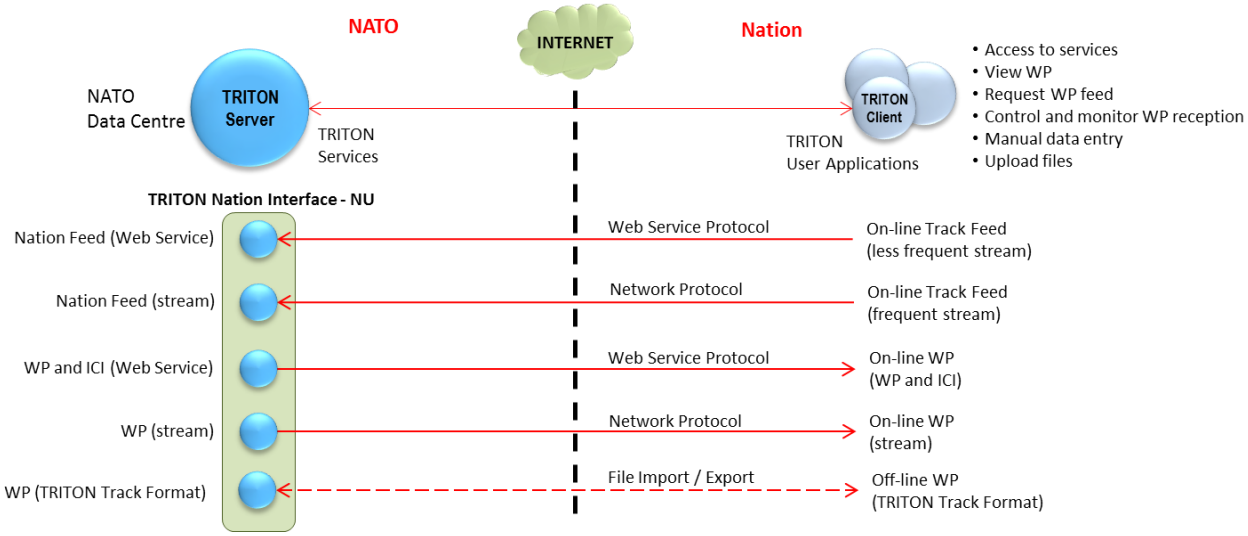
Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2013] *TRITON shall allow the authorised user to specify the destination addresses for the Nation to which the RMP will be disseminated with point-to-point Formatted Messages.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

6.2.3.2. Nation Interface - NU

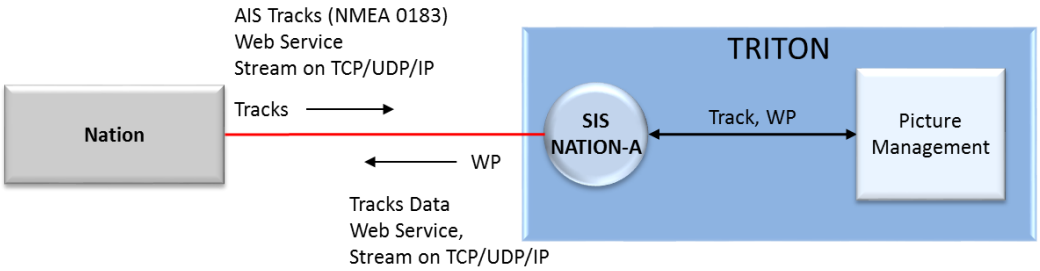
All Nations as users of TRITON on the NU Domain will be able to access TRITON services using Web-based Clients. In addition, TRITON will provide an interface for each Nation to send or receive information. The conceptual information exchange with Nations on the NU Domain is shown below:



TRITON Nation Interface - NU will have the capability to receive track feed (Nation's WP) from a Nation as a stream, in compliance with the TRITON Track Specification - NU or AIS data in NMEA 0183.

TRITON Nation Interface will have the capability to send the WP as a stream, in compliance with the TRITON Track Specification - NU.

The interface is depicted below:



Nations will be able to receive the WP according to the following WP Specification:

- Indication of Maritime Operation
- Filter Criteria on Maritime Operational Objects (Tracks, Vessels, Reference Objects)
- WP Region
- Timelate (1 minute to 24 hours)
- Update rate (1 minute to 6 hours)
- Requester address

Each Nation Interface - NU will have the capability to provide all or indicated type(s) of Maritime Operational Objects within a WP Region as specified in the WP Request. TRITON will disseminate the WP as a data stream on TCP/UDP/IP in compliance with the TRITON Track Specification - NU.

[T1-R2014] *TRITON shall have a dedicated interface per Nation as a service on the NU Domain.*

Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Demonstration

[T1-R2015] *TRITON shall allow the authorised user to control and monitor each Nation Interface - NU.*

Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Test

[T1-R2016] *TRITON shall allow a National System to register to the Nation Interface with the WP Specification as given in the Description.*

Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Test

[T1-R2017] *TRITON shall make the WP available according to the WP Specification via the Nation Interface - NU as a Web Service.*

Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Demonstration

[T1-R2018] *TRITON shall be able to send the WP to a registered Nation as a stream on TCP/UDP/IP in compliance with the TRITON Track Specification - NU.*

Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Test

[T1-R2019] *TRITON shall be able to receive track reports from a Nation as a Web Service in compliance with the TRITON Track Specification - NU or AIS data in NMEA 0183 format.*

Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Test

[T1-R2020] *TRITON shall be able to receive track reports from a Nation as a stream on TCP/UDP/IP in compliance with the TRITON Track Specification - NU or AIS data in NMEA 0183 format.*

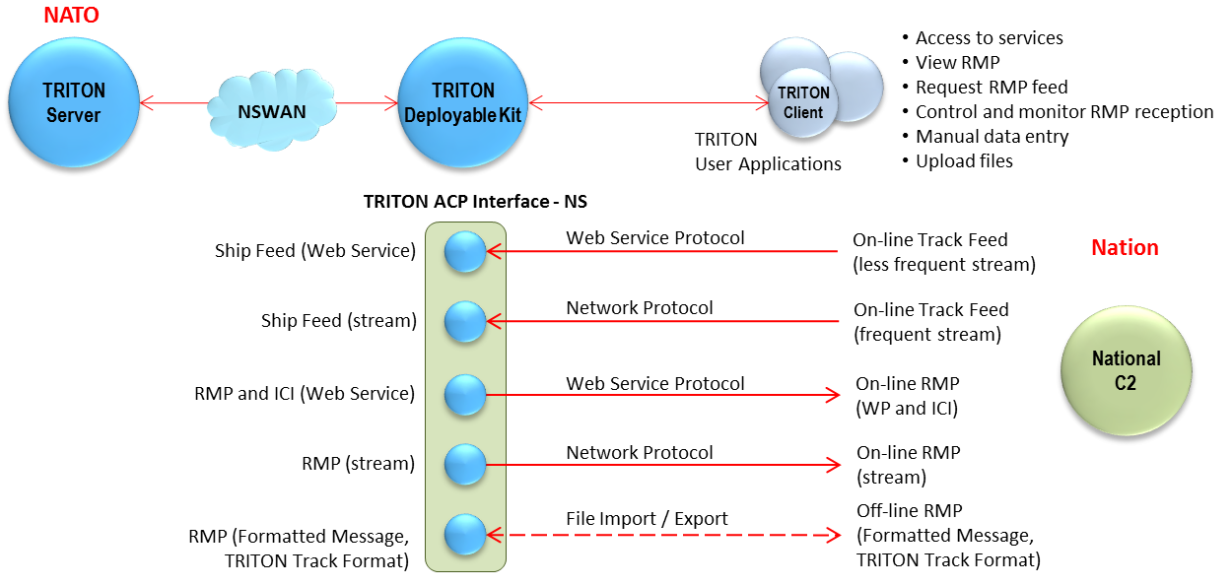
Requirement Property :
- Domain for Static : NU
- Domain for Afloat: N/A
- Baseline : BL 2
- Qualific. Method : Test

6.2.4. Afloat Command Platform Interfaces

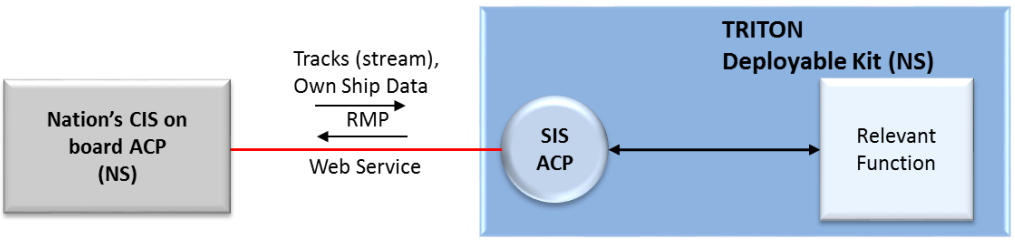
TRITON will provide interfaces for the Command Ship (ACP) within the TRITON Deployable Kits. Formatted Messages will also be handled in order to preserve backward compatibility.

6.2.4.1. ACP Interface - NS

TRITON Deployable Kit - NS (TDK-NS) ACP Interface will have similar capabilities as the Nation Interface-NS and the RMP Service. In addition, the ACP Interface will contain Own Ship Data handling capability. The interface options are defined below:



TRITON will be able to make the RMP available to ship systems over the ACP Interface according to the RMP Specification as defined in the Nation Interface - NS. Own Ship Data can be received from external sources using the TRITON Own Ship Data Specification. The TDK-NS ACP Interface is depicted below:



[T1-R2021] *TDK-NS shall have an ACP Interface on the NS Domain for interfacing the systems available on the Command Ship.*

Requirement Property :
- Domain for Static : N/A
- Domain for Afloat: NS
- Baseline : BL 4
- Qualific. Method : Demonstration

[T1-R2022] *TDK-NS shall allow the authorised user to control and monitor the ACP Interface - NS.*

Requirement Property :
- Domain for Static : N/A
- Domain for Afloat: NS
- Baseline : BL 4
- Qualific. Method : Test

[T1-R2023] *TDK-NS shall allow an external system to register to the ACP Interface with the RMP Specification (as described in Nation Interface - NS).*

Requirement Property :
- Domain for Static : N/A
- Domain for Afloat: NS
- Baseline : BL 4
- Qualific. Method : Test

[T1-R2024] *TDK-NS shall make the RMP available according to the RMP Specification (as described in Nation Interface - NS) via the ACP Interface as a service.*

Requirement Property :
- Domain for Static : N/A
- Domain for Afloat: NS
- Baseline : BL 4
- Qualific. Method : Inspection

[T1-R2025] *TDK-NS shall be able to receive track reports from an external system as a stream in compliance with the TRITON Track Specification - NS via the ACP Interface - NS.*

Requirement Property :
- Domain for Static : N/A
- Domain for Afloat: NS
- Baseline : BL 4
- Qualific. Method : Test

[T1-R2026] *TDK-NS shall be able to receive Own Ship Data from external systems as a stream in compliance with the TRITON Own Ship Data Specification via the ACP Interface - NS.*

Requirement Property :
- Domain for Static : N/A
- Domain for Afloat: NS
- Baseline : BL 4
- Qualific. Method : Test

[T1-R2027] *TDK-NS shall maintain Own Ship Data and automatically initiate and update a track with the highest Confidence Level.*

Requirement Property :
Domain for Static : N/A
Domain for Afloat: NS
Baseline : BL 4
Qualific. Method : Test

[T1-R2028] *TDK-NS shall allow the authorised user to manually enter the attributes of Own Ship Data.*

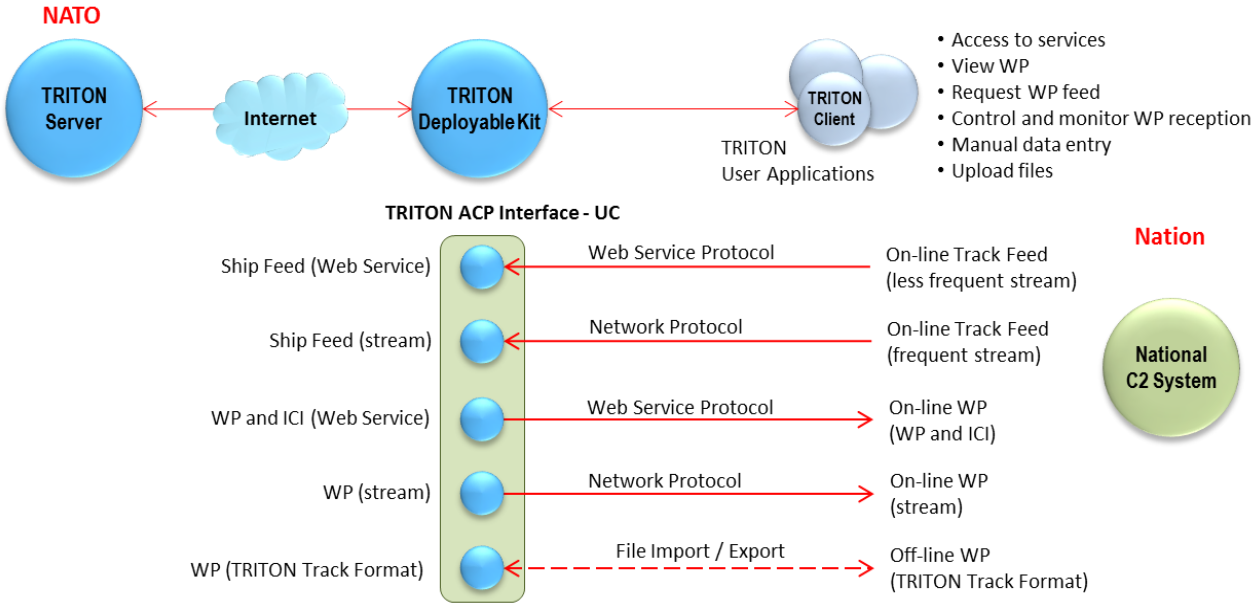
Requirement Property :
Domain for Static : N/A
Domain for Afloat: NS
Baseline : BL 4
Qualific. Method : Test

[T1-R2029] *TDK-NS shall have the RMP Service to be activated and controlled by the authorised user if needed.*

Requirement Property :
Domain for Static : N/A
Domain for Afloat: NS
Baseline : BL 4
Qualific. Method : Test

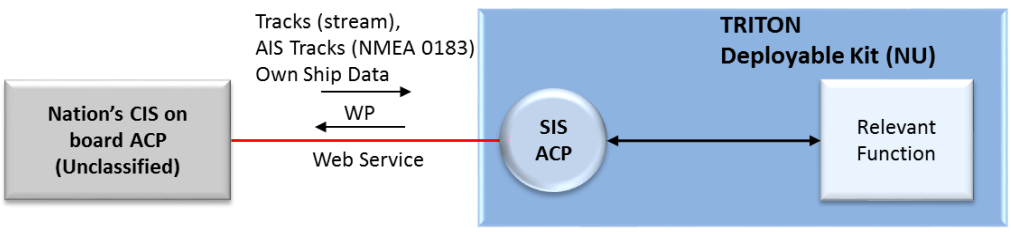
6.2.4.2. ACP Interface - NU

TRITON Deployable Kit - NU (TDK-NU) ACP Interface will be similar to the Nation Interface - NU and the WP Service. The interface options are given below:



TRITON will be able to make the RMP available to ship systems over the ACP Interface according to the RMP Specification as defined in the Nation Interface - NS. Own Ship Data can be received from external sources using the TRITON Own Ship Data Specification.

The TDK-NU ACP Interface is depicted below:



[T1-R2030] *TDK-NU shall have an ACP Interface on the NU Domain for interfacing the systems available on the ACP.*

Requirement Property :
- Domain for Static : N/A
- Domain for Afloat: NU
- Baseline : BL 4
- Qualific. Method : Demonstration

[T1-R2031] *TDK-NU shall allow the authorised user to control and monitor the ACP Interface - NU.*

Requirement Property :
- Domain for Static : N/A
- Domain for Afloat: NU
- Baseline : BL 4
- Qualific. Method : Test

[T1-R2032] *TDK-NU shall allow an external system to register to the ACP Interface with the WP Specification (as described in Nation Interface - NU).*

Requirement Property :
- Domain for Static : N/A
- Domain for Afloat: NU
- Baseline : BL 4
- Qualific. Method : Test

[T1-R2033] *TDK-NU shall make the WP available according to the WP Specification (as described in Nation Interface - NU) via the ACP Interface as a service.*

Requirement Property :
- Domain for Static : N/A
- Domain for Afloat: NU
- Baseline : BL 4
- Qualific. Method : Inspection

[T1-R2034] *TDK-NU shall be able to receive track reports from an external system as a stream in compliance with the TRITON Track Specification - NU via the ACP Interface - NU.*

Requirement Property :
- Domain for Static : N/A
- Domain for Afloat: NU
- Baseline : BL 4
- Qualific. Method : Test

[T1-R2035] *TDK-NU shall be able to receive Own Ship Data from external systems as a stream in compliance with the TRITON Own Ship Data Specification via the ACP Interface - NU.*

Requirement Property :
- Domain for Static : N/A
- Domain for Afloat: NU
- Baseline : BL 4
- Qualific. Method : Test

[T1-R2036] *TDK-NU shall maintain Own Ship Data to automatically initiate and update a track with the highest Confidence Level.*

Requirement Property :
- Domain for Static : N/A
- Domain for Afloat: NU
- Baseline : BL 4
- Qualific. Method : Test

[T1-R2037] *TDK-NU shall allow the authorised user to manually enter the attributes of Own Ship Data.*

Requirement Property :

Domain for Static : N/A
Domain for Afloat: NU
Baseline : BL 4
Qualific. Method : Test

[T1-R2038] *TDK-NU shall have the WP Service to be activated and controlled by the authorised user if needed.*

Requirement Property :
Domain for Static : N/A
Domain for Afloat: NU
Baseline : BL 4
Qualific. Method : Test

6.2.4.3. Message Handling System Interface

TDK-NS will have an interface with on-board Message Handling System (MHS) if available. The interface will be the same as static site MHS Interface using E-mails.

[T1-R2039] *TDK-NS shall have a dedicated interface service for MHS over Mail Exchange.*

Requirement Property :
Domain for Static : N/A
Domain for Afloat: NS
Baseline : BL 4
Qualific. Method : Demonstration

[T1-R2040] *TDK-NS shall be able to exchange Formatted Messages with Mail Exchange using SMTP.*

Requirement Property :
Domain for Static : N/A
Domain for Afloat: NS
Baseline : BL 4
Qualific. Method : Test

6.2.5. TRITON External Interfaces

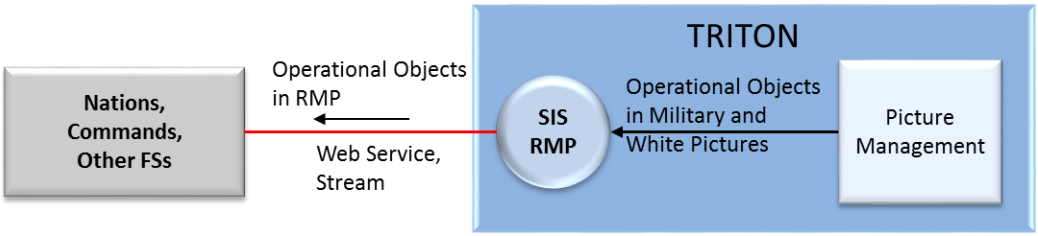
TRITON will provide interfaces to the external world primarily as Web services and streaming services. Point-to-point dedicated interfaces with Formatted Messages will also be provided in order to preserve backward compatibility. The TRITON ICD will include the Service Interface profiles for these Web Services.

6.2.5.1. RMP Service

While TRITON provides all users with the capability of accessing Maritime Operational Picture (using Picture Management Applications) as well as the RMP, it will also make the RMP information available for external users via Web services and Formatted Messages. The "RMP Service" will provide dissemination of Military and White Picture as separate RMP components, including all Maritime Operational Objects and other relevant information to the requester with the most appropriate means. Nation Interfaces (or ACP Interfaces) also provide Web services and other options to receive the RMP.

Reference Objects (Lines, Areas, Reference Points) will be made available through the RMP Service as part of the RMP.

The external interface for the RMP Service is depicted below:



RMP Specification:

External systems/services will be able to receive the RMP according to the following RMP Specification:

- Indication of Maritime Operation
- Filter Criteria on Maritime Operational Objects (Tracks, Vessels, Reference Objects)
- Full RMP, MP or WP components
- RMP Region
- Timelate (e.g. 1 minute to 24 hours)
- Update rate (e.g. 1 minute to 60 minutes)
- Requester address

The RMP Service will have the capability to provide all or filtered Maritime Operational Objects within an RMP Region as specified in the RMP Request. Maritime Operational Objects can be filtered according to their attributes such as Ship Designator, country. A specific vessel can also be requested by indicating its key attributes (like country and vessel name).

TRITON will be able to disseminate the RMP using the following formats:

- As a track data stream, in compliance with the TRITON Track Specification
- As Formatted Messages for tracks
- As NVG for tracks
- As NVG for Reference Objects (also known as Overlays)

The RMP Service will also have a search capability compliant to Open Search [Open Search].

[T1-R2041] *TRITON shall have an interface service named as "RMP Service" on the NS Domain.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Inspection

[T1-R2042] *TRITON shall make the RMP available according to the RMP Specification as given in the Description via a Web service.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Inspection

[T1-R2043] *TRITON shall allow external systems/services to register themselves to the RMP Service with the RMP Specification.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2044] *TRITON RMP Service shall provide a search capability compliant to Open Search [Open Search].*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Demonstration

[T1-R2045] *TRITON shall allow the authorised user to control and monitor the RMP dissemination process.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2046] *TRITON shall be able to provide the RMP to external systems/services as a track data stream in compliance with the TRITON Track Specification - NS within one second after applying the requested RMP Specification including filtering.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2047] *TRITON shall be able to send the RMP to the external systems/services using Formatted Messages and point-to-point communication.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2048] *TRITON shall be able to send the RMP to the external systems/services using NVG format according to [NVG].*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2049] *TRITON Deployable Kit (NS) shall have the same RMP Service if activated and controlled by the authorised user.*

Requirement Property :
Domain for Static : N/A
Domain for Afloat: NS
Baseline : BL 4
Qualific. Method : Demonstration

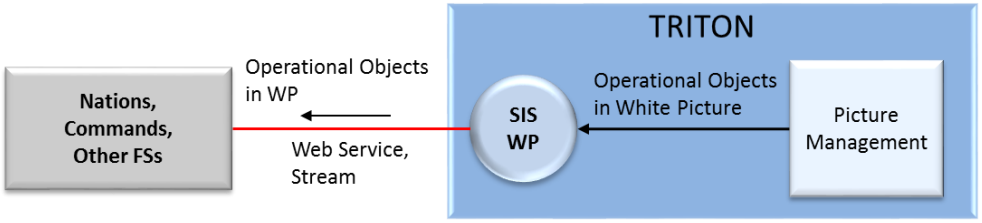
[T1-R2050] *TRITON RMP Service interface shall be defined in the TRITON ICD.*

Requirement Property :
Domain for Static : NU
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Demonstration

6.2.5.2. WP Service

TRITON will make the White Picture (WP) available on unclassified domain as a service in a concept similar to the RMP Service. All Maritime Operational Objects will be made available through the "WP Service" as part of the WP. External systems/services can register themselves to this service and receive the WP.

The external interface for the WP Service is depicted below:



WP Specification:

External systems/services will be able to receive the WP according to the following WP Specification:

- Indication of Maritime Operation
- Filter Criteria on Maritime Operational Objects (Tracks, Vessels, Reference Objects)
- WP Region
- Timelate (1 minute to 24 hours)
- Update rate (1 minute to 6 hours)
- Requester address

The WP Service will have the capability to provide all or indicated type(s) of Maritime Operational Objects within a WP Region as specified in the WP Request. The WP Service will have a search capability compliant to Open Search [Open Search]. TRITON will disseminate the WP as a data stream in compliance with the TRITON Track Specification - NU.

[T1-R2051] *TRITON shall have an interface service named "WP Service" on the NU Domain.*

Requirement Property :
Domain for Static : NU
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Test

[T1-R2052] *TRITON shall make the WP available according to the WP Specification as given in the Description via a Web service.*

Requirement Property :
Domain for Static : NU
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Test

[T1-R2053] *TRITON shall allow the external systems/services to register themselves to the WP Service with the WP Specification.*

Requirement Property :
Domain for Static : NU
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Test

[T1-R2054] *TRITON shall be able to provide the WP to external systems/services as a track data stream in compliance with the TRITON Track Specification - NU within one second after applying the requested WP Specification including filtering.*

Requirement Property :
Domain for Static : NU
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Test

[T1-R2055] *TRITON WP Service shall provide a search capability compliant to Open Search [Open Search].*

Requirement Property :
Domain for Static : NU
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Demonstration

[T1-R2056] *TRITON shall allow the authorised user control and monitor the WP dissemination process.*

Requirement Property :
Domain for Static : NU
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Test

[T1-R2057] *TRITON Deployable Kit (NU) shall have the same WP Service if activated and controlled by the authorised user.*

Requirement Property :
Domain for Static : N/A
Domain for Afloat: NU
Baseline : BL 4
Qualific. Method : Demonstration

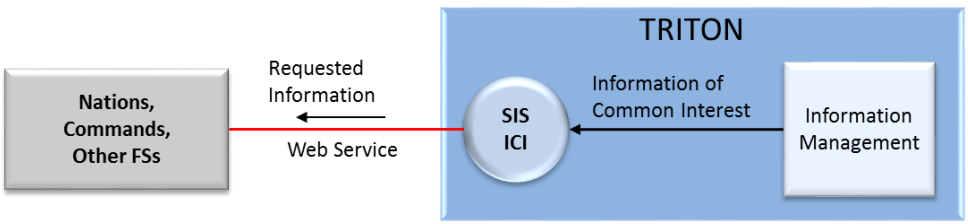
[T1-R2058] *TRITON WP Service interface shall be defined in the TRITON ICD.*

Requirement Property :
Domain for Static : NU
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Inspection

6.2.5.3. Information of Common Interest Service

TRITON will make certain maritime information named as "Information of Common Interest" (ICI) available to external systems/services as a Web Service. The authorised systems/services can access this information.

The external interface for the Information of Common Interest, "ICI Service", is depicted below:



The ICI Service, "ICI Service", provides the following information:

- Maritime Task Organization List (NS)
- Area of Interest (NS)
- Rules of Engagement List (NS)
- WSM/PMI Areas (NS)
- Vessel List (CCOI/COI/VOCI and Custom Watch List) (NS)

- Person of Maritime Interest List (NS)
- Lloyd's Maritime Intelligence Unit List (NS, NU)
- Detention List (NS, NU)

The ICI Service on relevant domain will provide the information according to its classification. The details of the interface will be determined at software design phase and included in the TRITON ICD.

The ICI Service will provide a search capability compliant to Open Search [Open Search].

[T1-R2059] *TRITON shall have an interface service named as "Information of Common Interest (ICI) Service" on both NS and NU Domains.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Demonstration

[T1-R2060] *TRITON shall allow the authorised user to control the releasability of Information of Common Interest.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Test

[T1-R2061] *TRITON shall make the Maritime Task Organization List available via the ICI Service.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2062] *TRITON shall make the Area of Interest List available via the ICI Service.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2063] *TRITON shall make the Rules of Engagement List available via the ICI Service.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2064] *TRITON shall make the WSM/PMI Areas available via the ICI Service.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2065] *TRITON shall make the Vessel List available via the ICI Service.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3

Qualific. Method : Test

[T1-R2066] *TRITON shall make the Person of Maritime Interest List available via the ICI Service.*

Requirement Property :
Domain for Static : NS
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2067] *TRITON shall make the Lloyd's Maritime Intelligence Unit List available via the ICI Service.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Test

[T1-R2068] *TRITON shall make the Detention List available via the ICI Service.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Test

[T1-R2069] *TRITON shall make the requested data available within one second via the ICI Service.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Test

[T1-R2070] *TRITON ICI Service shall provide a search capability compliant to Open Search [Open Search].*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Demonstration

[T1-R2071] *TRITON Deployable Kit (NS and NU) shall have the same ICI Services if activated and controlled by the authorised user.*

Requirement Property :
Domain for Static : N/A
Domain for Afloat: Both
Baseline : BL 4
Qualific. Method : Demonstration

[T1-R2072] *TRITON ICI Service interface shall be defined in the TRITON ICD.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 2
Qualific. Method : Inspection

6.3. TRITON Internal Interface Requirements

TRITON Internal Interfaces will be dependent upon the selected architecture. Each module and inter-module interfaces will be defined during the System Design phase.

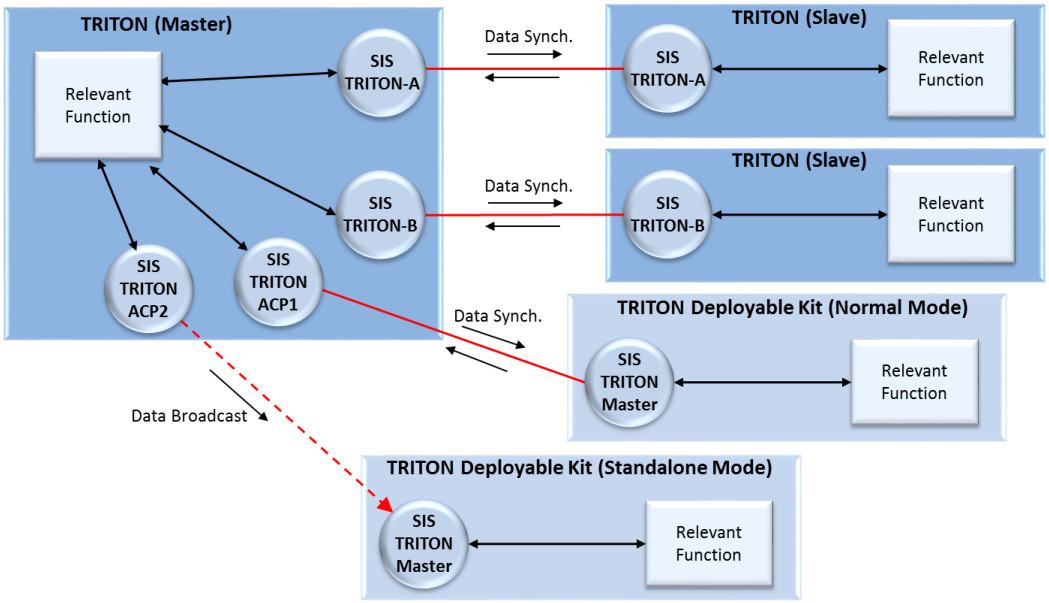
The interfaces between separate TRITON installations are considered as internal interfaces.

6.3.1. TRITON Internal Interfaces

All interfaces between TRITON User Applications, Technical Services, internal modules and components will be documented in the Interface Requirements Specifications and Interface Design Description.

6.3.2. TRITON-to-TRITON Interfaces

TRITON will be installed at more than one location and will be used concurrently. All TRITON Instances (static or afloat) will be able to exchange information between their servers to preserve consistency and data integrity, also providing resilience. Therefore, each TRITON Instance will have a dedicated interface service (SIS TRITON-name) for exchanging information with the other TRITON Instances to support Multi-site Operation (see System Technical Management). Since there will be more than one instance active simultaneously, a mechanism such as "master-slave" will be established to achive continuous data integrity. The concept is illustrated below:



The Master TRITON Instance will handle all External Data Exchange, build the RMP and disseminate it. Other TRITON Instances, the Slaves, will replicate the Maritime Information as received from the Master (see Multi-site Operation Management). If the Master Static Site loses its connectivity to general NSWAN for a configurable period of time, then another Static Site having connectivity to NSWAN will be set as the Master; its interfaces will be activated appropriately and other TRITON Instances will be slaved to this new Master. When the old Master regains the connectivity, it will synchronise its data from the current Master until an explicit swap.

TRITON Servers should be able to exchange data in the background even under low bandwidth conditions. This may require special mechanisms to handle exceptions such as lost data packets, frequent disconnection and re-connection. The design of the relevant SIS must handle these drawbacks, trying to achieve the maximum resilience without stalling user accessibility (i.e. user access to data should not be slowed down due to data synchronisation).

The same mechanism will be applicable for the NU Domain and the Internet.

If an ACP cannot connect to the WAN (NS or NU) due to communication system failure, bad weather or operational restrictions (e.g. EMCON), the TRITON Deployable Kit (NS or NU Unit) onboard will change the mode of operation to Standalone and continue its operation with limited functionality.

The Deployable Kit will be able to operate with local data or manually-input data. If the communication equipment can provide receive-only IP capability to the LAN, TRITON will be able to receive data from external sources even though it is in Standalone Mode. Requests cannot be sent out but any received data from the LAN can be received and processed. Considering this situtation, the interface of the Deployable Kit indicated as the SIS TRITON-Master in the above figure, will be able to listen a dedicated IP address and receive data from it while the SIS TRITON-ACP(x) on the static site sends data continuosly to a dedicated IP address. The authorised user will control and monitor the data exchange on both sides. In any case, the commnuication capabilities are beyond the scope of this project. It will be assumed that NS-LAN or NU-LAN is always available at static or afloat site.

Receiving Formatted Messages via the Message Handling System on board is a separate case that can be operationally handled by means of Standard Operating Procedures.

Continuity of Dynamic Data:

Some data in TRITON requires continuity deu to its dynamic nature. Tracks are an example to frequently changing dynamic data. TRITON must handle continuity for managing the dynamic data especially at afloat sites. For example, while a static TRITON Instance is providing data to afloat instances, only the changing attributes of tracks should be send at shorter intervals whereas unchanged attributes are sent at longer intervals. Valid track list must be updated regularly to prevent ghost track accumulation at the receiver side.

[T1-R2073] *A static TRITON Instance shall have a dedicated and configurable interfaces with other static TRITON Instances to enable Multi-site Operation.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Demonstration

[T1-R2074] *The Static TRITON Instance on a static site having the Master Role, shall have a dedicated interface for each Deployed TRITON Instance toto enable Multi-site Operation. The interface should be able to select the appropriate mechanism for enabling network communication in low bandwidth environment (e.g. reducing the update rate).*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Demonstration

[T1-R2075] *The TRITON Instance on a static site having the Master Role, shall have a dedicated interface for each Afloat TRITON Instance to enable Multi-site Operation. The interface should be able to select the appropriate mechanism for enabling network communication in low bandwidth environment (e.g. reducing the update rate).*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Demonstration
Comment : The criteria for network communication in low bandwidth will be determined at CDR. BL3 and BL4 tests will be performed according to this criteria.

[T1-R2076] *The TRITON Instance on an afloat site shall have a dedicated configurable interface for a Static TRITON Instance to enable Multi-site Operation. It shall be able to receive data from a designated IP address without requiring request and acknowledgement.*

Requirement Property :
Domain for Static : N/A

Domain for Afloat: Both
Baseline : BL 4
Qualific. Method : Demonstration
Comment : The test criteria will be determined at CDR.

[T1-R2077] *A static TRITON Instance having a System Interface Service for another static TRITON Instance shall be able to synchronise data to enable Multi-site Operation.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2078] *TRITON shall allow the static site authorised user to control and monitor the System Interface Services for other static or afloat TRITON Instances.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: N/A
Baseline : BL 3
Qualific. Method : Test

[T1-R2079] *TRITON shall allow the afloat site authorised user to control and monitor the System Interface Services for static TRITON Instances.*

Requirement Property :
Domain for Static : N/A
Domain for Afloat: Both
Baseline : BL 4
Qualific. Method : Test

[T1-R2080] *TRITON shall be able to send a selected set of data to a dedicated IP address without requiring request and acknowledgement. The data shall be sent with a logic which provides continuity of dynamic data as explained in the Description.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 3
Qualific. Method : Demonstration
Comment : Details of the logic will be determined at the SRR.

[T1-R2081] *TRITON shall allow the static site authorised user to set the System Interface Service for a selected afloat TRITON Instance to send a selected set of data.*

Requirement Property :
Domain for Static : N/A
Domain for Afloat: Both
Baseline : BL 4
Qualific. Method : Test

[T1-R2082] *TRITON shall allow the authorised user to dynamically add or remove System Interface Services for the selected TRITON Instances.*

Requirement Property :
Domain for Static : Both
Domain for Afloat: Both
Baseline : BL 3
Qualific. Method : Test

***** END OF SRS *****

IFB-CO-13859-TRITON

PROVISION OF FUNCTIONAL SERVICES FOR COMMAND AND CONTROL OF MARITIME OPERATIONS (TRITON) INCREMENT 1

PROJECT SERIAL 2011/0IS03081

BOOK II – PART IV SOW

ANNEX B

WORK PACKAGES

Amendment 1

TABLE OF CONTENTS

1. GENERAL INFORMATION

1.1. Relation of this Document to the SOW

1.1.1. The purpose of this annex to the TRITON Statement of Work (SOW) is to describe the scope of work in terms of Contract Work Packages, the relations between the Work Packages and how each of the Work Packages shall be implemented.

1.1.2. The Work Packages define the actual plans whereas the SOW defines the principles and standard activities.

1.1.3. For those SOW requirements that are not explicitly covered by a Work Package shall also be met by the Contractor under the control of Project Management Process.

1.1.4. The document also lists the time constraints and milestones that the Contractor shall use to build the Project Master Schedule.

1.1.5. The Work Packages include all the system life cycle processes to realise the TRITON Increment 1 Capability. The mapping of the standard system life cycle processes defined in the SOW onto the Work Packages is illustrated in Figure 1.

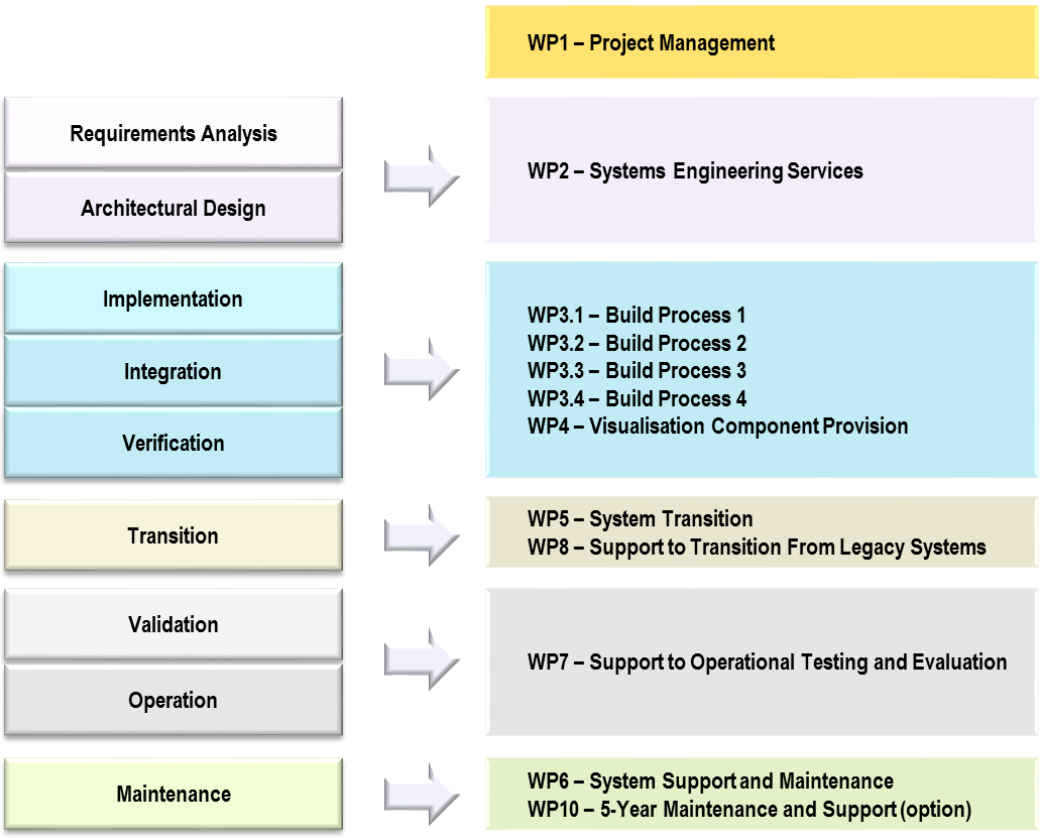


Figure 1 – Mapping the System Life Cycle Processes onto Work Packages

1.2. Work Packages

1.2.1. The Contractor shall realise the TRITON Increment 1 Capability by performing the activities defined in the Work Packages listed in Table 1-1.

Table 1-1 – List of Work Packages

Number	Work Package
WP1	Project Management
WP2	Systems Engineering Services
WP3.1	Build Process 1 (TRITON-NS Partial) as Pilot
WP3.2	Build Process 2 (TRITON-NU Full Capability)
WP3.3	Build Process 3 (TRITON-NS Full Capability)
WP3.4	Build Process 4 (TRITON ACP Capability)
WP4	Visualisation Component Provision
WP5	System Transition
WP6	System Support and Maintenance
WP7	Support to Operational Testing and Evaluation
WP8	Support to Transition from Legacy Systems
WP9	COTS Software Provision (option)
WP10	5-Year Maintenance and Support (option)
WP11	Support to Preparations for the Next Increment (option)

1.2.2. The Purchaser currently envisions a Contract Work Package Schedule for the project as shown in Figure 2.

1.2.3. The dates in this diagram shall be perceived as “no later than” dates. The Contractor can propose earlier deliveries.

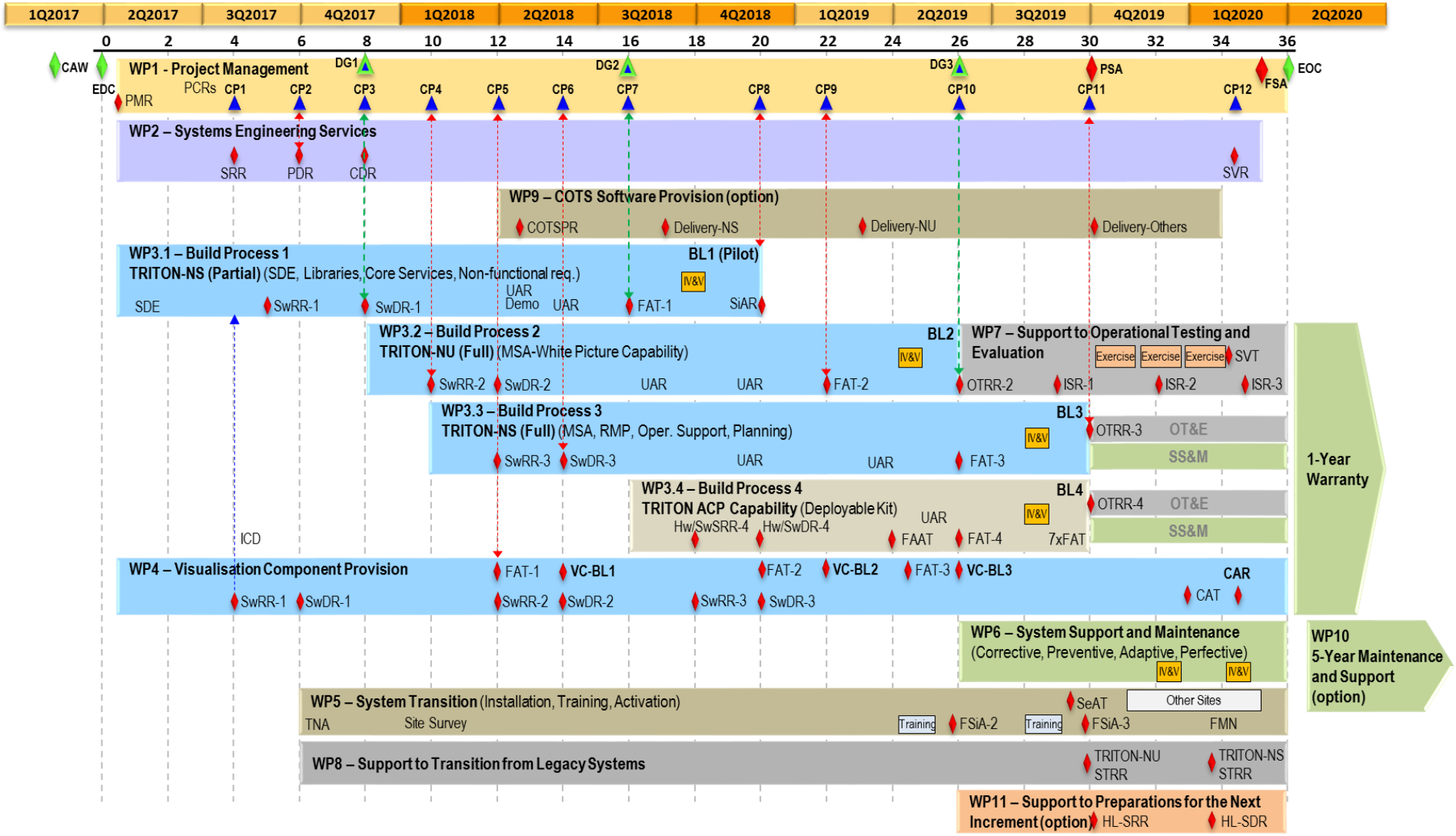


Figure 2 – Contract Work Package Schedule

1.3. Work Package Structure

1.3.1. Each Work Package defined in this document has the following structure:

- General
- Work Package Dates
- Activities
- Reviews
- Milestones (indicated as Months after Contract – MAC)
- Deliverables

1.4. Project Master Schedule

1.4.1. The Contractor shall develop the Project Master Schedule (PMS) according to this Work Package schedule. The PMS shall also include the optional Work Packages WP9, WP10 and WP11, and all Milestones and Checkpoints associated to Work Packages.

1.4.2. The End Dates of Build Processes are the deadlines set by the Purchaser. Earlier planning according to the Requirements Implementation Schedule can be proposed, and applied upon Purchaser's approval.

1.4.3. Project Milestones

1.4.3.1. Figure 2 shows the most important project milestones in a diagram. Table 1-2 gives the list of Milestones which will be monitored by the Purchaser and are usually tied to Decision Gates and payment triggers.

Table 1-2 – Project Milestones

Milestone	Description	CP	DG	WP
EDC	Effective Date of Contract			1
PMR	Project Management Review			1
PCR	Monthly – Project Checkpoint Review			1
SRR	System Requirements Review	CP1		2
PDR	Preliminary Design Review	CP2		2
CDR	Critical Design Review	CP3	DG1	2
SwRR-1	Software Requirements Review – BL1			3.1
SwDR-1	Software Design Review – BL1	CP3	DG1	3.1
SwRR-2	Software Requirements Review – BL2	CP4		3.2
SwDR-2	Software Design Review – BL2	CP5		3.2
SwRR-3	Software Requirements Review – BL3	CP5		3.3
SwDR-3	Software Design Review – BL3	CP6		3.3
Hw/SwRR	Hardware/Software Requirements Review – BL4			3.4
Hw/SwDR	Hardware/Software Design Review – BL4			3.4
TRR-1	Test Readiness Review – BL1			3.1
FAT-1	Factory Acceptance Test – BL1	CP7	DG2	3.1
SverR-1	System Verification Review – BL1			3.1

FSiA-1	Final Site Acceptance – BL1	CP8		5
TRR-2	Test Readiness Review – BL2			3.2
FAT-2	Factory Acceptance Test – BL2	CP9		3.2
SverR-2	System Verification Review – BL2			3.2
TRR-4	Test Readiness Review – BL4			3.4
FAAT	First Article Acceptance Test			3.4
FAT-4	FAT for one TDKs			3.4
7 x FAT	FAT for 7 TDKs			3.4
SQR-2	Sustainment Qualification Review – BL2			5
FSiA-2	Final Site Acceptance – BL2	CP10	DG3	5
OTTR-2	Operational Test and Readiness Review – BL2	CP10	DG3	3.2
TRR-3	Test Readiness Review – BL3			3.3
FAT-3	Factory Acceptance Test for BL3	CP10	DG3	3.3
SverR-3	System Verification Review – BL3			3.3
OTTR-3	Operational Test and Readiness Review – BL3	CP11		3.3
FSiA-3	Final Site Acceptance – BL3			5
SQR-3	Sustainment Qualification Review – BL3			5
SverR-4	System Verification Review – BL4			3.4
SeAT	Sea Acceptance Test for one TDK			5
OTTR-4	Operational Test and Readiness Review – BL4	CP11		3.4
MMR	Monthly Maintenance Review			6
ISR-1,2,3	In-Service Review			7
PSA	Provisional System Acceptance	CP11		1
TrRR	Transition Readiness Review (NU)	CP11		8
TrRR	Transition Readiness Review (NU)	CP12		8
SVR	System Validation Review	CP12		2
FMN	FMN Testing			5
FSA	Final System Acceptance			1
CCM	Contract Close-out Meeting (CCM)			
EOC	End of Contract			1
Visualisation Component				
SwRR-1	Software Requirements Review – BL1	CP1		4
SwDR-1	Software Design Review – BL1	CP2		4
WPA	Work Package Assessment	CP3	DG1	4
FAT-1	Factory Acceptance Test – BL1	CP5		4
SwRR-2	Software Requirements Review – BL2	CP5		4
SwDR-2	Software Design Review – BL2	CP6		4
VC-BL1	BL1 Delivery	CP6		4
WPA	Work Package Assessment	CP7	DG2	4
SwRR-3	Software Requirements Review – BL3	CP5		4
SwDR-3	Software Design Review – BL3	CP6		4

FAT-2	Factory Acceptance Test – BL2	CP8		4
VC-BL2	BL2 Delivery	CP9		4
FAT-3	Factory Acceptance Test – BL3			4
VC-BL3	BL3 Delivery	CP10		4
WPA	Work Package Assessment		DG3	4
CAT	Component Acceptance Test	CP12		4

2. WORK PACKAGE 1: PROJECT MANAGEMENT

2.1. General

2.1.1. The Contractor shall provide project management for the overall project and the implemented Work Packages as described in Section 3 of the SOW.

2.2. Work Package Dates

2.2.1. The Work Package1 Performance Start Date (WP PSD) shall be on Effective Date of Contract (EDC).

2.2.2. The Work Package 1 Performance End Date (WP PED) shall be the End of Contract (EOC).

2.3. Project Resources

2.3.1. Project Management Office

2.3.1.1. The Contractor shall establish and maintain a Project Management Office (PMO) as described in Subsection 3.5 of the SOW through the period of performance of this Work Package.

2.3.1.2. The Contractor shall provide the nomination of the Key Personnel as referenced in SOW, Subsection 3.5 at the WP1 PSD.

2.3.2. Project Website and Collaborative Working Environment

2.3.2.1. As specified in Subsection 3.6 of the SOW, the Contractor shall use an unclassified but managed Project Website and Collaborative Working Environment (CWE) (based on Microsoft SharePoint) on which all relevant unclassified project documentation shall be stored and shall manage and maintain it throughout the period of performance of this Work Package.

2.3.2.2. The Contractor shall review and comment on the proposed design for the Project Website and CWE not later than two (2) weeks after the WP1 PSD. This design information shall be provided by the Purchaser at WP1 PSD.

2.3.2.3. The Contractor shall populate and activate the Project Website and CWE within four (4) weeks after WP1 PSD.

2.3.2.4. The Contractor shall get Purchaser's approval of the Project Website and CWE at the Project Management Review (PMR).

2.4. Project Planning

2.4.1. Project Management Plan

2.4.1.1. As specified in SOW, Subsection 3.7, the Contractor shall establish and maintain a Project Management Plan (PMP) which shall describe how the Contractor will implement the totality of the project, including details of the project control that will be applied.

2.4.1.2. The Contractor shall provide the initial baseline version of the PMP at the Project Management Review (PMR) and maintain it throughout the period of performance of this Work Package.

2.4.2. Project Product Breakdown Structure

2.4.2.1. As specified in SOW, Subsection 3.8, the Contractor shall establish and maintain a Project Product Breakdown Structure (PPBS).

2.4.2.2. The Contractor shall provide the initial baseline version of the PPBS at the PMR and maintain it throughout the period of performance of this Work Package.

2.4.3. Project Work Breakdown Structure

2.4.3.1. As specified in SOW, Subsection 3.9, the Contractor shall establish and maintain a Project Work Breakdown Structure (PWBS).

2.4.3.2. The Contractor shall provide the initial baseline version of the PWBS at the PMR and maintain it throughout the period of performance of this Work Package.

2.4.4. Project Master Schedule

2.4.4.1. As specified in SOW, Subsection 3.10, the Contractor shall establish and maintain a Project Master Schedule (PMS) that contains all Contract~~.~~ events and milestones, including contract-related Purchaser activities and events (e.g. Purchaser reviews, IV&V testing, participating meetings and conferences). The PMS shall correlate with the PWBS and also be traceable to performance and delivery requirements of this SOW.

2.4.4.2. The Contractor shall provide the initial baseline version of the PMS at the PMR and maintain it throughout the period of performance of this Work Package.

2.4.5. Work Package Management

2.4.5.1. The Contractor shall prepare the draft Work Package Descriptions in accordance with SOW, Subsection 3.11 and this Annex of the SOW.

2.4.5.2. The Work Package Descriptions shall be reflected in the Project Work Breakdown Structure (PWBS), to be accepted at PMR.

2.5. Risk Management

2.5.1. The Contractor shall establish and maintain an overall Risk Management programme for the project throughout the period of performance of this Work Package in accordance with SOW, Subsection 3.12.

2.5.2. The Contractor shall provide the Risk Management Plan (RMP), Risk Register and Issue Register as defined in SOW, Subsection 3.12.

2.6. Quality Management

2.6.1. The Contractor shall establish, execute, and maintain an effective Quality Management Programme as specified in the SOW, Subsection 3.13 and as defined in Quality Plan (QP) throughout the period of performance of this Work Package.

2.6.2. The Contractor shall provide the Quality Plan (QP) and Quality Register as defined in SOW, Subsection 3.13.

2.7. Configuration Management

2.7.1. The Contractor shall perform Configuration Management Process as specified in SOW, Subsection 4.7.

2.7.2. The Contractor shall provide the Configuration Management Plan (CMP) to be reviewed at PMR and maintain it throughout the period of performance of this Work Package.

2.7.3. As needed to identify and request changes to the Functional, Development, or Product Baselines, the Contractor shall prepare and manage Change Requests and Deficiency Reports as specified in SOW, Paragraph 4.7.8 and 4.7.9.

2.7.4. The Contractor shall provide the initial baseline of its Configuration Status Accounting Database (CSAD) at PMR and maintain the database throughout the period of performance of this Work Package as specified in SOW, Paragraph 4.7.10.

2.7.5. The Contractor shall provide Internet read-only access to this CM tool via the Project Web-site.

2.7.6. The Contractor shall support the Functional Configuration Audit (FCA) and Physical Configuration Audit (PCA) and prepare Configuration Audit Report (CAuR) for each Baseline.

2.7.7. The Contractor shall follow the Change Management Process defined in SOW, Paragraph 4.7.7 when applicable to products (document, software or hardware).

2.7.8. The Contractor shall prepare and maintain Configuration Status Accounting System (CSAS) as described in SOW, Paragraph 4.7.10.5.

2.8. ILS Management

2.8.1. The Contractor shall plan and perform the ILS-related activities as specified in SOW, Section 5.

2.8.2. The Contractor shall prepare the Integrated Support Plan (ISP) as described in SOW, Subsection 5.2 and submit the draft at PMR, an initial version at the CDR and final version at least two (2) weeks before the SQR-2. It shall be updated at SQR-2 and SQR-3 as necessary.

2.8.3. The Contractor shall prepare and submit the In-Service Support Plan (ISSP) as described in SOW, Subsection 5.3, including the System Maintenance Plan (SMP) and Obsolescence Management Plan (OMP), at least two (2) weeks before the SQR-2. The Contractor shall update these plans at FSA as necessary.

2.8.4. The Contractor shall provide all training services specified in related Work Package in accordance with the specifications given in SOW, Subsection 5.8.

2.9. Planning of Engineering and Test Activities

2.9.1. System Development Plan

2.9.1.1. The Contractor shall plan software and hardware implementation activities and prepare a System Development Plan (SDP) and its annexes as described in SOW, Subsection 4.6.

2.9.1.2. The Contractor shall establish the SDP with combined activities in accordance with the Incremental Development with Multiple Delivery approach as described in SOW, Subsection 4.2.

2.9.1.3. The Contractor shall provide the initial version of the SDP at PMR and maintain the plan throughout the period of performance of this Work Package.

2.9.1.4. For each Build Process, the Contractor shall also plan in SDP:

- Deployment of TRITON Operational Software to the Test System
- Testing the system with the users
- Working Group Workshops.

2.9.1.5. Requirements Implementation Schedule

2.9.1.5.1. The Contractor shall establish a Requirements Implementation Schedule (RIS), as specified in SOW, Paragraph 4.6.3 as an annex to SDP.

2.9.1.6. Usability Engineering Plan

2.9.1.6.1. The Contractor shall establish a Usability Engineering Plan (UEP), as specified in SOW, Paragraph 4.6.4 as an annex to SDP.

2.9.1.6.2. In the UEP the Contractor shall plan users' involvement to the definition of the Human-Machine Interface (HMI) of the software for each Baseline.

2.9.1.6.3. The UEP shall also include the C4ISR Visualisation Component.

2.9.1.7. Security Accreditation Plan

2.9.1.7.1. The Contractor shall establish a Security Accreditation Plan (SAP), as specified in SOW, Paragraph 4.6.5 as an annex to SDP.

2.9.2. Test Management Plan

2.9.2.1. The Contractor shall prepare the Test Management Plan (TMP) as specified in SOW, Paragraph 4.12.2 and submit it at least two (2) weeks prior to the CDR, provide an updated version at TRR-1 and update thereafter as necessary.

2.9.3. Test Management Tool

2.9.3.1. The Contractor shall provide a Test Management Tool as defined in SOW, Paragraph 4.12.3.

2.9.3.2. The Contractor shall demonstrate the Test Management Tool during PMR. The full capability of the Tool shall be demonstrated at the first TRR with actual data.

2.10. Monitoring, Control and Reporting

2.10.1. Project Highlight Reports

2.10.1.1. The Contractor shall provide a monthly Project Highlight Report (PHR), as specified in SOW, Subsection 3.17.

2.10.1.2. The Contractor shall provide the first PHR four (4) weeks after WP1 PSD, and then, no later than the third business day of each month throughout the period of performance of this Work Package.

2.10.2. Periodic Status Assessment

2.10.2.1. The Contractor shall conduct the Periodic Status Assessment together with the Purchaser regarding the Checkpoints and Decision Gates as described in SOW, Subsection 3.18.

2.10.3. Lessons Log

2.10.3.1. The Contractor shall maintain the Lessons Log as specified in SOW, Paragraph 3.3.8.

2.10.3.2. The Contractor shall prepare a Lessons Report (LR) at each major milestone aligned with a Check Point.

2.10.4. Provisional System Acceptance

2.10.4.1. Provisional System Acceptance (PSA) will be based on the capabilities provided to MARCOM (see SOW, Paragraph 4.14.7).

2.10.4.2. The Contractor shall plan and conduct Provisional System Acceptance Review (PSAR), and provide the report.

2.10.5. Final System Acceptance

2.10.5.1. Final System Acceptance (FSA) occurs when the Purchaser has evaluated the whole deliverables as described in SOW, Paragraph 4.14.8.

2.10.5.2. The Contractor shall submit the Final System Acceptance Report (FSA-R) at the Contract Close-out Meeting.

2.11. Meetings

2.11.1. The Contractor shall conduct meetings and prepare their minutes in accordance with SOW, Subsection 3.15.

2.11.2. The Contractor shall participate in the Project Kick-off Meeting at the Purchaser's facility within two (2) weeks after EDC, and provide a report.

2.11.3. As required by the Purchaser the Contractor shall participate in TRITON Integrated Project Management Team (IPMT) meetings and TRITON Change Control Board (CCB) meetings.

2.11.4. The Contractor shall organise Working Group Meetings/Workshops to support engineering activities, as described in SOW, Subsection 4.4.

2.12. Contract Close-out

2.12.1. The Contractor shall perform the Contract Close-out activities as specified in SOW, Subsection 3.19 when agreed with the Purchaser.

2.12.2. The Contractor shall attend the Contract Close-out Meeting (CCM) and submit the CCM Report which marks the End of Contract.

2.13. Other Project Management Work

2.13.1. The Contractor shall perform other project-related work as defined in SOW, Subsection 3.20.

2.13.2. The Contractor shall provide Project Information Materials as defined in SOW, Paragraph 3.20.1.4, as directed by the Purchaser during the course of this Work Package.

2.13.3. The Contractor shall attend meetings and conferences together with Purchaser at least three (3) times a year at locations to be defined by the Purchaser.

2.14. Reviews

2.14.1. Project Management Review

2.14.1.1. The Contractor shall conduct Project Management Review (PMR) as specified in SOW, Paragraph 3.16.2.

2.14.2. Project Checkpoint Reviews

2.14.2.1. The Contractor shall schedule and conduct monthly Project Checkpoint Reviews (PCR) as specified in SOW, Paragraph 3.16.3 at least once every month throughout the period of performance of this Work Package.

2.14.3. Formal Reviews

2.14.3.1. The Contractor shall plan and conduct the Formal Reviews as specified in SOW, Paragraph 3.16.4.

2.15. Milestones

2.15.1. The Milestones for this Work Package are given below:

Milestone	Description	Date (MAC)
EDC	Effective Date of Contract	0
PMR	Project Management Review	1
PCR	Project Checkpoint Review	Monthly
PSA	Provisional System Acceptance	31
FSA	Final System Acceptance	36
EOC	End of Contract (Contract Close-out)	36

2.16. Checkpoints

2.16.1. The Checkpoints for the overall Contract are given below:

Checkpoint	Description	Date (MAC)
CP1	SRR	4
CP2	PDR	6
CP3	CDR, SwDR-1	8
CP4	SwRR-2	10
CP5	CDS Demonstration, SwDR-2, SwRR-3, VC-FAT-1, VC-SwRR-2	12
CP6	SwDR-2, VC-BL1, VC-SwDR-2	14
CP7	FAT-1	16
CP8	SiAR-1, VC-FAT-2, VC-SwDR-3	20

CP9	FAT-2, FAAT, VC-BL2	22
CP10	OTRR-2, FAT-3, VC-BL3	26
CP11	OTRR-3, OTRR-4	30
CP12	SVR, CAT	35

2.17. Decision Gates

2.17.1. The Project Schedule will have Contractual Phases where each phase is tied to a Decision Gate.

2.17.2. The Contract Phases are given in Table 2-1:

Table 2-1 – Contract Phases

Phase	Begin	End	Description
1	EDC	CDR	System Analysis and Design Phase
2	CDR	FAT-1	First Implementation Phase
3	FAT-1	OTRR-2	Implementation and Verification Phase
4	OTRR-2	EOC	Validation and Operation Phase

2.17.3. The Decision Gates for the overall Contract are given in Table 2-2:

Table 2-2 – Decision Gates

Decision Gate	Phase	Checkpoint	Description	Date (MAC)
1	1	3	CDR completed	8
2	2	7	FAT-1 completed.	16
3	3	10	BL2 delivered.	26
	4	12	FSA	36

2.17.4. The Contract Phases and related Decision Gates are shown on the WP1 – Project Management in the Work Package diagram given in Figure 3.

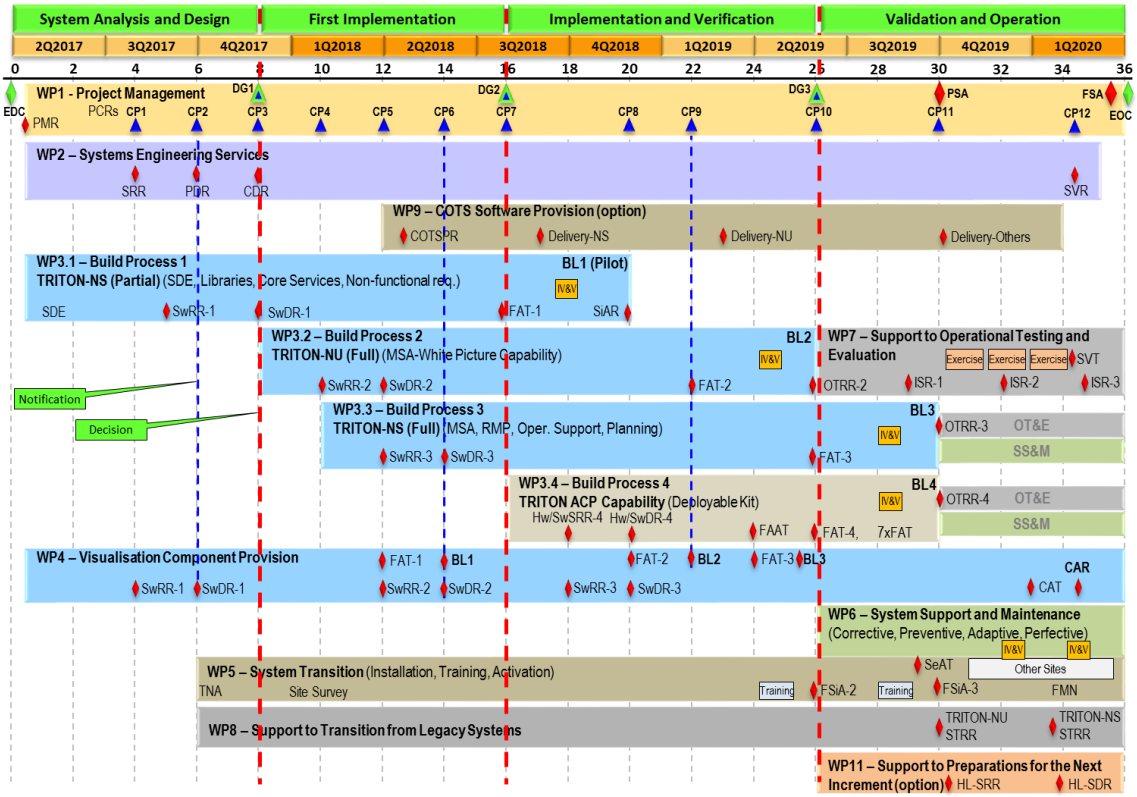


Figure 3 – Contract Phases and Decision Gates

2.17.5. Decision Gate 1

2.17.5.1. Decision Gate 1 shall be the CDR.

2.17.5.2. The default Success Criteria for Decision Gate 1 are given in Table 2-3.

Table 2-3 – Success Criteria for Decision Gate 1

Serial	Status
1	SRR status is “Passed”.
2	PDR status is “Passed”.
3	There are no unaccepted specification and design documents.
4	CDR is planned to be executed as scheduled in PMS, and it is not delayed more than thirty (30) days.
5	VC Milestones are on track.
6	CP1 and CP2 do not still contain any Major Warnings.
7	CDR status is not “Fail”.
8	Lessons Learned are captured and plans are updated.
9	The Purchaser may have sent only “one” Formal Notification to the Contractor within this Phase.

2.17.5.3. The default Fail Criteria for Decision Gate 1 are given in Table 2-3.

Table 2-4 – Fail Criteria for Decision Gate 1

Serial	Status
1	PDR status is still “Failed”.
2	CDR schedule is delayed more than thirty (30) days beyond the agreed PMS.
3	CDR status is “Fail”.
4	The Contractor does not provide sound solutions for the previously issued Major Warnings recorded in CP1 (SRR) and CP2 (PDR).
5	The Purchaser may have sent “more than one” Formal Notification to the Contractor within this Phase.

2.17.6. Decision Gate 2

2.17.6.1. Decision Gate 2 shall be the FAT-1.

2.17.6.2. The default Success Criteria for Decision Gate 2 are given in Table 2-5.

Table 2-5 – Success Criteria for Decision Gate 2

Serial	Status
1	If DG1 status was Provisional Success, all pending items have been solved, and the status has been set to Success.
2	CP3 to CP6 are completed successfully.
3	CP3 to CP6 do not still contain any Major Warnings.
4	CDS is deployed successfully and found to be satisfactory.
5	VC-BL1 is delivered successfully.
6	FAT-1 is planned to be executed as scheduled in PMS, and it is not delayed more than thirty (30) days.
7	FAT-1 status is not “Fail”.
8	Lessons Learned are captured and plans are updated.
9	The Purchaser may have sent only “one” Formal Notification to the Contractor within this Phase.

2.17.6.3. The default Fail Criteria for Decision Gate 2 is given in Table 2-6.

Table 2-6 – Fail Criteria for Decision Gate 2

Serial	Status
1	CDS delivery is delayed more than two (2) months or it is not found to be satisfactory.
2	FAT-1 is delayed more than two (2) months.
3	VC-BL1 Delivery is delayed more than two (2) months.
4	FAT-1 status is “Fail”.
5	The Contractor does not provide sound solutions for the previously issued Major Warnings recorded in earlier CPs.
6	The Purchaser may have sent “more than one” Formal Notification to the Contractor within this Phase.

2.17.7. Decision Gate 3

2.17.7.1. Decision Gate 3 shall be the OTRR-2.

2.17.7.2. The default Success Criteria for Decision Gate 3 are given in Table 2-7.

Table 2-7 – Success Criteria for Decision Gate 3

Serial	Status
1	If DG2 status was Provisional Success, all pending items have been solved, and the status has been set to Success.
2	CP7 to CP9 are completed successfully.
3	CP7 to CP9 do not still contain any Major Warnings.
4	CP8 (SiAR-1) is completed successfully.
5	CP8 (VC-FAT-2) is completed successfully.
6	CP9, VC-BL2 is delivered successfully.
7	CP10, VC-BL3 is delivered successfully.
8	CP10 (FSiA-2) is successful.
9	CP10 (OTRR-2) is planned to be executed as scheduled in PMS.
10	OTRR-2 status is not “Fail”.
11	Lessons Learned are captured and plans are updated.
12	The Purchaser may have sent only “one” Formal Notification to the Contractor within this Phase.

2.17.7.3. The default Fail Criteria for Decision Gate 3 are given in Table 2-8.

Table 2-8 – Fail Criteria for Decision Gate 3

Serial	Status
1	CP8 (SiAR-1) is delayed more than two (2) months.
2	CP9 (FAT-2) is delayed more than two (2) months.
3	CP9 (VC-BL2 Delivery) is delayed more than two (2) months.
4	VC-BL3 Delivery is delayed more than two (2) months.
5	CP10 (FSiA-2) is delayed more than two (2) months.
6	OTRR-2 status is “Fail”.
7	The Contractor does not provide sound solutions for the previously issued Major Warnings recorded in earlier CPs.
8	The Purchaser may have sent “more than one” Formal Notification to the Contractor within this Phase.

2.18. Deliverables

2.18.1. The Work Package Deliverables are given below:

- Project Management Office
- Project Website and Collaborative Working Environment (CWE)
- Project Management Plan (PMP)

- Project Product Breakdown Structure (PPBS)
  - Breakdown Structure
  - Product Descriptions
  - Product Flow Diagram
- Project Work Breakdown Structure (PWBS)
- Project Master Schedule (PMS)
- Work Packages
- Quality Plan (QP)
- Configuration Management Plan (CMP)
- Risk Management Plan (RMP)
- System Development Plan (SDP)
  - Requirements Implementation Schedule (RIS)
  - Usability Engineering Plan (UEP)
  - Security Accreditation Plan (SAP)
- Integrated Support Plan (ISP)
- In-Service Support Plan (ISSP)
  - System Maintenance Plan (SMP)
  - Obsolescence Management Plan (OMP)
- Test Management Plan (TMP)
  - Security Test and Verification Plan (STVP)
  - System Validation Plan (SVP)
- Test Management Tool (demonstration)
- Risk Register and Issue Register
- Quality Register
- Lessons Log and Lessons Learned Report (LL-R)
- Requirements Change Requests
- Change Requests, Deficiency Reports
- Configuration Status Accounting Database (CSAD)
- Project Highlight Reports (PHR)
- Project Information Materials
- Minutes of Meetings (in general)
- Project Kick-off Meeting Report
- Contract Close-out Meeting Reports (CCM-R)
- Project Management Review Report (PMR-R)
- Project Checkpoint Review Reports (PCR-R)

3. WORK PACKAGE 2: SYSTEMS ENGINEERING SERVICES

3.1. General

3.1.1. The Contractor shall provide Systems Engineering Services including system requirements analysis and system architectural design for the overall system as described in Subsection 4.7 and 4.8 of the SOW.

3.1.2. The Contractor shall implement, test, and deliver Product Baselines compliant with the "TRITON Contractual System Requirements Specification (SRS)" under the overall governance of Systems Engineering Services.

3.1.3. The Contractor shall follow the System Life Cycle Processes as defined in Subsection 4.2 of the SOW.

3.1.4. The Contractor shall follow the "Incremental Development and Multiple Deliveries Approach" as described in SOW, Subsection 4.3, where each development activity is called "Build Process" which ends with an official product delivery called "Baseline".

3.1.5. Within this Work Package, the Contractor shall perform the system-level requirements analysis and architectural design as a basis for all Build Processes.

3.1.6. The Contractor shall establish the Working Groups as specified in Subsection 4.4 of the SOW.

3.1.7. The Systems Engineering Working Group (SEWG) shall provide the necessary support for the Systems Engineering Services within this Work Package as defined in SOW, Paragraph 4.4.7.

3.2. Work Package Dates

3.2.1. The WP2 PSD shall be on PMR.

3.2.2. The WP2 PED shall be the FSA.

3.3. Activities

3.3.1. System Requirements Analysis

3.3.1.1. The Contractor shall conduct the System Requirements Analysis Process as defined in SOW, Subsection 4.8.

3.3.1.2. Requirements Management Database

3.3.1.2.1. The Contractor shall establish and maintain an effective Requirements Management Database (RMD) throughout the period of performance of this Work Package.

3.3.1.2.2. A copy of the Purchaser's Preliminary System Requirements will be handed over to the Contractor during the TRITON Project Kick-Off Meeting. The Contractor shall take over the requirements that the Purchaser RMD contains and maintain it throughout the Contract.

3.3.1.3. System Requirements Specification

3.3.1.3.1. The Contractor shall prepare the System Requirements Specification (SyRS) as described in SOW, Paragraph 4.8.3.

3.3.1.3.2. The Contractor shall conduct Reliability Engineering and document the results in the SyRS.

3.3.1.4. User Interface Specification

3.3.1.4.1. The Contractor shall prepare User Interface Specification (UIS) as described in SOW, Paragraph 4.8.4, deliver a draft at PDR, a preliminary version at CDR, and update it during the Build Processes.

3.3.1.4.2. The Contractor shall develop and provide a mock-up or low fidelity prototype of the major user interface features and include the user interface concept in the UIS.

3.3.1.5. Security Risk Assessment and Requirements Analysis

3.3.1.5.1. The Contractor shall conduct a Security Risk Assessment (SRA) as defined in SOW, Paragraph 4.8.5.

3.3.1.6. System-Specific Security Requirement Statement

3.3.1.6.1. The Contractor shall prepare System-specific Security Requirement Statement (SSRS), Community Security Requirement Statement (CSRS) and System Interconnection Security Requirement Statement (SISRS) as defined in SOW, Paragraph 4.8.6.

3.3.1.7. System Requirements Review

3.3.1.7.1. The Contractor shall plan and execute System Requirements Review (SRR) (see 3.4.1).

3.3.2. System Architectural Design

3.3.2.1. Within this Work Package, the Contractor shall conduct the System Architectural Design activities as defined in SOW, Subsection 4.9.

3.3.2.2. System Design Specification

3.3.2.2.1. The Contractor shall prepare the System Design Specification (SDS) as defined in SOW, Paragraph 4.9.2.

3.3.2.2.2. The SDS shall include a System Security Design Specification (SSDS) as an Annex.

3.3.2.2.3. As an appendix to the SDS, the Contractor shall provide a Requirements Traceability Matrix (RTM) and maintain it.

3.3.2.2.4. The Contractor shall develop and maintain TRITON Architecture Models as defined in SOW Paragraph 4.9.2.11.

3.3.2.3. Interface Control Description

3.3.2.3.1. The Contractor shall prepare TRITON Interface Control Description (ICD), describing all external TRITON interfaces. The Version 1 of the ICD shall be provided at the CDR, and then other versions shall be delivered at each SwDR of each Build Process.

3.3.2.4. System Design Reviews

3.3.2.4.1. The Contractor shall plan and execute Preliminary Design Review (PDR) and Critical Design Review (CDR) (see 3.4.2 and 3.4.3).

3.3.3. Implementation

3.3.3.1. The Contractor shall continue to perform Systems Engineering activities during the implementation of software and hardware within the Build Processes.

3.3.3.2. The Contractor shall execute a sequence of software requirements analysis, design, construction, integration, testing and deployment activities (as defined in SOW, Paragraph 4.10.2) in each Build Process to deliver a Baseline with a software version.

3.3.3.3. The Contractor shall execute a sequence of hardware requirements analysis, design, production and testing activities (as defined in SOW, Paragraph 4.10.3) to produce and deliver TRITON Deployable Kits.

3.3.3.4. The Build Processes and their objectives are given below:

- Build Process 1 will deliver BL1 TRITON-NS (Partial) as the Pilot System.
- Build Process 2 will deliver TRITON-NU (Full) for operational use.
- Build Process 3 will deliver TRITON-NS (Full) for operational use.
- Build Process 4 will deliver TRITON-ACP (Full) for operational use.
- C4ISR Visualisation Component development for TRITON and other use.

3.3.3.5. Each Build Process is expected to follow the standard Waterfall Development life cycle enabling updates to previous Baselines. A notional overview of Build Process Realisation Plan is given in Figure 4.

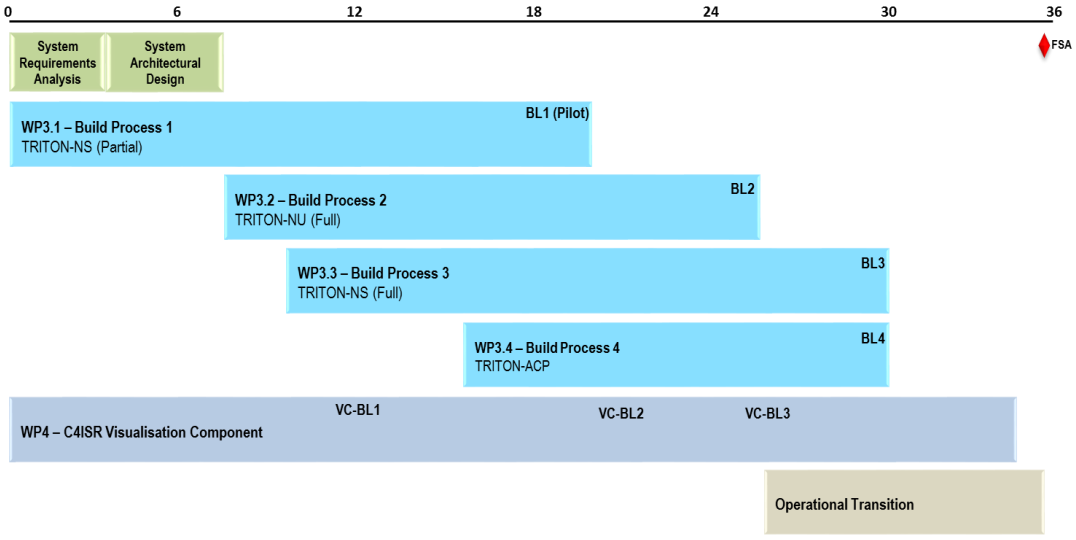


Figure 4 – Build Process Realisation Plan (Notional)

3.3.4. System Maintenance

3.3.4.1. The Contractor shall continue to provide Systems Engineering activities during the System Maintenance Process in order to coordinate maintenance activities according to the evolving requirements due to changing environment (e.g. interfaces, data formats, updates to used standards) and result of findings detected during OT&E.

3.3.5. System Validation

3.3.5.1. The Contractor shall prepare the System Validation Plan (SVP), as an Annex to TMP, as defined in SOW, Paragraph 4.13.3.

3.3.5.2. The Contractor shall prepare the initial version of the System Validation Test Procedure (SVT-P) as defined in SOW, Paragraph 4.13.4, submit it at CDR, and update it as necessary at PSA.

3.3.5.3. The Contractor shall plan ~~and execute~~ the System Validation Test (SVT), execute as defined in WP7 (Paragraph 11.3.4), and conduct the System Validation R~~r~~eview using the System Validation Test Report.

3.4. Reviews

3.4.1. System Requirements Review

3.4.1.1. The Contractor shall conduct System Requirements Review (SRR) as defined in SOW, Paragraph 4.8.8 and provide the report.

3.4.2. Preliminary Design Review

3.4.2.1. The Contractor shall conduct Preliminary Design Review (PDR) as defined in SOW, Paragraph 4.9.3 and provide the report.

3.4.3. Critical Design Review

3.4.3.1. The Contractor shall conduct Critical Design Review (SRR) as defined in SOW, Paragraph 4.8.4 and provide the report.

3.4.4. Joint Technical Reviews

3.4.4.1. The Contractor shall plan and conduct Joint Technical Reviews (JTR) as described in SOW, Subsection 4.5 and provide the JTR Reports.

3.4.5. System Validation Review

3.4.5.1. The Contractor shall plan and conduct System Validation Review (SVR) as described in SOW, Paragraph 4.~~13~~14.~~7~~6 and provide SVR Report.

3.5. Milestones

3.5.1. The Milestones for this Work Package are given below:

Milestone	Description	Date (MAC)
SRR	System Requirements Review	4
PDR	Preliminary Design Review	6
CDR	Critical Design Review	8
SVR	System Validation Review	Before 35

3.6. Deliverables

3.6.1. Work Package Deliverables are given below:

- Requirements Management Database (RMD)
- System Requirements Specification (SyRS)

- User Interface Specification (UIS) (draft)
- Security Risk Assessment Report (SRA-R)
- System-Specific Security Requirements Statement (SSRS)-Draft
- Community Security Requirements Statement (CSRS)-Draft
- System Interconnection Security Requirements Statements (SISRS)-Draft
- Preliminary Software Architectural Design (SAD)
- Preliminary Database Design Description (DDD) (draft)
- System Design Specification (SDS)
  - Requirements Traceability Matrix (RTM)
  - System Security Design Specification (SSDS)
  - Architecture Models
- System Security Design Specification (SSDS)
- Requirements Traceability Matrix (RTM)
- User Interface Mock-Up or Low Fidelity Prototype
- Interface Control Descriptions (ICDs) (external systems)
- TRITON Interface Control Description (ICD) (v1)
- System Validation Plan (SVP)
- System Validation Test Procedure (SVT-P)
- System Requirements Review Report (SRR-R)
- Preliminary Design Review Report (PDR-R)
- Critical Design Review Report (CDR-R)
- System Validation Review Report (SVR-R)
- Joint Technical Review Reports (JTR-R)
- Systems Engineering Working Group (SEWG) Minutes of Meeting

4. WORK PACKAGE 3.1: BUILD PROCESS 1 – TRITON-NS (PARTIAL)

4.1. General

4.1.1. Build Process 1 shall aim to develop and deliver TRITON-NS (Partial) on the NS Domain with the requirements given in the SyRS as BL1. This delivery shall include TRITON-NS Infrastructure Software and Operational Software.

4.1.2. BL1 delivery shall be a "Pilot System" which can be used for user evaluation purposes at the operational site. A notional capability for the Pilot System is depicted in Figure 5. The actual requirements allocation will be performed during the System Requirements Analysis.

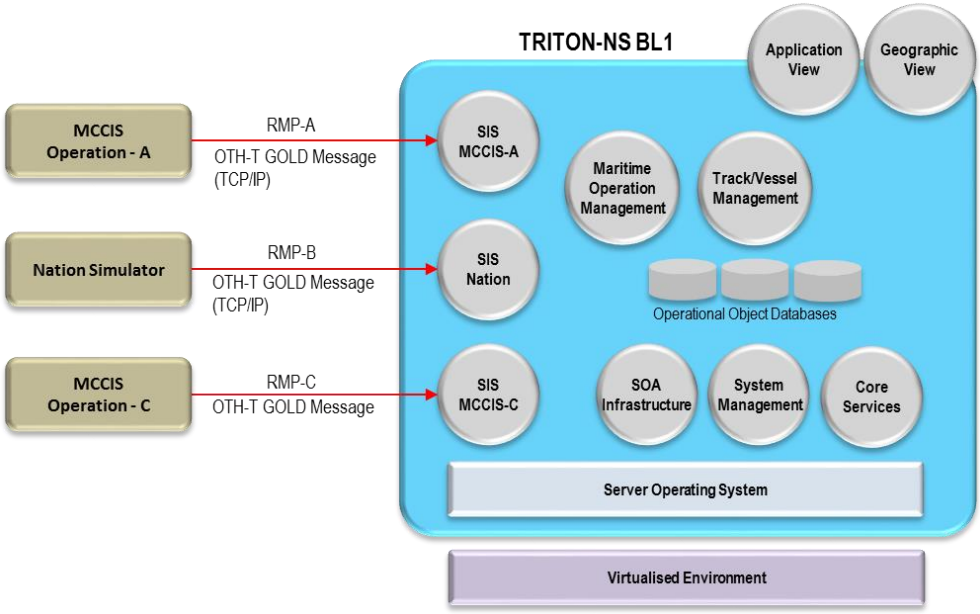


Figure 5 – TRITON-NS (Partial) Capability

4.2. Work Package Dates

4.2.1. The WP3.1 PSD shall be PMR.

4.2.2. The WP3.1 PED shall be the end of installation activities and successful completion of SiAT-1 followed by SiAR.

4.3. Activities

4.3.1. General

4.3.1.1. The Contractor shall conduct the software implementation activities as described in SOW, Paragraph 4.10.2 to implement the TRITON Operational Software Baseline 1 (BL1).

4.3.1.2. The Contractor shall establish Software Development Environment as defined in SOW, Paragraph 4.10.2.2.

4.3.1.3. The Contractor may start developing software which can be considered as independent of the system-level requirements analysis and architectural design. This software may include code libraries, system support libraries, automated test framework, formatted message parsers, database management tools, visualisation capabilities and other initial development activities which can be altered according to design decisions.

4.3.1.4. The Contractor shall build the software infrastructure and integrate it with the NATO Core Services on the NS Domain.

4.3.1.5. The Contractor shall include implementation of the non-functional requirements specified in the SyRS allocated to this Baseline.

4.3.1.6. The Implementation Working Group (IWG) shall provide the necessary technical support.

4.3.1.7. The Verification and Validation Group (VVWG) shall provide support for test events.

4.3.1.8. The SEWG shall provide governance for the system-level design decisions.

4.3.2. Software Requirements Analysis

4.3.2.1. The Contractor shall perform the software requirements analysis as defined in SOW, Paragraph 4.10.2.4.

4.3.2.2. The Contractor shall produce and maintain the Software Requirements Specification (SRS), covering only those requirements allocated to this Baseline.

4.3.2.3. The Contractor shall prepare an initial version of the User Interface Specification (UIS).

4.3.2.4. The Contractor shall prepare preliminary FAT, SIT, SSMAT and UAT Test Procedures.

4.3.3. Software Architectural and Detailed Design

4.3.3.1. The Contractor shall perform the software architectural design as defined in SOW, Paragraph 4.10.2.5.

4.3.3.2. The Contractor shall produce and maintain the Software Architecture Description (SAD).

4.3.3.3. The Contractor shall design the databases and prepare a Database Design Description (DDD) as an annex to the SAD.

4.3.3.4. The Contractor shall document the detailed design in Software Design Description (SDD).

4.3.3.5. The Contractor shall design the GUI for each software item before the construction and update the UIS during the construction.

4.3.3.6. The Contractor shall prepare TRITON Interface Control Description (ICD) (v2), describing all external TRITON interfaces.

4.3.4. Software Construction

4.3.4.1. The Contractor shall perform the software construction activities as described in SOW, Paragraph 4.10.2.7 and deliver the software.

4.3.5. Concept Demonstration System

4.3.5.1. The objective of the Concept Demonstration System (CDS) is to demonstrate the technology chosen by the Contractor to the Purchaser with basic capabilities. A sample CDS configuration is given in Figure 6.

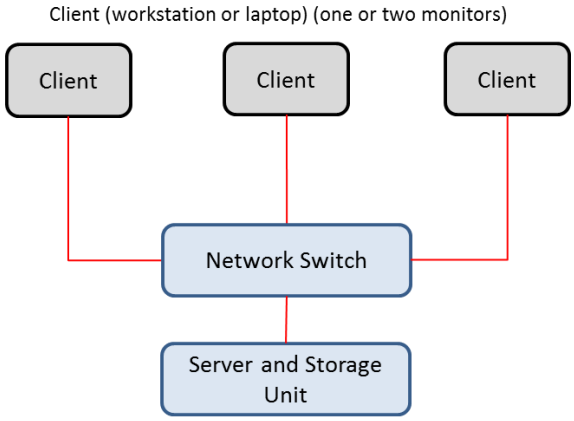


Figure 6 – Concept Demonstration System (CDS)

4.3.5.2. The CDS shall demonstrate at least the following:

- The selected technology for the infrastructure
- Running on virtualised environment
- Web-based applications running on the server
- At least three (3) concurrent users
- Database management functions
- Formatted Message parser mechanisms (for at least one message for ADatP-3 and at least one message for OTH-T GOLD)
- System Interface Service Framework
- Display symbology for Operational Objects.

4.3.5.3. The Contractor shall build the CDS, install it on the TRITON Test System at the PMIC facilities of the Purchaser and activate it.

4.3.5.4. The Contractor may update the CDS during Software Construction.

4.3.6. Software Integration and Testing

4.3.6.1. The Contractor shall produce Software Test Description (STD) for each software item in order to perform unit testing as described in SOW, Paragraph 4.10.2.7.

4.3.6.2. The Contractor shall perform the software integration and testing activities as described in SOW, Paragraph 4.10.2.8 and provide the Test Procedures and Guides for the testing activities at TRR-1.

4.3.6.3. The Contractor shall perform software qualification testing activities as described in SOW, Paragraph 4.10.2.9.

4.3.6.4. The Contractor shall perform software verification activities as described in SOW, Paragraph 4.10.2.10.

4.3.6.5. The Contractor shall perform Internal System Test (IST) and deliver Internal System Test Report (IST-R).

4.3.6.6. The Contractor shall conduct Source Code Review (SCR) and deliver Source Code Review Report (SCR-R).

4.3.6.7. The Contractor shall execute Security Test and Evaluation (ST&E) as described in SOW, Paragraph 4.12.12.2 and provide ST&E Report.

4.3.7. Software Version Description

4.3.7.1. The Contractor shall produce the Software Version Description (SVD) for this Baseline as defined in SOW, Paragraph 4.10.2.11.

4.3.7.2. The final SVD shall be submitted at IPC.

4.3.8. System Integration

4.3.8.1. The Contractor shall perform System Integration Activity as defined in SOW, Paragraph 4.11.2 in order to get prepared for the System Integration Test.

4.3.8.2. The Contractor shall provide support to the Purchaser to establish TRITON Interoperability Test Centre (TITC) at PMIC Facilities for testing Nation Interfaces on the NS Domain. The Contractor shall configure the TRITON Test System – NS for individual tests and develop the necessary test harnesses with test procedures. The Contractor shall support the Purchaser for performing tests with Nations.

4.3.9. System Verification and Validation

4.3.9.1. The Contractor shall perform software verification and validation as part of System Verification Process as defined in SOW, Subsection 4.12, and provide the documents and reports.

4.3.9.2. The Contractor shall plan and execute the following tests:

- Factory Acceptance Test (FAT)
- System Integration Test (SIT)
- System Supportability and Maintenance Acceptance Test (SSMAT)
- User Assessment Test (UAT)
- Regression Test (RegT)
- IV&V Testing (IV&V)

4.3.9.3. The Contractor shall provide reports after each test.

4.3.9.4. The Contractor shall implement a Change Process to correct any software defects detected during the tests.

4.4. Reviews

4.4.1. Software Requirements Review

4.4.1.1. The Contractor shall plan and conduct Software Requirements Review (SwRR-1), and provide the SwRR Report.

4.4.2. Software Design Review

4.4.2.1. The Contractor shall plan and conduct Software Design Review (SwDR-1), and provide the SwDR Report.

4.4.3. User Assessment Reviews

4.4.3.1. The Contractor shall support at least two (2) User Assessment Reviews (UAR) as defined in SOW, Paragraph 3.16.5.

4.4.4. Test Readiness Review

4.4.4.1. The Contractor shall plan and conduct Test Readiness Review (TRR-1) before the FAT, and provide the TRR Report.

4.4.4.2. The Contractor shall demonstrate the use of Test Management Tool with actual data.

4.4.5. IV&V Planning Conferences

4.4.5.1. The Contractor shall support the Purchaser for Initial Planning Conference (IPC) and Final Planning Conference (FPC) prior to the IV&V Testing.

4.4.5.2. IV&V CCB will participate in the IPC and FPC.

4.4.6. System Verification Review

4.4.6.1. The Contractor shall plan and conduct System Verification Review (SVerR-1) after the IV&V testing, and provide the SVerR Report.

4.5. Milestones

4.5.1. The Milestones for this Work Package are given below:

Milestone	Description	Date (MAC)
SwRR-1	Software Requirements Review – BL1	5
SwDR-1	Software Design Review – BL1	8
CDS	Demonstration with CDS	12
UAR-1.1	User Assessment Review	13
UAR-1.2	User Assessment Review	14
IST-1	Internal System Test	15
TRR-1	Test Readiness Review – BL1	16
FAT-1	Factory Acceptance Test – BL1	16
SIT-1	System Integration Test – BL1	17
SSMAT-1	System Supportability and Maintenance Acceptance Test – BL1	17
UAT-1	User Assessment Test – BL1	17
RegT	Regression Tests – BL1	18
IV&V-1	IV&V Testing – BL1	18
SVerR-1	System Verification Review – BL1	20
UAR	User Assessment Review (as a UAT)	20
Close-out	WP Close-out	20

4.6. Deliverables

4.6.1. Work Package Deliverables are given below:

- Software Requirements Specification (SRS) (v1)
- User Interface Specification (UIS) (v1)
- Software Architecture Description (SAD) (v1)
- Database Design Description (DDD) (v1)
- Software Design Description (SDD) (CI-level set, for information)
- Software Test Description (STD) (CI-level set, for information)
- TRITON Interface Control Description (ICD) (v2)
- Software Version Description (SVD) (BL1)
- Concept Demonstration System (CDS)
- Test Management Tool (with actual data)
- Internal System Test Report (IST-R) (unit tests, system tests, regression tests)
- Source Code Review Report (SCR-R)
- Security Test and Evaluation Report (ST&E-R)
- Factory Acceptance Test Report (FAT-R)
- Security Operating Procedures (SecOps)
- Security Implementation Verification Procedures (SIVP)
- System Integration Test Report (SIT-R)
- Software Installation Guide (SIG)
- System Support and Maintenance Acceptance Test Report (SSMAT-R)
- User Assessment Test Report (UAT-R)
- Regression Test Reports (RegT-R)
- Support to IV&V Testing (until pass)
- Software Version Description (SVD) (BL1)
- TRITON-NS Operational Software - BL1 (in AFPL)
- Software Requirements Review Report (SwRR-R)
- Software Design Review Report (SwDR-R)
- Configuration Audit Report (CAuR)
- Test Readiness Review Report (TRR-R)
- System Verification Review Report (SVerR-R)
- Working Group (WG) Meetings - Minutes

5. WORK PACKAGE 3.2: BUILD PROCESS 2 – TRITON-NU (FULL)

5.1. General

5.1.1. Build Process 2 shall aim to develop and deliver the full TRITON Operational Software on the NU Domain with the requirements given in the SyRS as BL2. This delivery shall include TRITON-NU Infrastructure Software and Operational Software.

5.2. Work Package Dates

5.2.1. The WP3.2 PSD shall be determined at CP3.

5.2.2. The WP3.2 PED shall be OTRR-2 (after the successful completion of SiAT-2).

5.3. Activities

5.3.1. General

5.3.1.1. The Contractor shall conduct the software implementation activities as described in SOW, Paragraph 4.10.2 to implement the TRITON Operational Software Baseline 2.

5.3.1.2. The Contractor shall build the software infrastructure and integrate it with the NATO Core Services on the NU Domain.

5.3.1.3. If the NATO Core GIS is not available on the NU Domain, the Contractor shall provide an Interim Local Geospatial Service having, as a minimum, map handling capability with an interface compliant with the Service Interface Profile that NATO Core GIS provides. The capability shall be described in the proposal and finalised at the CDR. This service can be used on TDKs if NATO Core GIS is not available.

5.3.1.4. The Contractor shall include implementation of the non-functional requirements specified in the SyRS for this Baseline.

5.3.1.5. The IWG shall provide the necessary technical support.

5.3.1.6. The VVWG shall provide support for test events.

5.3.1.7. The SEWG shall provide governance for the system-level design decisions.

5.3.2. Software Requirements Analysis

5.3.2.1. The Contractor shall perform the software requirements analysis as defined in SOW, Paragraph 4.10.2.4.

5.3.2.2. The Contractor shall update the SRS, covering the requirements allocated to this Baseline.

5.3.2.3. The Contractor shall update the User Interface Specification (UIS).

5.3.3. Software Architecture Design

5.3.3.1. The Contractor shall perform the software architectural design as defined in SOW, Paragraph 4.10.2.5.

5.3.3.2. The Contractor shall update the SAD.

5.3.3.3. The Contractor shall update the DDD as the annex to the SAD.

5.3.3.4. The Contractor shall update the SDD.

5.3.3.5. The Contractor shall design the GUI for each software item before the construction and update the UIS during the construction.

5.3.3.6. The Contractor shall prepare TRITON Interface Control Description (ICD) (v3), describing all external TRITON interfaces.

5.3.4. Software Construction

5.3.4.1. The Contractor shall perform the software construction activities as described in SOW, Paragraph 4.10.2.7.

5.3.5. Software Integration and Testing

5.3.5.1. The Contractor shall produce Software Test Description (STD) for each software item in order to perform unit testing as described in SOW, Paragraph 4.10.2.7.

5.3.5.2. The Contractor shall perform the software integration and testing activities as described in SOW, Paragraph 4.10.2.8 and provide the Test Procedures and Guides for the testing activities at TRR-2.

5.3.5.3. The Contractor shall perform software qualification testing activities as described in SOW, Paragraph 4.10.2.9.

5.3.5.4. The Contractor shall perform software verification activities as described in SOW, Paragraph 4.10.2.10.

5.3.5.5. The Contractor shall perform Internal System Test (IST) and deliver Internal System Test Report (IST-R).

5.3.5.6. The Contractor shall conduct Source Code Review (SCR) and deliver Source Code Review Report (SCR-R).

5.3.5.7. The Contractor shall execute Security Test and Evaluation (ST&E) as described in SOW, Paragraph 4.12.12.2 and provide ST&E Report.

5.3.6. Software Version Description

5.3.6.1. The Contractor shall produce the Software Version Description (SVD) for this Baseline as defined in SOW, Paragraph 4.10.2.11.

5.3.6.2. The final SVD shall be submitted at IPC.

5.3.7. System Integration

5.3.7.1. The Contractor shall perform System Integration Activity as defined in SOW, Paragraph 4.11.2 in order to get prepared for the System Integration Test.

5.3.7.2. The Contractor shall provide support to the Purchaser to establish TRITON Interoperability Test Centre (TITC) at PMIC Facilities for testing Nation Interfaces on the NU Domain. The Contractor shall configure the TRITON Test System – NU for individual tests and develop the necessary test harnesses with test procedures. The Contractor shall support the Purchaser for performing tests with Nations.

5.3.8. System Verification and Validation

5.3.8.1. The Contractor shall perform software verification and validation as part of System Verification Process as defined in SOW, Subsection 4.12, and provide the documents and reports.

5.3.8.2. The Contractor shall plan and execute the following tests:

- Factory Acceptance Test
- System Integration Test
- System Supportability and Maintenance Acceptance Test
- User Assessment Test
- Regression Test
- IV&V Testing

5.3.8.3. The Contractor shall provide reports after each test.

5.3.8.4. The Contractor shall implement a Change Process to correct any software defects detected during the tests.

5.4. Reviews

5.4.1. Software Requirements Review

5.4.1.1. The Contractor shall plan and conduct Software Requirements Review (SwRR-2), and provide the SwRR Report.

5.4.2. Software Design Review

5.4.2.1. The Contractor shall plan and conduct Software Design Review (SwDR-2), and provide the SwDR Report.

5.4.3. User Assessment Reviews

5.4.3.1. The Contractor shall support at least two (2) User Assessment Reviews (UAR) as defined in SOW, Paragraph 3.16.5.

5.4.4. Test Readiness Review

5.4.4.1. The Contractor shall plan and conduct Test Readiness Review (TRR-2) before FAT, and provide the TRR Report.

5.4.5. IV&V Planning Conferences

5.4.5.1. The Contractor shall support the Purchaser for Initial Planning Conference (IPC) and Final Planning Conference (FPC) prior to the IV&V Testing.

5.4.5.2. IV&V CCB will participate in the IPC and FPC.

5.4.6. System Verification Review

5.4.6.1. The Contractor shall plan and conduct System Verification Review (SVerR-2) after the IV&V testing, and provide the SVerR Report.

5.4.7. Operational Test Readiness Review

5.4.7.1. The Contractor shall plan and conduct Operational Test Readiness Review (OTRR), as defined in SOW, Paragraph 4.13.9, as the last activity of the Build Process to set the system to operation for BL2, and provide the OTRR Report.

5.5. Milestones

5.5.1. The Milestones for this Work Package are given below:

Milestone	Description	Date (MAC)
SwRR-2	Software Requirements Review – BL2	10
SwDR-2	Software Design Review – BL2	12
UAR-2.1	User Assessment Review	16
UAR-2.2	User Assessment Review	20
IST-2	Internal System Test	21
TRR-2	Test Readiness Review – BL2	22
FAT-2	Factory Acceptance Test – BL2	22
SIT-2	System Integration Test – BL2	23
SSMAT-2	System Supportability and Maintenance Acceptance Test – BL2	24
UAT-2	User Assessment Test – BL2	24
RegT	Regression Tests – BL2	25
IV&V-2	IV&V Testing – BL2	25
SVerR	System Verification Review – BL2	26
OTRR-2	Operational Test Readiness Review – BL2	26
Close-out	WP Close-out	26

5.6. Deliverables

5.6.1. Work Package Deliverables are given below:

- Software Requirements Specification (SRS) (v2)
- User Interface Specification (UIS) (v2)
- Software Architecture Description (SAD) (v2)
- Database Design Description (DDD) (v2)
- Software Design Description (SDD) (CI-level set, for information)
- TRITON Interface Control Description (ICD) (v3)
- Software Test Description (STD) (CI-level set, for information)
- Internal System Test Report (IST-R) (unit tests, system tests, regression tests)
- Source Code Review Report (SCR-R)
- Security Test and Evaluation Report (ST&E-R)
- Factory Acceptance Test Report (FAT-R)
- Security Operating Procedures (SecOps)
- Security Implementation Verification Procedures (SIVP)
- System Integration Test Report (SIT-R)
- System Support and Maintenance Acceptance Test Report (SSMAT-R)
- User Assessment Test Report (UAT-R)
- Regression Test Reports (RegT-R)

- Support to IV&V Testing
- Software Test Description (STD) (CI-level set, for information)
- Software Version Description (SVD) (BL2)
- TRITON-NU Operational Software - BL2 (in AFPL)
- Software Requirements Review Report (SwRR-R)
- Software Design Review Report (SwDR-R)
- Configuration Audit Report (CAuR)
- Test Readiness Review Report (TRR-R)
- System Verification Review Report (SVerR-R)
- Operational Test Readiness Review Report (OTRR-R)
- Implementation Working Group (IWG) Meetings - Minutes

6. WORK PACKAGE 3.3: BUILD PROCESS 3 – TRITON-NS (FULL)

6.1. General

6.1.1. Build Process 3 shall aim to complete the TRITON Operational Software and deliver the full capability on the NS Domain with the requirements given in the SyRS as BL3. This delivery shall include TRITON-NS Operational Software.

6.2. Work Package Dates

6.2.1. The WP3.3 PSD shall be determined at CP4.

6.2.2. The WP3.3 PSD shall be the activation date determined by the Purchaser after SwRR-2.

6.2.3. The WP3.3 PED shall be OTRR-3 (after the successful completion of SiAT-3).

6.3. Activities

6.3.1. General

6.3.1.1. The Contractor shall conduct the software implementation activities as described in SOW, Paragraph 4.10.2 to implement the TRITON Operational Software Baseline 3.

6.3.1.2. The Contractor shall include implementation of the non-functional requirements specified in the SyRS for this Baseline.

6.3.1.3. The IWG shall provide the necessary technical support.

6.3.1.4. The VVWG shall provide support for test events.

6.3.1.5. The SEWG shall provide governance for the system-level design decisions.

6.3.2. Software Requirements Analysis

6.3.2.1. The Contractor shall perform the software requirements analysis as defined in SOW, Paragraph 4.10.2.4.

6.3.2.2. The Contractor shall update the SRS, covering the requirements allocated to this Baseline.

6.3.2.3. The Contractor shall update the UIS.

6.3.3. Software Architecture Design

6.3.3.1. The Contractor shall perform the software architectural design as defined in SOW, Paragraph 4.10.2.5.

6.3.3.2. The Contractor shall update the SAD.

6.3.3.3. The Contractor shall update the DDD as the annex to the SAD.

6.3.3.4. The Contractor shall update the SDD.

6.3.3.5. The Contractor shall design the GUI for each software item before the construction and update the UIS during the construction.

6.3.3.6. The Contractor shall prepare TRITON Interface Control Description (ICD) (v4), describing all external TRITON interfaces.

6.3.4. Software Construction

6.3.4.1. The Contractor shall perform the software construction activities as described in SOW, Paragraph 4.10.2.7.

6.3.5. Software Integration and Testing

6.3.5.1. The Contractor shall produce Software Test Description (STD) for each software item in order to perform unit testing as described in SOW, Paragraph 4.10.2.7.

6.3.5.2. The Contractor shall perform the software integration and testing activities as described in SOW, Paragraph 4.10.2.8 and provide the Test Procedures and Guides for the testing activities at TRR-3.

6.3.5.3. The Contractor shall perform software qualification testing activities as described in SOW, Paragraph 4.10.2.9.

6.3.5.4. The Contractor shall perform software verification activities as described in SOW, Paragraph 4.10.2.10.

6.3.5.5. The Contractor shall perform Internal System Test (IST) and deliver Internal System Test Report (IST-R).

6.3.5.6. The Contractor shall conduct Source Code Review (SCR) and deliver Source Code Review Report (SCR-R).

6.3.5.7. The Contractor shall execute Security Test and Evaluation (ST&E) as described in SOW, Paragraph 4.12.12.2 and provide ST&E Report.

6.3.6. Software Version Description

6.3.6.1. The Contractor shall produce the Software Version Description (SVD) for this Baseline as defined in SOW, Paragraph 4.10.2.11.

6.3.7. System Integration

6.3.7.1. The Contractor shall perform System Integration Activity as defined in SOW, Paragraph 4.11.2 in order to get prepared for the System Integration Test.

6.3.7.2. The Contractor shall provide support to the Purchaser to establish TRITON Interoperability Test Centre (TITC) at PMIC Facilities for testing Nation Interfaces on the NS Domain. The Contractor shall configure the TRITON Test System – NS for individual tests and develop the necessary test harnesses with test procedures. The Contractor shall support the Purchaser for performing tests with Nations.

6.3.8. System Verification and Validation

6.3.8.1. The Contractor shall perform software verification and validation as part of System Verification Process as defined in SOW, Subsection 4.12, and provide the documents and reports.

6.3.8.2. The Contractor shall plan and execute the following tests:

- Factory Acceptance Test
- System Integration Test

- System Supportability and Maintenance Acceptance Test
- User Assessment Test
- Regression Test
- IV&V Testing

6.3.8.3. The Contractor shall provide reports after each test.

6.3.8.4. The Contractor shall implement a Change Process to correct any software defects detected during the tests.

6.4. Reviews

6.4.1. Software Requirements Review

6.4.1.1. The Contractor shall plan and conduct Software Requirements Review (SwRR-3), and provide the SwRR report.

6.4.2. Software Design Review

6.4.2.1. The Contractor shall plan and conduct Software Design Review (SwDR-3), and provide the SwDR Report.

6.4.3. User Assessment Reviews

6.4.3.1. The Contractor shall support at least two (2) User Assessment Reviews (UAR) as defined in SOW, Paragraph 3.16.5.

6.4.4. Test Readiness Review

6.4.4.1. The Contractor shall plan and conduct Test Readiness Review (TRR-3) before FAT, and provide the TRR Report.

6.4.5. IV&V Planning Conferences

6.4.5.1. The Contractor shall support the Purchaser for Initial Planning Conference (IPC) and Final Planning Conference (FPC) prior to the IV&V Testing.

6.4.5.2. IV&V CCB will participate in the IPC and FPC.

6.4.6. System Verification Review

6.4.6.1. The Contractor shall plan and conduct System Verification Review (SVerR-3) after the IV&V testing, and provide the SVerR Report.

6.4.7. Operational Test Readiness Review

6.4.7.1. The Contractor shall plan and conduct Operational Test Readiness Review (OTRR) as the last activity of the Build Process to set the system to operation for BL3, and provide the OTRR Report.

6.5. Milestones

6.5.1. The Milestones for this Work Package are given below:

Milestone	Description	Date (MAC)
SwRR-3	Software Requirements Review – BL3	10
SwDR-3	Software Design Review – BL3	14

UAR-3.1	User Assessment Review	18
UAR-3.2	User Assessment Review	22
IST-3	Internal System Tests	25
TRR-3	Test Readiness Review – BL3	26
FAT-3	Factory Acceptance Test – BL3	26
SIT-3	System Integration Test – BL3	27
SSMAT-3	System Supportability and Maintenance Acceptance Test – BL3	28
UAT-2	User Assessment Test – BL2	28
RegT	Regression Test	28
IV&V-3	IV&V Testing – BL3	29
SVerR-3	System Verification Review – BL3	30
OTRR-3	Operational Test Readiness Review – BL3	30
Close-out	WP Close-out	30

6.6. Deliverables

6.6.1. Work Package Deliverables are given below:

- Software Requirements Specification (SRS) (v3)
- User Interface Specification (UIS) (v3)
- Software Architecture Description (SAD) (v3)
- Database Design Description (DDD) (v3)
- Software Design Description (SDD) (CI-level set, for information)
- TRITON Interface Control Description (ICD) (v4)
- Software Test Description (STD) (CI-level set, for information)
- Internal System Test Report (IST-R) (unit tests, system tests, regression tests)
- Source Code Review Report (SCR-R)
- Security Test and Evaluation Report (ST&E-R)
- Factory Acceptance Test Report (FAT-R)
- Security Operating Procedures (SecOps)
- Security Implementation Verification Procedures (SIVP)
- System Integration Test Report (SIT-R)
- System Support and Maintenance Acceptance Test Report (SSMAT-R)
- User Assessment Test Report (UAT-R)
- Regression Test Reports (RegT-R)
- Support to IV&V Testing
- Software Version Description (SVD) (BL3)
- TRITON-NS Operational Software - BL3 (in AFPL)
- Software Requirements Review Report (SwRR-R)
- Software Design Review (SwDR-3)
- Configuration Audit Report (CAuR)

- Test Readiness Review Report (TRR-R)
- System Verification Review Report (SVerR-R)
- Operational Test Readiness Review Report (OTRR-R)
- Implementation Working Group (IWG) Meeting - Minutes

7. WORK PACKAGE 3.4: BUILD PROCESS 4 – TRITON-ACP CAPABILITY

7.1. General

7.1.1. Build Process 4 shall aim to provide TRITON ACP Capability with the TRITON Deployable Kits for both NS and NU Domains with the requirements given in the SyRS as BL4. This delivery shall include:

- TRITON-NS Infrastructure and Operational Software.
- TRITON-NU Infrastructure and Operational Software.
- Interim Local Geospatial Service

7.2. Work Package Dates

7.2.1. The WP3.4 PSD shall be proposed by the Contractor and approved by The Purchaser during a PCR. The initial planning will be CP7.

7.2.2. The WP3.4 PED shall be OTRR-4 after the successful completion of Sea Acceptance Test (SeAT).

7.3. Activities

7.3.1. General

7.3.1.1. The Contractor shall conduct the hardware implementation activities as described in SOW, Paragraph 4.10.3 to implement the TRITON Deployable Kits (TDK).

7.3.1.2. The Contractor shall also conduct the software implementation activities as described in SOW, Paragraph 4.10.2 to implement the TRITON Operational Software Baseline 4 to be used in TDKs.

7.3.1.3. The Contractor shall include implementation of the non-functional software requirements specified in the SyRS for this Baseline.

7.3.1.4. If the NATO Core GIS is not available for TDKs, the Contractor shall provide an Interim Local Geospatial Service having, as a minimum, map handling capability with an interface compliant with the Service Interface Profile that NATO Core GIS provides. The capability shall be described in the proposal and its specification shall be finalised at the SRR. If NATO Core GIS is not available on the NU Domain, the Interim Service to be developed for TDKs can also be used for Baseline 2 on the NU Domain.

7.3.1.5. The IWG shall provide the necessary technical support.

7.3.1.6. The VVWG shall provide support for test events.

7.3.1.7. The SEWG shall provide governance for the system-level design decisions.

7.3.2. Software Requirements Analysis

7.3.2.1. The Contractor shall perform the software requirements analysis as defined in SOW, Paragraph 4.10.2.4.

7.3.2.2. The Contractor shall update the SRS, covering the requirements allocated to this Baseline.

7.3.2.3. The Contractor shall update the UIS.

7.3.2.4. The Contractor shall determine the COTS software to be used in TDK servers and clients according to the specifications given in the SRS, and provide them with the necessary licenses upon the Purchaser's approval.

7.3.2.5. The Purchaser will provide MS Office applications for TDK Client Laptops and Workstations.

7.3.3. Hardware Requirements Analysis

7.3.3.1. The Contractor shall perform the Hardware Requirements Analysis Process as defined in SOW, Paragraph 4.10.3.2.

7.3.3.2. The Contractor shall prepare Hardware Requirements Specification (HRS).

7.3.4. Software Architectural and Detailed Design

7.3.4.1. The Contractor shall perform the software architectural and detailed design as defined in SOW, Paragraph 4.10.2.5 and 4.10.2.5.6.

7.3.4.2. The Contractor shall update the SAD.

7.3.4.3. The Contractor shall update the DDD as the annex to the SAD.

7.3.4.4. The Contractor shall update the SDD.

7.3.4.5. The Contractor shall design the GUI for each software item before the construction and update the UIS during the construction.

7.3.4.6. The Contractor shall prepare TRITON Interface Control Description (ICD) (v5), describing all external TRITON interfaces.

7.3.5. Hardware Design

7.3.5.1. The Contractor shall perform the Hardware Design Process as defined in SOW, Paragraph 4.10.3.3.

7.3.5.2. The Contractor shall design the TDKs and prepare the Hardware Design Description (HDD).

7.3.6. Software Construction

7.3.6.1. The Contractor shall perform the software construction activities as described in SOW, Paragraph 4.10.2.7.

7.3.6.2. The Contractor shall develop the following software for ACP:

- TRITON-NS Operational Software for TDK-NS
- TRITON-NU Operational Software for TDK-NU
- Interim Local Geospatial Service.

7.3.7. Hardware Production

7.3.7.1. The Contractor shall produce one (1) TDK as described in SOW, Paragraph 4.10.3.4.

7.3.7.2. The Contractor shall provide the TDK Client Workstations and Client Laptops as defined in the SRS, Paragraph 4.4.1.7.5.

7.3.7.3. The Contractor shall install and activate all servers and clients of the TDK prior to tests.

7.3.8. Software Integration and Testing

7.3.8.1. The Contractor shall produce Software Test Description (STD) for each software item in order to perform unit testing as described in SOW, Paragraph 4.10.2.7.

7.3.8.2. The Contractor shall perform the software integration and testing activities as described in SOW, Paragraph 4.10.2.8 and provide the Test Procedures and Guides for the testing activities at TRR-4.

7.3.8.3. The Contractor shall perform software qualification testing activities as described in SOW, Paragraph 4.10.2.9.

7.3.8.4. The Contractor shall perform software verification activities as described in SOW, Paragraph 4.10.2.10.

7.3.8.5. The Contractor shall perform internal software and hardware tests and deliver Internal System Test Report (IST-R).

7.3.8.6. The Contractor shall deliver Source Code Review Report (SCR-R).

7.3.8.7. The Contractor shall execute Security Test and Evaluation (ST&E) as described in SOW, Paragraph 4.12.12.2 and provide the ST&E Report.

7.3.8.8. The Contractor shall perform infrastructure and operational software installation on one TDK (Server and Clients) as defined in SOW, Paragraph 4.10.3.5.

7.3.9. Software Version Description

7.3.9.1. The Contractor shall produce the Software Version Description (SVD) for this Baseline as defined in SOW, Paragraph 4.10.2.11.

7.3.9.2. The final SVD shall be submitted at IPC.

7.3.10. Hardware Verification

7.3.10.1. The Contractor shall plan and execute the First Article Acceptance Test (FAAT) for the first HDI produced before the serial production as defined in SOW, Paragraph 4.10.3.6 and provide the FAAT Report.

7.3.10.2. FAAT shall include the TDK Clients.

7.3.11. Serial Hardware Production

7.3.11.1. The Contractor shall perform serial hardware production of HDIs according to the authorisation given by the Purchaser as defined in SOW, Paragraph 4.10.3.7.

7.3.12. System Integration

7.3.12.1. The Contractor shall perform System Integration Activity as defined in SOW, Paragraph 4.11.2 in order to get prepared for the System Integration Test.

7.3.12.2. The Contractor shall provide support to the Purchaser to establish TRITON Interoperability Test Centre (TITC) in PMIC Facilities for testing ACP Interfaces on the NS and NU Domains within System Integration Test (SIT) (see SOW, Paragraph 4.11.3).

7.3.13. System Verification and Validation

7.3.13.1. The Contractor shall perform software verification and validation as part of System Verification Process as defined in SOW, Subsection 4.12, and provide the documents and reports.

7.3.13.2. The Contractor shall execute Factory Acceptance Test (FAT) for one HDI including TRITON Operational Software BL4 as defined in SOW, Paragraph 4.10.3.8.2 and provide the FAT Report.

7.3.13.3. The Contractor shall plan and execute the following tests and provide reports:

- System Integration Test
- System Supportability and Maintenance Acceptance Test
- User Assessment Test
- Regression Test

7.3.13.4. The Contractor shall support IV&V Testing for one TDK as defined in SOW, Paragraph 4.12.12.7.26. The TDK shall be tested as a standalone "system".

7.3.13.5. The Contractor shall execute Sea Acceptance Test (SeAT) using one TDK as defined in SOW, Paragraph 4.10.3.8.3 and provide the SeAT Report.

7.3.13.6. After the serial production is completed, the Contractor shall execute a serial of Hardware Factory Acceptance Tests (Hw-FAT) for the remaining seven (7) TDKs with nominal software tests and provide the FAT Reports.

7.3.13.7. The Contractor shall implement a Change Process to correct any software defects detected during the tests.

7.3.14. Delivery

7.3.14.1. The Contractor shall deliver eight (8) TDKs as defined in SOW, Paragraph 4.10.3.9.

7.3.14.2. The location of the delivery will be determined by the Purchaser. It is expected the delivery location will be NCI Agency-The Hague or NCI Agency-Northwood (MARCOM).

7.3.14.3. The delivery date of the TDKs shall be accepted as the starting date of the Warranty Period. The Warranty period for hardware is two (2) years. The Warranty Period for the TRITON Operational Software installed on TDKs shall start at FSA, and shall be valid for one (1) year.

7.4. Reviews

7.4.1. Software and Hardware Requirements Reviews

7.4.1.1. The Contractor shall plan and conduct Software Requirements Review (SwRR-4), and provide SwRR Report.

7.4.1.2. The Contractor shall plan and conduct Hardware Requirements Review (HwRR), and provide HwRR Report.

7.4.2. Software and Hardware Design Reviews

7.4.2.1. The Contractor shall plan and conduct Software Design Review (SwDR-4), and provide SwDR Report.

7.4.2.2. The Contractor shall plan and conduct Hardware Design Review (HwDR), and provide HwDR Report.

7.4.3. User Assessment Review

7.4.3.1. The Contractor shall support at least one (1) User Assessment Review (UAR) as defined in SOW, Paragraph 3.16.5.

7.4.4. Test Readiness Review

7.4.4.1. The Contractor shall plan and conduct Test Readiness Review (TRR-4) before FAAT.

7.4.4.2. The TRR-4 shall include hardware units, their identification (i.e. models, part numbers, and serial numbers) and physical conditions.

7.4.5. IV&V Planning Conferences

7.4.5.1. The Contractor shall support the Purchaser for Initial Planning Conference (IPC) and Final Planning Conference (FPC) prior to the IV&V Testing.

7.4.5.2. IV&V CCB will participate in the IPC and FPC.

7.4.6. Production Readiness Review

7.4.6.1. The Contractor shall plan and conduct Production Readiness Review (PRR), and provide PRR Report.

7.4.7. System Verification Review

7.4.7.1. The Contractor shall plan and conduct System Verification Review (SVerR) after the IV&V Testing, and provide SVerR Report.

7.4.8. Operational Test Readiness Review

7.4.8.1. The Contractor shall plan and conduct Operational Test Readiness Review (OTRR) as the last activity of the Build Process to set the system to operation for BL4, and provide the OTRR Report.

7.5. Milestones

7.5.1. The Milestones for this Work Package are given below:

Milestone	Description	Date (MAC)
SwRR-4	Software Requirements Review – BL4	18
HwRR	Hardware Requirements Review	18
SwDR-4	Software Design Review – BL4	20
HwDR	Hardware Design Review	20
UAR	User Assessment Review	22
Hw-TRR	Hardware Test Readiness Review	23

FAAT	First Article Acceptance Test	24
PRR	Production Readiness Review	24
TRR-4	Test Readiness Review – BL4	26
FAT-4	Factory Acceptance Test (with BL4 software)	26
SSMAT-4	System Supportability and Maintenance Acceptance Test – BL4	27
RegT	Regression Tests	28
IV&V-4	IV&V Testing – BL4	29
SVerR	System Verification Review – BL4 (on one TDK)	29
FATs	Factory Acceptance Tests for other 7 TDKs	28-30
SeAT	Sea Acceptance Test	30
OTRR-4	Operational Test Readiness Review	30
Close-out	WP Close-out	30

7.6. Deliverables

7.6.1. Work Package Deliverables are given below:

- Software Requirements Specification (SRS) (v3)
- User Interface Specification (UIS) (v3)
- Software Architecture Description (SAD) (v3)
- Database Design Description (DDD) (v3)
- Software Design Description (SDD) (CI-level set, for information)
- TRITON Interface Control Description (ICD) (v5)
- Software Test Description (STD) (CI-level set, for information)
- Internal System Test Reports (unit tests, system tests, regression tests)
- Source Code Review Report (SCR-R)
- Security Test and Evaluation Report (ST&E-R)
- First Article Acceptance Test Report (FAAT-R)
- Security Operating Procedures (SecOps)
- Security Implementation Verification Procedures (SIVP)
- System Integration Test Report (SIT)
- TDK Factory Acceptance Test Report (FAT-R)
  - for one TDK
  - for seven TDKs
- Sea Acceptance Test Report (SeAT-R)
- System Support and Maintenance Acceptance Test Report (SSMAT-R)
- Support to IV&V Testing
- Software Version Description (SVD) (BL4)
- Software
  - TRITON-NS Infrastructure and Operational Software - BL4 (in AFPL)
  - TRITON-NU Infrastructure and Operational Software - BL4 (in AFPL)

  - Interim Local Geospatial Service
- Hardware
  - Eight (8) sets of TRITON Deployable Kits (each including one NS and one NU unit)
- Software Requirements Review Report (SwRR-R)
- Hardware Requirements Review Report (HwRR-R)
- Software Design Review Report (SwDR-R)
- Hardware Design Review Report (HwDR-R)
- Configuration Audit Report (CAuR)
- Production Readiness Review Report (PRR-R)
- Test Readiness Review Report (TRR-R)
- System Verification Review Report (SVerR-R)
- Operational Test Readiness Review Report (OTRR-R)
- Implementation Working Group (IWG) Meeting Reports

8. WORK PACKAGE 4: VISUALISATION COMPONENT PROVISION

8.1. General

8.1.1. The C4ISR Visualisation Component (VC) shall be implemented within this Work Package.

8.1.2. The Contractor shall include implementation of the non-functional requirements specified in the SyRS for the initial Baseline of the VC.

8.2. Work Package Dates

8.2.1. The WP4 PSD shall be PMR.

8.2.2. The WP4 PED shall be the successful completion of Component Acceptance Test (CAT).

8.3. Activities

8.3.1. General

8.3.1.1. The Contractor shall conduct the software implementation activities as described in SOW, Paragraph 4.10.2 to implement the VC.

8.3.1.2. Visualisation Component Working Group (VCWG) shall provide technical support to the implementation activities.

8.3.1.3. The SEWG shall provide governance for the system-level design decisions.

8.3.1.4. The VVWG shall provide support for test events.

8.3.1.5. In case the VC is not available at the time of early TRITON Baseline deliveries, the Contractor shall provide an interim Visualisation Capability (for the Geospatial View). This capability shall be replaced when the actual VC becomes functional.

8.3.1.6. The Contractor shall deliver C4ISR Visualisation Component as a standalone software package.

8.3.1.7. The Contractor shall deliver Reusable User Interface (UI) Components as defined in the SRS, allowing to be used in development of the Application View. The UI Components shall be documented in the VC ICD and delivered as reusable software elements.

8.3.1.8. The Contractor shall deliver the Symbology Service as defined in the SRS.

8.3.2. Incremental Development

8.3.2.1. The Contractor shall apply Incremental Development and Multiple Deliveries approach for the VC.

8.3.2.2. The Contractor shall plan three (3) Baseline Deliveries within the Performance Dates of the Work Package. Each Baseline shall have its own software life cycle as described below.

8.3.3. Software Requirements Analysis

8.3.3.1. The Contractor shall perform the software requirements analysis as defined in SOW, Paragraph 4.10.2.4.

8.3.3.2. The Contractor shall prepare a Software Requirements Specification (SRS) covering only the requirements allocated to the VC.

8.3.3.3. The Contractor shall prepare the VC FAT Test Procedures to be used at each FAT. The preliminary FAT Procedures shall be made available at each VC SwRR and delivered at each TRR.

8.3.3.4. The Contractor shall prepare the Component Acceptance Test (CAT) Procedure at VC-SwRR-3.

8.3.3.5. The Contractor shall plan and execute VC Software Requirements Review (VC-SwRR) for each Baseline, namely SwRR-1, 2 and 3.

8.3.4. Software Architectural and Detailed Design

8.3.4.1. The Contractor shall perform the software architectural and detailed design as defined in SOW, Paragraph 4.10.2.5 / 6.

8.3.4.2. The Contractor shall prepare an SAD at the first Baseline and update it thereafter.

8.3.4.3. The Contractor shall prepare an SDD at the first Baseline and update it thereafter.

8.3.4.4. The Contractor shall prepare a UIS at the first Baseline and update it thereafter.

8.3.4.5. The Contractor shall plan and execute VC Software Design Review (VC-SwDR) for each Baseline, namely SwDR-1, 2 and 3.

8.3.4.6. VC Interface Control Description

8.3.4.6.1. The VC Interface Control Description (VC ICD) shall include external interfaces of the VC including the Symbology Service.

8.3.4.6.2. The Contractor shall prepare the initial VC ICD and make it available during the VC-SwDR-1. After agreeing on the initial version, the VC ICD shall be made available to the TRITON Build Processes.

8.3.4.6.3. The VC ICD shall be updated at VC-SwDR-2 and 3 thereafter.

8.3.5. Software Construction

8.3.5.1. The Contractor shall perform the software construction activities as described in SOW, Paragraph 4.10.2.7.

8.3.5.2. The Contractor shall develop and deliver Reusable Graphical Components as stated in the Contractual SRS. When commercial components are intended to be used the Purchaser’s approval shall be requested.

8.3.6. Software Testing

8.3.6.1. The Contractor shall produce Software Test Description (STD) for the VC as a standalone component as described in SOW, Paragraph 4.10.2.7.

8.3.6.2. The Contractor shall deliver Source Code Review Report (SCR-R) at VC-TRR-2. If necessary, another review shall be conducted and the SCR-R shall be delivered at VC-TRR-3.

8.3.6.3. The Contractor shall plan and execute Test Readiness Review (TRR) for each Baseline, namely TRR-1, 2 and 3, and provide the TRR Report.

8.3.6.4. The Contractor shall execute a FAT for each Baseline using the FAT Procedure and provide the FAT Report.

8.3.6.5. The Contractor shall prepare Software Installation Guide (SIG) for the VC and its sub-components.

8.3.7. Software Version Description

8.3.7.1. The Contractor shall produce the Software Version Description (SVD) for each Baseline as defined in SOW, Paragraph 4.10.2.11 and submit them at each VC-TRR.

8.3.8. Component Acceptance Test

8.3.8.1. The Contractor shall plan and execute Component Acceptance Test (CAT) at the end of the implementation process. The CAT shall cover stand-alone functionality, supportability, sustainment and maintenance aspects of the component.

8.3.8.2. The Contractor shall prepare CAT Procedure and submit it to the Purchaser at VC-TRR-3.

8.3.8.3. The Contractor shall provide the CAT Report (CAT-R) within three (3) days after the test event.

8.3.9. Software Maintenance

8.3.9.1. The Contractor shall maintain the VC software until FSA as described in SOW, Paragraph 5.4.3.

8.4. Reviews

8.4.1. Software Requirements Review

8.4.1.1. The Contractor shall plan and conduct VC Software Requirements Review (VC-SwRR) for each Baseline, and provide the VC-SwRR Report.

8.4.2. Software Design Review

8.4.2.1. The Contractor shall plan and conduct VC Software Design Review (VC-SwDR) for each Baseline, and provide the VC-SwDR Report.

8.4.3. Test Readiness Review

8.4.3.1. The Contractor shall plan and conduct VC Test Readiness Review (VC-TRR) before each FAT, and provide the VC-TRR Report.

8.4.4. Component Acceptance Review

8.4.4.1. The Contractor shall plan and conduct Component Acceptance Review (CAR) after the CAT.

8.4.4.2. The CAR shall include the assessment of the component, including the software transition.

8.4.4.3. The Contractor shall provide the CAR Report within three (3) days after the review.

8.5. Milestones

8.5.1. The Milestones for this Work Package are given below:

Milestone	Description	Date (MAC)
VC-SwRR-1	Software Requirements Review – BL1	4
VC-SwDR-1	Software Design Review – BL1	6
ICD	Initial ICD	6
UI Comp	Initial User Interface Components	8
VC-TRR-1	Test Readiness Review – BL1	12
VC-FAT-1	Factory Acceptance Test – BL1	12
VC-BL1	Baseline 1 Delivery	14
VC-SwRR-2	Software Requirements Review – BL2	12
VC-SwDR-2	Software Design Review – BL2	14
VC-TRR-2	Test Readiness Review – BL2	20
VC-FAT-2	Factory Acceptance Test – BL2	20
VC-BL2	Baseline 1 Delivery	22
VC-SwRR-3	Software Requirements Review – BL3	18
VC-SwDR-3	Software Design Review – BL3	20
VC-TRR-3	Test Readiness Review – BL3	24
VC-FAT-3	Factory Acceptance Test – BL3	25
VC-BL3	Baseline 1 Delivery	26
VC-TRR	(Component) Test Readiness Review	33
CAT	Component Acceptance Test	34
CAR	Component Acceptance Review	34
Close-out	WP Close-out	35

8.6. Deliverables

8.6.1. Work Package Deliverables are given below:

- VC Software Requirements Specification (SRS) (for each BL)
- VC Software Architecture Description (SAD) (for each BL)
- VC Software Design Description (SDD) (for each BL)
- VC User Interface Specification (UIS) (for each BL)
- VC Interface Control Description (ICD) (a version at each SwDR)
- VC Software Requirements Review Reports (SwRR-R) (for each BL)
- VC Software Design Review Reports (SwDR-R) (for each BL)
- Test Readiness Review Reports (TRR-R) (for each BL)
- Delivery of interim VC
- Initial Reusable User Interface Component Set (with guidance)
- VC Test Procedures (for each BL)
- VC Source Code Review Report (SCR-R)

- VC Test Readiness Review Report (TRR-R) (for each BL)
- VC Factory Acceptance Test Report (FAT-R) (for each BL)
- VC Software Installation Guide (SIG) (for each BL)
- VC Software Version Description (SVD) (for each BL)
- Component Acceptance Test Report (CAT-R)
- Component Acceptance Review Report (CAR-R)
- Visualisation Component Working Group (VCWG) Meetings - Minutes
- C4ISR Visualisation Component – VC-BL1
- C4ISR Visualisation Component – VC-BL2
- C4ISR Visualisation Component – VC-BL3
- Final Reusable User Interface Component Set (with guidance)
- Symbology Service (together with an ICD)

9. WORK PACKAGE 5: SYSTEM TRANSITION

9.1. General

9.1.1. The Contractor shall plan and execute the System Transition Process as described in SOW, Subsection 4.13, for the TRITON Baselines as indicated in the related Work Packages.

9.1.2. Within this Work Package the Contractor shall:

- Plan installation activities
- Perform site surveys
- Install the system at the Authorised Locations
- Activate the system at the Organizational Nodes
- Provide initial training
- Support provision of training.

9.1.3. The Contractor shall prepare the System Transition Plan (STrP) as described in SOW, Paragraph 4.13.2, and deliver the draft to the Purchaser at CDR and submit the updated version at least thirty (30) days before the TRR-2.

9.1.4. The Contractor shall perform the training-related activities as defined in SOW, Paragraph 4.13.7 and Subsection 5.8.

9.1.5. As Baselines become ready in each Build Process, the Contractor shall install and activate TRITON PBL (NS and NU) at the Authorised Locations.

9.1.6. The System Transition Working Group (STWG) shall provide the necessary technical support to the System Transition activities.

9.2. Work Package Dates

9.2.1. The WP5 PSD shall be CDR.

9.2.2. The WP5 PED shall be FSA.

9.3. Activities

9.3.1. Site Surveys

9.3.1.1. The Contractor shall perform the Site Surveys as defined in SOW, Paragraph 4.13.3 for the Authorised Locations listed in Table 9-1.

Table 9-1 – Authorised Locations for Site Survey

Serial	Location	Survey Date	Date (MAC)
1	Data Centre 1 – SHAPE, Mons	After the CDR	8-10
2	Enhanced Node – MARCOM	After the CDR	8-10
3	Data Centre 1 – SHAPE, Mons	At least one (1) month prior to the installation.	28-30

4	Data Centre 2 – JFC Naples, Lago Patria	At least one (1) month prior to the installation.	29-30
5	Data Centre 3 – Brussels	At least one (1) month prior to the installation.	33-34
6	DCIS (locations to be defined)	At least one (1) month prior to the installation.	33-34

9.3.1.2. The Contractor shall conduct the first Site Survey at the Data Centre and the second at MARCOM, including the survey of NATO Communication Infrastructure between MARCOM and Enterprise Data Centres.

9.3.1.3. The Contractor shall perform other Site Surveys at the Data Centres and DCIS (location to be confirmed).

9.3.1.4. The Purchaser will have the right to change the location of the Site Survey and inform the Contractor one month prior to the event.

9.3.2. Site Survey Reports

9.3.2.1. The Contractor shall prepare a Site Survey Report (SS-R) for each site.

9.3.2.2. The Contractor shall deliver the SS-R to the Purchaser no later than one (1) week after the survey.

9.3.2.3. The Purchaser will decide whether to activate the Optional Package for COTS Software Provision (WP9) in accordance with the SS-R for the first survey.

9.3.2.4. The Purchaser will then decide on which site TRITON will be installed.

9.3.2.5. The Contractor shall update the STrP according to the final installation plan.

9.3.3. Site Preparation

9.3.3.1. The Contractor shall perform the Site Preparation as defined in SOW, Paragraph 4.13.5 after SQR at each site.

9.3.4. Static Site Installation

9.3.4.1. The Contractor shall perform the Site Installation activities as defined in SOW, Paragraph 4.13.6. If any additional COTS software products and licenses are needed, the Purchaser will activate the optional Work Package (WP9) of this Contract. The Contractor shall provide the necessary services and support required to install, configure and activate the additional COTS software products. This support includes original manufacturer's on-site support if necessary.

9.3.4.2. The Contractor shall perform the Pre-Installation Check (PIC) and Site Software Installation activities as defined in SOW, Paragraph 4.13.6.1. The type of the Installation Site shall be taken into account for planning the activities.

9.3.4.3. The Contractor shall install TRITON primarily at the following Enterprise Data Centres (DC) as the main Authorised Locations:

- Data Centre 1 – SHAPE, Mons (DC-1)
- Data Centre 2 – JFC Naples, Lago Patria (DC-2)
- Data Centre 3 – NATO HQ, Brussels (DC-3)

9.3.4.4. According to the Site Survey, if the Purchaser decides to install an instance of TRITON at MARCOM instead of DC-1, then the Contractor shall install TRITON on the Enhanced Node at MARCOM. Subsequent installations shall be performed on DC-1 and DC-2 upon the Purchaser's decision. The Purchaser will decide on the mode of an installation (Active, Hot-standby, Warm-standby, Cold-standby) according to the operational needs.

9.3.4.5. The final situation after all installations are complete is illustrated in Figure 7.

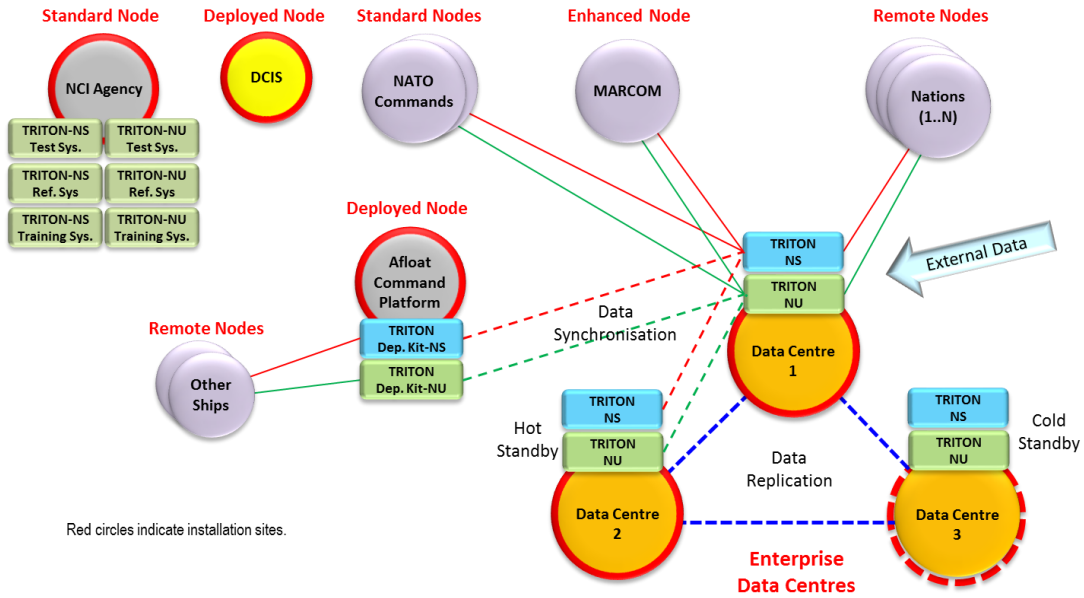


Figure 7 – TRITON Installations

9.3.4.6. If a TRITON installation has already been done for a Baseline (e.g. BL3 delivery), a remote upgrade for the Operational Software shall be applied.

9.3.4.7. Establishing TRITON Support Systems

9.3.4.7.1. The Contractor shall establish the TRITON Support Systems at the locations indicated in Table 9-2. The details of Support Systems Locations are explained in SOW, Paragraph 1.4.3.7:

Table 9-2 – TRITON Support Systems

Support System	Operational Software	Primary Location
Test System	TRITON-NS	Test Node Location
	TRITON-NU	Test Node Location
Reference System	TRITON-NS	Reference Node Location
	TRITON-NU	Reference Node Location
Training System	TRITON-NS	Individual Training Node Location
	TRITON-NU	Individual Training Node Location
	TRITON-NS	Collective Training Node Location
	TRITON-NU	Collective Training Node Location

9.3.4.7.2. The Test Systems shall be established after SwDR-1 and SwDR-2 for BL1 and BL2 respectively. They will be used for design validation during software construction process and User Assessment Reviews/Tests. The full capability of the Test Systems shall be available at TRRs.

9.3.4.7.3. The Purchaser will provide the initial guidance to prepare the test data on the Test Systems. The actual test data shall be prepared by the Contractor to cover all test cases.

9.3.4.7.4. The Test Systems will be also used as TRITON Interoperability Test Centre (TITC) at PMIC to support testing Nation Interfaces with each Nation.

9.3.4.7.5. The Training System locations will be determined by the Purchaser at the time of deployment.

9.3.4.7.6. The technical requirements for the Support Systems are given in SRS, Subsection 4.5.

9.3.4.7.7. The Contractor shall update the infrastructure and operational software for the Support Systems as necessary until FSA.

9.3.4.8. The Contractor shall perform the software installation activities for Product Baseline (PBL), Operational Baseline (OBL), Support Systems and TDKs as listed in Table 9-3:

Table 9-3 – Installation Activities

Product	BL	Location	Activity	Date
TRITON-NS Test System	BL1	Test Node Location	Full installation	After SwDR-1
TRITON-NS Reference System	BL1	Reference Node Location	Full installation	After BL1 IV&V
TRITON-NS (pilot) PBL	BL1	DC-1 or MARCOM	Full installation	After BL1 IV&V
TRITON-NU Test System	BL2	Test Node Location	Full installation	After BL2 IV&V
TRITON-NU Reference System	BL2	Reference Node Location	Full installation	After BL2 IV&V
TRITON-NU Training System	BL2	Training Node Location	Full installation	After BL2 IV&V
TRITON-NU OBL	BL2	DC-1 or MARCOM	Full installation	After BL2 IV&V
TRITON-NS Test System	BL3	Test Node Location	Upgrade	After BL3 IV&V
TRITON-NS Reference System	BL3	Reference Node Location	Upgrade	After BL3 IV&V
TRITON-NS Training System	BL3	Training Node Location	Full Installation	After BL3 IV&V
TRITON-NS OBL	BL3	DC-1 or MARCOM	Upgrade	After BL3 IV&V

TDK-NS OBL	BL4	Test Node Location	Full installation	After BL4 IV&V
TDK-NU OBL	BL4	Test Node Location	Full installation	After BL4 IV&V
TRITON-NS OBL	BL3	DC-2	Full installation	After PSA
TRITON-NU OBL	BL3	DC-2	Full installation	After PSA
TRITON-NS OBL	BL3	DC-3 (if not MARCOM)	Full installation	After PSA
TRITON-NU OBL	BL3	DC-3 (if not MARCOM)	Full installation	After PSA
TRITON-NS OBL	BL3	DCIS Location	Full installation	After PSA
TRITON-NS OBL	BL3	DCIS Location	Full installation	After PSA
TRITON-NS OBL	BL3	DCIS Location	Full installation	After PSA
TRITON-NS OBL	BL3	DCIS Location	Full installation	After PSA
TRITON-NS OBL	New Rel.	DC-1 or MARCOM	Upgrade	During OT&E
TRITON-NU OBL	New Rel.	DC-1 or MARCOM	Upgrade	During OT&E
TRITON-NS OBL	New Rel.	DC-2	Upgrade	During OT&E
TRITON-NU OBL	New Rel.	DC-2	Upgrade	During OT&E
TRITON-NS OBL	New Rel.	DC-3 (if not MARCOM)	Upgrade	During OT&E
TRITON-NU OBL	New Rel.	DC-3 (if not MARCOM)	Upgrade	During OT&E
TDK-NS OBL	New Rel.	Test Node Location	Upgrade	End of OT&E
TDK-NU OBL	New Rel.	Test Node Location	Upgrade	End of OT&E
TRITON-NS Test System	New Rel.	Test Node Location	Upgrade	End of OT&E
TRITON-NS Reference System	New Rel.	Reference Node Location	Upgrade	End of OT&E
TRITON-NS Training System	New Rel.	Training Node Location	Upgrade	End of OT&E
TRITON-NU Test System	New Rel.	Test Node Location	Upgrade	End of OT&E

TRITON-NU Reference System	New Rel.	Reference Node Location	Upgrade	End of OT&E
TRITON-NU Training System	New Rel.	Training Node Location	Upgrade	End of OT&E

9.3.5. DCIS Installation

9.3.5.1. The Contractor shall perform installation and activation activities for four (4) Deployable CIS (DCIS) at locations which require final confirmation. The DCIS installation sites are assumed to be in Europe.

9.3.5.2. The Contractor shall upgrade the Operational Software and the infrastructure (if any patch is available) of the Deployable Systems after each new Baseline, and after each new software release.

9.3.5.3. The Contractor shall install "TRITON-NS Configuration" on a virtualised environment provided by the DCIS infrastructure (named as DragonFly).

9.3.5.4. The Contractor shall execute SiAT for the installation at DCIS, plan and conduct one SiAR when all installation activities are completed and provide the report.

9.3.6. Ship Installation

9.3.6.1. The Contractor shall install one TRITON Deployable Kit on board a selected ship at a port as defined in SOW, Paragraph 4.13.6.3, integrate it with the allowed ship systems and perform Sea Acceptance Test (SeAT).

9.3.6.2. The Purchaser will coordinate the ship, the port and the date, and inform the Contractor at least one (1) month prior to the installation.

9.3.7. Physical Configuration Audit

9.3.7.1. The Contractor shall perform Physical Configuration Audit (PCA) as defined in SOW, Paragraph 4.13.6.4 for each Baseline at the designated Installation Sites and provide PCA Reports.

9.3.8. Static Site Activation

9.3.8.1. The Contractor shall perform Site Activation as defined in SOW, Paragraph 4.13.6.6 for each Baseline at the designated Installation Sites.

9.3.8.2. The Contractor shall execute the Site Activation Test (SiAT) as defined in SOW, Paragraph 4.13.6.8 for each Baseline at each Static Installation Site, and provide the reports.

9.3.8.3. Unless otherwise stated by the Purchaser, Site Activation will be performed at the Installation Site and MARCOM concurrently.

9.3.9. Organizational Node Activation

9.3.9.1. The Contractor shall execute the On-site User Assessment Test (On-site UAT) as defined in SOW, Paragraph 4.13.6.7.8 for each Baseline at MARCOM until PSA, and provide the UAT Report. MARCOM will be the only Organizational Node on which all Baselines are activated until PSA (TRITON-NS and NU).

9.3.9.2. The Contractor shall perform Organizational Node Activation as defined in SOW, Paragraph 4.13.6.7 at the following Authorised Locations (TRITON-NS):

- SHAPE – Mons
- JFC – Naples
- JFC – Brunssum
- AIRCOM – Ramstein

9.3.9.3. Organizational Node Activation shall include provision of the planned Training Courses and On-the-Job Training.

9.3.9.4. The Contractor shall plan and execute Organizational Node Acceptance Review (ONAR) after the activities are completed.

9.3.10. Training Need Analysis

9.3.10.1. The Contractor shall perform Training Need Analysis (TNA) as defined in SOW, Paragraph 5.8.2 and provide the TNA Report.

9.3.11. Training Courses

9.3.11.1. The Contractor shall provide the Training Courses for each Baseline of the TRITON Capability as specified in SOW, Paragraph 5.8.10.

9.3.11.2. The Contractor shall provide the Training Courses listed in Table 9-4 as a minimum.

Table 9-4 – Training Courses to be provided

Course Name	Audience	Location	Date
TRITON-NS System Administrator Training	System Administrators	DC-1 or MARCOM	After BL1 installation
TRITON-NS Operator Training	MARCOM MOC Operators	MARCOM	After BL1 installation
TRITON-NS System Support Training	NCI Agency C2 Service Line; MARCOM Support Staff	MARCOM or NCIA-TH	After BL1 installation
TRITON-NS System Maintenance Training	NCI Agency C2 Service Line	NCIA-TH	After BL1 installation
TRITON-NU System Administrator Training	System Administrators	DC-1 or MARCOM	After BL2 installation
TRITON-NU Operator Training	MARCOM MOC and NSC Operators	MARCOM	After BL2 installation
TRITON-NU System Support Training	NCI Agency C2 Service Line; MARCOM Support Staff	MARCOM or NCIA-TH	After BL2 installation
TRITON-NU System Maintenance Training	NCI Agency C2 Service Line	NCIA-TH	After BL2~~3~~ installation
TRITON-NS System Administrator Training	System Administrators	DC-1 or MARCOM	After BL3 installation
TRITON-NS Operator Training	MARCOM MOC Operators	MARCOM	After BL3 installation

TRITON-NS System Support Training	NCI Agency C2 Service Line; MARCOM Support Staff	MARCOM or NCIA-TH	After BL3 installation
TRITON-NS System Maintenance Training	NCI Agency C2 Service Line	NCIA-TH	After BL3 installation
TDK Maintenance Training	NCI Agency C2 Service Line; MARCOM Support Staff	NCIA-TH	After the final HW-FAT
TDK User Training	National Representatives (ship crew)	NCIA-TH	After OTRR-4
TRITON-NS and NU Nations Training	National Representatives (HQ staff)	NCIA-TH	After PSA
Trainer Training	NCI Agency Trainers	NCIA-TH	After PSA
Software Maintenance Training (see 9.3.14)	NCI Agency C2 Service Line	NCIA-TH	Before FSA

9.3.11.3. The Contractor shall support the NCI Agency Trainers for providing the Training Courses listed in Table 9-5 as a minimum.

Table 9-5 – Training Courses to be supported

Training Name	Audience	Location	Date
TRITON-NS System Administrator Training	System Administrators	DC-1	After BL3 installation
TRITON-NS System Support Training	CSU Staff	DC-1	After BL3 installation
TRITON-NS System Administrator Training	System Administrators	DC-2	After BL3 installation
TRITON-NS System Support Training	CSU Staff	DC-2	After BL3 installation
TRITON-NS System Administrator Training	System Administrators	DC-3	After BL3 installation
TRITON-NS System Support Training	CSU Staff	DC-3	After BL3 installation
TRITON-NS User Training	HQ staff	SHAPE	After PSA
TRITON-NS User Training	HQ staff	JFC-Naples	After PSA
TRITON-NS User Training	HQ staff	JFC-Brunssum	After PSA
TRITON-NS User Training	HQ staff	AIRCOM	After PSA
TRITON-NS User Training	NATO Command Structure Staff	NCIA-TH	Before the first planned exercise

TRITON-NS Operator Training	HQ Staff	MARCOM	Before the first planned exercise
TRITON-NS Operator Training	HQ Staff	MARCOM	Before the second planned exercise
TRITON-NS Operator Training	HQ Staff	MARCOM	Before the third planned exercise

9.3.11.4. The Contractor shall provide the Computer-Based Training (CBT) capability, hard copy and electronic copy of the Training Materials to each trainee one week before the training event.

9.3.11.5. The Contractor shall provide Test Crew Training for the Purchaser's test staff as defined in SOW, Paragraph 5.8.8.

9.3.11.6. The Contractor shall collect the feedback from each course participant on the quality of the provided courses and used Training Materials, develop the Training Course Report (SOW, Paragraph 5.8.12) and submit to the Purchaser within one week after the training.

9.3.11.7. The Contractor shall update the Training Materials based on the collected feedback information. The changes have to be authorised by the Purchaser.

9.3.12. Site Acceptance

9.3.12.1. The Contractor shall perform Site Acceptance process including the following and provide the reports:

- Provisional Site Acceptance (PSiA) and Observation Sheet
- Technical Transfer Meeting
- Final Site Acceptance (FSiA) and Site Acceptance documents
- System Statement of Conformance (SSC)
- Site Acceptance Review (SiAR) and its report

9.3.12.2. The Installation Sites that are subject to assessment in the scope of FSiA are listed in Table 9-6.

Table 9-6 – Sites subject to Final Site Acceptance

Serial	Location	System to be Installed
1	NCI Agency The Hague	TRITON-NS Test System, BL1 TRITON-NU Test System, BL2
2	NCI Agency The Hague	TDK-NS, BL4 on TRITON-NS Test System TDK-NU, BL4 on TRITON-NU Test System
3	NCI Agency The Hague or Mons	TRITON-NS Reference System, BL1 TRITON-NU Reference System, BL2
4	DC-1 or MARCOM (if indicated by Purchaser)	TRITON-NS PBL, BL1 TRITON-NU OBL, BL2 TRITON-NS OBL, BL3
5	DC-1	TRITON-NS Training System (on NS) TRITON-NU Training System (on NU)
6	DC-2	TRITON-NU, BL2 (on NU) TRITON-NS, BL3 (on NS)

7	DC-3	TRITON-NU, BL2 (on NU) TRITON-NS, BL3 (on NS)
8	DCIS Sites (Location to be defined)	4 x TRITON-NS, BL3 (on MS)

9.3.13. System-level Testing

9.3.13.1. Multi-Site Operation Test

9.3.13.1.1. The Contractor shall plan and conduct Multi-Site Operation Test (MSOT) as defined in SOW, Paragraph 4.13.11.

9.3.13.1.2. MSOT shall be planned after all installations are completed.

9.3.13.1.3. The Contractor shall provide the Test Procedures before the MSOT and prepare a report after the test.

9.3.13.2. Support to Federated Mission Network Testing

9.3.13.2.1. The Contractor shall provide support to Federated Mission Network (FMN) Testing as described in SOW, Paragraph 4.13.12.

9.3.13.2.2. The tests shall be executed in two steps: Initial and Final. The total level of effort expected for supporting this activity shall be no less than twenty (20) man-days for each step. Man-days can be transferred between the test events upon Purchaser's approval.

9.3.14. Release Management

9.3.14.1. During the three-level support activities, the Contractor shall perform software upgrades and conduct Release Management as described in SOW, Paragraph 5.6.6.

9.3.14.2. Software upgrades (i.e. minor releases, patches) may be performed remotely. Major releases may require on-site support such as updating documentation and on-the-job training.

9.3.14.3. The Contractor shall deliver the Release and Deployment Plan (RDP) at SQR-2 and update as necessary thereafter.

9.3.15. Software Transition

9.3.15.1. The Contractor shall prepare and deliver the Software Transition Plan (SwTrP) as defined in SOW, Paragraph 4.17.2 at SwTrRR.

9.3.15.2. The Contractor shall provide the source code and documentation for the delivered TRITON software. An initial copy shall be provided at SwTrRR and updated thereafter. The final version of RMD shall also be delivered as a DOORS module.

9.3.15.3. The Contractor shall perform the software transition activities as defined in SOW, Software Transition Process (Subsection 4.17) for the following:

- TRITON Operational Software – NS
- TRITON Operational Software – NU
- TRITON Deployable Kit Operational Software – NS
- TRITON Deployable Kit Operational Software – NU

- TRITON Test System Software – NS
- TRITON Test System Software – NU
- TRITON Reference System Software – NS
- TRITON Reference System Software – NU
- TRITON Training System Software – NS
- TRITON Training System Software – NU
- C4ISR Visualisation Component
  - Component Software for Server and Client
  - Reusable User Interface Components
  - Symbology Service

9.3.15.4. The Contractor shall provide the Software Maintenance Training, as defined in SOW, Paragraph 5.8.14, to the NCI Agency C2 Service Line staff or representatives of the Purchaser at the NCI Agency The Hague premises.

9.3.15.5. The Contractor shall prepare Computer Programming Manual (CPM) and make the software source code available for the Software Maintenance Training.

9.3.15.6. The Contractor shall plan and conduct Software Transition Validation Test (SwTrVT) and provide the SwTrVT Report.

9.3.16. System Rolling-out

9.3.16.1. The Contractor shall complete installation and activation of TRITON Operational Software at the Authorised Locations until FSA.

9.3.16.2. The Contractor shall provide the Training Courses as described in the Training Plan (TP).

9.4. Reviews

9.4.1. Training Readiness Review

9.4.1.1. The Contractor shall plan and conduct Training Readiness Review (TrRR) as defined in SOW, Paragraph 5.8.5, and provide the report.

9.4.1.2. The Contractor shall execute TrRR for each Baseline.

9.4.2. Sustainment Qualification Review

9.4.2.1. The Contractor shall plan and conduct Sustainment Qualification Review (SQR) as defined in SOW, Paragraph 4.13.4, and provide the report.

9.4.2.2. The Contractor shall provide the Software Distribution List (SWDL).

9.4.2.3. The Contractor shall conduct SQR for each Site Installation.

9.4.3. Physical Configuration Audit

9.4.3.1. The Contractor shall plan and conduct Physical Configuration Audit (PCA) at the Installation Site as defined in SOW, Paragraph 4.13.6.6, and provide the report.

9.4.4. Site Acceptance Review

9.4.4.1. The Contractor shall plan and conduct Site Acceptance Review (SiAR) for each installation site as defined in SOW, Paragraph 4.13.9.2, and provide the report.

9.4.4.2. The Contractor shall provide the Key Performance Indicators for deployment and the final (if modified) Software Distribution List (SWDL) (see SOW, Paragraph 4.13.6.11/12).

9.4.4.3. The Contractor shall conduct SiAR during each new Site Installation and major upgrade.

9.4.5. Organizational Node Activation Review

9.4.5.1. The Contractor shall plan and conduct Organizational Node Acceptance Review (ONAR) as defined in SOW, Paragraph 4.13.6.7 and provide the report.

9.4.6. Software Transition Readiness Review

9.4.6.1. The Contractor shall plan and conduct a Software Transition Readiness Review (SwTrRR) as defined in SOW, Paragraph 4.17.4, and provide the report.

9.4.6.2. The Contractor shall deliver the Software Transition Readiness Review Report (SwTrRR-R).

9.4.7. Software Transition Validation Review

9.4.7.1. The Contractor shall plan and conduct a Software Transition Validation Review (SwTrVR) as defined in SOW, Paragraph 4.17.7, and provide the report.

9.4.7.2. The Contractor shall deliver the Software Transition Validation Review Report (SwTrVR-R).

9.5. Milestones

9.5.1. The Milestones for this Work Package are given below:

Milestone	Description	Date (MAC)
TNA	Training Needs Analysis	1
TRR-1	IV&V TRR – BL1	i.a.w. WP3.1
SQR-1	Sustainment Qualification Review – BL1	
TrRR-1	Training Readiness Review – BL1	
SiAT-1	Site Activation Test – BL1	
On-site UAT	On-site User Assessment Test – BL1	
SiAR-1	Site Acceptance Review – BL1	
TRR-2	IV&V TRR – BL2	i.a.w. WP3.2
SQR-2	Sustainment Qualification Review – BL2	
TrRR-2	Training Readiness Review – BL2	
SiAT-2	Site Activation Test – BL2	
On-site UAT	On-site User Assessment Test – BL2	
SiAR-2	Site Acceptance Review – BL2	
TRR-3	IV&V TRR – BL3	i.a.w. WP3.3
SQR-3	Sustainment Qualification Review – BL3	
TrRR-3	Training Readiness Review – BL3	

SiAT-3	Site Activation Test – BL3	
On-site UAT	On-site User Assessment Test – BL3	
SiAR-3	Site Acceptance Review – BL3	
TRR-4	IV&V TRR – BL4	i.a.w. WP3.4
FMN-1	FMN Testing - Initial	32
FMN-2	FMN Testing - Final	35
SwTrRR	Software Transition Readiness Review	i.a.w. the SwTrP (before FSA)
SwTrVT	Software Transition Validation Test	
SwTrVR	Software Transition Validation Review	
ONAR	At each Organizational Node	until FSA

9.6. Deliverables

9.6.1. Work Package Deliverables are given below:

- Training Needs Analysis Report (TNA-R)
- Site Survey Reports
- Pre-Installation Check (PIC) Procedure
- On-site User Assessment Test (UAT) Procedure
- System Transition Plan (STrP)
- Software Transition Plan (SwTrP)
- Release and Deployment Plan (RDP)
- Training Plan (TrP)
- Configuration Audit Report (CAR)
- Sustainment Qualification Review Report (SQR-R) (for each installation)
- Site Acceptance Review Report (SiAR-R) (for each installation)
- Organizational Node Activation Review Report (ONAR-R) (for each ONAR)
- Training Materials
  - Student and Instructor Manuals
  - Computer-Based Training (CBT) for BL2, 3 and 4)
- Training Courses
- Training Course Evaluation Reports (TCER)
- TRITON Test Systems – NS, NU
- TRITON Reference Systems – NS, NU
- TRITON Training Systems – NS, NU
- TDKs available with the latest software release (NS and NU)
- Multi-Site Operation Test Report (MSOT-R)
- Support to FMN Initial Testing
- Support to FMN Final Testing
- Software Source Code and documentation
- Computer Programming Manual (CPM)

- Software Transition Readiness Review Report (SwTrRR-R)
- Software Maintenance Training
- Software Transition Validation Test Report (SwTrVT-R)
- Software Transition Validation Review Report (SwTrVR-R)
- System Transition Working Group (STWG) Meetings - Minutes

10. WORK PACKAGE 6: SYSTEM SUPPORT AND MAINTENANCE

10.1. General

10.1.1. Within this Work Package the Contractor shall provide operational support and system maintenance to the delivered software and hardware until FSA.

10.1.2. The SEWG will provide support to identify the maintenance needs and analyse the impact of changes.

10.1.3. The Operation and Support Working Group (OSWG) shall provide the necessary technical support to the System Maintenance activities.

10.1.4. This WP shall be applicable to Baseline 2, 3, and 4.

10.2. Work Package Dates

10.2.1. The WP5 PSD shall be OTRR-2 (end of Build Process 2).

10.2.2. The WP5 PED shall be FSA.

10.3. Activities

10.3.1. Operational (on-site) Support

10.3.1.1. The Contractor shall provide Operational Support as described in SOW, Subsection 4.15 System Operation Process, 4.15.4 On-Site Support.

10.3.1.2. The Contractor shall provide On-Site Support as defined in SOW, Paragraph 4.15.4 at the NCI Agency The Hague unless otherwise agreed.

10.3.1.3. The Purchaser's on-site representative will assign and monitor progress on specific tasks within the scope of this Contract and this Work Package.

10.3.1.4. The Contractor shall ensure the designated individuals are available to begin working at the Purchaser's facility within one (1) week of the OTRR-2. The exact date will be agreed with the Purchaser.

10.3.1.5. The Contractor shall provide at least one-hundred-and-fifty (150) man-days of On-Site Support starting from the agreed date until FSA.

10.3.1.6. These individuals shall work at least eight (8) hours per working day within the normal working hours at the Purchaser's facility.

10.3.1.7. The Contractor shall ensure that their On-Site Support staff maintains regular communications with the Contractor's Technical Lead.

10.3.2. Experimentation, Exercise and Prototyping Support

10.3.2.1. The Contractor shall provide support to the Purchaser for experimentation, exercising and prototyping as defined in SOW, Paragraph 4.16.4.

10.3.2.2. This support shall be no less than fifty (50) man-days of software development and support effort.

10.3.2.3. The Contractor shall maintain the effort used and remaining during the course of this Work Package and present it to the Purchaser during PCRs.

10.3.3. System Support and Maintenance

10.3.3.1. The Contractor shall provide three-level System Support as described in SOW, Subsection 5.6, 5.7, and 5.8.

10.3.3.2. The Contractor shall conduct the maintenance activities as described in SOW, Subsection 4.16 System Maintenance Process.

10.3.3.3. The Contractor shall prepare and maintain the System Maintenance Documentation as defined in SOW, Paragraph 4.16.2 throughout this Work Package. The Contractor shall also update any formal documentation produced before, but need to be modified due to changes (e.g. Design Descriptions, Test Descriptions, Training Material, TRITON ICD).

10.3.3.4. The Contractor shall apply the Release Management Process (SOW, Paragraph 5.6.6.2.2), including IV&V Testing for each Maintenance Release to be deployed.

10.3.3.5. The Contractor shall provide at least one-hundred (100) man-days of engineering support for adaptive and perfective software maintenance defined in SOW, Paragraph 5.4.3. The Contractor shall maintain the effort used and remaining during the course of this Work Package and present it to the Purchaser during PCRs.

10.3.3.6. The Contractor shall evaluate the results of In-Service Reviews and plan the maintenance activities accordingly after the precedence of activities are determined by the Purchaser.

10.4. Reviews

10.4.1. Monthly Maintenance Review

10.4.1.1. The Contractor shall conduct Monthly Maintenance Review (MMR) as defined in SOW, Paragraph 4.16.3 and provide the MMR Reports.

10.4.2. IV&V Planning Conferences

10.4.2.1. The Contractor shall support the Purchaser for Initial Planning Conference (IPC) and Final Planning Conference (FPC) prior to the IV&V Testing of new releases.

10.4.2.2. IV&V CCB will participate in the IPC and FPC.

10.4.3. System Verification Review

10.4.3.1. The Contractor shall plan and conduct System Verification Review (SVerR) after the IV&V testing, and provide the SVerR Report for each new release.

10.5. Milestones

10.5.1. The Milestones for this Work Package are given below:

Milestone	Description	Date
MMR	Monthly Maintenance Review	PSD to PED

10.6. Deliverables

10.6.1. Work Package Deliverables are given below:

- Software Distribution List (SWDL)
- System Maintenance Documentation
- Monthly Maintenance Review Report (MMR-R)
- System Verification Review Report (SVerR-R)
- Operation and Support Working Group (OSWG) Meetings - Minutes
- Engineering Support

11. WORK PACKAGE 7: SUPPORT TO OPERATIONAL TESTING AND EVALUATION

11.1. General

11.1.1. Within this Work Package the Contractor shall provide support during the operation of the system.

11.1.2. This WP shall be applicable to Baseline 2, 3, and 4.

11.1.3. The Contractor shall provide technical and CIS support at the installation sites.

11.1.4. The SEWG shall provide governance for the system-level design decisions.

11.1.5. The OSWG shall provide the necessary technical support to the OT&E activities.

11.1.6. The VVWG shall provide support for test events.

11.2. Work Package Dates

11.2.1. The WP7 PSD shall be OTRR-2 for BL2, OTRR-3 for BL3 and OTRR-4 for BL4.

11.2.2. The WP7 PED shall be the FSA.

11.3. Activities

11.3.1. The Contractor shall conduct the activities as described in SOW, Subsection 4.13 System Validation Process and Subsection 4.14 System Operation Process.

11.3.2. Operating Support

11.3.2.1. The Contractor shall support the Purchaser with development and establishment of Standard Operating Procedures (SOPs) for using TRITON as defined in SOW, Paragraph 4.15.2.

11.3.2.2. The total level of effort expected for support to SOP development shall be no less than forty (40) man-days.

11.3.3. Exercise Support

11.3.3.1. The Contractor shall provide support to MARCOM users, as explained in SOW, Paragraph 4.15.3, during at least three (3) exercises that MARCOM will participate in (One of them will be CWIX).

11.3.3.2. The total level of effort expected for participating in the three exercises shall be no less than twenty (20) man-days for a period of ten (10) days for each exercise (60 man-days in total) (travel excluded). Man-days can be transferred between the exercises upon Purchaser's approval.

11.3.3.3. These individuals shall work at least eight (8) hours per working day within the normal business hours at the Purchaser's facility or at the exercise venue.

11.3.3.4. The Contractor shall provide support to Collective Training by setting up and configuring the system

11.3.3.5. The Contractor shall collect user feedback during exercises and In-Service Reviews.

11.3.4. System Validation Test

11.3.4.1. The Contractor shall ~~plan and~~ execute the System Validation Test (SVT) as defined in SOW, Paragraph 4.14.4, and provide the SVT Report.

11.4. Reviews

11.4.1. In-Service Review

11.4.1.1. The Contractor shall conduct monthly In-Service Reviews (ISR) as defined in SOW, Paragraph 4.15.5.

11.4.1.2. There will be one ISR quarterly and after each exercise.

11.5. Milestones

11.5.1. The Milestones for this Work Package are given below:

Milestone	Description	Date (MAC)
ISR	In-Service Reviews	Quarterly
SVT	System Validation Test	Before 35

11.6. Deliverables

11.6.1. Work Package Deliverables are given below:

- System Validation Test Report (SVT-R)
- In-Service Review Report (ISR-R)
- Operating and Exercise Support
  - Support to development of Standard Operating Procedures
  - Support to MARCOM Users during three exercises
- Testing
  - Support to System Validation Test (SVT)

12. WORK PACKAGE 8: SUPPORT TO TRANSITION FROM LEGACY SYSTEMS

12.1. General

12.1.1. The existing systems, MCCIS and MSA/BRITE, used in Maritime User Community will be replaced with the TRITON Capability in time. The Purchaser will prepare a Transition Plan for replacement. The plan will also include the National use of the legacy systems.

12.1.2. The Contractor shall provide support to update the Transition Plan according to the recent state of the systems and accumulated data.

12.1.3. The System Transition Working Group (STWG) shall provide support for transition activities.

12.1.4. The Contractor shall provide engineering support to data migration.

12.2. Work Package Dates

12.2.1. The WP8 PSD shall be the PDR (approx. 6 MAC)

12.2.2. The WP8 PED shall be the FSA.

12.3. Activities

12.3.1. Support

12.3.1.1. The Contractor shall provide technical and CIS support for transition from MSA/BRITE to TRITON-NU.

12.3.1.2. The Contractor shall provide technical and CIS support for transition from MCCIS to TRITON-NS.

12.3.1.3. The total level of effort for this activity will be as follows:

- At least forty (40) man-day for period between PSD and FAT-2 (approx. 16 months).
- At least forty (40) man-day for the period between FAT-2 and TrRR for TRITON-NU (approx. 8 months)
- At least forty (40) man-day for the period between FAT-3 and TrRR for TRITON-NS (approx. 8 months).

12.3.2. Data Migration

12.3.2.1. The Contractor shall provide engineering support to the data migration process.

12.3.2.2. The Contractor shall develop tools and procedures for easy and reliable transfer of existing data accumulated in MCCIS and MSA/BRITE into TRITON. Examples to this data are given below:

- Historical track data
- Historical AIS data
- Historical WSM/PMI data

- Formatted Messages

12.3.2.3. The Contractor shall deliver the Migration Tools for MSA/BRITE no later than TRR-2.

12.3.2.4. The Contractor shall deliver the Migration Tools for MCCIS no later than TRR-3.

12.3.3. Nations Interoperability Testing

12.3.3.1. The Contractor shall develop TRITON Simulators (for NS and NU), as defined in the SRS, to enable Nations to test their own interfacing software at their own premises prior to integration.

12.3.3.2. TRITON Simulators shall be delivered at TRR-1, 2, 3.

12.3.3.3. During System Installation and Activation for Baselines 2 and 3, Nation interfaces shall be tested at the TRITON Interoperability Test Centre (ITC) (at PMIC). The Purchaser will coordinate the testing activities with Nations during the SITs. The Contractor shall provide technical support to these integration and test activity.

12.4. Reviews

12.4.1. System Transition Readiness Review

12.4.1.1. The Contractor shall plan and conduct System Transition Readiness Review (STRR)-NU for reviewing the transition process from MSA/BRITE to TRITON-NU including the following:

- Commercial service transition
- Migration of data

12.4.1.2. The Contractor shall plan and conduct STRR-NS for reviewing the transition process from MCCIS to TRITON-NS including the following:

- MCCIS Servers at MARCOM
- Migration of operational data stored at MARCOM
- MCCIS used on board ships and National Headquarters

12.4.1.3. The Contractor shall provide the STRR Reports after the reviews.

12.5. Milestones

12.5.1. The Milestones for this Work Package are given below:

Milestone	Description	Date (MAC)
Tools	Delivery of Migration Tools for MSA/BRITE	20
Tools	Delivery of Migration Tools for MCCIS	26
STRR-NU	TRITON-NU is fully functional	30
	MSA/BRITE service cut-off	30
STRR-NS	TRITON-NS is fully functional	33
	MARCOM MCCIS service suspended (to be decided by the Purchaser)	35

12.6. Deliverables

12.6.1. Work Package Deliverables are given below:

- Support to Transition
- Data Migration
  - Support to Data Migration
  - Data Migration Tools and Migration Procedures
- TRITON Simulators (for NS and NU)
- Support to Nations Interoperability Testing
- System Transition Readiness Review - NU Report (STRR-R)
- System Transition Readiness Review - NS Report (STRR-R)

13. WORK PACKAGE 9: COTS SOFTWARE PROVISION (OPTION)

13.1. General

13.1.1. This Work Package is a Contract Option. Its requirements will be applicable only if it is activated.

13.1.2. The Purchaser will decide if any additional COTS software and licenses (COTS Products) are needed to operate TRITON on the Authorised Locations. In case other Installation Locations are authorised, and additional COTS software and licenses are needed, then the Purchaser will use this package as a contingency resource. The Purchaser's existing enterprise agreements for the COTS Products will be used to the extent possible.

13.1.3. The Work Package can be activated by the Purchaser according to the Site Survey or any time until SVT.

13.1.4. The Contractor shall perform requirements analysis after the Site Survey and prepare the final COTS Products List.

13.1.5. The Contractor shall provide support for the procurement and delivery of the COTS Products to the location indicated by the Purchaser.

13.1.6. The package shall be closed after the all authorised locations are activated successfully and system is validated.

13.2. Work Package Dates

13.2.1. The WP9 PSD shall be declared by the Purchaser according to the Site Survey Report (approximately 12 MAC). The Purchaser will have the right to activate it any time before the System Validation Test (SVT).

13.2.2. The WP9 PED shall be the SVT (34-35 MAC).

13.3. Activities

13.3.1. COTS Products Requirements Analysis

13.3.1.1. Upon activation of the Work Package, the Contractor shall perform COTS Products Requirements Analysis considering the Purchaser's input, Site Survey Report and the technical specifications given in SRS (Subsection 5.4 Computer Resource Requirements), and determine the detailed definitions of COTS Products with the latest but approved versions to operate TRITON properly on the indicated network environment.

13.3.1.2. The Contractor may propose using the Purchaser's Enterprise Agreement for procuring Microsoft products.

13.3.1.3. The Contractor shall prepare the COTS Products List for two (2) installations, each supporting at least one hundred (100) users, and include the following:

- Virtualised Environment (for only processing)
- Operating System
- Database Management System/Server

- Web Server Software
- Virus Scan Software (Server)
- Backup Software
- Compression Software.

13.3.1.4. The Purchaser will decide on the final specification of the COTS Products during the COTS Products Review.

13.3.1.5. The Contractor shall propose a procurement, delivery and installation plan for the COTS Products to be used on the NS or NU Domains.

13.3.1.6. The Purchaser will decide on which site the COTS Products shall be delivered and installed, and when.

13.3.2. Procurement and Delivery

13.3.2.1. The Contractor shall provide support for the procurement of the approved COTS Products for one of the following locations:

- First Installation Location on which Baseline 1 and 2 will be installed (Data Centre – 1 or MARCOM)
- Other Installation Locations to be decided for Baseline 2 and 3 (assumed to be in Europe)

13.3.2.2. The Contractor shall deliver the COTS Products prior to SQR for that site.

13.3.2.3. The Contractor shall follow the delivery procedures defined in SOW Section 5 ILS.

13.3.2.4. If the software products are also required for development and testing, the delivery location will be the Contractor's premises.

13.4. Reviews

13.4.1. COTS Products Review

13.4.1.1. The Contractor shall plan and conduct COTS Products Review (COTSPR) to finalise the proposed COTS Products List.

13.4.1.2. The Contractor shall prepare the COTSPR Report (COTSPR-R) which shall include the agreed COTS Products List.

13.4.1.3. The Contractor shall submit the COTSPR-R to the Purchaser within three (3) days after the COTSPR.

13.5. Milestones

13.5.1. The Milestones for this Work Package are given below:

Milestone	Description	Date (MAC)
COTSPR	COTS Products Review	13
Delivery	COTS Products	SQR of the site
Close-out	WP Close-out	Before FSA

13.6. Deliverables

13.6.1. Work Package Deliverables are given below:

- COTS Products Review Report (COTSPR-R)
  - COTS Products List
- Support for the Procurement and Delivery of the COTS Products
- COTS Products as defined in the approved COTS Products List

14. WORK PACKAGE 10: 5-YEAR MAINTENANCE AND SUPPORT (OPTION)

14.1. General

14.1.1. This Work Package is optional. Its requirements will be applicable only if it is activated.

14.1.2. The Contractor shall provide Maintenance and Support as defined in the SOW, Section 5 during the performance of this Work Package.

14.1.3. The Maintenance and Support shall cover the TRITON Operational Software, including the C4ISR Visualisation Component, installed on both static sites and TDKs.

14.2. Work Package Dates

14.2.1. The WP10 PSD shall be the end of Warranty Period for the Operational Software, unless the Purchaser asks for another date, earlier or later. If the PSD starts earlier than the end date of the Warranty Period for the Operational Software, the change process activities shall be mutually agreed considering if the scope of a change is to be handled under the Warranty clauses.

14.2.2. The WP10 PED shall be one (1) year after the PSD with an option of yearly extensions up to five (5) years.

14.2.3. The Purchaser will inform the Contractor in written to extend the validity of the Maintenance and Support Package for another year at least two (2) months prior to the PED.

14.3. Activities

14.3.1. Management

14.3.1.1. The Contractor shall maintain Project Management team to execute the Maintenance and Support Package.

14.3.1.2. The Contractor shall define in the In-Service Support Plan the management activities stated in SOW Section 3 and applicable to Maintenance and Support.

14.3.1.3. The Contractor shall prepare monthly Project Highlight Reports as defined in SOW Subsection 3.17.

14.3.1.4. The Contractor shall update the In-Service Support Plan (ISSP), as described in SOW, Paragraph 5.11.2, which includes the System Maintenance Plan (SMP).

14.3.2. Maintenance and Support

14.3.2.1. The Contractor shall provide corrective and preventive software maintenance for the TRITON Operational Software including the C4ISR Visualisation Component as defined in the SOW, Paragraph 5.4.3.

14.3.2.2. The Contractor shall provide the average level of effort for the maintenance TRITON Operational Software (except the C4ISR Visualisation Component) as given below:

Type of Maintenance	Labour Type	Labour Amount (man-day)
Corrective Maintenance	Software Developer	As needed
Preventive Maintenance	Software Developer	As needed
Adaptive Maintenance	Software Developer	100
Perfective Maintenance	Software Developer	200

14.3.2.3. The Contractor shall provide the average level of effort for the maintenance of only the C4ISR Visualisation Component as given below:

Type of Maintenance	Labour Type	Labour Amount (man-day)
Corrective Maintenance	Software Developer	As needed
Preventive Maintenance	Software Developer	As needed
Adaptive Maintenance	Software Developer	50
Perfective Maintenance	Software Developer	100

14.3.2.4. The Contractor shall provide Third Level Support for the TRITON Operational Software as defined in the SOW, Paragraph 5.7.4.

14.3.2.5. The Contractor shall maintain the effort used and remaining during the course of this Work Package, update the Maintenance Records and present them to the Purchaser during QMRs.

14.3.3. Testing and Assurance

14.3.3.1. The Contractor shall provide technical support during the IV&V Testing for the new release.

14.3.3.2. The Contractor shall maintain Maintenance Records which shall also include the type of amount of labour used for each maintenance activity and the remaining allocated resources.

14.3.3.3. The Contractor shall update the System Documents if they affected by any maintenance activity.

14.3.4. Training

14.3.4.1. The Contractor shall provide training for any improvements in functionality or changes in the user interface.

14.3.4.2. The Contractor shall provide the following Training Courses in one calendar year to cover any changes made during maintenance:

- At least two (2) days of User Training
- At least one (1) day of System Administrator Training
- At least one (1) day of System Support Training.

14.3.4.3. The Contractor shall update the Training Material to reflect any changes made during the software maintenance.

14.4. Reviews

14.4.1. Quarterly Maintenance Review

14.4.1.1. The Contractor shall conduct Quarterly Maintenance Review (QMR) and include review of Maintenance Accounting Records.

14.4.1.2. The Contractor shall provide QMR Report after the review.

14.5. Milestones

14.5.1. The Milestones for this Work Package are given below:

Milestone	Description	Date (Months after PSD)
1	Yearly Package Activation	0
2	Yearly Package Closure	12

14.6. Checkpoints

14.6.1. The Checkpoints for this Work Package are given below:

Checkpoint	Description	Date (Months after PSD)
1	QMR-1	3
2	QMR-2	6
3	QMR-3	9
4	QMR-4	12

14.7. Deliverables

14.7.1. Work Package Deliverables for Year-1 are given below:

- Project Management
- Updated In-Service Support Plan (ISSP)
- Quarterly Maintenance Review Reports (QMR-R)
- Maintenance and Support
  - Software Maintenance
  - Third Level Support
- Support to Testing and Assurance
  - Support to IV&V Testing
  - Updated Maintenance Records
- Training
  - Updated Training Material
  - Training Courses

Year-2 to Year-5 have the same deliverables.

15. WORK PACKAGE 11: SUPPORT TO PREPARATIONS FOR THE NEXT INCREMENT (OPTION)

15.1. General

15.1.1. This Work Package is optional. Its requirements will be applicable only if it is activated.

15.1.2. The Contractor shall perform system requirements analysis and high-level system design for TRITON Increment 2.

15.1.3. The Contractor shall reflect this schedule in the Project Management Plan and Project Master Schedule.

15.1.4. The Contractor shall provide final versions of the WP deliverables by the end of the WP.

15.2. Work Package Dates

15.2.1. The WP11 PSD shall be determined by the Purchaser.

15.2.2. The WP1~~0~~1 PED shall be ten (10) months after the PSD.

15.3. Activities

15.3.1. System Requirements Analysis

15.3.1.1. The Contractor shall perform requirement analysis for implementation of TRITON Increment 2, following the process described in Subsection 4.4 of the SOW and, as a result of the analysis, propose changes to the SyRS.

15.3.1.2. The Contractor shall incorporate purchaser-provided requirements into the analysis of TRITON Increment 2 requirements.

15.3.1.3. The requirements analysis shall be in sufficient detail to support accurate pricing of implementing Work Packages.

15.3.1.4. The Contractor shall follow the Change Management Process defined in SOW, Paragraph 4.7.7 when applicable to the SyRS.

15.3.1.5. The Contractor shall prepare the draft System Requirements Specification (SyRS) which includes the functional requirements, information exchange requirements, interfaces and any other system-specific requirements that are not covered during Increment 1.

15.3.1.6. Security Risk Assessment Report

15.3.1.6.1. The Contractor shall perform Security Risk Assessment (SRA) on the Increment 2 scope and provide a report on its findings.

15.3.1.7. High-Level System Requirements Review

15.3.1.7.1. The Contractor shall conduct a High-Level Systems Requirements Review (HL-SRR) for Increment 2.

15.3.2. System Design

15.3.2.1. High-Level System Design

15.3.2.1.1. Based on the approved SRS changes to Increment 2 scope, the Contractor shall perform design for the TRITON Increment 2 capability in sufficient detail to support accurate pricing of implementing Work Packages.

15.3.2.1.2. In the scope of this Work Package the Contractor shall limit design activities to high-level design, as specified in Section 4 of the SOW.

15.3.2.1.3. The Contractor shall describe Increment 2 design in the System Design Specification (SDS).

15.3.2.1.4. The SDS shall identify all changes to external interfaces as required to implement Increment 2 scope.

15.3.2.2. High-Level System Design Review

15.3.2.2.1. The Contractor shall conduct a High-Level System Design Review (HL-SDR) for Increment 2.

15.3.3. Planning

15.3.3.1. The Contractor shall plan Increment 2 activities in coordination with the Purchaser. The information, as described below, shall be provided to the Purchaser as valid commercial offer for implementation of the Increment 2 by the Contractor, valid for a period of twelve (12) months after the submission.

15.3.3.2. Draft Project Product Breakdown Structure

15.3.3.2.1. The Contractor shall plan Project Product Breakdown Structure (PPBS) for Increment 2 and describe that in a draft PPBS document, as specified in Section 3 of the SOW.

15.3.3.3. Draft Project Work Breakdown Structure

15.3.3.3.1. The Contractor shall plan Project Work Breakdown Structure (PWBS) for Increment 2 and describe that in a draft PWBS document, as specified in Section 3 of the SOW.

15.3.3.4. Draft Work Packages with Cost Estimates

15.3.3.4.1. The Contractor shall draft Increment 2 Work Packages. The Work Packages shall correspond to the Project Work Breakdown Structure (PWBS).

15.3.3.4.2. The Contractor shall plan implementation of the TRITON Increment 2 using the guidance as provided for Increment 1 in the Section 4 of the SOW.

15.3.3.4.3. The Contractor shall define cost estimates required to implement each Work Package and provide summary of those with possible pricing options.

15.3.3.5. Draft Project Master Schedule

15.3.3.5.1. The Contractor shall propose draft Project Master Schedule (PMS) for implementation of TRITON Increment 2.

15.3.3.5.2. The level of detail of PMS shall allow the Purchaser to estimate time constraints required to implement Increment 2 Work Packages.

15.3.4. Engineering Support

15.3.4.1. The Contractor shall provide Engineering Support for the preparations for the next Increment.

15.3.4.2. The Contractor shall provide inputs to cost estimates and Work Packages which shall cover the following:

- Background (introducing what was achieved through Increment 1).
- Reviewing operational requirements for Increment 2
- Implementation proposal for the specific capabilities of Increment 2
- Interdependencies (e.g. with Core Services)
- Risk management information, including a revised Risk Register
- Schedule for the Increment 2
- Resource estimate (i.e. complete cost estimate for the Contractor effort for Increment 2 and identification of key Purchaser activities)
- Detailed cost breakdown by contract line item using labour rates as defined in the Contract.
- Draft Work Packages required to implement Increment 2
- Draft updates to the PWBS and PMS based on the draft Work Package changes
- Draft changes to the SOW, if required, based on the draft Work Package changes

15.3.4.3. The Contractor shall provide at least one-hundred (100) man-days of Engineering Support within the Work Package performance.

15.4. Reviews

15.4.1. High-Level System Requirements Review

15.4.1.1. The Contractor shall plan and conduct a High-Level Systems Requirements Review (HL-SRR) at the Purchaser's facility to determine the FBL and present his proposed changes to the FBL for Increment 2.

15.4.1.2. The Contractor shall conduct the HL-SRR not later than four (4) months after the WP PSD and provide a report.

15.4.2. High-Level System Design Review

15.4.2.1. The Contractor shall plan and conduct a High-Level System Design Review (HL-SDR) at the Purchaser's facility to review the system architectural design and software architecture design for Increment 2.

15.4.2.2. At this review, the Contractor shall present its high-level system design, including major software and hardware components.

15.4.2.3. The Contractor shall conduct the HL-SDR not later than ~~six~~ eight (~~6~~8) months after the WP PSD and provide a report.

15.4.3. Final Assessment Review

15.4.3.1. The Contractor shall plan and conduct a Final Assessment Review (FAR) at the Purchaser's facility to review the status of preparations and finalise the prepared documents.

15.4.3.2. The Contractor shall present a preliminary Project Product Breakdown Structure, Project Work Breakdown Structure and Project Schedule during the FAR.

15.4.3.3. The Contractor shall also present cost estimate based on draft Work Packages.

15.4.3.4. The Purchaser will evaluate the products for preparation of Increment 2.

15.4.3.5. The Contractor shall prepare the FAR Report within three (3) days after the FAR.

15.5. Milestones

15.5.1. The Milestones for this Work Package are given below:

Milestone	Description	Date (MAC)
1	High-level System Requirements Review (SRR)	~~26~~30
2	High-level System Design Review (SDR)	3~~0~~4
3	Final Assessment Review (FAR)	3~~4~~5
4	Package Closure	35-36

15.6. Deliverables

15.6.1. Work Package Deliverables are given below:

- System Requirements Specification (SyRS) (draft)
- Security Risk Assessment Report (SRA-R)
- System Design Specification (SDS) (draft)
- Draft Project Product Breakdown Structure (PPBS)
- Draft Project Work Breakdown Structure (PWBS)
- Draft Work Packages with Cost Estimates
- Draft Project Master Schedule (PMS)
- High-level System Requirements Review Report (SRR-R)
- High-level System Design Review Report (SDR-R)
- Final Assessment Review Report (FAR-R)

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PROVISION OF FUNCTIONAL SERVICES FOR
COMMAND AND CONTROL OF MARITIME OPERATIONS
(TRITON)
INCREMENT 1

PROJECT SERIAL 2011/0IS03081

BOOK II - PART IV SOW ANNEX C

REQUIREMENTS IMPLEMENTATION SCHEDULE (RIS)

Amendment 2

INSTRUCTIONS

The requirements are given in the SRS, Annex A to the SOW, with descriptions and full properties. The list in this Annex is an extraction of requirements from the DOORS Module.
The Object Number column contains the numbers given to each object in DOORS.
The Requirement Number column contains the unique number for a requirement together with prefix "T1", which indicates "TRITON Increment 1".
The Heading / Requirement column contains the Headings in DOORS, and the requirement.
The Default Baseline column indicates to which Baseline the requirement is initially allocated to in the SRS.
The columns under "Availability of TRITON Functions" indicates the capability level prioritisation of requirements of Maritime Functions, showing when it is going to be available.
The columns under "Availability of VC Functions" indicates the capability level prioritisation of requirements for the Visualisation Component, showing when it is going to be available.
The Remarks may include any explanation.

The Bidders should fill in the requirements, by putting an 'X' in which Baseline the requirement can be implemented. The Headings will be skipped.

An 'X' in the column "Available at Bidding" indicates that the requirement is already covered by an existing product/component at the time of Bidding. This will have to be verified through the Technical Demonstration to be held during Bidding.

An 'X' in the column "Available at BL1" indicates that the requirement will be met as part of the BL1 Delivery and will be subject to Pilot Acceptance.

An 'X' in the column "Available at BL2, BL3 or BL4" indicates that the requirement will be met as part of the BL2, BL3 or BL4 Delivery and will be subject to System Acceptance.

An 'X' in the column "Available at VC-BL 1, VC-BL 2 or VC-BL 3" indicates that the requirement for the C4ISR Visualisation Component will be met as part of the VC-BL 1, VC-BL 2 or VC-BL 3 Delivery.

An 'X' in the column "Not Implemented" indicates that the Bidder is declaring that the proposed solution will not cover this requirement. Short explanation should be entered in the Remarks field, but the Bidder should also include, as part of the Bid, any changes they are proposing to the requirements, including a proposal that a requirement is not to be implemented.

It should be noted that not implementing some of the requirements will have an impact on the Technical Evaluation of the Bid and may result in lower scores for the Bidder.

Abbreviations:

BT : Bidding Time
CDS : Concept Demonstration System
NI : Not Implemented
VC : C4ISR Visualisation Component

TRITON REQUIREMENTS

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
4		**FUNCTIONAL REQUIREMENTS**													
4.1		**Required States and Modes**													
4.1.1		**Operational Modes**													
4.1.1.1		**Servers and Clients**													
4.1.1.2		**Mode Definitions**													
4.1.1.3		**Mode Settings**													
4.1.1.3.0-1.0-1	[T1-R001]	TRITON shall have Operational Modes, as described in the Description, which define its purpose of operational use.	BL 1												
4.1.1.3.0-1.0-2	[T1-R002]	TRITON shall allow the authorised user to set the Operational Mode during the system initialisation and change it during the operation.	BL 1												
4.1.1.3.0-1.0-3	[T1-R003]	TRITON shall perform an internal check to determine if all the necessary services and interfaces are available for Standalone operation if it is initialised in Standalone Mode, and then sets its Operational State accordingly.	BL 4												
4.1.2		**Operational States**													
4.1.2.1		**Server States**													
4.1.2.1.1		**State Definitions**													
4.1.2.1.2		**State Transitions**													
4.1.2.1.2.0-1.0-1	[T1-R004]	TRITON shall monitor the system functions and interfaces that are specified in the System Configuration Settings as "critical" for operational state change.	BL 1												
4.1.2.1.2.0-1.0-2	[T1-R005]	TRITON shall allow the authorised user to modify the causes for Operational State changes in the System Configuration Settings.	BL 1												
4.1.2.1.2.0-1.0-3	[T1-R006]	TRITON shall allow the authorised user to set the Operational State to Operational or Maintenance when the system is turned on. The default shall be Operational.	BL 1												
4.1.2.1.2.0-1.0-4	[T1-R007]	TRITON shall allow the authorised user to change the Operational State manually with a notification to all users.	BL 1												
4.1.2.1.2.0-1.0-5	[T1-R008]	TRITON shall change its state automatically from "Operational" to "Degraded" when the functions or interfaces specified in the System Configuration Settings are not available for a configurable maximum allowed time.	BL 1												
4.1.2.1.2.0-1.0-6	[T1-R009]	TRITON shall change its state automatically from Degraded to Operational when all the functions and interfaces specified in the System Configuration Settings are available for a configurable minimum allowed time.	BL 1												
4.1.2.1.2.0-1.0-7	[T1-R010]	TRITON shall switch to "Shutdown" state when an administrative command is issued by either an authorised user or the TRITON System Technical Management Function.	BL 1												
4.1.2.1.2.0-1.0-8	[T1-R011]	TRITON shall notify all Clients when the Server enters in the Shutdown state after a configurable time period (e.g. "The system is shutting down in 5 minutes").	BL 1												
4.1.2.1.2.0-1.0-9	[T1-R012]	TRITON shall notify the authorised user if it detects connection failure to the specified TRITON Server for more than five (5) minutes while it is operating in Normal Mode, then automatically change its mode to Standalone Mode after waiting for configurable count-down period for the authorised user input.	BL 4												
4.1.2.1.2.0-1.0-10	[T1-R013]	TRITON Deployable Kit shall utilise its own infrastructure to support the operational software in Standalone Mode.	BL 4												
4.1.2.2		**Client States**													
4.1.2.2.1		**State Definitions**													
4.1.2.2.2		**State Transitions**													
4.1.2.2.2.0-1.0-1	[T1-R014]	TRITON AppView shall be available to all users if the standard NATO CIS Infrastructure and a workstation with a browser is available.	BL 1												
4.1.2.2.2.0-1.0-2	[T1-R015]	TRITON AppView shall be able to connect to a selected TRITON Server.	BL 1												
4.1.2.2.2.0-1.0-3	[T1-R016]	TRITON AppView shall switch to "Connected" state if it ests connected to the selected TRITON Server.	BL 1												
4.1.2.2.2.0-1.0-4	[T1-R017]	TRITON AppView shall allow the user to launch GeoView when it is in "Connected" state.	BL 1												
4.1.2.2.2.0-1.0-5	[T1-R018]	TRITON AppView shall switch to "Disconnected" state if it loses its connection to the selected TRITON Server.	BL 1												
4.1.2.2.2.0-1.0-6	[T1-R019]	TRITON AppView shall be able to detect network connection failure and automatically reconnect to the selected TRITON Server if the network connectivity is re-established within a configurable time period.	BL 1												
4.1.2.2.2.0-1.0-7	[T1-R020]	TRITON AppView shall notify the user if it loses its connection to the selected TRITON Server, keep displaying the available operational data and shall not accept any operational function command.	BL 1												
4.1.2.2.2.0-1.0-8	[T1-R021]	TRITON AppView shall terminate with an Exit Command from the user with confirmation. If GeoView has been launched, it shall be terminated when the AppView is terminated.	BL 1												
4.2		**TRITON Functional Service Requirements**													
4.2.1		**Maritime Operational Objects**													
4.2.2		**Maritime Operation Management**													
4.2.2.0-5.0-1	[T1-R022]	TRITON shall maintain a list of Maritime Operations.	BL 1												
4.2.2.0-5.0-2	[T1-R023]	TRITON shall allow the authorised user to manage (create, modify, delete, import) the Maritime Operations List.	BL 1												
4.2.2.0-5.0-3	[T1-R024]	TRITON shall allow the authorised user to import Maritime Operation information from a selected TRITON Server of a selected installation.	BL 1												
4.2.2.0-5.0-4	[T1-R025]	TRITON shall allow the authorised user to manage the databases in the Global Operational Store.	BL 1												
4.2.2.0-5.0-5	[T1-R026]	TRITON shall allow the authorised user to manage (create, backup, restore, delete, import, export) the Operation-Specific Store. The user shall be able to import whole or part of previously exported Maritime Operational Object Databases into the internal databases of a Maritime Operation.	BL 1												
4.2.2.0-5.0-6	[T1-R027]	TRITON shall allow the authorised user of a Maritime Operation to manage the users in that Maritime Operation.	BL 1												
4.2.2.0-5.0-7	[T1-R028]	TRITON shall control and direct the flow of information coming from external data sources to a Maritime Operation.	BL 1												
4.2.2.0-5.0-8	[T1-R029]	TRITON shall control and direct the flow of information to external systems/services within a Maritime Operation.	BL 1												
4.2.2.0-5.0-9	[T1-R030]	TRITON shall allow the authorised user of a Maritime Operation to manage the flow of information to/from external data sources.	BL 1												
4.2.2.0-5.0-10	[T1-R031]	TRITON shall allow the authorised user of a Maritime Operation to manage the sharing of data with other Maritime Operations accordine to the securitv classification and releasabilitv labels.	BL 1												
4.2.2.0-5.0-11	[T1-R032]	TRITON shall allow the authorised user of a Maritime Operation to make use of the shared data by other Maritime Operations according to the security classification and releasability labels.	BL 1												
4.2.2.0-5.0-12	[T1-R033]	TRITON shall allow the authorised user of a Maritime Operation to manage the configuration settings applicable to information processing.	BL 1												
4.2.3		**Maritime Situational Awareness**													
4.2.3.1		**Maritime Vessel Management**													
4.2.3.1.1		**Vessel Definition**													
4.2.3.1.2		**Vessel Database Management**													
4.2.3.1.2.0-1.0-1	[T1-R034]	TRITON shall maintain a Vessel Database to store all Vessels in the world in all types and sizes as recognised by NATO.	BL 1												
4.2.3.1.2.0-1.0-2	[T1-R035]	TRITON shall use an optimised database structure for storing only the relevant data for relevant attributes for particular types of Vessels (for example, weapons data will be stored for only combatants).	BL 1												
4.2.3.1.2.0-1.0-3	[T1-R036]	TRITON shall allow the authorised user to manage (add, modify, remove, import, export, backup) the Vessel Database in each Maritime Operation scope. The user shall be able to export or import whole or part of the database.	BL 1												
4.2.3.1.2.0-1.0-4	[T1-R037]	TRITON shall be able to store the attribute changes made by the authorised in the Vessel Database user for at least ninety (90) days.	BL 1												
4.2.3.1.2.0-1.0-5	[T1-R038]	TRITON shall be able to store Kinematics History, Journey History, Activity History and Event History for each Vessel for a period of time set in the confiauration parameter Historv Period.	BL 1												
4.2.3.1.2.0-1.0-6	[T1-R039]	TRITON shall allow the authorised user to set the configuration parameter "History Period" which is used for determining the period of history to be stored in the Vessel Database.	BL 1												
4.2.3.1.2.0-1.0-7	[T1-R040]	TRITON shall notify the authorised user about the Vessels if their History Period is reached with an option of time extension.	BL 1												
4.2.3.1.2.0-1.0-8	[T1-R041]	TRITON shall allow the authorised user to set the configuration parameter "Vessel History Distance" for each vessel type in order to determine the interval for updating the vessel positions in the Vessel Database.	BL 1												
4.2.3.1.3		**Vessel Number Management**													
4.2.3.1.3.0-1.0-1	[T1-R042]	TRITON shall use unique decimal numbers to identifv vessels at user level.	BL 1												
4.2.3.1.3.0-1.0-2	[T1-R043]	TRITON shall allow the authorised user to allocate TVN pool for the entire system and each Maritime Operation by defining the first and last vessel numbers.	BL 1												
4.2.3.1.3.0-1.0-3	[T1-R044]	TRITON shall assign a unique TVN to each new vessel added into the Vessel Database.	BL 1												
4.2.3.1.4		**Vessel Identity Management**													
4.2.3.1.4.0-1.0-1	[T1-R045]	TRITON shall assign FRIEND as the default Standard Identity to all alliance combatant vessels in the Vessel Database and NEUTRAL to all other vessels on the NS Domain.	BL 1												
4.2.3.1.4.0-1.0-2	[T1-R046]	TRITON shall assign NEUTRAL as the default Standard Identity to all vessels including the alliance combatant vessels in the Vessel Database on the NU Domain.	BL 1												
4.2.3.1.4.0-1.0-3	[T1-R047]	TRITON shall allow the authorised user to assign a new Standard Identity according to [STANAG 1241] to selected vessels in the Vessel Database.	BL 1												
4.2.3.1.5		**Vessel Management**													
4.2.3.1.5.0-1.0-1	[T1-R048]	TRITON shall allow the authorised user to import data from recognised Maritime Datasets into the Vessel Database.	BL 1												
4.2.3.1.5.0-1.0-2	[T1-R049]	TRITON shall check the key attributes of Vessel Data during the import process from a selected Maritime Datasets into the Vessel Database and prevent any duplications with notification.	BL 1												
4.2.3.1.5.0-1.0-3	[T1-R050]	TRITON shall be able to use a Vessel Data Import Tool to import data from a selected Maritime Datasets into a file in Recognised Import File Format.	BL 1												
4.2.3.1.5.0-1.0-4	[T1-R051]	TRITON shall allow the authorised user to be able to export data from the Vessel Database according to a given selection criteria into a user-specified file in Recognised Export File Format.	BL 1												
4.2.3.1.5.0-1.0-5	[T1-R052]	TRITON shall be able to share the Vessels in the Vessel Database among multiple Maritime Operations if they are labelled accordingly in their Releasable Maritime Operations attribute.	BL 1												
4.2.3.1.6		**Vessel List Management**													
4.2.3.1.6.0-1.0-1	[T1-R053]	TRITON shall maintain Vessel Lists to store CCOI/COI/VOCI and Custom Lists as defined in the Description.	BL 3												
4.2.3.1.6.0-1.0-2	[T1-R054]	TRITON shall allow the authorised user to manage (create, modify, delete, import, export) the Vessel Lists.	BL 3												
4.2.3.1.6.0-1.0-3	[T1-R055]	TRITON shall allow the authorised user to define the default identities to be assigned to CCOI and COI vessels.	BL 3												
4.2.3.1.6.0-1.0-4	[T1-R056]	TRITON shall automatically assign the default identities to CCOI and COI vessels when the Vessel List is created.	BL 3												
4.2.3.1.6.0-1.0-5	[T1-R057]	TRITON shall allow the user to display the Vessels in the selected Vessel List in sortable tabular form with an option to indicate it on the GeoView.	BL 3												
4.2.3.1.6.0-1.0-6	[T1-R058]	TRITON shall allow the user to display the positions of the Vessels of the selected Vessel List on the GeoView based on user-selected criteria (e.g. type, date, country, area).	BL 3												
4.2.3.1.6.0-1.0-7	[T1-R059]	TRITON shall allow the authorised user to export selected Vessel Lists into a file in Recognised Output File Format and import Vessel Lists from a given file in Recognised Input File Format.	BL 3												
4.2.3.1.6.0-1.0-8	[T1-R060]	TRITON shall allow the authorised user to select a Vessel List and generate a Formatted Message (e.g. OTH-T GOLD CONTACT REPORT or ADatP-3 MARINTREP).	BL 3												
4.2.3.2		**Maritime Track Management**													
4.2.3.2.1		**Track Definition**													
4.2.3.2.2		**Track Database Management**													
4.2.3.2.2.0-1.0-1	[T1-R061]	TRITON shall maintain a Track Database to store all tracks within the Environment of a Maritime Operation with a standard "Track Data" representation as given in the Description of the Track Definition.	BL 1												
4.2.3.2.2.0-1.0-2	[T1-R062]	TRITON shall use a Track Database structure optimised to store only the relevant data for relevant attributes for particular types of vessels (for example, weapon information will be stored for only combatants).	BL 1												
4.2.3.2.2.0-1.0-3	[T1-R063]	TRITON shall allow the authorised user to set the configuration parameter Track History Distance for each vessel type in order to determine the interval for storing the Kinematics History in the Track Database. The details are given in the Description.	BL 1												
4.2.3.2.2.0-1.0-4	[T1-R064]	TRITON shall allow the authorised user to purge the Track Database (delete all tracks) after confirmation.	BL 1												
4.2.3.2.2.0-1.0-5	[T1-R065]	TRITON shall be able to share the Track Data among multiple Maritime Operations if they are labelled accordingly in their Releasable Maritime Operations attribute.	BL 1												
4.2.3.2.3		**Track Source Management**													
4.2.3.2.3.0-1.0-1	[T1-R066]	TRITON shall identify each track source uniquely (i.e. maintaining a Source ID). A System Interface Service (SIS) shall be used for each external source where each individual track source is identified with a Source ID.	BL 1												
4.2.3.2.3.0-1.0-2	[T1-R067]	TRITON shall allow the authorised user to configure track sources dynamically (add, modify, remove) without re-starting the whole Application.	BL 1												
4.2.3.2.3.0-1.0-3	[T1-R068]	TRITON shall assign the Releasable Maritime Operations label to a track source as received from the Maritime Operation Manager.	BL 1												
4.2.3.2.3.0-1.0-4	[T1-R069]	TRITON shall allow the authorised user to control (allow or prohibit) input of tracks from a selected source into a Maritime Operation.	BL 1												
4.2.3.2.3.0-1.0-5	[T1-R070]	TRITON shall be able to process all tracks received from a track source by taking the performance issues into consideration. Depending on the load, scalable services, pre-filtering, configurable update rates can be used.	BL 1												
4.2.3.2.3.0-1.0-6	[T1-R071]	TRITON shall assign the source identification to each track when it is received for the first time and maintain it thereafter.	BL 1												
4.2.3.2.3.0-1.0-7	[T1-R072]	TRITON shall maintain a Confidence Level Table, for each Maritime Operation, to be used as the default for track sources.	BL 1												
4.2.3.2.3.0-1.0-8	[T1-R073]	TRITON shall allow the authorised user to modify the Confidence Level Table, while the system is operating.	BL 1												
4.2.3.2.4		**Track Number Management**													
4.2.3.2.4.0-1.0-1	[T1-R074]	TRITON shall use unique decimal numbers to identify tracks at user level.	BL 1												
4.2.3.2.4.0-1.0-2	[T1-R075]	TRITON shall allow the authorised user to allocate TTN pool for the entire system and each Maritime Operation by defining the first and last track numbers.	BL 1												
4.2.3.2.4.0-1.0-3	[T1-R076]	TRITON shall assign a unique TTN to each new track received from external sources or initiated internally.	BL 1												
4.2.3.2.5		**Track Identity Management**													
4.2.3.2.5.0-1.0-1	[T1-R077]	TRITON shall use Standard Identities as defined in STANAG 1241 for tracks on the NS Domain.	BL 1												
4.2.3.2.5.0-1.0-2	[T1-R078]	TRITON shall restrict the user to assign SUSPECT and HOSTILE as Standard Identities to any track or vessel on the NU Domain.	BL 1												
4.2.3.2.5.0-1.0-3	[T1-R079]	TRITON shall restrict Standard Identity change for automatic tracks if the authorised user has already made a change on it.	BL 1												
4.2.3.2.5.0-1.0-4	[T1-R080]	TRITON shall automatically assign the Standard Identity FRIEND to a received track if it doesn't have a Standard Identity but its Ship Designator is combatant and its country is one of the NATO Nations as indicated in the NATO Standard Country Code Table.	BL 1												
4.2.3.2.5.0-1.0-5	[T1-R081]	TRITON shall allow the authorised user to assign a new Standard Identity to a received track with Ship Designator non-combatant.	BL 1												
4.2.3.2.5.0-1.0-6	[T1-R082]	TRITON shall compare the names in the Identity Set when a new positive identity (country and vessel name) is entered by a user for an existing track and notify the user if another track with the same name already exists.	BL 1												
4.2.3.2.5.0-1.0-7	[T1-R083]	TRITON shall use the associated Vessel name if the reported names for correlated tracks are differing.	BL 1												
4.2.3.2.5.0-1.0-8	[T1-R084]	TRITON shall allow the authorised user to assign Exercise Indicator and Exercise Identity to a track.	BL 1												
4.2.3.2.5.0-1.0-9	[T1-R085]	TRITON shall be able to process a received track with its Exercise Identity if its Exercise Indicator is set by the originator.	BL 1												
4.2.3.2.6		**Track Life Cycle Management**													

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
4.2.3.2.6.0-1.0-1	[T1-R086]	TRITON shall perform automatic and manual track life cycle management including creation, update and deletion.	BL 1												
4.2.3.2.6.0-1.0-2	[T1-R087]	TRITON shall automatically update automatic or manual tracks when new data report is received.	BL 1												
4.2.3.2.6.0-1.0-3	[T1-R088]	TRITON shall allow the authorised user to set the Lost Track Duration for automatic tracks between 30 (thirty) seconds and ten (10) minutes depending on the type of its source and speed.	BL 1												
4.2.3.2.6.0-1.0-4	[T1-R089]	TRITON shall declare an automatic track as Lost if it is not updated by its source more than the Lost Track Duration.	BL 1												
4.2.3.2.6.0-1.0-5	[T1-R090]	TRITON shall maintain the Lost tracks for the time period set by the authorised user a system configuration parameter after the user acknowledges the lost track indication.	BL 1												
4.2.3.2.6.0-1.0-6	[T1-R091]	TRITON shall allow the authorised user to set the Maximum Time Late for manual tracks up to thirty-six (36) hours with one minute intervals.	BL 1												
4.2.3.2.6.0-1.0-7	[T1-R092]	TRITON shall declare the manual track as Expired and notify to user about deletion of the track if the Maximum Time Late duration is exceeded.	BL 1												
4.2.3.2.6.0-1.0-8	[T1-R093]	TRITON shall indicate (such as blinking or faded track symbol) Lost tracks and Expired tracks on the GeoView until they are deleted.	BL 1												
4.2.3.2.6.0-1.0-9	[T1-R094]	TRITON shall continue maintaining automatic, correlated track until at least two tracks are left. If one more track is deleted, then the correlated track shall become normal track.	BL 1												
4.2.3.2.6.0-1.0-10	[T1-R095]	TRITON shall stop dissolving an associated track when it is deleted.	BL 1												
4.2.3.2.7		**Track Initiation, Update and Deletion**													
4.2.3.2.7.0-1.0-1	[T1-R096]	TRITON shall initiate an automatic track in the Track Database when it is received for the first time from a Track Source. The process is explained in the Description.	BL 1												
4.2.3.2.7.0-1.0-2	[T1-R097]	TRITON shall allow the authorised user to initiate a manual track with default attributes (and source as the user) at a given geographical position or at the pointed position on the GeoView. The user shall fill in Track Report and submit. The process is explained in the Description.	BL 1												
4.2.3.2.7.0-1.0-3	[T1-R098]	TRITON shall allow the authorised user to manually update any attribute of a manual track. A notification shall be issued to the user if that attribute has already been changed by another authorised user.	BL 1												
4.2.3.2.7.0-1.0-4	[T1-R099]	TRITON shall automatically update the attributes of an automatic track (e.g. AIS, LRIT) when they are changed by its source. TRITON shall check the non-kinematic attributes of an automatic track when a new track update is received. The updated attribute shall be applied to the Track Data only if it is not manually overridden by the authorised user.	BL 1												
4.2.3.2.7.0-1.0-5	[T1-R100]	TRITON shall automatically update the kinematic attributes of an automatic track (e.g. AIS, LRIT) when they are changed by its source. The update rate shall be set inside the relevant System Interface Service.	BL 1												
4.2.3.2.7.0-1.0-6	[T1-R101]	TRITON shall resolve destination name into geographical position using the Destination Resolution Function when a new AIS track is created.	BL 1												
4.2.3.2.7.0-1.0-7	[T1-R102]	TRITON shall allow the authorised user to dead reckon a track or a vessel to the current time or a given time with its last known course and speed with an option of leaving at the new position or returning to the original position.	BL 1												
4.2.3.2.7.0-1.0-8	[T1-R103]	TRITON shall allow the user to dead reckon (DR) a track or a vessel to the current time or a given time with its last known course and speed without leaving it at the new position.	BL 1												
4.2.3.2.7.0-1.0-9	[T1-R104]	TRITON shall use Rhumb Line DR calculation of tracks or vessels for ranges up to sixty (60) Nautical Miles and Great Circle projection for longer ranges.	BL 1												
4.2.3.2.7.0-1.0-10	[T1-R105]	TRITON shall dead reckon a track for the amount of time given by the user. The range shall be ten (10) minutes to eight (8) hours.	BL 1												
4.2.3.2.7.0-1.0-11	[T1-R106]	TRITON shall automatically delete a manual track after Maximum Time Late has passed from its last update time.	BL 1												
4.2.3.2.7.0-1.0-12	[T1-R107]	TRITON shall automatically delete an automatic track when it is deleted by its source (e.g. track is dropped in TDL or Nation feed explicitly drops it from its feed).	BL 1												
4.2.3.2.7.0-1.0-13	[T1-R108]	TRITON shall allow the authorised user to delete a manually-initiated track. A notification shall be issued if the track has one or more user-overridden attributes or it is associated to a Vessel.	BL 1												
4.2.3.2.7.0-1.0-14	[T1-R109]	TRITON shall allow the authorised user to delete an automatic track. A notification shall be issued to indicate that the automatic track is being deleted, and a new track may be initiated at the next update.	BL 1												
4.2.3.2.7.0-1.0-15	[T1-R110]	TRITON shall allow the user to slave a Reference Point or an Area to a track on a true or relative bearing and to assign independent course and speed.	BL 1												
4.2.3.2.7.0-1.0-16	[T1-R111]	TRITON shall compute and use the Track Position Update Interval at each update process by using the Track History Distance given for the type of the vessel in the System Operational Parameters.	BL 1												
4.2.3.2.7.0-1.0-17	[T1-R112]	TRITON shall store the track positions in the Kinematic History of each track in the Track Database using the position and speed of the track at intervals indicated by the Track Kinematic History Update Interval.	BL 1												
4.2.3.2.7.0-1.0-18	[T1-R113]	TRITON shall keep the Kinematic History of a track for a duration of Maximum Time Late. After the time has elapsed, the last data position shall be dropped.	BL 1												
4.2.3.2.7.0-1.0-19	[T1-R114]	TRITON shall be able to display Kinematic History of a selected track for a user-selected period of time on the GeoView.	BL 1												
4.2.3.2.7.0-1.0-20	[T1-R115]	TRITON shall delete all data including its Kinematic History when a track is deleted by either an authorised user or the source of that track with a notification if the track has user-overridden attributes or not associated.	BL 1												
4.2.3.2.8		**Track Correlation**													
4.2.3.2.8.0-2.0-1	[T1-R116]	TRITON shall automatically correlate a new track with an existing track if the configurable conditions of the Correlation Criteria are satisfied.	BL 1												
4.2.3.2.8.0-2.0-2	[T1-R117]	TRITON shall automatically correlate a new track with an existing track and notify the authorised user if one or more of the authorised user-selected conditions of the Correlation Criteria are not being satisfied.	BL 1												
4.2.3.2.8.0-2.0-3	[T1-R118]	TRITON shall automatically decorrelate the previously correlated tracks if the Decorrelation Criteria is satisfied.	BL 1												
4.2.3.2.8.0-2.0-4	[T1-R119]	TRITON shall update each track under a manually correlated track even though their attributes do not match.	BL 1												
4.2.3.2.8.0-2.0-5	[T1-R120]	TRITON shall allow the authorised user to manually correlate two tracks if automatic correlation is not successful.	BL 1												
4.2.3.2.8.0-2.0-6	[T1-R121]	TRITON shall allow the authorised user to modify the Correlation and Decorrelation Criteria in the System Operational Parameters.	BL 1												
4.2.3.2.8.0-2.0-7	[T1-R122]	TRITON shall not allow simulated tracks to be correlated with live tracks.	BL 1												
4.2.3.2.8.0-2.0-8	[T1-R123]	TRITON shall use extrapolated positions of tracks for correlation and decorrelation checks as explained in the Description.	BL 1												
4.2.3.2.8.0-2.0-9	[T1-R124]	TRITON shall keep one track if that track is correlated with another track, and display only the correlated track.	BL 1												
4.2.3.2.8.0-2.0-10	[T1-R125]	TRITON shall use the highest Confidence Level of the correlating tracks to determine the Confidence Level of the correlated track.	BL 1												
4.2.3.2.8.0-2.0-11	[T1-R126]	TRITON shall use the most recent kinematics information of the correlating tracks to set the kinematics of the correlated track (as explained in the Description).	BL 1												
4.2.3.2.8.0-2.0-12	[T1-R127]	TRITON shall treat a decorrelated track as a new track, and process it if its last time of update is not older than the Maximum Time Late. If it is older, then the decorrelated track shall be deleted automatically.	BL 1												
4.2.3.2.8.0-2.0-13	[T1-R128]	TRITON shall display correlated tracks with an indication in the GeoView (e.g. a small dot on the symbol).	BL 1												
4.2.3.2.8.0-2.0-14	[T1-R129]	TRITON shall allow the user to view the detailed track information for each track under the correlated track.	BL 1												
4.2.3.2.8.0-2.0-15	[T1-R130]	TRITON shall update each track under an automatically correlated track if their key attributes are not changed.	BL 1												
4.2.3.2.8.0-2.0-16	[T1-R131]	TRITON "should" be scalable for processing high number of tracks (e.g. over 100,000) with high update rates (e.g. less than 30 seconds) and handle correlation.	BL 1												
4.2.3.2.8.0-2.0-17	[T1-R132]	TRITON shall be able to correlate a new track with an existing track in less than five (5) seconds within ten thousand (10,000) tracks.	BL 1												
4.2.3.2.9		**Track and Vessel Association**													
4.2.3.2.9.0-1.0-1	[T1-R133]	TRITON shall allow the authorised user to change the Association and Disassociation Criteria in the System Operational Parameters	BL 1												
4.2.3.2.9.0-1.0-2	[T1-R134]	TRITON shall automatically associate an automatic Live Track with an existing vessel in the Vessel Database if the Association Criteria is satisfied.	BL 1												
4.2.3.2.9.0-1.0-3	[T1-R135]	TRITON shall allow the authorised user to manually associate an automatic or manual Live Tracks with a Vessel even though some of the attributes of a reported Track do not match to the Vessel's.	BL 1												
4.2.3.2.9.0-1.0-4	[T1-R136]	TRITON shall display associated Tracks and their augmented information with an indication on the GeoView.	BL 1												
4.2.3.2.9.0-1.0-5	[T1-R137]	TRITON shall display the TTN of the Track if it is associated to a Vessel.	BL 1												
4.2.3.2.9.0-1.0-6	[T1-R138]	TRITON shall notify the authorised user with an indication to the Track if its automatic association check fails.	BL 1												
4.2.3.2.9.0-1.0-7	[T1-R139]	TRITON shall notify the authorised user about disassociation of an associated automatic Live Track and a Vessel if one of the Disassociation Criteria is met.	BL 1												
4.2.3.2.9.0-1.0-8	[T1-R140]	TRITON shall automatically update Kinematic History, Journey History and Activity History information of a Vessel in the Vessel Database if the Vessel is associated to a Track. The kinematics information with the most recent time of update shall be used to update the Vessel kinematics.	BL 1												
4.2.3.2.9.0-1.0-9	[T1-R141]	TRITON shall compute and use the Vessel Position Update Interval at each update process by using the Vessel History Distance given for the type of the Vessel in the System Operational Parameters.	BL 1												
4.2.3.2.9.0-1.0-10	[T1-R142]	TRITON shall update the Vessel positions in the Vessel Database using the position and speed of the associated Track at intervals indicated by the Vessel Position Update Interval.	BL 1												
4.2.3.2.10		**Simulated Track Handling**													
4.2.3.2.10.0-1.0-1	[T1-R143]	TRITON shall be able to process Simulated Tracks generated by its own simulators.	BL 1												
4.2.3.2.10.0-1.0-2	[T1-R144]	TRITON shall create a Simulated Track when a simulated link track is received from a TDL via NIRIS.	BL 1												
4.2.3.2.10.0-1.0-3	[T1-R145]	TRITON shall display Simulated Tracks as readily distinguishable from Live Tracks.	BL 1												
4.2.3.2.10.0-1.0-4	[T1-R146]	TRITON shall prevent correlation of Simulated Tracks with Live Tracks and association with Vessels.	BL 1												
4.2.3.2.11		**Track Interface Handling**													
4.2.3.2.11.0-1.0-1	[T1-R147]	TRITON shall handle track information received from external sources using standard interfaces and convert different track feeds and reports into standard. internal track representation using the TRTION Track Specification (NS or NLI).	BL 1												
4.2.3.2.11.0-1.0-2	[T1-R148]	TRITON shall use configurable update rate for internal processing in each System Interface Services (SIS) which receives tracks from external sources.	BL 1												
4.2.3.2.11.0-1.0-3	[T1-R149]	TRITON shall allow the authorised user to control the internal update rate of the tracks that are received from a particular external source.	BL 1												
4.2.3.2.11.0-1.0-4	[T1-R150]	TRITON shall automatically maximise the internal update rate of the tracks assigned to the Status Board for close monitoring purposes by any user.	BL 1												
4.2.3.2.11.0-1.0-5	[T1-R151]	TRITON shall automatically maximise the internal update rate of a track if it is requested by a user in the Object Information Display (see GeoView).	BL 1												
4.2.3.2.11.0-1.0-6	[T1-R152]	TRITON shall update internal tracks when at least one attribute of a track is changed by its source.	BL 1												
4.2.3.2.11.0-1.0-7	[T1-R153]	TRITON shall use separate source identification for each SIS acting as a track source (e.g. NIRIS Interface, Formatted Message Interface, MCCIS Interface, AIS Data Source Interface).	BL 1												
4.2.3.2.11.0-1.0-8	[T1-R154]	TRITON shall allow the authorised user to exchange track data between Maritime Operations according to their releasability attribute.	BL 1												
4.2.3.2.11.0-1.0-9	[T1-R155]	TRITON shall manage Own Ship as a track and make it available for the GeoView to be displayed as Own Position.	BL 4												
4.2.3.2.11.0-1.0-10	[T1-R156]	TRITON shall allow the user to set a track as Own Ship on the GeoView.	BL 4												
4.2.3.2.11.0-1.0-11	[T1-R157]	TRITON shall maintain Own Ship Data for the Deployable Kits.	BL 4												
4.2.3.2.11.0-1.0-12	[T1-R158]	TRITON shall allow the authorised user to manually update Own Ship Data for the Deployable Kits.	BL 4												
4.2.3.2.11.0-1.0-13	[T1-R159]	TRITON shall allow the authorised user to create an Own Ship Report to provide reports for any afloat platform.	BL 4												
4.2.3.2.11.0-1.0-14	[T1-R160]	TRITON shall process Own Ship Reports created by the authorised users on board afloat platforms and initiate manual tracks with the highest Confidence Level.	BL 4												
4.2.3.3		**Maritime Reference Object Management**													
4.2.3.3.1		**Reference Object Definition**													
4.2.3.3.2		**Reference Object Database Management**													
4.2.3.3.2.0-1.0-1	[T1-R161]	TRITON shall maintain a Reference Object Database to store all types of Reference Objects within the Environment of a Maritime Operation with a standard Reference Object Data representation.	BL 1												
4.2.3.3.2.0-1.0-2	[T1-R162]	TRITON shall allow the authorised user to manage (add, modify, remove, import, export) the Reference Object Database.	BL 1												
4.2.3.3.2.0-1.0-3	[T1-R163]	TRITON shall be able to share the Reference Object Data among multiple Maritime Operations if they are labelled accordingly in their Releasable Maritime Operations attribute.	BL 1												
4.2.3.3.3		**Reference Object Number Management**													
4.2.3.3.3.0-1.0-1	[T1-R164]	TRITON shall use unique decimal numbers (TRN) to identify Reference Objects at user level.	BL 1												
4.2.3.3.3.0-1.0-2	[T1-R165]	TRITON shall allow the authorised user to allocate TRN pool for the entire system and each Maritime Operation by defining the first and last Reference Object numbers.	BL 1												
4.2.3.3.3.0-1.0-3	[T1-R166]	TRITON shall assign a unique TRN to each new Reference Object received from external sources or created internally.	BL 1												
4.2.3.3.4		**Reference Object Life Cycle Management**													
4.2.3.3.4.0-1.0-1	[T1-R167]	TRITON shall perform automatic and manual Reference Object life cycle management.	BL 1												
4.2.3.3.4.0-1.0-2	[T1-R168]	TRITON shall maintain the Reference Objects starting from their creation time for a period specified in the Time Validity.	BL 1												
4.2.3.3.4.0-1.0-3	[T1-R169]	TRITON shall be able to create appropriate Reference Objects if Special Points, Lines and Areas are received from an external source such as TDL over NIRIS or Formatted Message over MHS.	BL 1												
4.2.3.3.4.0-1.0-4	[T1-R170]	TRITON shall delete a Reference Object according to the criteria associated to the type of the object (e.g. Missile Impact Point can be deleted after its impact time exceeded).	BL 1												
4.2.3.3.4.0-1.0-5	[T1-R171]	TRITON shall provide a Time Validity value for Reference Objects for controlling its presence automatically in addition to user deletion. Objects having "Permanent" Time Validity shall not be deleted automatically.	BL 1												
4.2.3.3.4.0-1.0-6	[T1-R172]	TRITON shall notify the user at least ten (10) minutes before the Time Validity of a Reference Object expires.	BL 1												
4.2.3.3.5		**Reference Object Creation, Update and Deletion**													
4.2.3.3.5.0-1.0-1	[T1-R173]	TRITON shall allow the user to manage (create, modify, delete) the Reference Objects in each Maritime Operation.	BL 1												
4.2.3.3.5.0-1.0-2	[T1-R174]	TRITON shall allow the user to create a Reference Point, a Line or an Area by using the C2 Drawing facilities of the GeoView.	BL 1												
4.2.3.3.5.0-1.0-3	[T1-R175]	TRITON shall update attributes of a Reference Object automatically if it is received from an external source.	BL 1												
4.2.3.3.5.0-1.0-4	[T1-R176]	TRITON shall allow the authorised user to dead reckon a Reference Object to the current time or a given time with its last known course and speed with an option of leaving at the new position or returning to the original position.	BL 1												
4.2.3.3.5.0-1.0-5	[T1-R177]	TRITON shall allow the user to dead reckon a Reference Object to the current time or a given time with its last known course and speed without leaving it at the new position.	BL 1												
4.2.3.3.5.0-1.0-6	[T1-R178]	TRITON shall allow the user to dead reckon the position of a Reference Object if it has a course and speed value.	BL 1												
4.2.3.3.5.0-1.0-7	[T1-R179]	TRITON shall use Rhumb Line dead reckoning calculation of Reference Objects for ranges up to sixty (60) Nautical Miles and Great Circle projection for longer ranges.	BL 1												
4.2.3.3.5.0-1.0-8	[T1-R180]	TRITON shall dead reckon a Reference Object for the amount of time given by the user. The range shall be ten (10) minutes to eight (8) hours.	BL 1												
4.2.3.3.5.0-1.0-9	[T1-R181]	TRITON shall delete a Reference Object automatically if its external source drops it.	BL 1												
4.2.3.3.5.0-1.0-10	[T1-R182]	TRITON shall provide the user with the capability to initiate Lines and multipoint Areas containing at least fifty (50) segments. The C2 Areas of the GeoView shall be used to visualise the Areas.	BL 1												
4.2.3.3.5.0-1.0-11	[T1-R183]	TRITON shall allow the user to assign independent course and speed to a Reference Object.	BL 1												
4.2.3.3.5.0-1.0-12	[T1-R184]	TRITON shall allow the authorised user to exchange Reference Objects between Maritime Operations according to their releasability attribute.	BL 1												
4.2.3.3.6		**Reference Object Association**													

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
4.2.3.3.6.0-1.0-1	[T1-R185]	TRITON shall allow the user to slave a Reference Object to an indicated Track.	BL 2												
4.2.3.3.6.0-1.0-2	[T1-R186]	TRITON shall associate a Reference Object to a Track if the Reference Object Association Criteria is not conflicting.	BL 2												
4.2.3.3.6.0-1.0-3	[T1-R187]	TRITON shall notify the user if the indicated Reference Object cannot be associated with the indicated Track.	BL 2												
4.2.3.3.6.0-1.0-4	[T1-R188]	TRITON shall allow the user to indicate the reference point of the Reference Object for aligning its position to the slaved Track.	BL 2												
4.2.3.3.6.0-1.0-5	[T1-R189]	TRITON shall cancel slaving if either the associated Track or the Reference Object is deleted.	BL 2												
4.2.3.3.6.0-1.0-6	IT1-R190I	TRITON shall keep a slaved Reference Object at its last position if the Track associated to it has been deleted.	BL 2												
4.2.3.4		**Maritime Picture Management**													
4.2.3.4.1		**Operational Display**													
4.2.3.4.1.1		**Picture Display**													
4.2.3.4.1.1.0-2.0-1	[T1-R191]	TRITON shall display Maritime Operational Objects in the GeoView with a symbology set selected by the user in Layers.	BL 1												
4.2.3.4.1.1.0-2.0-2	[T1-R192]	TRITON shall allow the user to set a Time Window and Update Rate for Picture Display.	BL 1												
4.2.3.4.1.1.0-2.0-3	[T1-R193]	TRITON shall allow the user to display the last known positions of Maritime Operational Objects based on the user-selected duration in the GeoView, within the current extent (only those Objects within the GeoView Spatial Extent shall be retrieved).	BL 1												
4.2.3.4.1.1.0-2.0-4	[T1-R194]	TRITON shall provide and update only those Maritime Operational Objects which are inside the Spatial Extent of each GeoView. Only those Objects having the last update time within the given Time Window shall be displayed and updated.	BL 1												
4.2.3.4.1.1.0-2.0-5	[T1-R195]	TRITON shall adjust the Update Rate for tracks to be displayed according to the Spatial Extent scale of the GeoView.	BL 1												
4.2.3.4.1.1.0-2.0-6	[T1-R196]	TRITON shall allow the user to display historical positions of Maritime Operational Objects within a given date-time period and with given time intervals, in sortable tabular format in the AppView with an option to display them in the GeoView.	BL 1												
4.2.3.4.1.1.0-2.0-7	[T1-R197]	TRITON shall display in AppView and GeoView, the number of Maritime Operational Objects currently displayed in the GeoView, in the Area of Interest, and the Total Number of Objects in the selected Time Window. This information may be displayed with respect to the Layers.	BL 1												
4.2.3.4.1.1.0-2.0-8	[T1-R198]	TRITON shall group the Maritime Operational Objects if the number of Objects to be displayed in a GeoView is greater than the "Maximum Number of Object to Display" setting.	BL 1												
4.2.3.4.1.1.0-2.0-9	[T1-R199]	TRITON shall be able to display the picture with the given Time Window, Update Rate and Spatial Extent within ten (10) seconds after the user request. TRITON AppView shall notify the user if the available bandwidth is not sufficient to receive the full requested picture from the server.	BL 4												
4.2.3.4.1.1.0-2.0-10	[T1-R200]	TRITON shall notify the user if preparing and displaying the requested history information will take longer than fifteen (15) seconds.	BL 1												
4.2.3.4.1.1.0-2.0-11	[T1-R201]	TRITON shall display associated and unassociated tracks from Track Database and unassociated vessels from Vessel Database when users issue viewing request with a Time Window.	BL 1												
4.2.3.4.1.1.0-2.0-12	[T1-R202]	TRITON shall use TTN of the track in the Object Label if the Track is associated to a Vessel and TVN of the Vessel if no Track is associated.	BL 1												
4.2.3.4.1.1.0-2.0-13	[T1-R203]	TRITON shall display TTN, TVN and TRN in a distinguishable format (e.g. a letter indication such as T, V, R in front of the numbers) on the Object Label while displaying it on the GeoView.	BL 1												
4.2.3.4.1.1.0-2.0-14	[T1-R204]	TRITON shall allow the authorised user to set Own Ship when it is deployed on an ACP.	BL 4												
4.2.3.4.1.2		**Object Display Control**													
4.2.3.4.1.2.0-1.0-1	[T1-R205]	TRITON shall provide the user with the control of displaying Operational Objects in the GeoView.	BL 1												
4.2.3.4.1.2.0-1.0-2	[T1-R206]	TRITON shall allow the user to manage (create, save, modify, delete) Display Criteria and Display Options as given in the Description. The Ribbon Bar of the AppView may be used to activate or de-activate them.	BL 1												
4.2.3.4.1.2.0-1.0-3	[T1-R207]	TRITON shall filter the Maritime Operational Objects according to the selected Display Criteria and selected Display Option. This data shall be passed to the GeoView over the AppView using NMAPI.	BL 1												
4.2.3.4.1.2.0-1.0-4	[T1-R208]	TRITON shall allow the authorised user to adjust configuration parameters related to display options.	BL 1												
4.2.3.4.1.3		**Operational Information Display**													
4.2.3.4.1.3.0-1.0-1	[T1-R209]	TRITON shall be able to present Operational Information on the AppView using both dedicated panels and dialog boxes.	BL 1												
4.2.3.4.1.3.0-1.0-2	[T1-R210]	TRITON shall display the detailed information for a selected Maritime Operational Object in a pop-up window called "Object Information Box" on the View from which it is requested.	BL 1												
4.2.3.4.2		**Maritime Operational Picture Management**													
4.2.3.4.2.0-1.0-1	[T1-R211]	TRITON shall build the MOP as a collection of all available Maritime Operational Objects on the NS Domain.	BL 1												
4.2.3.4.2.0-1.0-2	[T1-R212]	TRITON shall be able to display the MOP in the GeoView as a Layer.	BL 1												
4.2.3.4.2.0-1.0-3	[T1-R213]	TRITON shall allow the authorised user to modify the assigned Standard Identities for all types of Maritime Operational Objects in the MOP.	BL 1												
4.2.3.4.3		**Military Picture Management**													
4.2.3.4.3.0-1.0-1	[T1-R214]	TRITON shall be able to filter the Military Picture as a separately controllable collection of information according to the Standard Identities and display them as a layers on the GeoView.	BL 1												
4.2.3.4.3.0-1.0-2	[T1-R215]	TRITON shall allow the authorised user to select Maritime Operational Objects as the Military Picture by using a filter on Standard Identity.	BL 1												
4.2.3.4.3.0-1.0-3	[T1-R216]	TRITON shall be able to display the Military Picture in the GeoView as a Layer.	BL 1												
4.2.3.4.4		**White Picture Management**													
4.2.3.4.4.1		**White Picture Compilation**													
4.2.3.4.4.1.0-1.0-1	[T1-R217]	TRITON shall maintain the WP as a separately controllable and displayable collection of information on the NU and NS Domain.	BL 2												
4.2.3.4.4.1.0-1.0-2	IT1-R218I	TRITON shall be able to build the WP according to the settings of the Maritime Operation on the NU Domain.	BL 2												
4.2.3.4.4.1.0-1.0-3	IT1-R219I	TRITON shall maintain a list WP Regions for each Maritime Operation on the NU Domain.	BL 2												
4.2.3.4.4.1.0-1.0-4	[T1-R220]	TRITON shall be able to process received track information from external sources on the NU Domain, update the Track Database and the Vessel Database on the NU Domain.	BL 2												
4.2.3.4.4.1.0-1.0-5	[T1-R221]	TRITON shall maintain the WP on the NS Domain with the WP information received from the NU Domain and the information received from NATO assets operating on the NS Domain.	BL 3												
4.2.3.4.4.1.0-1.0-6	[T1-R222]	TRITON shall be able to display the White Picture in the GeoView as a Layer.	BL 2												
4.2.3.4.4.2		**White Picture Transfer**													
4.2.3.4.4.2.0-2	[T1-R223]	TRITON shall transfer the WP information from the NU Domain to the NS Domain automatically.	BL 2												
4.2.3.4.4.2.0-3	[T1-R224]	TRITON shall allow the authorised user to control and monitor the automated data transfer from the NU Domain to the NS Domain.	BL 2												
4.2.3.4.4.2.0-4	[T1-R225]	TRITON shall allow the authorised user to set the transfer parameters from the NU Domain to the NS Domain.	BL 2												
4.2.3.4.4.2.0-5	[T1-R226]	TRITON shall pass the WP information to the NS Domain over the IEG-Data Diode.	BL 2												
4.2.3.4.4.2.0-6	[T1-R227]	TRITON shall be able to receive WP information from the NU Domain via the Data Diode and process the track information automatically.	BL 3												
4.2.3.4.4.2.0-7	[T1-R228]	TRITON shall allow the authorised user to transfer files having exported WP information from the NU Domain to the NS Domain over the Data Diode.	BL 2												
4.2.3.4.4.2.0-8	[T1-R229]	TRITON shall allow the authorised user to receive data files from the NU Domain and import them on the NS Domain.	BL 3												
4.2.3.4.4.3		**White Picture Sharing**													
4.2.3.4.4.3.0-1.0-1	[T1-R230]	TRITON shall make the NATO WP available to external systems through Web Services (e.g. WP Service).	BL 2												
4.2.3.4.4.3.0-1.0-2	[T1-R231]	TRITON shall allow the authorised user to control and monitor the dissemination of WP information according to the Releasability Label over Maritime Operations and the RMP Regions.	BL 2												
4.2.3.4.5		**Recognised Maritime Picture Management**													
4.2.3.4.5.1		**RMP Building**													
4.2.3.4.5.1.0-1.0-1	[T1-R232]	TRITON shall maintain a list RMP Regions for each Maritime Operation.	BL 3												
4.2.3.4.5.1.0-1.0-2	[T1-R233]	TRITON shall use the recognised Tracks in the Track Database and the Vessels with last known positions in the Vessel Database on the NS Domain to build the RMP by using the RMP Filter Criteria.	BL 3												
4.2.3.4.5.1.0-1.0-3	IT1-R234I	TRITON shall automatically designate tracks with classification of Combatant to the Military Picture of the global RMP.	BL 3												
4.2.3.4.5.1.0-1.0-4	[T1-R235]	TRITON shall automatically designate the Vessel Lists according to the default Picture of the global RMP.	BL 3												
4.2.3.4.5.1.0-1.0-5	[T1-R236]	TRITON shall allow the authorised user to designate Maritime Operational Objects to be included in the RMP according to their RMP designation information within the Current Maritime Operation.	BL 3												
4.2.3.4.5.1.0-1.0-6	[T1-R237]	TRITON shall allow the authorised user to designate a selected Vessel List to be included in the RMP of the Current Maritime Operation or excluded.	BL 3												
4.2.3.4.5.1.0-1.0-7	[T1-R238]	TRITON shall not allow the user to designate Simulated Tracks and Exercise Tracks into the RMP if the Maritime Operation is not of type Exercise.	BL 3												
4.2.3.4.5.1.0-1.0-8	IT1-R239I	TRITON shall be able to disolav the RMP in the GeoView as a Laver.	BL 3												
4.2.3.4.5.2		**RMP Control and Sharing**													
4.2.3.4.5.2.0-1.0-1	[T1-R240]	TRITON shall make the RMP available over the RMP Service for external access.	BL 3												
4.2.3.4.5.2.0-1.0-2	[T1-R241]	TRITON shall make the RMP available over the Nation Interface for each Nation.	BL 3												
4.2.3.4.5.2.0-1.0-3	[T1-R242]	TRITON shall make the RMP available over the ACP Interface for the platform on which the Deployable Kit is installed.	BL 4												
4.2.3.4.5.2.0-1.0-4	[T1-R243]	TRITON shall allow the authorised user to generate a selected Formatted Message after selecting the tracks on the GeoView or from a Search Result.	BL 3												
4.2.3.4.5.2.0-1.0-5	[T1-R244]	TRITON shall be able to generate RMPSITSUM message based on user-selected Tracks and Reference Objects.	BL 3												
4.2.3.4.5.2.0-1.0-6	IT1-R245I	TRITON shall be able to generate NAVSITSUM message based on user-selected Tracks filtered for correct identitv.	BL 3												
4.2.3.4.5.2.0-1.0-7	[T1-R246]	TRITON shall be able to generate NAVSITREP message based on user-selected Tracks filtered for correct identitv.	BL 3												
4.2.3.4.5.2.0-1.0-8	[T1-R247]	TRITON shall be able to generate MARINTSUM message based on user-selected Tracks filtered for correct identitv.	BL 3												
4.2.3.4.5.2.0-1.0-9	[T1-R248]	TRITON shall be able to generate MARINTREP message based on user-selected Tracks filtered for correct identity.	BL 3												
4.2.3.4.5.2.0-1.0-10	[T1-R249]	TRITON shall be able to generate NAVPOSREP message based on user-selected Tracks filtered for correct identity.	BL 3												
4.2.3.4.5.2.0-1.0-11	[T1-R250]	TRITON shall be able to generate OTH-T GOLD CONTACT REPORT message based on user-selected Tracks.	BL 3												
4.2.3.4.5.2.0-1.0-12	[T1-R251]	TRITON shall be able to generate OTH-T GOLD ENHANCED CONTACT REPORT message based on user-selected Tracks.	BL 3												
4.2.3.4.5.2.0-1.0-13	[T1-R252]	TRITON shall be able to generate OTH-T GOLD OVERLAY-2 message based on user-selected Reference Objects.	BL 3												
4.2.3.4.5.2.0-1.0-14	[T1-R253]	TRITON shall be able to generate OTH-T GOLD OVERLAY-3 message based on user-selected Reference Objects.	BL 3												
4.2.3.4.5.2.0-1.0-15	[T1-R254]	TRITON shall be able to send the generated Formatted Messages containing the RMP or its Regions to the selected destination addresses at a selected Dissemination Rate.	BL 3												
4.2.3.4.5.2.0-1.0-16	[T1-R255]	TRITON shall allow the authorised user to select the destination system/service and send the RMP using NVG format [NVG].	BL 3												
4.2.3.4.5.2.0-1.0-17	[T1-R256]	TRITON shall be able to export the RMP into Recognised Output File Format.	BL 3												
4.2.3.4.5.2.0-1.0-18	[T1-R257]	TRITON shall allow the authorised user to select the RMP component and export into a file in Recognised Output File Format.	BL 3												
4.2.3.4.6		**Operational Object Search**													
4.2.3.4.6.0-1.0-1	[T1-R258]	TRITON shall provide an Operational Object Search Capability compliant to Open Search [OpenSearch].	BL 1												
4.2.3.4.6.0-1.0-2	[T1-R259]	TRITON shall allow the user to manage (create, modify, delete, export, import) Search Filters to be saved in the Workspace and reuse an existing one to issue a new search.	BL 1												
4.2.3.4.6.0-1.0-3	[T1-R260]	TRITON shall allow the users to search for Maritime Operational Objects stored in the databases using queries based on the given Quick Search Criteria or Detailed Search Criteria, as given in the Description. Both search criteria shall handle Vessel Name exceptions by displaying the closest the matches.	BL 1												
4.2.3.4.6.0-1.0-4	[T1-R261]	TRITON shall display the search results in sortable tabular format with a capability of finding one or more Maritime Operational Objects and displaying them on the GeoView. If the Objects are included in the current Spatial Extent, they shall be highlighted, if not, user confirmation shall be requested to move the Extent to cover the last known position of the Objects.	BL 1												
4.2.3.4.6.0-1.0-5	[T1-R262]	TRITON shall display the closest ten (10) results of a search with an option to extend the number of results if a given name does not exactly match with any of the records in the databases.	BL 1												
4.2.3.4.6.0-1.0-6	[T1-R263]	TRITON shall be able to display augmented information from the Vessel Database if the searched tracks are associated.	BL 1												
4.2.3.4.6.0-1.0-7	[T1-R264]	TRITON shall allow the user to access the Object Search function in the context of a User Application.	BL 1												
4.2.3.4.7		**Operational Object Animation**													
4.2.3.4.7.0-1.0-1	[T1-R265]	TRITON shall be able to animate the selected Maritime Operational Objects on the GeoView.	BL 2												
4.2.3.4.7.0-1.0-2	[T1-R266]	TRITON shall allow the user to select the Maritime Operational Objects, time period and the speed of animation.	BL 2												
4.2.3.4.8		**NATO Common Operational Picture Handling**													
4.2.3.4.8.0-1.0-1	IT1-R267I	TRITON shall receive RAP and RGP and disolav them on separate lavers in the GeoView.	BL 3												
4.2.3.4.8.0-1.0-2	IT1-R268I	TRITON shall allow the authorised user to control and monitor the NCOP Interface.	BL 3												
4.2.3.5		**Maritime Information Management**													
4.2.3.5.1		**Reference Data Source Management**													
4.2.3.5.1.1		**Maritime Datasets**													
4.2.3.5.1.1.0-1.0-1	[T1-R269]	TRITON shall maintain a list of Network Locations to access the information related to off-line Maritime Datasets.	BL 2												
4.2.3.5.1.1.0-1.0-2	[T1-R270]	TRITON shall maintain a list of Web Sites to access the information related to Maritime Datasets on-line.	BL 2												
4.2.3.5.1.1.0-1.0-3	[T1-R271]	TRITON shall allow the authorised user to manage (create, modify, delete) the List of Web Sites and Network Locations having Maritime Datasets.	BL 2												
4.2.3.5.1.1.0-1.0-4	IT1-R272I	TRITON shall allow the user to access the on-line Maritime Datasets on the specified Web Sites with a search capability.	BL 2												
4.2.3.5.1.1.0-1.0-5	[T1-R273]	TRITON shall allow the user to access the off-line Maritime Datasets on the specified Network Location with a search capability.	BL 2												
4.2.3.5.1.1.0-1.0-6	[T1-R274]	TRITON shall be able to use the search capability provided by the on-line Maritime Datasets.	BL 2												
4.2.3.5.1.1.0-1.0-7	[T1-R275]	TRITON shall be able to download a specified Maritime Dataset at configurable intervals from indicated addresses into local Network Location. The authorised user shall be notified about the beginning and end of update process.	BL 2												
4.2.3.5.1.2		**Person of Maritime Interest List**													
4.2.3.5.1.2.0-1.0-1	[T1-R276]	TRITON shall maintain a list for Person of Maritime Interest for each Maritime Operation with a search capability.	BL 3												
4.2.3.5.1.2.0-1.0-2	[T1-R277]	TRITON shall allow the authorised user to manage (create, modify, delete) the Person of Maritime Interest List.	BL 3												
4.2.3.5.1.2.0-1.0-3	[T1-R278]	TRITON shall allow the authorised user to manually combine the information received from external sources with the existing ones in the Person of Maritime List if the user-selected attributes of Person Data match.	BL 3												
4.2.3.5.1.2.0-1.0-4	[T1-R279]	TRITON shall allow the authorised user to display the vessel on the GeoView if the person is embarked on a vessel.	BL 3												
4.2.3.5.1.2.0-1.0-5	[T1-R280]	TRITON shall allow the authorised user to add a file holding the list of passengers on board a vessel.	BL 3												
4.2.3.5.1.2.0-1.0-6	[T1-R281]	TRITON shall allow the authorised user to filter and export the Person of Maritime Interest List in a user-specified file in Recognised Export File Format.	BL 3												
4.2.3.5.1.3		**Lloyd's Maritime Intelligence Unit**													
4.2.3.5.1.3.0-1.0-1	[T1-R282]	TRITON shall maintain a list of Lloyd's MIU Data.	BL 2												
4.2.3.5.1.3.0-1.0-2	IT1-R283I	TRITON shall allow the user to manage (create. modifv. deletel the Lloyd's MIU List.	BL 2												
4.2.3.5.1.3.0-1.0-3	IT1-R284I	TRITON shall be able to import Lloyd's MIU data from an indicated file into the Lloyd's MIU List.	BL 2												
4.2.3.5.1.3.0-1.0-4	[T1-R285]	TRITON shall allow the authorised user to access on-line Lloyd's MIU dataset and import the datasets into the local list.	BL 2												
4.2.3.5.1.3.0-1.0-5	[T1-R286]	TRITON shall allow the authorised user to import Lloyd's MIU dataset from a file into the local list.	BL 2												
4.2.3.5.1.3.0-1.0-6	[T1-R287]	TRITON shall allow the authorised user to export the selected Lloyd's MIU Data into a file in Recognised Export File Format.	BL 2												
4.2.3.5.1.3.0-1.0-7	[T1-R288]	TRITON shall allow the user to display Lloyd's MIU List in sortable tabular form with search and filter capabilities.	BL 2												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
4.2.3.5.1.4		**Detention List**													
4.2.3.5.1.4.0-1.0-1	[T1-R289]	TRITON shall maintain a list of Web Sites to scrape to access information related to MOU Detention Lists.	BL 2												
4.2.3.5.1.4.0-1.0-2	[T1-R290]	TRITON shall allow the authorised user to manage (create, modify, delete) the List of Web Sites having MOU Detention Lists.	BL 2												
4.2.3.5.1.4.0-1.0-3	[T1-R291]	TRITON shall maintain a list of MOU Detention List to locally store information on banned and detained vessels for each Maritime Operation.	BL 2												
4.2.3.5.1.4.0-1.0-4	[T1-R292]	TRITON shall allow the authorised user to manage (create, modify, delete) the local MOU Detention List.	BL 2												
4.2.3.5.1.4.0-1.0-5	[T1-R293]	TRITON shall allow the authorised user to export filtered Detention Lists into a file in Recognised Export File Format.	BL 2												
4.2.3.5.1.4.0-1.0-6	[T1-R294]	TRITON shall allow the authorised user to import data from a file in Recognised Import File Format into a local Detention List.	BL 2												
4.2.3.5.1.4.0-1.0-7	[T1-R295]	TRITON shall allow the authorised user to be able to combine the MOU Detention Lists received from different sources by using the Detention List Correlation Criteria.	BL 2												
4.2.3.5.1.4.0-1.0-8	[T1-R296]	TRITON shall allow the authorised user set the rules for the Detention List Correlation Criteria for combining MOU Detention Lists received from different sources.	BL 2												
4.2.3.5.1.4.0-1.0-9	[T1-R297]	TRITON shall allow the authorised user to search for specific vessel(s) through the Detention Lists over selected Web Sites and display the result in sortable tabular format.	BL 2												
4.2.3.5.1.4.0-1.0-10	[T1-R298]	TRITON shall associate vessels in any of the Detention Lists in the local MOU Detention List with the vessels in Vessel Database.	BL 2												
4.2.3.5.1.4.0-1.0-11	[T1-R299]	TRITON shall allow the authorised user to search for a vessel in the local MOU Detention Lists, display the details of the recording and the associated vessel in the Vessel Database with an option to display its position on the GeoView.	BL 2												
4.2.3.5.1.4.0-1.0-12	[T1-R300]	TRITON shall allow the authorised user to display the local MOU Detention Lists in sortable tabular form with an option to display the position of the selected vessel.	BL 2												
4.2.3.5.1.5		**Merchant Ships Characteristics**													
4.2.3.5.1.5.0-1.0-1	[T1-R301]	TRITON shall maintain a list of Web Sites to scrape to access information related to Merchant Ship Characteristics.	BL 2												
4.2.3.5.1.5.0-1.0-2	[T1-R302]	TRITON shall allow the authorised user to manage (create, modify, delete) the List of Web Sites having Merchant Ship Characteristics.	BL 2												
4.2.3.5.1.5.0-1.0-3	[T1-R303]	TRITON shall allow the user to access the Merchant Ship Characteristics dataset on the specified sites.	BL 2												
4.2.3.5.1.5.0-1.0-4	[T1-R304]	TRITON shall allow the authorised user to manually update the Vessel Database by using the Merchant Ship Characteristics reference dataset.	BL 2												
4.2.3.5.1.6		**World Port Index**													
4.2.3.5.1.6.0-1.0-1	[T1-R305]	TRITON shall maintain an internal World Port Database to store the world-wide port information.	BL 2												
4.2.3.5.1.6.0-1.0-2	[T1-R306]	TRITON shall maintain a list of Naval Bases in the World Port Database based on country.	BL 3												
4.2.3.5.1.6.0-1.0-3	[T1-R307]	TRITON shall allow the authorised user to manage (create, modify, delete) the internal World Port Database.	BL 2												
4.2.3.5.1.6.0-1.0-4	[T1-R308]	TRITON shall be able to import World Port dataset from a selected online source.	BL 2												
4.2.3.5.1.6.0-1.0-5	[T1-R309]	TRITON shall allow the authorised user to manually import data from the World Port data published by U.S. National Geospatial-Intelligence Agency (NGA) into World Port Database.	BL 2												
4.2.3.5.1.6.0-1.0-6	[T1-R310]	TRITON shall allow the authorised user to import data from an external file in Recognised Import File Format to build the internal World Port Database.	BL 3												
4.2.3.5.1.6.0-1.0-7	[T1-R311]	TRITON shall allow the authorised user to export the internal database into a file in Recognised Export File Format.	BL 2												
4.2.3.5.1.6.0-1.0-8	[T1-R312]	TRITON shall use internal or external World Port data to support Destination Resolution process for AIS tracks.	BL 2												
4.2.3.5.1.6.0-1.0-9	[T1-R313]	TRITON shall allow the user to search for port(s) on either internal database or on-line database and display them as Reference Points on a Layer in the GeoView.	BL 2												
4.2.3.5.1.6.0-1.0-10	[T1-R314]	TRITON shall be able to store classified information about Naval Bases in the World Port Database.	BL 3												
4.2.3.5.1.6.0-1.0-11	[T1-R315]	TRITON shall allow the user to display the selected Ports or Naval Bases on the GeoView in a Layer.	BL 2												
4.2.3.5.1.6.0-1.0-12	[T1-R316]	TRITON shall be able to use a World Port Data Service if the available GIS Server can provide (e.g. WFS, Gazetteer Service).	BL 3												
4.2.3.5.1.7		**Shipping Route Networks**													
4.2.3.5.1.7.0-1.0-1	[T1-R317]	TRITON shall maintain a list of Shipping Route Networks to store Route Networks.	BL 2												
4.2.3.5.1.7.0-1.0-2	[T1-R318]	TRITON shall allow the authorised user to manage (create, modify, delete, import, export) the Route Networks in the Shipping Route Networks List.	BL 2												
4.2.3.5.1.7.0-1.0-3	[T1-R319]	TRITON shall allow the authorised user to import Shipping Route Networks from a file in Recognised Import File Format.	BL 2												
4.2.3.5.1.7.0-1.0-4	[T1-R320]	TRITON shall allow the authorised user to export Shipping Route Networks to a file in Recognised Export File Format.	BL 2												
4.2.3.5.1.7.0-1.0-5	[T1-R321]	TRITON shall allow the authorised user to create a new Route Network by defining nodes (ports) and legs by either entering the position data for nodes manually or pointing the positions of nodes on the GeoView.	BL 2												
4.2.3.5.1.7.0-1.0-6	[T1-R322]	TRITON shall allow the authorised user to perform statistics analysis of the followed routes at sea during a defined period in a defined area.	BL 2												
4.2.3.5.1.7.0-1.0-7	[T1-R323]	TRITON shall allow the authorised user to check the validity of the current Shipping Route Networks by visually comparing the result of statistical analysis and the existing network.	BL 2												
4.2.3.5.1.7.0-1.0-8	[T1-R324]	TRITON shall allow the authorised user to search for summary statistics for selected routes in a Shipping Route Network given in Recognised Import File Format.	BL 2												
4.2.3.5.1.7.0-1.0-9	[T1-R325]	TRITON shall be able to display a Shipping Route Network on the GeoView in a Layer.	BL 2												
4.2.3.5.1.7.0-1.0-10	[T1-R326]	TRITON shall allow the user to display the selected Shipping Route Networks to be displayed on the GeoView.	BL 2												
4.2.3.5.1.8		**Internet Searching**													
4.2.3.5.1.8.0-1.0-1	[T1-R327]	TRITON shall maintain a list of Recognised Web Sites and a list of Search Queries to be used for searching for information on the Internet.	BL 2												
4.2.3.5.1.8.0-1.0-2	[T1-R328]	TRITON shall allow the user to manage (create, modify, delete) the List of Recognised Web Sites to be used for Internet Searching.	BL 2												
4.2.3.5.1.8.0-1.0-3	[T1-R329]	TRITON shall allow the user to define a Search Query, including free text, to perform a search over external reference databases on the selected Recognised Web Sites.	BL 2												
4.2.3.5.1.8.0-1.0-4	[T1-R330]	TRITON shall allow the user to manage (create, modify, delete) the List of Search Queries and issue a new search by using an existing Search Query.	BL 2												
4.2.3.5.1.8.0-1.0-5	[T1-R331]	TRITON shall be able to use the search capability provided by the reference databases (e.g. Web services).	BL 2												
4.2.3.5.1.8.0-1.0-6	[T1-R332]	TRITON shall display the Internet Search results in sortable tabular format.	BL 2												
4.2.3.5.1.9		**Handling Country Codes**													
4.2.3.5.1.9.0-1.0-1	[T1-R333]	TRITON shall maintain a "NATO Standard Country Codes Table" compliant to [STANAG 1059].	BL 1												
4.2.3.5.1.9.0-1.0-2	[T1-R334]	TRITON shall allow the authorised user to manage (modify, import, export) the NATO Standard Country Codes Table.	BL 1												
4.2.3.5.1.9.0-1.0-3	[T1-R335]	TRITON shall maintain a "MMSI-Flag Mapping Table" compliant to the IMO Country Codes.	BL 2												
4.2.3.5.1.9.0-1.0-4	[T1-R336]	TRITON shall allow the authorised user to manage (modify, import, export) the MMSI-Flag Mapping Table.	BL 2												
4.2.3.5.1.9.0-1.0-5	[T1-R337]	TRITON shall allow the authorised user to import the MMSI-Flag Mapping Table and the NATO Standard Country Codes Table from a file in Recognised Import File Format.	BL 2												
4.2.3.5.1.9.0-1.0-6	[T1-R338]	TRITON shall allow the authorised user to export the MMSI-Flag Mapping Table and the NATO Standard Country Codes Table to a file in Recognised Export File Format.	BL 2												
4.2.3.5.1.9.0-1.0-7	[T1-R339]	TRITON shall automatically derive the Flag of an AIS track based on its MMSI Number using the MMSI-Flag Mapping Table.	BL 2												
4.2.3.5.1.9.0-1.0-8	[T1-R340]	TRITON shall be able to derive the Flag for a user-selected track from its Country Code using the NATO Standard Country Codes Table.	BL 1												
4.2.3.5.1.9.0-1.0-9	[T1-R341]	TRITON shall display the Flag of a track or vessel indicating its reference source as STANAG 1059 or IMO (for the countries that are not covered by STANAG 1059). The flag icon can be displayed together with the object symbol, and the detailed object information shall provide the descriptive information.	BL 2												
4.2.3.5.1.9.0-1.0-10	[T1-R342]	TRITON shall automatically assign FRIEND as the Standard Identity for an AIS track if its derived Flag is a NATO Nation.	BL 2												
4.2.3.5.2		**Order of Battle Information Management**													
4.2.3.5.2.0-1.0-1	[T1-R343]	TRITON shall maintain an ORBAT Database for each Maritime Operation.	BL 3												
4.2.3.5.2.0-1.0-2	[T1-R344]	TRITON shall allow the authorised user to manage (create, modify, delete) the ORBAT Database.	BL 3												
4.2.3.5.2.0-1.0-3	[T1-R345]	TRITON shall be able to receive Enemy ORBAT information from INTEL-FS and update the ORBAT Database after the authorised user's approval.	BL 3												
4.2.3.5.2.0-1.0-4	[T1-R346]	TRITON shall allow the authorised user to associate maritime vessels contained in the ORBAT Database with the Vessels in the Vessel Database.	BL 3												
4.2.3.5.2.0-1.0-5	[T1-R347]	TRITON shall be able to display the ORBAT information in a tree-like structure in AppView as selected by the user (e.g. Enemy ORBAT - Maritime).	BL 3												
4.2.3.5.2.0-1.0-6	[T1-R348]	TRITON shall allow the user to display the selected ORBAT elements at their last known positions in the GeoView (on a Layer) if they are associated with Vessels in the Vessel Database.	BL 3												
4.2.3.5.3		**Environmental Information Management**													
4.2.3.5.3.0-1.0-1	[T1-R349]	TRITON shall be able to receive the Environmental Information and display it in the GeoView as Layers with the symbology defined in [APP-6].	BL 3												
4.2.3.5.3.0-1.0-2	[T1-R350]	TRITON shall be able to import Environmental Information from a file in Recognised Import File Format and display it in the GeoView as Layers with the symbology defined in [APP-6].	BL 3												
4.2.3.5.4		**CBRN Defence Information Management**													
4.2.3.5.4.0-1.0-1	[T1-R351]	TRITON shall be able to receive CBRN Information and display it on a Layer in the GeoView with the symbology defined in [APP-6].	BL 3												
4.2.3.5.4.0-1.0-2	[T1-R352]	TRITON shall be able to import CBRN Information from a file in Recognised Import File Format and display it in the GeoView as Layers with the symbology defined in [APP-6].	BL 3												
4.2.3.5.5		**Intelligence Information Management**													
4.2.3.5.5.0-1.0-1	[T1-R353]	TRITON shall allow the user to request Intelligence Information given in the Description from INTEL-FS, and display the received information in text or sortable tabular form in the AppView.	BL 3												
4.2.3.5.5.0-1.0-2	[T1-R354]	TRITON shall be able to receive the Enemy ORBAT Data from INTEL-FS and update the ORBAT Database after the authorised user's approval.	BL 3												
4.2.3.5.5.0-1.0-3	[T1-R355]	TRITON shall be able to receive Area Information from INTEL-FS, and store it in the Reference Object Database as an Area after the authorised user's approval.	BL 3												
4.2.3.5.5.0-1.0-4	[T1-R356]	TRITON shall allow the authorised user to prepare a query regarding a maritime vessel, send it to INTEL-FS, and display the returned result in the AppView. If the INTEL-FS interface is not available. the user shall be notified.	BL 3												
4.2.4		**Maritime Operational Support**													
4.2.4.1		**Maritime Alerts Management**													
4.2.4.1.1		**Operational Alerts**													
4.2.4.1.1.1		**Area Alerts**													
4.2.4.1.1.1.0-1.0-1	[T1-R357]	TRITON shall allow the authorised user to define an Inclusive Area which raises an Alert when a track fulfilling the user-defined filter exits the Area, and passes through the Tolerance Distance.	BL 2												
4.2.4.1.1.1.0-1.0-2	[T1-R358]	TRITON shall allow the authorised user to define an Exclusive Area which raises an Alert when a track fulfilling the user-defined filter enters the Area. and passes through the Tolerance Distance.	BL 2												
4.2.4.1.1.1.0-1.0-3	[T1-R359]	TRITON shall monitor Exclusive and Inclusive Areas within each Maritime Operation independently and concurrently.	BL 2												
4.2.4.1.1.1.0-1.0-4	[T1-R360]	TRITON shall notify the authorised user with an Alert when an active Exclusive/Inclusive Area filter is satisfied.	BL 2												
4.2.4.1.1.1.0-1.0-5	[T1-R361]	TRITON shall not issue an Alert for those tracks that are already inside or outside the defined Exclusive/Inclusive Area when the Area is created.	BL 2												
4.2.4.1.1.1.0-1.0-6	[T1-R362]	TRITON shall monitor the Exclusive/Inclusive Areas with checks at Intervals set by the user.	BL 2												
4.2.4.1.1.1.0-1.0-7	[T1-R363]	TRITON shall monitor the Grouped Areas (Exclusive or Inclusive) as one single Area.	BL 2												
4.2.4.1.1.1.0-1.0-8	[T1-R364]	TRITON shall be able to display the Exclusive/Inclusive Areas in the GeoView Layers.	BL 3												
4.2.4.1.1.2		**Time-Late Alerts**													
4.2.4.1.1.2.0-1.0-1	[T1-R365]	TRITON shall monitor all tracks and issue Time-Late Alerts if the specified Time-Late duration for a track has elapsed.	BL 3												
4.2.4.1.1.2.0-1.0-2	[T1-R366]	TRITON shall allow the authorised users to create Time-Late Alerts for automatic or manual tracks.	BL 3												
4.2.4.1.1.2.0-1.0-3	[T1-R367]	TRITON shall allow the authorised user to set Time-Late value up to thirty-six (36) hours in steps of one (1) minute for a selected track.	BL 3												
4.2.4.1.1.3		**Maritime Anomaly Alerts**													
4.2.4.1.2		**Manual Alerts**													
4.2.4.1.2.0-1.0-1	[T1-R368]	TRITON shall allow the user to issue a Manual Alert by manually entering the type, explanation, track/vessel identification, area, position and the User Group to be notified.	BL 3												
4.2.4.1.2.0-1.0-2	[T1-R369]	TRITON shall allow the authorised user to issue a Manual Alert by selecting Maritime Operational Objects on the GeoView or by using the Search function.	BL 3												
4.2.4.1.2.0-1.0-3	[T1-R370]	TRITON shall allow the user to issue a Manual Alert by using Alert Templates as defined in the Description.	BL 3												
4.2.4.1.2.0-1.0-4	[T1-R371]	TRITON shall allow the authorised user to manage (create, modify, delete) the Alert Templates.	BL 3												
4.2.4.1.2.0-1.0-5	[T1-R372]	TRITON shall be able to disseminate a Manual Alert to the users of the specified User Group.	BL 3												
4.2.4.2		**Maritime Decision Support**													
4.2.4.2.1		**Track Statistics**													
4.2.4.2.1.0-1.0-1	[T1-R373]	TRITON shall provide the user with a capability to display Track Statistical Information as given in the Description.	BL 3												
4.2.4.2.1.0-1.0-2	[T1-R374]	TRITON shall compute Time-Late statistics for all or selected tracks in the Track Database in a given time window. The results shall be displayed in tabular format or graphs (if applicable).	BL 3												
4.2.4.2.1.0-1.0-3	[T1-R375]	TRITON shall display number of tracks according to their types, source, correlation and association status in a selected graph form (e.g. a bar chart of track types in a region).	BL 3												
4.2.4.2.1.0-1.0-4	[T1-R376]	TRITON shall allow the user to select tracks either using the pointing device or issuing a query on the Track Database and initiate statistics calculation.	BL 3												
4.2.4.2.2		**Furthest on Circle**													
4.2.4.2.2.0-1.0-1	[T1-R377]	TRITON shall be able to initiate a FOC at an indicated position and update it automatically.	BL 3												
4.2.4.2.2.0-1.0-2	[T1-R378]	TRITON shall be able to handle independent FOCs in each Maritime Operation.	BL 3												
4.2.4.2.2.0-1.0-3	[T1-R379]	TRITON shall allow the user to initiate a FOC at an indicated point on the GeoView or manual input or getting the last updated position of a track indicated by the user with either the pointing device or track ID.	BL 3												
4.2.4.2.2.0-1.0-4	[T1-R380]	TRITON shall use the last known speed for calculating the radius of the FOC and last known course and for calculating the possible location with given anticipated course change. The visualisation on the GeoView shall be updated automatically.	BL 3												
4.2.4.2.2.0-1.0-5	[T1-R381]	TRITON shall update the FOC at intervals defined in the Configuration Settings. The default shall be sixty (60) seconds.	BL 3												
4.2.4.2.2.0-1.0-6	[T1-R382]	TRITON shall display the FOC in the GeoView as an Application-based C2 Area.	BL 3												
4.2.4.2.2.0-1.0-7	[T1-R383]	TRITON shall keep a FOC active for the amount of time set by the user. The time range shall be ten (10) minutes to eight (8) hours with an option to extend when the user informed about automatic deletion.	BL 3												
4.2.4.2.3		**Status Board**													
4.2.4.2.3.0-1.0-1	[T1-R384]	TRITON shall maintain a Status Board for each user in each Maritime Operation.	BL 3												
4.2.4.2.3.0-1.0-2	[T1-R385]	TRITON Status Board shall be able display the changing information of selected Maritime Operational Objects in sortable tabular format.	BL 3												
4.2.4.2.3.0-1.0-3	[T1-R386]	TRITON shall allow the user to manage (create, modify, delete) Maritime Operational Objects for the Status Board and select the attributes to be displayed with respect to object types.	BL 3												
4.2.4.2.3.0-1.0-4	[T1-R387]	TRITON shall be able to display at least twenty (20) Maritime Operational Objects in a Status Board for each user.	BL 3												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
4.2.4.2.3.0-1.0-5	[T1-R388]	TRITON shall keep the Status Board active until the user terminates it.	BL 3												
4.2.4.3		**Maritime Analysis Management**													
4.2.4.3.1		**Track Information Analysis**													
4.2.4.3.1.1		**Destination Validation**													
4.2.4.3.1.1.0-1.0-1	[T1-R389]	TRITON shall be able to validate the destination of a selected track by comparing the reported destination with the available locations in the World Port Index database, GeoNames geographical database or Gazetteer Service.	BL 2												
4.2.4.3.1.1.0-1.0-2	[T1-R390]	TRITON shall use an internal or external World Port Index Database to resolve destination.	BL 2												
4.2.4.3.1.1.0-1.0-3	[T1-R391]	TRITON shall be able to use Web services from GeoNames to resolve destination.	BL 2												
4.2.4.3.1.1.0-1.0-4	[T1-R392]	TRITON shall be able to use Gazetteer Service of the GIS Server to resolve destination if the service is available.	BL 2												
4.2.4.3.1.1.0-1.0-5	[T1-R393]	TRITON shall allow the authorised user to select the data source and validate the destination of a selected track manually in case more than one result are returned.	BL 2												
4.2.4.3.1.2		**Shipping Route Validation**													
4.2.4.3.1.2.0-1.0-1	[T1-R394]	TRITON shall derive the shortest usual path from the position of a selected vessel to its resolved destination using the selected Shipping Route.	BL 2												
4.2.4.3.1.2.0-1.0-2	[T1-R395]	TRITON shall allow the authorised user to perform Shipping Route Validation for a selected track.	BL 2												
4.2.4.3.1.3		**Vessel Identity Validation**													
4.2.4.3.1.3.0-1.0-1	[T1-R396]	TRITON shall perform Vessel Identity Validation process on a selected track using first the Vessel Database. If the track cannot be validated with the Vessel Database, then TRITON shall use the external reference databases, given in the Description, as indicated by the authorised user.	BL 2												
4.2.4.3.1.3.0-1.0-2	[T1-R397]	TRITON shall allow the authorised user to add on-line or off-line reference databases to be included during the Vessel Identity Validation process.	BL 2												
4.2.4.3.1.3.0-1.0-3	[T1-R398]	TRITON shall inform the authorised user about the result of the Vessel Identity Validation process.	BL 2												
4.2.4.3.1.4		**Maritime Pattern of Life Analysis**													
4.2.4.3.1.4.0-1.0-1	[T1-R399]	TRITON shall maintain a list of Maritime Pattern of Life Areas to assist analysis.	BL 2												
4.2.4.3.1.4.0-1.0-2	[T1-R400]	TRITON shall allow the authorised user to manage (create, modify, delete, export, import) the List of Maritime Pattern of Life Areas.	BL 2												
4.2.4.3.1.4.0-1.0-3	[T1-R401]	TRITON shall allow the authorised user to add descriptive annotations to a Maritime Pattern of Life Area.	BL 2												
4.2.4.3.1.4.0-1.0-4	[T1-R402]	TRITON shall allow the user to disolav the selected Maritime Pattern of Life Areas on the GeoView as a Laver.	BL 2												
4.2.4.3.2		**Maritime Incident Recording**													
4.2.4.3.2.0-1.0-1	[T1-R403]	TRITON shall be capable of exchanging information with JOCWatch using JOCWatch OIR Service as defined in [JOCWatch WSS].	BL 3												
4.2.4.3.2.0-1.0-2	[T1-R404]	TRITON shall be capable of importing EVENTEXPLOITREP XML schema from JOCWatch as defined in [JOCWatch WSS].	BL 3												
4.2.4.3.2.0-1.0-3	[T1-R405]	TRITON shall allow the authorised user to manage (create, modify, import, export, delete) the Maritime Incidents (given in the Description) via JOCWatch.	BL 3												
4.2.4.3.2.0-1.0-4	[T1-R406]	TRITON shall provide a search capability over the Incident Recordings in JOCWatch.	BL 3												
4.2.4.3.2.0-1.0-5	[T1-R407]	TRITON shall automatically associate, upon initiation by the authorised user, a Maritime Incident to one or more vessels in the Vessel Database if the vessel identification is indicated in the incident.	BL 3												
4.2.4.3.3		**Maritime Anomaly Detection**													
4.2.4.3.3.1		**Rendezvous Detection**													
4.2.4.3.3.1.0-1.0-1	[T1-R408]	TRITON shall maintain a list of Rendezvous Detection Areas for each Maritime Operation.	BL 2												
4.2.4.3.3.1.0-1.0-2	[T1-R409]	TRITON shall allow the authorised user to manage (create, modify, delete) the Rendezvous Detection Area List and the processes initiated by users.	BL 2												
4.2.4.3.3.1.0-1.0-3	[T1-R410]	TRITON shall be able to handle at least one-hundred (100) Rendezvous Detection Areas simultaneously in global scope.	BL 2												
4.2.4.3.3.1.0-1.0-4	[T1-R411]	TRITON shall be able to process at least one-thousand (1000) tracks in a Rendezvous Detection Area.	BL 2												
4.2.4.3.3.1.0-1.0-5	[T1-R412]	TRITON shall allow the authorised user to set the values used for the Rendezvous Detection Criteria and detection process (i.e. Area definition. distance. speed. periodicity).	BL 2												
4.2.4.3.3.1.0-1.0-6	[T1-R413]	TRITON shall apply Rendezvous Detection Criteria, as given in the Description, to all ships within the designated area periodically or manually.	BL 2												
4.2.4.3.3.1.0-1.0-7	[T1-R414]	TRITON shall notify the authorised user if the current number of Rendezvous Detection Areas with given intervals cannot be processed with the current processing load.	BL 2												
4.2.4.3.3.1.0-1.0-8	[T1-R415]	TRITON shall inform the authorised user about the status of the current Rendezvous Detection processes and issue notification in case the Rendezvous Detection Criteria matches.	BL 2												
4.2.4.3.3.1.0-1.0-9	[T1-R416]	TRITON shall display the result of selected Rendezvous Detection process in sortable tabular form with a capability of indicating the selected the track(s) in the GeoView.	BL 2												
4.2.4.3.3.2		**Positional Anomaly Detection**													
4.2.4.3.3.2.0-1.0-1	[T1-R417]	TRITON shall maintain a list of Positional Anomaly Detection Areas for each Maritime Operation.	BL 2												
4.2.4.3.3.2.0-1.0-2	[T1-R418]	TRITON shall allow the authorised user to manage (create, modify, delete) the Positional Anomaly Detection Area List and the processes initiated by the users.	BL 2												
4.2.4.3.3.2.0-1.0-3	[T1-R419]	TRITON shall be able to handle at least one-hundred (100) Positional Anomaly Detection Areas simultaneously in global scope.	BL 2												
4.2.4.3.3.2.0-1.0-4	[T1-R420]	TRITON shall be able to handle at least ten (10) Usual Areas for each Positional Anomaly Detection Area, which are excluded in checks.	BL 2												
4.2.4.3.3.2.0-1.0-5	[T1-R421]	TRITON shall be able to process at least one-thousand (1000) tracks in a Positional Anomaly Detection Area in less than ten (10) seconds.	BL 2												
4.2.4.3.3.2.0-1.0-6	[T1-R422]	TRITON shall allow the authorised user to configure the Positional Anomaly Detection Criteria and detection process (i.e. Area definitions, speed, intervals).	BL 2												
4.2.4.3.3.2.0-1.0-7	[T1-R423]	TRITON shall apply Positional Anomaly Detection Criteria, given in the Description, to all tracks and vessels within the designated area periodically at given intervals or when manually initiated by the user.	BL 2												
4.2.4.3.3.2.0-1.0-8	[T1-R424]	TRITON shall notify the authorised user if the current number of Positional Anomaly Detection Areas with given intervals cannot be processed with the current processing load.	BL 2												
4.2.4.3.3.2.0-1.0-9	[T1-R425]	TRITON shall inform the authorised user about the status of the current Positional Anomaly Detection process and issue notification in case the Positional Anomaly Detection Criteria matches.	BL 2												
4.2.4.3.3.2.0-1.0-10	[T1-R426]	TRITON shall display the result of the Positional Anomaly Detection process in AppView, in sortable tabular form, with a capability of indicating the selected the track(s) on the GeoView.	BL 2												
4.2.4.3.3.3		**Destination Anomaly Detection**													
4.2.4.3.3.3.0-1.0-1	[T1-R427]	TRITON shall perform Destination Anomaly Detection process for a selected track using the Destination Anomaly Detection Criteria given in the Description.	BL 2												
4.2.4.3.3.3.0-1.0-2	[T1-R428]	TRITON shall allow the authorised user to initiate Destination Anomaly Detection process for a selected track and display the result.	BL 2												
4.2.4.3.3.4		**Estimated Time of Arrival Anomaly Detection**													
4.2.4.3.3.4.0-1.0-1	[T1-R429]	TRITON shall calculate ETA of a selected track using its present speed and its resolved destination if the range is within the user-selected limits.	BL 2												
4.2.4.3.3.4.0-1.0-2	[T1-R430]	TRITON shall allow the authorised user to select a track, define the minimum and maximum limits for speed, minimum and maximum limits for range and initiate the ETA verification.	BL 2												
4.2.4.3.3.4.0-1.0-3	[T1-R431]	TRITON shall notify the user if the calculated speed is smaller than the minimum limit or greater than the maximum limit.	BL 2												
4.2.4.3.3.4.0-1.0-4	[T1-R432]	TRITON shall resolve the destination of the selected track prior to ETA calculation and notify the user if the destination is not resolved.	BL 2												
4.2.4.3.3.5		**Historical Anomaly Detection**													
4.2.4.3.3.5.0-1.0-1	[T1-R433]	TRITON shall be able to monitor and detect positional dislocation of vessels assigned to a particular Shipping Route based on user-defined Historical Anomaly Detection Rules.	BL 2												
4.2.4.3.3.5.0-1.0-2	[T1-R434]	TRITON shall allow the authorised user to define a Shipping Route with a range and set the Historical Anomaly Detection Rules given in the Description.	BL 2												
4.2.4.3.3.5.0-1.0-3	[T1-R435]	TRITON shall perform Historical Anomaly Detection as initiated by the users and notify the initiating user about the status of process.	BL 2												
4.2.4.3.3.6		**Kinematic Anomaly Detection**													
4.2.4.3.3.6.0-1.0-1	[T1-R436]	TRITON shall be able to detect course and speed changes based on user-defined rules for tracks that are in a given Area.	BL 2												
4.2.4.3.3.6.0-1.0-2	[T1-R437]	TRITON shall allow the authorised user to define an Area and rules for kinematic anomaly detection for those tracks entering that Area.	BL 2												
4.2.4.3.3.6.0-1.0-3	[T1-R438]	TRITON shall perform Kinematic Anomaly Detection as initiated by the users and notify the initiating user about the status of process.	BL 2												
4.2.4.4		**Geospatial Drawing Management**													
4.2.4.4.1		**C2 Drawing Handling**													
4.2.4.4.1.0-1.0-1	[T1-R439]	TRITON shall maintain a list of C2 Drawings for each Maritime Operation.	BL 1												
4.2.4.4.1.0-1.0-2	[T1-R440]	TRITON shall allow the user to manage (create, modify, delete, activate/deactivate) the C2 Drawing List.	BL 1												
4.2.4.4.1.0-1.0-3	[T1-R441]	TRITON shall allow the user to use the GeoView Drawing capability for creating C2 Drawings.	BL 1												
4.2.4.4.1.0-1.0-4	[T1-R442]	TRITON shall allow the user to set attributes (properties) of a C2 Drawing.	BL 1												
4.2.4.4.1.0-1.0-5	[T1-R443]	TRITON shall activate or deactivate a C2 Drawing according to its DTG settings.	BL 1												
4.2.4.4.1.0-1.0-6	[T1-R444]	TRITON shall allow the user to activate or deactivate a C2 Drawing.	BL 1												
4.2.4.4.1.0-1.0-7	[T1-R445]	TRITON shall display an active C2 Drawing in the GeoView on a user-specified Layer.	BL 1												
4.2.4.4.1.0-1.0-8	[T1-R446]	TRITON shall notify the authorised user fifteen (15) minutes before a C2 Drawing is automatically deleted if it has DTG of Deletion.	BL 1												
4.2.4.4.2		**C2 Area Handling**													
4.2.4.4.2.1		**User-based C2 Area Handling**													
4.2.4.4.2.1.0-1.0-1	[T1-R447]	TRITON shall maintain a list of User-based C2 Area Templates.	BL 2												
4.2.4.4.2.1.0-1.0-2	[T1-R448]	TRITON shall allow the authorised user to manage (create, modify, delete) the User-based C2 Area Template List supported by the GeoView.	BL 2												
4.2.4.4.2.1.0-1.0-3	[T1-R449]	TRITON shall maintain a list of User-based C2 Areas for each Maritime Operation.	BL 2												
4.2.4.4.2.1.0-1.0-4	[T1-R450]	TRITON shall allow the authorised user to manage (create, modify, delete, activate/deactivate) the User-based C2 Areas List.	BL 2												
4.2.4.4.2.1.0-1.0-5	[T1-R451]	TRITON shall allow the user to create a User-based C2 Area from the available Area Templates and set its attributes (properties).	BL 2												
4.2.4.4.2.1.0-1.0-6	[T1-R452]	TRITON shall disolav a User-based C2 Area on the GeoView on a user-specified Laver when activated by the user.	BL 2												
4.2.4.4.2.1.0-1.0-7	[T1-R453]	TRITON shall notify the authorised user fifteen (15) minutes before a User-based C2 Area is automatically deleted if it has DTG of Deletion.	BL 2												
4.2.4.4.2.1.0-1.0-8	[T1-R454]	TRITON shall implement Templates for the User-based C2 Areas given in the Description.	BL 2												
4.2.4.4.2.2		**Application-based C2 Area Handling**													
4.2.4.4.2.2.0-1.0-1	[T1-R455]	TRITON shall maintain a list of Application-based C2 Area Templates.	BL 2												
4.2.4.4.2.2.0-1.0-2	[T1-R456]	TRITON shall allow the authorised user to manage (create, modify, delete) the Application-based C2 Area Template List.	BL 2												
4.2.4.4.2.2.0-1.0-3	[T1-R457]	TRITON shall maintain a list of Application-based C2 Areas for each Maritime Operation.	BL 2												
4.2.4.4.2.2.0-1.0-4	[T1-R458]	TRITON shall be able to manage (create, update, activate/deactivate, delete) an Application-based C2 Drawing automatically.	BL 2												
4.2.4.4.2.2.0-1.0-5	[T1-R459]	TRITON shall display an Application-based C2 Drawing in the GeoView on a user-specified Layer when activated automatically.	BL 2												
4.2.4.4.2.2.0-1.0-6	[T1-R460]	TRITON shall implement Templates for the Application-based C2 Areas given in the Description.	BL 2												
4.2.4.5		**Tools**													
4.2.4.5.1		**Unit Converter**													
4.2.4.5.1.0-1.0-1	[T1-R461]	TRITON shall provide a Unit Converter application supported by a conversion service, which shall be made available to internal and external use.	BL 3												
4.2.4.5.1.0-1.0-2	[T1-R462]	TRITON Unit Converter shall provide the Conversion Functions conversion of nautical measurement, speed, weight/mass, area, volume. temperature and density/pressure values.	BL 3												
4.2.4.5.1.0-1.0-3	[T1-R463]	TRITON shall allow the user to activate the Unit Converter and perform conversions for the given values between selected units.	BL 3												
4.2.4.5.2		**Coordinate Converter**													
4.2.4.5.2.0-1.0-1	[T1-R464]	TRITON shall be able to convert position data from/to any of the Latitude/Longitude, Geodetic Datum, UTM, CGRS and MGRS values.	BL 3												
4.2.4.5.2.0-1.0-2	[T1-R465]	TRITON shall allow the user to enter a geographical position in one coordinate system to convert it into a selected coordinate system. A conversion service, available to internal and external use should be used (it may be combined with the unit converter).	BL 3												
4.2.4.5.3		**Logbook**													
4.2.4.5.3.0-1.0-1	[T1-R466]	TRITON shall maintain a Logbook for each Maritime Operation.	BL 2												
4.2.4.5.3.0-1.0-2	[T1-R467]	TRITON shall allow the authorised user to configure the Logbook Action List.	BL 2												
4.2.4.5.3.0-1.0-3	[T1-R468]	TRITON shall create and start a Logbook automatically when a new Maritime Operation is created.	BL 2												
4.2.4.5.3.0-1.0-4	[T1-R469]	TRITON shall allow the authorised user to explicitly stop logging data into the Logbook and start again.	BL 2												
4.2.4.5.3.0-1.0-5	[T1-R470]	TRITON shall allow the authorised user to make an entry in free text into the Logbook.	BL 2												
4.2.4.5.3.0-1.0-6	[T1-R471]	TRITON shall allow the user to view the Logbook in sortable tabular format with a search capability.	BL 2												
4.2.4.5.3.0-1.0-7	[T1-R472]	TRITON shall log an event into the Logbook with the current user, description and timestamp.	BL 2												
4.2.4.5.3.0-1.0-8	[T1-R473]	TRITON shall allow the authorised user export the Logbook in Recognised Output File Format.	BL 2												
4.2.4.5.3.0-1.0-9	[T1-R474]	TRITON shall archive the Logbook after a period of time as configured by the authorised user. By default the Logbook shall be archived after thirty (30) days of Logging Period. If logging activity reaches the limit of the default log file size before the Logging Period is completed, TRITON shall create another Logbook file and continue logging.	BL 1												
4.2.5		**Maritime Operational Planning and Execution**													
4.2.5.1		**Maritime Task Organization Management**													
4.2.5.1.0-2.0-1	[T1-R475]	TRITON shall maintain a list of Maritime Task Organization with attributes as given in the Description for each identified Maritime Operation.	BL 3												
4.2.5.1.0-2.0-2	[T1-R476]	TRITON shall allow the authorised user to manage (create, modify, save, delete, import, export) the Maritime Task Organization List.	BL 3												
4.2.5.1.0-2.0-3	[T1-R477]	TRITON shall display Maritime Task Organizations in a tree-like structure in the AppView, starting from Maritime Operation down to Task Elements with an option to expand at each level.	BL 3												
4.2.5.1.0-2.0-4	[T1-R478]	TRITON shall allow the user to view the selected units of a Maritime Task Organization in the GeoView.	BL 3												
4.2.5.2		**Area of Interest Management**													
4.2.5.2.0-1.0-1	[T1-R479]	TRITON shall maintain a list of Areas of Interest (AOI) for each Maritime Operation.	BL 3												
4.2.5.2.0-1.0-2	[T1-R480]	TRITON shall allow the authorised user to manage (create, modify, delete) the AOI List.	BL 3												
4.2.5.2.0-1.0-3	[T1-R481]	TRITON shall allow the authorised user to create a static AOI with a point of reference at an indicated geographic location.	BL 3												
4.2.5.2.0-1.0-4	[T1-R482]	TRITON shall allow the authorised user to slave an AOI to a vessel at its point of reference.	BL 3												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
4.2.5.2.0-1.0-5	[T1-R483]	TRITON shall allow the authorised user to create an AOI by either entering location values or drawing as an Area and display it on the GeoView as a laver.	BL 3												
4.2.5.2.0-1.0-6	[T1-R484]	TRITON shall allow the authorised user to associate an AOI to a group. element or unit in an Maritime Task Organization.	BL 3												
4.2.5.3		**Rules of Engagement Management**													
4.2.5.3.0-1.0-1	[T1-R485]	TRITON shall maintain an ROE List for each Maritime Operation	BL 3												
4.2.5.3.0-1.0-2	[T1-R486]	TRITON shall allow the authorised user to manage (create, modify, delete) the ROE List.	BL 3												
4.2.5.3.0-1.0-3	[T1-R487]	TRITON shall be able to build the ROE List from a received ROEAUTH Message.	BL 3												
4.2.5.3.0-1.0-4	[T1-R488]	TRITON shall allow the user to display the ROE Profile.	BL 3												
4.2.5.3.0-1.0-5	[T1-R489]	TRITON shall maintain an ROE Request List for each Maritime Operation.	BL 3												
4.2.5.3.0-1.0-6	[T1-R490]	TRITON shall allow the authorised user to process the requests in the ROE Request List.	BL 3												
4.2.5.3.0-1.0-7	[T1-R491]	TRITON shall allow the authorised user to issue ROE Request to be processed by the higher command. Each Request will automatically enter into the ROE Request List.	BL 3												
4.2.5.3.0-1.0-8	[T1-R492]	TRITON shall be able to generate ROEREQ Message to assist the users of subordinate commands to prepare the message.	BL 3												
4.2.5.3.0-1.0-9	[T1-R493]	TRITON shall be able to generate ROEIMPL Message based on the selected ROEs in the ROE List to distribute them to subordinate commands.	BL 3												
4.2.5.3.0-1.0-10	[T1-R494]	TRITON shall allow the authorised user to set the ROE Status (implementation or cancellation) and notify the authorised users of the subordinate commands.	BL 3												
4.2.5.3.0-1.0-11	[T1-R495]	TRITON shall be able to send the ROEREQ and ROEIMPL Messaaes to MHS for distribution.	BL 3												
4.2.5.4		**Maritime Planning Aids**													
4.2.5.4.1		**Disposition Management**													
4.2.5.4.1.0-1.0-1	[T1-R496]	TRITON shall maintain a list of Dispositions for each Maritime Operation.	BL 3												
4.2.5.4.1.0-1.0-2	[T1-R497]	TRITON shall allow the authorised user to manage (create, modify, delete) the Disposition List.	BL 3												
4.2.5.4.1.0-1.0-3	[T1-R498]	TRITON shall allow the authorised user to set visibility, Security Classification and Releasability Label of Dispositions.	BL 3												
4.2.5.4.1.0-1.0-4	[T1-R499]	TRITON shall display Dispositions in the GeoView as a Layer with user-selected label options.	BL 3												
4.2.5.4.1.1		**Disposition Four Whiskey**													
4.2.5.4.1.1.0-1.0-1	[T1-R500]	TRITON shall maintain a list of Disposition 4W for each Maritime Operation.	BL 3												
4.2.5.4.1.1.0-1.0-2	[T1-R501]	TRITON shall allow the authorised user to manaae (create. modify. delete) Disaosition 4W List.	BL 3												
4.2.5.4.1.1.0-1.0-3	[T1-R502]	TRITON shall have Disposition 4W Editor.	BL 3												
4.2.5.4.1.1.0-1.0-4	[T1-R503]	TRITON shall allow the authorised user to generate Disposition 4W i.a.w. ATP-01 on a pointer position or on a selected track with given attributes.	BL 3												
4.2.5.4.1.1.0-1.0-5	[T1-R504]	TRITON shall allow the authorised user to select the Disposition 4W grid boxes by either using the pointing device or manually entering the their identification.	BL 3												
4.2.5.4.1.1.0-1.0-6	[T1-R505]	TRITON shall allow the authorised user set visibility and status of Disposition 4W.	BL 3												
4.2.5.4.1.1.0-1.0-7	[T1-R506]	TRITON shall be able to display the Disposition 4W in the GeoView as a Layer.	BL 3												
4.2.5.4.2		**Position and Intended Movement**													
4.2.5.4.2.0-1.0-1	[T1-R507]	TRITON shall maintain a list of Position and Intended Movement (PIM) Routes for each Maritime Operation.	BL 3												
4.2.5.4.2.0-1.0-2	[T1-R508]	TRITON shall allow the authorised user to manaae (create. modify. delete) the PIM Route List.	BL 3												
4.2.5.4.2.0-1.0-3	[T1-R509]	TRITON shall allow the authorised user to create a PIM Route in Speed-oriented Mode by entering the constant speed and creating the Waypoints. TRITON shall calculate the DTG of each Waypoint automatically.	BL 3												
4.2.5.4.2.0-1.0-4	[T1-R510]	TRITON shall allow the authorised user to create a PIM Route in Time-oriented Mode by entering the DTG of the Waypoints. TRITON shall calculate the speed to be used at each Leg automatically.	BL 3												
4.2.5.4.2.0-1.0-5	[T1-R511]	TRITON shall allow the authorised user to create a PIM Route in the GeoView, indicating the start position and Waypoints.	BL 3												
4.2.5.4.2.0-1.0-6	[T1-R512]	TRITON shall be able to display the selected PIM Routes as a Layer in the GeoView according to their visibility settings.	BL 3												
4.2.5.4.3		**Q-Route Manaaement**													
4.2.5.4.3.0-1.0-1	[T1-R513]	TRITON shall maintain a list of Q-Routes for each Maritime Operation.	BL 3												
4.2.5.4.3.0-1.0-2	[T1-R514]	TRITON shall allow the authorised user to manage (create, modify, delete, export, import) the Q-Route List.	BL 3												
4.2.5.4.3.0-1.0-3	[T1-R515]	TRITON shall allow the authorised user to create a Q-Route by entering attribute values manually.	BL 3												
4.2.5.4.3.0-1.0-4	[T1-R516]	TRITON shall allow the authorised user to create a Q-Route by using the Geospatial Drawings and entering the values for the attributes.	BL 3												
4.2.5.4.3.0-1.0-5	[T1-R517]	TRITON shall display Q-Routes in Layers in the GeoView according to their visibility settings.	BL 3												
4.2.5.4.4		**Navigational Area Management**													
4.2.5.4.4.0-1.0-1	[T1-R518]	TRITON shall maintain a list of Naviaational Areas for each Maritime Operation.	BL 2												
4.2.5.4.4.0-1.0-2	[T1-R519]	TRITON shall allow the authorised user to manaae (create. modify. delete. export. imoort) the Naviaational Area List.	BL 2												
4.2.5.4.4.0-1.0-3	[T1-R520]	TRITON shall allow the authorised user to create a Navigational Area using the Reference Object-Area.	BL 2												
4.2.5.4.4.0-1.0-4	[T1-R521]	TRITON shall allow the user to display selected Navigational Areas in the GeoView.	BL 2												
4.2.5.5		**Subsurface Mission Space Management**													
4.2.5.5.1		**WSM/PMI Area Definition**													
4.2.5.5.1.0-1.0-1	[T1-R522]	TRITON shall maintain a WSM/PMI Database to keep WSM/PMI Areas and tracks (routes) for supporting both WSM and PMI Functions.	BL 3												
4.2.5.5.1.0-1.0-2	[T1-R523]	TRITON shall allow the authorised user to set Visibility, Security Classification, Releasability Label of WSM/PMI Areas and modify their drawing attributes (drawing colour. fill colour. transparency).	BL 3												
4.2.5.5.1.0-1.0-3	[T1-R524]	TRITON shall be able to display the WSM/PMI Areas and Moving Havens in the GeoView.	BL 3												
4.2.5.5.1.0-1.0-4	[T1-R525]	TRITON shall be able to display all WSM/PMI Areas in sortable tabular format in the AppView.	BL 3												
4.2.5.5.1.0-1.0-5	[T1-R526]	TRITON shall allow the authorised user to filter the tabular format of the WSM/PMI Areas displayed in the AppView with an option to display the selected ones in the GeoView.	BL 3												
4.2.5.5.1.0-1.0-6	[T1-R527]	TRITON shall allow the user to select the WSM/PMI Areas to display them in the GeoView.	BL 3												
4.2.5.5.2		**Interference Check**													
4.2.5.5.2.0-1.0-1	[T1-R528]	TRITON shall be able to perform Interference Check according to the Interference Check Criteria (as given in the Description) for overlapping WSP/PMI Areas and tracks assigned to different units under consideration of depth separation.	BL 3												
4.2.5.5.2.0-1.0-2	[T1-R529]	TRITON shall allow the authorised user to set a time and a horizontal distance value which is added to each direction of all WSM/PMI Areas before checking for overlap.	BL 3												
4.2.5.5.2.0-1.0-3	[T1-R530]	TRITON shall notify the authorised user if there is an interference with other areas when the user creates a new area and initiates a check process.	BL 3												
4.2.5.5.2.0-1.0-4	[T1-R531]	TRITON shall allow the authorised user to calculate the vertical separation based on ATP-18(G)(NAVY) Para. 0226 (NU).	BL 3												
4.2.5.5.2.0-1.0-5	[T1-R532]	TRITON shall allow the authorised user to exclude specific WSM/PMI Areas from Interference Checks for specified units.	BL 3												
4.2.5.5.2.0-1.0-6	[T1-R533]	TRITON shall display all WSP/PMI Area interferences in sortable tabular format in the AppView.	BL 3												
4.2.5.5.2.0-1.0-7	[T1-R534]	TRITON shall be able to animate a selected WSM/PMI Area and Moving Haven starting from a given position, time, duration and update rate. Forward or backward animation shall be possible. The animation capability of the GeoView (Animating C4ISR Objects) shall be used.	BL 3												
4.2.5.5.2.0-1.0-8	[T1-R535]	TRITON shall allow the authorised user to initiate an animation for a selected WSM/PMI Area and Moving Haven by setting the starting position, time, duration of animation and interval for position update with at least one (1) minute steps.	BL 3												
4.2.5.5.2.0-1.0-9	[T1-R536]	TRITON shall allow the authorised user to pause the animation, modify the WSM/PMI Area and Moving Haven and resume the animation. The Timeline of the GeoView may be used to control the animation.	BL 3												
4.2.5.5.2.0-1.0-10	[T1-R537]	TRITON shall allow the authorised user to set the start time of the WSM/PMI animation to the beginning of a selected interference.	BL 3												
4.2.5.5.2.0-1.0-11	[T1-R538]	TRITON shall be able to generate SUBNOTE and SUBNOTE CHANGE messages based on user-selected Moving Havens. The user shall be able to send these messages to the Message Handling System.	BL 3												
4.2.5.5.3		**Prevention of Mutual Interference**													
4.2.5.5.3.0-1.0-1	[T1-R539]	TRITON shall allow the authorised user to manage (create, modify, delete) the PMI Areas in the WSM/PMI Database.	BL 3												
4.2.5.5.3.0-1.0-2	[T1-R540]	TRITON shall be able to generate PMI Areas as a Formatted Message.	BL 3												
4.2.5.5.3.0-1.0-3	[T1-R541]	TRITON shall allow the authorised user to generate SUBDANGER and UW OBJECT NOTE Messages. The user shall be able to send these messaaes to the Messaae Handline Svstem.	BL 3												
4.2.5.5.4		**Water Space Manaaement**													
4.2.5.5.4.0-1.0-1	[T1-R542]	TRITON shall allow the authorised user to manage (create, modify, delete) the WSM Areas in the WSM/PMI Database.	BL 3												
4.2.5.5.4.0-1.0-2	[T1-R543]	TRITON shall maintain a list of WSM Requests.	BL 3												
4.2.5.5.4.0-1.0-3	[T1-R544]	TRITON shall allow the authorised user to manage (create, modify, delete) the WSM Request List.	BL 3												
4.2.5.5.4.0-1.0-4	[T1-R545]	TRITON shall allow the authorised user to create a WSM Request in the WSM Request List when a WSM REQ message is received.	BL 3												
4.2.5.5.4.0-1.0-5	[T1-R546]	TRITON shall be able to generate BARNSTORM, WSM ALLOCSTAT, SUBTASK and SUBNOI messages based on user-selected WSM Areas. The user shall be able to send these messaaes to the Messaae Handling System.	BL 3												
4.2.6		**Maritime Messaaina and Communication**													
4.2.6.1		**Message Database Management**													
4.2.6.1.0-1.0-1	[T1-R547]	TRITON shall maintain a Message Database to store incoming and outgoing messages.	BL 3												
4.2.6.1.0-1.0-2	[T1-R548]	TRITON shall allow the authorised user to manage (add, edit, delete) the Message Database.	BL 3												
4.2.6.1.0-1.0-3	[T1-R549]	TRITON shall allow the user to search for a message according to given set of attributes, display the results in sortable tabular format and display the content of a selected message in the AppView.	BL 3												
4.2.6.1.0-1.0-4	[T1-R550]	TRITON shall allow the authorised user to archive Message Database and import archived data when needed.	BL 3												
4.2.6.1.0-1.0-5	[T1-R551]	TRITON shall provide a Message Editor with configurable default fields. The Message Editor shall have basic text editing functions to allow the user to type messages and save them.	BL 3												
4.2.6.2		**Receivine Messaaes**													
4.2.6.2.0-1.0-1	[T1-R552]	TRITON shall be able to receive ADatP-3 Formatted Messages from external systems via System Interface Services.	BL 1												
4.2.6.2.0-1.0-2	[T1-R553]	TRITON shall be able to receive OTH-T GOLD messages from external systems via System Interface Services.	BL 1												
4.2.6.2.0-1.0-3	[T1-R554]	TRITON shall validate received ADatP-3 Formatted Messages and notify the authorised user if a Formatted Message is not validated.	BL 3												
4.2.6.2.0-1.0-4	[T1-R555]	TRITON shall allow the authorised user to set criteria to exclude messages from parsing.	BL 3												
4.2.6.2.0-1.0-5	[T1-R556]	TRITON shall store unrecognised messages for editing and reparsing.	BL 3												
4.2.6.2.0-1.0-6	[T1-R557]	TRITON shall provide adequate documentation (e.g. Software Requirements Specification and Software Design Description) for the mappings and transformations between the supported message types and the associated Maritime Information Entity. An adequate specification is one that enables a programmer or user to understand the data transformation and validate its correctness.	BL 3												
4.2.6.3		**Sending Messages**													
4.2.6.3.0-1.0-1	[T1-R558]	TRITON shall be able to send prepared messages to selected e-mail addresses via SMTP.	BL 3												
4.2.6.3.0-1.0-2	[T1-R559]	TRITON shall be able to export the prepared messages as text files.	BL 3												
4.2.6.4		**Handling ADatP-3 Messages**													
4.2.6.4.1		**Processing ADatP-3 Formatted Messages**													
4.2.6.4.1.0-1.0-1	[T1-R560]	TRITON shall be able to process NAVSITSUM message, extract the track reports from the message and either create new Tracks or update the existing Tracks.	BL 3												
4.2.6.4.1.0-1.0-2	[T1-R561]	TRITON shall be able to process NAVSITREP message, extract the track report from the message and either create a new Track or update the existing Track.	BL 3												
4.2.6.4.1.0-1.0-3	[T1-R562]	TRITON shall be able to process MARINTSUM message, extract the contact report from the message and either create new Tracks or update the existing Tracks.	BL 3												
4.2.6.4.1.0-1.0-4	[T1-R563]	TRITON shall be able to process MARINTREP message, extract the contact report from the message and either create a new Track or update the existing Track.	BL 3												
4.2.6.4.1.0-1.0-5	[T1-R564]	TRITON shall be able to process RMPSITSUM message, extract the track report or the Reference Object data from the message and then either create new Tracks and Reference Obiects or update the existing ones.	BL 3												
4.2.6.4.1.0-1.0-6	[T1-R565]	TRITON shall be able to process NAVPOSREP message, extract the track report from the message and either create new Tracks or update the existing Tracks.	BL 3												
4.2.6.4.1.0-1.0-7	[T1-R566]	TRITON shall be able to process LOCATOR message, extract the track report from the message and either create new Tracks or update the existing Tracks.	BL 3												
4.2.6.4.1.0-1.0-8	[T1-R567]	TRITON shall be able to process PURPLE message, and display PURPLE area/route as a C2 Area drawing with the provided track information.	BL 3												
4.2.6.4.1.0-1.0-9	[T1-R568]	TRITON shall be able to process OPSTAT UNIT message, extract the unit report from the message and either create a new friendly Track or update the existing friendly Track. If the unit is in the Maritime Task Organization, it shall be updated accordingly.	BL 3												
4.2.6.4.1.0-1.0-10	[T1-R569]	TRITON shall be able to process SUBNOTE and SUBNOTE CHANGE messages, extract the PMI Moving Haven from the message and create the requested Moving Haven entry in the WSM/PMI Database.	BL 3												
4.2.6.4.1.0-1.0-11	[T1-R570]	TRITON shall be able to process SUBNOTE REQ and SUBNOTE CHANGE REQ messages, extract the PMI Moving Haven from the message and create the requested Moving Haven entry in the WSM/PMI Database.	BL 3												
4.2.6.4.1.0-1.0-12	[T1-R571]	TRITON shall be able to process BARNSTORM, WSM ALLOCSTAT, SUBDANGER, SUBNOI and UW OBJECT NOTE messages, extract the WSM/PMI Areas and create a WSM/PMI Area in the WSM/PMI Database if not exists already.	BL 3												
4.2.6.4.1.0-1.0-13	[T1-R572]	TRITON shall be able to process WSM REQ message, extract the WSM Area from the message and create the requested WSM Area in the WSM/PMI Database.	BL 3												
4.2.6.4.1.0-1.0-14	[T1-R573]	TRITON shall be able to process ROEREQ message, extract the ROE information from the message and update the ROE Request List (see ROE Management).	BL 3												
4.2.6.4.1.0-1.0-15	[T1-R574]	TRITON shall be able to process ROEAUTH message, extract the ROE information from the message and update the ROE List.	BL 3												
4.2.6.4.1.0-1.0-16	[T1-R575]	TRITON shall be able to process ROEIMPL message, extract the ROE information from the message and update the ROE List.	BL 3												
4.2.6.4.1.0-1.0-17	[T1-R576]	TRITON shall allow the authorised user to process a selected ADatP-3 Formatted Message text file as an input for parsing.	BL 3												
4.2.6.4.1.0-1.0-18	[T1-R577]	TRITON should have a reolaceable module that handles the parsing of Formatted Messaaes.	BL 3												
4.2.6.4.2		**Generating ADatP-3 Messaaes**													
4.2.6.4.2.0-1.0-1	[T1-R578]	TRITON shall be able to generate ADatP-3 Formatted Messages and allow the authorised user to edit the messaae.	BL 3												
4.2.6.4.2.0-1.0-2	[T1-R579]	TRITON shall allow the authorised user to change the configuration of the fields of the message format.	BL 3												
4.2.6.4.2.0-1.0-3	[T1-R580]	TRITON shall be able to get semi-static parameters for ADatP-3 Formatted Messages from the System Operational Parameters.	BL 3												
4.2.6.4.2.0-1.0-4	[T1-R581]	TRITON should have a replaceable module that handles the generation of Formatted Messaaes.	BL 3												
4.2.6.5		**Handling OTH-T GOLD Messages**													
4.2.6.5.1		**Processing OTH-T GOLD Messages**													
4.2.6.5.1.0-1.0-1	[T1-R582]	TRITON shall be able to process OTH-T GOLD CONTACT REPORT message, extract the track report from the message and either create a new Track or update the existing Track.	BL 1												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
4.2.6.5.1.0-1.0-2	[T1-R583]	TRITON shall be able to process OTH-T GOLD ENHANCED CONTACT REPORT message, extract the track report from the message and either create a new Track or uodate the existina Track.	BL 1												
4.2.6.5.1.0-1.0-3	[T1-R584]	TRITON shall be able to process OTH-T GOLD OVERLAY-2 message, extract the information describing the graphics from the message and either create a new Reference Object (Reference Point, Line, Area) or update the existing one.	BL 3												
4.2.6.5.1.0-1.0-4	[T1-R585]	TRITON shall be able to process OTH-T GOLD OVERLAY-3 message, extract the information describing the graphics from the message and either create a new Reference Object (Reference Point, Line, Area) or update the existing one.	BL 3												
4.2.6.5.1.0-1.0-5	[T1-R586]	TRITON shall be able to process OTH-T GOLD PIMTRACK message, extract the included PIM track and create the PIM Route.	BL 3												
4.2.6.5.1.0-1.0-6	[T1-R587]	TRITON shall allow the authorised user to process a selected OTH-T GOLD Message text file as an input for parsing.	BL 1												
4.2.6.5.1.0-1.0-7	[T1-R588]	TRITON shall use the NATO Standard Country Codes Table to map the country codes to country names.	BL 1												
4.2.6.5.2		**Generatine OTH-T GOLD Messaaes**													
4.2.6.5.2.0-1.0-1	[T1-R589]	TRITON shall be able to generate OTH-T GOLD Messages from the Picture Management Function and allow the authorised user to edit the message before sending.	BL 3												
4.2.6.6		**Handling Format Alfa Messages**													
4.2.6.6.1		**Processing Format Alfa Messages**													
4.2.6.6.1.0-1.0-1	[T1-R590]	TRITON shall be able to process Format Alfa message, retrieve the track information.	BL 2												
4.2.6.6.1.0-1.0-2	[T1-R591]	TRITON shall allow the authorised user to manually enter Format Alfa message text into the Format Alfa Parser for processing.	BL 2												
4.2.6.6.1.0-1.0-3	[T1-R592]	TRITON shall allow the authorised user to either create a new track with the received information or update the existing track.	BL 2												
4.2.6.6.1.0-1.0-4	[T1-R593]	TRITON shall be able to tag the associated Vessel in the Vessel Database reported by Format Alfa for its contribution with a DTG.	BL 2												
4.2.6.6.1.0-1.0-5	[T1-R594]	TRITON shall allow the authorised user to store and manage Format Alfa messages in the Message Database.	BL 2												
4.2.7		**System Management**													
4.2.7.1		**User Management**													
4.2.7.1.1		**User Groups**													
4.2.7.1.2		**User Roles**													
4.2.7.1.3		**Users**													
4.2.7.1.4		**Privileges and Access Rights**													
4.2.7.1.4.0-1.0-1	[T1-R595]	Each user of TRITON shall be assigned Access Rights based on TRITON Roles, the privileges within that Role, and the Organization of the user. A User can be assigned one or more TRITON Roles in one or more organizations.	BL 1												
4.2.7.1.4.0-1.0-2	[T1-R596]	TRITON shall provide privileged TRITON accounts (e.g. system and security administrator accounts).	BL 1												
4.2.7.1.4.0-1.0-3	[T1-R597]	TRITON shall provide for the authorised user a set of access rights (data and applications) such that these rights can be maintained.	BL 1												
4.2.7.1.4.0-1.0-4	[T1-R598]	If a user has more than one Basic Role, the user shall have the privileges for all the Basic Roles.	BL 1												
4.2.7.1.4.0-1.0-5	[T1-R599]	TRITON shall allow the authorised user with administration privileges to set roles and permissions for a user.	BL 1												
4.2.7.1.4.0-1.0-6	[T1-R600]	TRITON shall allow only the authorised user with administration privileges to operate TRITON System Management Functionality and TRITON System Maintenance Functionality with appropriate operating system rights.	BL 1												
4.2.7.1.4.0-1.0-7	[T1-R601]	TRITON shall allow a user to have the same or different Basic Roles for different simultaneous instances of TRITON.	BL 1												
4.2.7.1.4.0-1.0-8	[T1-R602]	TRITON access controls shall ensure that users cannot access functions or Maritime Information Entities beyond those needed to execute their role.	BL 1												
4.2.7.1.4.0-1.0-9	[T1-R603]	TRITON shall allow the authorised user with administration privileges to manage (create, modify, delete) User Groups, Subgroups, User Accounts, User Roles, password details, and assign User Roles to User Accounts and manage general access privileges of individual User Accounts.	BL 1												
4.2.7.1.4.0-1.0-10	[T1-R604]	TRITON shall allow the authorised user to define unique User Groups and Subgroups within a User Group and then unique User Roles within a User Group or Subgroup.	BL 1												
4.2.7.1.4.0-1.0-11	[T1-R605]	TRITON shall maintain a Function Table having a list of functions with Access Rights given in the Description.	BL 1												
4.2.7.1.4.0-1.0-12	[T1-R606]	TRITON shall allow the authorised user with administration privileges to define privileges in the Function Table for User Groups and User Roles.	BL 1												
4.2.7.1.4.0-1.0-13	[T1-R607]	TRITON shall be able to inherit access privileges from User Groups or subgroups down to User Roles.	BL 1												
4.2.7.1.4.0-1.0-14	[T1-R608]	TRITON shall automatically change user privileges according to a predefined Function Table when the Operational State of the Server changes.	BL 3												
4.2.7.1.4.0-1.0-15	[T1-R609]	TRITON shall define sessions which provides authorisation along with authentication for each user that logs in to a Maritime Operation.	BL 1												
4.2.7.1.4.0-1.0-16	[T1-R610]	TRITON shall integrate with existing users management systems from the Bi-SC AIS: Windows Active Directory and NATO Enterprise Directory Service.	BL 1												
4.2.7.1.5		**Identity and Session Handling**													
4.2.7.1.5.0-1.0-1	[T1-R611]	TRITON shall support Single-Sign-On (SSO).	BL 1												
4.2.7.1.5.0-1.0-2	[T1-R612]	TRITON shall allow the user to log out anytime and during any process.	BL 1												
4.2.7.1.5.0-1.0-3	[T1-R613]	TRITON shall automatically log out an inactive user after a defined timeout. This timeout value shall be included in the system configuration settings.	BL 1												
4.2.7.1.5.0-1.0-4	[T1-R614]	TRITON shall allow the user (with the same User ID) to access the same information and functionality from any workstation on the network (i.e. "roving user" functionality). This capability shall not depend on the availability of the Windows Active Directory.	BL 1												
4.2.7.1.5.0-1.0-5	[T1-R615]	TRITON shall be able to apply Role-based Access Control Guidelines given in the Description.	BL 1												
4.2.7.1.5.0-1.0-6	[T1-R616]	TRITON shall assign the predefined Roles to a user after the user's authentication and authorisation is completed.	BL 1												
4.2.7.1.5.0-1.0-7	[T1-R617]	TRITON shall automatically login a user who is authenticated by Windows Active Directory or the operating system.	BL 1												
4.2.7.1.5.0-1.0-8	[T1-R618]	If an enterprise-level authentication is not available, TRITON shall implement an authentication service that requires the user to provide a valid User ID and password.	BL 1												
4.2.7.1.5.0-1.0-9	[T1-R619]	For users accessing TRITON from networks which would not allow an instance of TRITON to authenticate the user, TRITON shall implement an authentication service that requires the user to provide a valid User ID and password.	BL 1												
4.2.7.1.5.0-1.0-10	[T1-R620]	TRITON shall not store user login and password details locally while in the Normal Mode of operation. TRITON shall be configurable to use either the enterprise-level authentication services or the TRITON authentication service (appropriate for the Standalone Mode of operation), but not both simultaneously.	BL 1												
4.2.7.1.5.0-1.0-11	[T1-R621]	The interval for password change in TRITON shall be selectable.	BL 1												
4.2.7.1.5.0-1.0-12	[T1-R622]	TRITON shall allow the authenticated users to manage their password and their user profile (e.g. e-mail address, unit) information.	BL 1												
4.2.7.1.5.0-1.0-13	[T1-R623]	TRITON shall provide help text to support the login process together with links to recover lost password and login details.	BL 1												
4.2.7.1.5.0-1.0-14	[T1-R624]	TRITON shall limit the feedback of information during authentication to prevent users gaining knowledge of the authentication process.	BL 1												
4.2.7.1.5.0-1.0-15	[T1-R625]	If an authenticated user is a member of more than one Organization (i.e. Organizational Node), the user shall be prompted to select the Organization to be used during that session.	BL 1												
4.2.7.1.5.0-1.0-16	[T1-R626]	TRITON shall display only the information allowed for a particular user according to the viewing permissions assigned to that user.	BL 1												
4.2.7.1.5.0-1.0-17	[T1-R627]	TRITON shall automatically verify entries into TRITON Repository to ensure the user is authorised to effect such changes.	BL 1												
4.2.7.1.5.0-1.0-18	[T1-R628]	TRITON shall display only those functions enabled for a particular user according to the execution permissions assigned to that user and provide access to them.	BL 1												
4.2.7.1.6		**Workspaces**													
4.2.7.1.6.0-1.0-1	[T1-R629]	TRITON shall provide a configurable Workspace as defined in the Description for each user who is assigned to a User Role.	BL 1												
4.2.7.1.6.0-1.0-2	[T1-R630]	TRITON shall allow the authorised user to manage (create, modify, delete, export, import) the Workspaces.	BL 1												
4.2.7.1.6.0-1.0-3	[T1-R631]	TRITON shall automatically delete the allocated Workspace associated to a user when the user is de-assigned from a User Role by the authorised user.	BL 1												
4.2.7.1.6.0-1.0-4	[T1-R632]	TRITON shall allow the user to manage (import, modify, save) his or her own Workspace including the User Settings for both AppView and GeoView.	BL 1												
4.2.7.1.6.0-1.0-5	[T1-R633]	TRITON shall apply the User Settings for both AppView and GeoView at their start-up and manage them as the user applies any modification.	BL 1												
4.2.7.2		**System Technical Management**													
4.2.7.2.1		**System Administration**													
4.2.7.2.1.0-1.0-1	[T1-R634]	TRITON shall provide the authorised user with administration privileges to manage all access privileges.	BL 1												
4.2.7.2.1.0-1.0-2	[T1-R635]	TRITON shall allow the authorised user to manage (create, copy, modify, delete) Users, Roles and User Groups.	BL 1												
4.2.7.2.2		**System Configuration Management**													
4.2.7.2.2.1		**System Configuration Settings**													
4.2.7.2.2.1.0-1.0-1	[T1-R636]	TRITON shall be able to adiust itself accordina to its Configurable System Settinas when thev are chanaed.	BL 1												
4.2.7.2.2.1.0-1.0-2	[T1-R637]	TRITON shall configure itself at start-up according to the Static Configuration Settings which shall be provided during system installation.	BL 1												
4.2.7.2.2.1.0-1.0-3	[T1-R638]	TRITON shall allow the authorised user to manage (import, modify, save, export) the Static Configuration Settings.	BL 1												
4.2.7.2.2.1.0-1.0-4	[T1-R639]	TRITON shall be able to configure itself at run-time according to the Dynamic Configuration Settings which shall be modified at run-time.	BL 1												
4.2.7.2.2.1.0-1.0-5	[T1-R640]	TRITON shall allow the authorised user to manage (import, modify, save, export) the Dynamic Configuration Settings.	BL 1												
4.2.7.2.2.2		**System Operational Parameters**													
4.2.7.2.2.2.0-1.0-1	[T1-R641]	TRITON shall be able to adjust and fine-tune the behaviour of its functions according to its System Operational Parameters.	BL 1												
4.2.7.2.2.2.0-1.0-2	[T1-R642]	TRITON shall be able to use the System Operational Parameters to adjust the behaviour of its functions at run-time.	BL 1												
4.2.7.2.2.2.0-1.0-3	[T1-R643]	TRITON shall allow the authorised user to manage (import, modify, save, export) the System Operational Parameters.	BL 1												
4.2.7.2.3		**System Interface Management**													
4.2.7.2.3.1		**System Interface Service Framework**													
4.2.7.2.3.1.0-2.0-1	[T1-R644]	TRITON shall use a dedicated System Interface Service (SIS) for each identified external interface.	BL 1												
4.2.7.2.3.1.0-2.0-2	[T1-R645]	TRITON shall use a standard internal structure for each SIS.	BL 1												
4.2.7.2.3.1.0-2.0-3	[T1-R646]	TRITON shall use a standard status reporting and error handling functionality for each SIS.	BL 1												
4.2.7.2.3.1.0-2.0-4	[T1-R647]	TRITON shall process incoming data according to the interface specification and convert this data into internal data representation.	BL 1												
4.2.7.2.3.1.0-2.0-5	[T1-R648]	TRITON shall be able to provide Web Service capability via a SIS.	BL 1												
4.2.7.2.3.1.0-2.0-6	[T1-R649]	TRITON shall automatically establish a dedicated connection to the external communication channel when it becomes available.	BL 1												
4.2.7.2.3.1.0-2.0-7	[T1-R650]	TRITON shall be able to re-establish the connection to the external communication channel in case the connection is lost.	BL 1												
4.2.7.2.3.1.0-2.0-8	[T1-R651]	TRITON shall convert internal data representation into external representation according to the interface specification and send the data through the physical communication channel.	BL 1												
4.2.7.2.3.1.0-2.0-9	[T1-R652]	TRITON shall provide data loaaina capability for each SIS to be enabled and disabled by the authorised user.	BL 1												
4.2.7.2.3.2		**System Interface Control**													
4.2.7.2.3.2.0-1.0-1	[T1-R653]	TRITON shall provide the user with the information (connectivity status, interface-specific information such as data rate) related to the status of each interface.	BL 1												
4.2.7.2.3.2.0-1.0-2	[T1-R654]	TRITON shall provide the authorised user to control (start, stop, change mode) individual SIS.	BL 1												
4.2.7.2.3.2.0-1.0-3	[T1-R655]	TRITON shall allow the authorised user to manually allocate the selected SIS onto separate physical or virtual CPUs for load balancing purposes.	BL 1												
4.2.7.2.4		**System Technical Status Management**													
4.2.7.2.4.1		**Technical Status Monitorina**													
4.2.7.2.4.1.0-1.0-1	[T1-R656]	TRITON shall display the status of each component and external interface in both sortable tabular form and graphical form using tree-like representation (i.e. a Dashboard).	BL 1												
4.2.7.2.4.1.0-1.0-2	[T1-R657]	TRITON shall allow the user to view the detailed status of a selected external interface.	BL 1												
4.2.7.2.4.1.0-1.0-3	[T1-R658]	TRITON shall provide the authorised user with a configurable table of functions to compute the KPI.	BL 1												
4.2.7.2.4.1.0-1.0-4	[T1-R659]	TRITON shall calculate its instantaneous KPIs based on status of its services, display the KPI and update it at intervals set by the authorised user.	BL 1												
4.2.7.2.4.1.0-1.0-5	[T1-R660]	TRITON shall provide the status of its functionality to SMC Services including its KPI.	BL 1												
4.2.7.2.4.2		**System Mode Management**													
4.2.7.2.4.2.0-1.0-1	[T1-R661]	TRITON shall manaae its Ooerational Mode automaticallv and allow the authorised user to chanae it manuallv.	BL 1												
4.2.7.2.5		**System Error Reporting**													
4.2.7.2.5.0-1.0-1	[T1-R662]	TRITON shall have an error collecting, error logging and reporting mechanism.	BL 1												
4.2.7.2.5.0-1.0-2	[T1-R663]	TRITON shall allow the authorised user to access the error logs to examine the traces.	BL 1												
4.2.7.2.5.0-1.0-3	[T1-R664]	TRITON shall allow the authorised user to manage (archive, delete) the error logs.	BL 1												
4.2.7.2.5.0-1.0-4	[T1-R665]	TRITON shall report the errors to the SMC Services according to their severity levels and notify the authorised user.	BL 1												
4.2.7.2.6		**Client Monitoring and Control**													
4.2.7.2.6.0-1.0-1	[T1-R666]	TRITON shall monitor the Clients connected to the TRITON Server.	BL 1												
4.2.7.2.6.0-1.0-2	[T1-R667]	TRITON shall display the status of the connected Clients in both sortable tabular form and graphical form using tree-like representation.	BL 1												
4.2.7.2.6.0-1.0-3	[T1-R668]	TRITON shall allow the authorised user to view the detailed status of a selected Client.	BL 1												
4.2.7.2.6.0-1.0-4	[T1-R669]	TRITON shall allow the authorised user to control (including force logout) the session of a selected Client.	BL 1												
4.2.7.2.7		**Multi-Site Operation Management**													
4.2.7.2.7.1		**Redundancy Management**													
4.2.7.2.7.1.0-1.0-1	[T1-R670]	TRITON shall implement a Redundancy Management using master-slave mechanism and redundancy methods as defined in the Description. COTS solutions may be used upon Purchaser approval.	BL 3												
4.2.7.2.7.1.0-1.0-2	[T1-R671]	TRITON shall allow the authorised user to configure instances of TRITON for Redundancy Management.	BL 3												
4.2.7.2.7.1.0-1.0-3	[T1-R672]	TRITON shall allow the authorised user to control and monitor the Redundancy Management.	BL 3												
4.2.7.2.7.1.0-1.0-4	[T1-R673]	In case the Active TRITON Instance fails, the Hot Standby Instance shall automatically take over and become operational within sixty (60) seconds.	BL 3												
4.2.7.2.7.1.0-1.0-5	[T1-R674]	In case the Active TRITON Instance fails and the Hot Standby Instance is not available, the Warm Standby Instance shall become operational within fifteen (15) minutes after the manual initiation by the authorised user.	BL 3												
4.2.7.2.7.1.0-1.0-6	[T1-R675]	In case the Active, Hot Standby and Warm Standby TRITON Instances fail, the Cold Standby Instance shall become operational within two (2) hours after the manual initiation.	BL 3												
4.2.7.2.7.2		**Data Replication**													
4.2.7.2.7.2.0-1.0-1	[T1-R676]	TRITON shall support Data Replication to ensure complete, accurate, timely, confidential and consistent data coherence between instances. Data Centre Infrastructure shall be utilised to achieve resilience.	BL 3												
4.2.7.2.7.2.0-1.0-2	[T1-R677]	TRITON shall allow the authorised user to configure Data Replication rules over selected data (e.g. critical, non-critical).	BL 3												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
4.2.7.2.7.2.0-1.0-3	[T1-R678]	The maximum allowed latency for a set of selected synchronised data shall not exceed one (1) minute for static instances and three (3) minutes for afloat instances.	BL 3												
4.2.7.2.7.2.0-1.0-4	[T1-R679]	TRITON shall be able to replicate new data entry on the Active Instance database on the other Instances' databases based on the rules set by the authorised user.	BL 3												
4.2.7.2.7.2.0-1.0-5	[T1-R680]	TRITON shall be able to replicate new data instances that are marked as "Critical" no later than ten (10) second plus the average network latency of the infrastructure.	BL 3												
4.2.7.2.7.2.0-1.0-6	[T1-R681]	TRITON "will" be able to use Universally Unique Identifier (UUID) ISO/IEC 9834) for Database Reolication.	BL 3												
4.2.7.2.7.2.0-1.0-7	[T1-R682]	TRITON shall allow the authorised user to manage (configure, monitor, control) Data Replication Process for all TRITON instances.	BL 3												
4.2.7.2.7.2.0-1.0-8	[T1-R683]	TRITON Deployable Kits shall be able to replicate their databases on a selected TRITON Server if the full connectivity exists.	BL 4												
4.2.7.2.7.3		**Data Synchronisation**													
4.2.7.2.7.3.0-1.0-1	[T1-R684]	TRITON shall support Data Synchronisation Process defined in the Description to synchronise its internal databases with the selected TRITON Server. The functionality over the data shall be preserved.	BL 3												
4.2.7.2.7.3.0-1.0-2	[T1-R685]	TRITON shall allow the authorised user manage (configure. monitor. control) the Data Synchronisation Process.	BL 3												
4.2.7.2.7.3.0-1.0-3	[T1-R686]	TRITON shall notify the authorised user when any inconsistency is detected during synchronisation process.	BL 3												
4.2.7.2.7.3.0-1.0-4	[T1-R687]	TRITON "will" be able to use Universally Unique Identifier (UUID) [ISO/IEC 9834] for Database Synchronisation.	BL 3												
4.2.7.2.7.3.0-1.0-5	[T1-R688]	TRITON Deployable Kit shall be able to synchronise itself with the selected TRITON Server based on the Area of Interest set by the authorised user and the available bandwidth.	BL 4												
4.2.7.3		**Data Management**													
4.2.7.3.1		**Data Import and Export**													
4.2.7.3.1.0-1.0-1	[T1-R689]	TRITON shall be able to import data from a user-selected file in one of the Recognised Import File Formats according to the settings of a function.	BL 1												
4.2.7.3.1.0-1.0-2	[T1-R690]	TRITON shall be able to export data to a user-specified file in one of the Recognised Export File Formats according to the settings of a function.	BL 1												
4.2.7.3.1.0-1.0-3	[T1-R691]	TRITON shall be able to use the operating system file management to indicate the path or location of the file to be imported or exported.	BL 1												
4.2.7.3.2		**Databases**													
4.2.7.3.2.1		**Database Management**													
4.2.7.3.2.1.0-1.0-1	[T1-R692]	TRITON shall utilise a Database Management System (DBMS) to manage all internal data storage.	BL 1												
4.2.7.3.2.1.0-1.0-2	[T1-R693]	Each TRITON instance shall have its own DBMS, compatible with the NATO Infrastructure as explained in the Desription.	BL 1												
4.2.7.3.2.1.0-1.0-3	[T1-R694]	TRITON shall use only one database schema in a multiple user context (e.g. Live, Exercise, Training) during the execution and display which database is in use.	BL 1												
4.2.7.3.2.1.0-1.0-4	[T1-R695]	TRITON shall provide the authorised user with database management, administration, monitoring capability allowing access to all historical data.	BL 1												
4.2.7.3.2.1.0-1.0-5	[T1-R696]	TRITON shall provide auditing, audit trail with change recording, and activity logging mechanism with timestamps for al database activities.	BL 1												
4.2.7.3.2.1.0-1.0-6	[T1-R697]	TRITON databases shall be able to support complex queries as explained in the Description.	BL 1												
4.2.7.3.2.1.0-1.0-7	[T1-R698]	TRITON shall have "full-text search" capability of database in order to speed up free-text search in the database.	BL 1												
4.2.7.3.2.1.0-1.0-8	[T1-R699]	TRITON shall allow the authorised user to perform database backup and archiving manually. The backup and archive shall be full, incremental backups and archives of data to a selected static network location and onto user-indicated transportable media.	BL 1												
4.2.7.3.2.1.0-1.0-9	[T1-R700]	TRITON database shall support recovery facilities from backup and archive data (see Archiving).	BL 1												
4.2.7.3.2.2		**Database Import and Export**													
4.2.7.3.2.2.0-1.0-1	[T1-R701]	TRITON shall be able to import data from legacy system (MCCIS and/or MSA/BRITE) databases without loss. On-line or off-line data migration tools shall be used to convert the existing data into the format recognised by TRITON databases.	BL 3												
4.2.7.3.2.2.0-1.0-2	[T1-R702]	TRITON shall perform mapping while importing data from legacy system databases.	BL 3												
4.2.7.3.2.2.0-1.0-3	[T1-R703]	TRITON shall be able to import data from previously exported own database.	BL 3												
4.2.7.3.2.2.0-1.0-4	[T1-R704]	TRITON shall assign default values during mapping of data from legacy systems to current system, if the values do not exist.	BL 3												
4.2.7.3.2.2.0-1.0-5	[T1-R705]	TRITON shall notify the authorised user when imported data requires overrides.	BL 3												
4.2.7.3.2.2.0-1.0-6	[T1-R706]	TRITON shall be able to export all or a portion of its databases together with their metadata.	BL 3												
4.2.7.3.2.2.0-1.0-7	[T1-R707]	TRITON shall allow the authorised user to select the set of entities to be exported based on at least Complete Database, Subset, Selected Entity Types and Specified Date.	BL 3												
4.2.7.3.2.2.0-1.0-8	[T1-R708]	TRITON shall protect its database integrity during exporting.	BL 3												
4.2.7.3.2.3		**Archiving**													
4.2.7.3.2.3.0-1.0-1	[T1-R709]	TRITON shall provide complete archiving capability according to [AC/324-D(2014)0008].	BL 3												
4.2.7.3.2.3.0-1.0-2	[T1-R710]	TRITON shall provide a selective archiving capability for selected databases for a selected time period in a Maritime Operation.	BL 3												
4.2.7.3.2.3.0-1.0-3	[T1-R711]	TRITON shall protect Operational Records defined in the Description against unauthorised access and alteration.	BL 3												
4.2.7.3.2.3.0-1.0-4	[T1-R712]	TRITON shall uniquely identify archives for long term preservation.	BL 3												
4.2.7.3.2.3.0-1.0-5	[T1-R713]	TRITON shall allow the authorised user to initiate archiving into selected storage media.	BL 3												
4.2.7.3.2.3.0-1.0-6	[T1-R714]	TRITON shall allow the authorised user to import the entire or selected parts of archived data into a selected Maritime Operation or into a new Maritime Operation.	BL 3												
4.2.7.3.2.3.0-1.0-7	[T1-R715]	TRITON shall perform archiving after removing any encryption or password protection.	BL 3												
4.2.7.3.2.4		**Backup**													
4.2.7.3.2.4.0-1.0-1	[T1-R716]	TRITON shall permit full, partial and incremental backup of both the TRITON Databases. TRITON shall be able restore the system to its exact state at the point of any full/partial backup.	BL 3												
4.2.7.3.2.4.0-1.0-2	[T1-R717]	TRITON shall be able to make a full backup of all or selected data automatically at a configurable frequency (e.g. every 24 hours).	BL 3												
4.2.7.3.2.4.0-1.0-3	[T1-R718]	TRITON shall allow the authorised user to perform full and incremental backups of all databases and software itself without impacting the system availability.	BL 3												
4.2.7.3.2.4.0-1.0-4	[T1-R719]	TRITON shall allow the authorised user to take the image of the system and restore a system from an existing image.	BL 3												
4.2.7.3.3		**Off-line Reference Data Management**													
4.2.7.3.3.0-1.0-1	[T1-R720]	TRITON shall allow the authorised user to check external on-line Reference Data Sources from recognised Web sites or off-line Reference Data Sources at indicated Network Locations and import data into local Reference Data Sources.	BL 2												
4.2.7.3.3.0-1.0-2	[T1-R721]	TRITON shall have a Vessel Data Import Capability to be used for importing data from Maritime Datasets into Recognised Import File Format.	BL 2												
4.2.7.3.3.0-1.0-3	[T1-R722]	TRITON shall allow the user to access the off-line Reference Databases with search and list capability.	BL 2												
4.2.7.3.4		**Own Ship Data Management**													
4.2.7.3.4.0-1.0-1	[T1-R723]	TRITON shall maintain Own Ship Data.	BL 4												
4.2.7.3.4.0-1.0-2	[T1-R724]	TRITON shall allow the authorised user to modify Own Ship Data manually.	BL 4												
4.2.7.3.4.0-1.0-3	[T1-R725]	TRITON shall be able to receive Own Ship Data from external sources automatically according to TRITON Own Ship Data Specification.	BL 4												
4.2.7.3.4.0-1.0-4	[T1-R726]	TRITON shall make Own Ship Data available for internal processing.	BL 4												
4.2.8		**Maritime Training and Exercise**													
4.2.8.1		**Training**													
4.2.8.1.0-1.0-1	[T1-R727]	TRITON shall provide training capability using Simulated Tracks while operating in Normal or Standalone Mode.	BL 3												
4.2.8.1.0-1.0-2	[T1-R728]	TRITON shall provide training capability to trainees with available external system simulators while operating in Training Mode (only for the Training System in the Training Environment).	BL 3												
4.2.8.1.0-1.0-3	[T1-R729]	TRITON Training Environment shall have a Training Manager with scenario development and generation capability. This capability shall be able to run user-defined scenarios using user-defined dates and time, and save the scenarios for reviewing purposes.	BL 3												
4.2.8.1.0-1.0-4	[T1-R730]	TRITON Training Environment shall maintain a Training Database with the Training Data as defined in the Description.	BL 3												
4.2.8.1.0-1.0-5	[T1-R731]	TRITON Training Environment shall have a Ground Truth as a simulation engine to generate Simulated Object Data according to the scenario and user commands. The Simulated Object Data shall be made available to Simulators to generate actual information. coordinated in the same time and space domain.	BL 3												
4.2.8.1.0-1.0-6	[T1-R732]	TRITON shall allow the authorised user to manage (define, configure, start, stop) the Training Environment.	BL 3												
4.2.8.2		**Data Source Simulation**													
4.2.8.2.0-1		TRITON will be able to simulate external data sources for training or exercise purposes.													
4.2.8.2.1		**Track Simulation**													
4.2.8.2.1.0-1.0-1	[T1-R733]	TRITON shall be able to use Track Simulators running either with standalone control or integrated with the Training Environment.	BL 3												
4.2.8.2.1.0-1.0-2	[T1-R734]	TRITON shall be able to run multiple instances of Track Simulator provided that each instance has a separate source identification.	BL 3												
4.2.8.2.1.0-1.0-3	[T1-R735]	TRITON shall allow the authorised user to configure the Track Simulators as the replacement of actual sources and control their status.	BL 3												
4.2.8.2.1.0-1.0-4	[T1-R736]	TRITON Track Simulator shall detect the operational mode of the TRITON Server and generate Live Tracks if the mode is Training and generate Simulated Tracks for other modes.	BL 3												
4.2.8.2.1.0-1.0-5	[T1-R737]	TRITON Track Simulator shall allow the user to assign values to track attributes (identity, classification, initial position, course, speed, etc.) in a configurable table.	BL 3												
4.2.8.2.1.0-1.0-6	[T1-R738]	TRITON Track Simulator shall allow the user to set the update rate and edit the track attribute values while the simulator is running.	BL 3												
4.2.8.2.1.0-1.0-7	[T1-R739]	TRITON Track Simulator shall allow the user to set an area that the tracks will be created either at default or random positions with the same or random course and speed.	BL 3												
4.2.8.2.1.0-1.0-8	[T1-R740]	TRITON Track Simulator shall allow the authorised user to select a source and then manually initiate a Simulated Track at an indicated position on the GeoView when TRITON is in Normal Mode.	BL 3												
4.2.8.2.1.0-1.0-9	[T1-R741]	TRITON Track Simulator shall be able to receive Simulated Object Data from the Ground Truth and generate the Track Data when it is used in Trainine Environment.	BL 3												
4.2.8.2.2		**Nation RMP Stream Simulation**													
4.2.8.2.2.0-1.0-1	[T1-R742]	TRITON Track Simulator shall have a Nation RMP Stream Simulation capability which provides tracks as a stream on TCP/UDP/IP.	BL 3												
4.2.8.2.2.0-1.0-2	[T1-R743]	TRITON Track Simulator shall be able to manage (initiate, update, drop) Nation RMP tracks with the source of the stream set as a Nation.	BL 3												
4.2.8.2.2.0-1.0-3	[T1-R744]	TRITON Track Simulator shall be able to generate and update at least five-thousand (5000) tracks if it is simulating the Nation RMP as a track stream.	BL 3												
4.2.8.2.3		**Nation RMP Reoort Simulation**													
4.2.8.2.3.0-1.0-1	[T1-R745]	TRITON Track Simulator shall have a Nation RMP Report Simulation capability which provides tracks in OTH-T GOLD Formatted Messages.	BL 3												
4.2.8.2.3.0-1.0-2	[T1-R746]	TRITON Track Simulator shall be able to manage (initiate, update, drop) Nation RMP tracks with the source of the report set as a Nation.	BL 3												
4.2.8.2.3.0-1.0-3	[T1-R747]	TRITON Track Simulator shall be able to generate at least one-hundred (100) tracks into OTH-T GOLD messages and send them to the relevant Nation Interface of TRITON if it is simulating the Nation RMP as track reports.	BL 3												
4.2.8.2.4		**Nation WP Stream Simulation**													
4.2.8.2.4.0-1.0-1	[T1-R748]	TRITON Track Simulator shall have a Nation WP Stream Simulation capability which provides tracks as a stream on TCP/UDP/IP.	BL 2												
4.2.8.2.4.0-1.0-2	[T1-R749]	TRITON Track Simulator shall be able to manage (initiate, update) Nation WP tracks with the source of the stream set as a Nation.	BL 2												
4.2.8.2.4.0-1.0-3	[T1-R750]	TRITON Track Simulator shall be able to generate and update at least five-thousand (5000) tracks if it is simulating the Nation WP as a track stream.	BL 2												
4.2.8.2.5		**AIS Data Source Simulation**													
4.2.8.2.5.0-1.0-1	[T1-R751]	TRITON Track Simulator shall have a AIS Data Source Simulation capability which provides AIS tracks as a stream compliant to the AIS Specification.	BL 2												
4.2.8.2.5.0-1.0-2	[T1-R752]	TRITON Track Simulator shall be able to manage (initiate, update) AIS tracks with the source of the stream set as an AIS data source name.	BL 2												
4.2.8.2.5.0-1.0-3	[T1-R753]	TRITON Track Simulator shall be able to generate and update at least five-thousand (5000) AIS tracks if it is simulating an AIS data source.	BL 2												
4.2.8.2.6		**ACP Stream Simulation**													
4.2.8.2.6.0-1.0-1	[T1-R754]	TRITON Track Simulator shall have an ACP Stream Simulation capability which provides tracks as a stream on TCP/UDP/IP.	BL 4												
4.2.8.2.6.0-1.0-2	[T1-R755]	TRITON Track Simulator shall be able to manage (initiate, update, drop) ACP tracks with the source of the stream set as the Unit Name of the ACP.	BL 4												
4.2.8.2.6.0-1.0-3	[T1-R756]	TRITON Track Simulator shall be able to generate and update at least one-thousand (1000) tracks if it is simulating the ACP as a track stream.	BL 4												
4.2.8.3		**Interface Simulation**													
4.2.8.3.1		**System Interface Simulator**													
4.2.8.3.1.0-1.0-1	[T1-R757]	In case external systems or services are not available, System Interface Simulators "will" be developed and used for testing TRITON interfaces in the Test Environment. For example, if ENV-FS is not available at the time of testing, a simple interface simulator for ENV-FS will be used.	BL 1												
4.2.8.3.2		**TRITON Simulator**													
4.2.8.3.2.0-1.0-1	[T1-R758]	TRITON-NS Simulator shall emulate TRITON-NS External Interfaces (e.g. RMP Service, ICI Service).	BL 3												
4.2.8.3.2.0-1.0-2	[T1-R759]	TRITON-NU Simulator shall emulate TRITON-NU External Interfaces (e.g. WP Service. ICI Service).	BL 2												
4.2.8.3.2.0-1.0-3	[T1-R760]	TDK-NS Simulator shall emulate TDK-NS (e.g. ACP Interface - NS).	BL 4												
4.2.8.3.2.0-1.0-4	[T1-R761]	TDK-NU Simulator shall emulate TDK-NU (e.g. ACP Interface - NU).	BL 4												
4.2.8.4		**Exercise**													
4.2.8.4.0-1.0-1	[T1-R762]	TRITON shall provide exercise management capability via Maritime Operations while operating in Normal or Standalone Mode.	BL 3												
4.2.8.4.0-1.0-2	[T1-R763]	TRITON shall utilise a Maritime Operation of type Exercise to conduct an exercise in fully synthetic, fully live or combined environment.	BL 3												
4.2.8.4.0-1.0-3	[T1-R764]	TRITON shall allow the authorised user to build a separate Vessel Database in a Maritime Operation for exercise purposes by imoortine selected Vessels from a selected Maritime Operation.	BL 3												
4.2.9		**System Infrastructure**													
4.2.9.1		**Service Oriented Architecture Platform**													
4.2.9.1.0-3.0-1	[T1-R765]	TRITON shall be able to use Web services compliant with WS-I Basic Profile Specifications using XML Schemas.	BL 1												
4.2.9.1.0-3.0-2	[T1-R766]	TRITON should be able to use SPARQL Protocol and RDF Query Language Web services and ontologies.	BL 1												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
4.2.9.1.0-3.0-3	[T1-R767]	TRITON shall conform to the Reference Model for Service Oriented Architecture by OASIS (SOA-RM). As such, TRITON shall: Have entities that can be identified as services defined by the Reference Model. Show how visibility is established between service providers and consumers. Show how interaction is mediated. Show how the effect of using services is understood. Have descriptions associated with services. Show the execution context required to support interaction. Show how policies are handled and how contracts shall be able to be modelled and enforced.	BL 1												
4.2.9.1.0-3.0-4	[T1-R768]	TRITON SOA Platform shall isolate transformation, message routing and publish-subscribe, Business Process Execution Language (BPEL)-kind of SOA-related activities onto a Service Layer. The design shall allow future replacement of the Service Layer tasks with an external Message Oriented Middleware Services.	BL 1												
4.2.9.1.0-3.0-5	[T1-R769]	TRITON SOA Platform shall use HTTP as the transport protocol for information without "need-to-know" caveats between all service providers and consumers (unsecured HTTP traffic). HTTPS shall be used as the transport protocol between all service providers and consumers to ensure confidentiality requirements (secured HTTP traffic).	BL 1												
4.2.9.1.0-3.0-6	[T1-R770]	TRITON SOA Platform design shall comply with the standards given in the Descriptions. Any deviation of the proposed solution from the compliance of these standards shall be documented in detail with its justification.	BL 1												
4.2.9.1.0-3.0-7	[T1-R771]	TRITON SOA Platform design shall comply with the Service Interface Profiles given in [NCIA-06.02.01 to 10].	BL 1												
4.2.9.2		**Message Oriented Middleware**													
4.2.9.2.0-1.0-1	[T1-R772]	TRITON Middleware shall be compatible with the Service Interface Profiles given in [NCIA-06.02.08], [NCIA-06.02.09], [NCIA-06.02.10].	BL 1												
4.2.9.2.0-1.0-2	[T1-R773]	TRITON Middleware should provide for any TRITON service to subscribe to hierarchical topics and receive publications over the Middleware.	BL 1												
4.2.9.2.0-1.0-3	[T1-R774]	TRITON Middleware should provide for consumer services to subscribe to Maritime Information Entities using the topic syntax.	BL 1												
4.2.9.2.0-1.0-4	[T1-R775]	TRITON Middleware should use event-driven mechanisms compliant with OASIS WS-Notifications protocols to consume event driven, time sensitive and critical Web Services of other systems.	BL 1												
4.2.9.2.0-1.0-5	[T1-R776]	TRITON Middleware should allow consumers to initiate and manage subscriptions.	BL 1												
4.2.9.2.0-1.0-6	[T1-R777]	TRITON Middleware should provide for a publication manager to manage all publications from its services.	BL 1												
4.2.9.2.0-1.0-7	[T1-R778]	TRITON Middleware should allow subscribers to manage their subscription.	BL 1												
4.2.9.2.0-1.0-8	[T1-R779]	TRITON Middleware should publish each element of the Maritime Information Entities by creating a hierarchical topics structure.	BL 1												
4.2.9.2.0-1.0-9	[T1-R780]	TRITON Middleware should publish each element of the Maritime Information Entities by initiating a message delivery corresponding to the topic.	BL 1												
4.2.9.2.0-1.0-10	[T1-R781]	TRITON Middleware should publish each element of the Maritime Information Entities with an appropriate filtering syntax to allow consumers to subscribe to a subset of those Entities.	BL 1												
4.2.9.2.0-1.0-11	[T1-R782]	TRITON Middleware should allow consumers to subscribe to Maritime Information Entities using the topic and filtering syntax.	BL 1												
4.2.9.2.0-1.0-12	[T1-R783]	TRITON Middleware should provide for subscriptions to be either infinite (i.e. a subscription remains in force until it is cancelled) or subscriptions with predefined termination time, which automatically expire (i.e. the consumer is only a subscriber for a certain amount of time).	BL 1												
4.2.9.2.0-1.0-13	[T1-R784]	TRITON Middleware should provide synchronisation capability to consumers with Core Data Store for a given time period using a synchronisation interface.	BL 1												
4.2.9.3		**Core Enterprise Services**													
4.2.9.4		**TRITON Clients**													
4.2.9.4.1		**Human-Machine Interface**													
4.2.9.4.1.0-1.0-1	[T1-R785]	TRITON Client shall provide the HMI as Web-based applications on a Standard NATO Bi-SC AIS Workstation.	BL 1												
4.2.9.4.1.0-1.0-2	[T1-R786]	TRITON HMI shall handle user inputs from keyboard and the available pointing device and provide output to available displays (monitors).	BL 1												
4.2.9.4.2		**Web Browser Standards**													
4.2.9.4.2.0-1.0-1	[T1-R787]	TRITON Client shall support the standards given in the Description for implementing the Web-based applications.	BL 1												
4.2.9.4.3		**Visualisation**													
4.2.9.4.4		**Application View**													
4.2.9.4.4.0-2.0-1	[T1-R788]	TRITON shall have an Application View (AppView) which provides the HMI for User Applications per user.	BL 1												
4.2.9.4.4.0-2.0-2	[T1-R789]	TRITON AppView shall be able to launch GeoView when the user wants to display geospatial data.	BL 1												
4.2.9.4.4.0-2.0-3	[T1-R790]	TRITON AppView shall close the GeoView when the user terminates the AppView.	BL 1												
4.2.9.4.4.0-2.0-4	[T1-R791]	TRITON AppView and GeoView shall interact with each other over the NATO Map API (NMAPI) as defined in the VC ICD.	BL 1												
4.2.9.4.4.0-2.0-5	[T1-R792]	TRITON AppView shall have the general layout as given in the Description.	BL 1												
4.2.9.4.4.0-2.0-6	[T1-R793]	TRITON AppView shall have a Title Bar to provide the user with the Functional Service Name and the current classification level. The Title Bar Component from the VC shall be used.	BL 1												
4.2.9.4.4.0-2.0-7	[T1-R794]	TRITON AppView shall have a Ribbon Bar as a series of tabs below the Menu Bar to provide the user with easy access to AppView functions. The Ribbon Bar Comoonent from the VC shall be used.	BL 1												
4.2.9.4.4.0-2.0-8	[T1-R795]	TRITON AppView shall allow the user to select a User Application to activate or deactivate.	BL 1												
4.2.9.4.4.0-2.0-9	[T1-R796]	TRITON AppView shall have an Application Menu to provide the user with actions associated to User Applications.	BL 1												
4.2.9.4.4.0-2.0-10	[T1-R797]	TRITON AppView shall display Application Information in tabular form inside Application Panel and Information Panel.	BL 1												
4.2.9.4.4.0-2.0-11	[T1-R798]	TRITON AppView shall have a Status Panel to display the connection status and the current TRITON Mode of Operation. The Status Panel Component from the VC shall be used.	BL 1												
4.2.9.4.4.0-2.0-12	[T1-R799]	TRITON AppView shall have a Time Panel which displays the current date and time in configurable zones. The Time Panel Component from the VC shall be used.	BL 1												
4.2.9.4.4.0-2.0-13	[T1-R800]	TRITON AppView shall have a Notification Panel to display errors and warnings. The Notification Panel Component from the VC shall be used.	BL 1												
4.2.9.4.5		**Geospatial View**													
4.2.9.4.5.0-1.0-1	[T1-R801]	TRITON Client shall have a Geospatial View (GeoView) integrated with the Application View (AppView) running on a standard Client Workstation.	BL 1												
4.2.9.4.5.0-1.0-2	[T1-R802]	TRITON shall only use the C4ISR Visualisation Component as the GeoView.	BL 1												
4.2.9.4.5.0-1.0-3	[T1-R803]	TRITON GeoView shall be able to display maps, Maritime Operational Objects, external graphical information and images in Layers.	BL 1												
4.2.9.5		**User Support**													
4.2.9.5.1		**On-line Helo**													
4.2.9.5.1.0-1.0-1	[T1-R804]	TRITON shall support On-line Help describing all functionality of the TRITON capability by using Contents, Index and associated Search.	BL 2												
4.2.9.5.1.0-1.0-2	[T1-R805]	The TRITON On-line Help shall translate every use case and scenario into a browsing sequence. Every browsing sequence shall be structured according to the user workflow.	BL 2												
4.2.9.5.1.0-1.0-3	[T1-R806]	TRITON shall allow the user to be able to access Help Function at any stage of execution of a function.	BL 1												
4.2.9.5.1.0-1.0-4	[T1-R807]	TRITON On-line Help shall describe each TRITON function, the interrelationships between and the logical sequence of functions.	BL 1												
4.2.9.5.1.0-1.0-5	[T1-R808]	TRITON On-line Help shall explain all menu items, dialog windows, data entry and query fields implemented in the TRITON Product Baseline.	BL 2												
4.2.9.5.1.0-1.0-6	[T1-R809]	TRITON On-line Help shall include a glossary providing definitions of all terms and acronyms implemented in the TRITON Product Baseline.	BL 2												
4.2.9.5.1.0-1.0-7	[T1-R810]	All definitions in the TRITON glossary shall be available in roll-over, pop-up windows linked to every appearance in On-line Help of the corresponding term or acronym.	BL 2												
4.2.9.5.1.0-1.0-8	[T1-R811]	In TRITON, each dialogue, menu item, toolbar item, function, field or button (each item on the screen) shall have an On-line Help option. This shall be clearly visible, but not intrusive.	BL 2												
4.2.9.5.1.0-1.0-9	[T1-R812]	TRITON On-line Help shall provide meaningful advice and hints to users appropriate to the actions they are trying to take.	BL 2												
4.2.9.5.1.0-1.0-10	[T1-R813]	TRITON On-line Helo shall be concise. compact and clear to the user.	BL 2												
4.2.9.5.1.0-1.0-11	[T1-R814]	TRITON On-line Help shall include screenshots of TRITON HMI. The screenshots shall be provided in a suitable lightweight format (e.g. GIF, PNG) approved by the Purchaser.	BL 2												
4.2.9.5.1.0-1.0-12	[T1-R815]	Pictures in the TRITON On-line Help showing more than five (5) GUI elements/controls shall have a clickable image map describing each element.	BL 2												
4.2.9.5.1.0-1.0-13	[T1-R816]	If the TRITON On-line Help topic requires a large picture that does not fit on a normal page, a reduced copy shall be additionally included on the Help page that will expand to its full size on user request.	BL 2												
4.2.9.5.1.0-1.0-14	[T1-R817]	TRITON On-line Help shall be context-sensitive (i.e. based on a specific point in the state of the software and providing help for the situation that is associated with that state on action beine performed).	BL 2												
4.2.9.5.1.0-1.0-15	[T1-R818]	The Security Classification of any example data that is displayed in TRITON On-line Help shall not be higher than NATO UNCLASSIFIED.	BL 2												
4.2.9.5.1.0-1.0-16	[T1-R819]	TRITON On-line Help context-sensitive GUI elements shall be linked to the relevant User Manual topics.	BL 2												
4.2.9.5.1.0-1.0-17	[T1-R820]	In TRITON, all source code elements shall be configured to link the GUI elements to their context-sensitive topics.	BL 2												
4.2.9.5.1.0-1.0-18	[T1-R821]	TRITON On-line Help shall provide access to interactive training to guide users through procedures and functions.	BL 2												
4.2.9.5.1.0-1.0-19	[T1-R822]	The TRITON On-line Help shall be given by a small pop-up screen or infotip screen. This screen shall appear quickly and be very easy to hide, for instance clicking anywhere within it.	BL 2												
4.2.9.5.1.0-1.0-20	[T1-R823]	TRITON On-line Help shall open a dedicated Web page when the user requests access to the full content of the On-line Help. The On-line Helo shall not be preventina the user to access TRITON functions.	BL 2												
4.2.9.5.1.0-1.0-21	[T1-R824]	TRITON shall allow the user to hide the On-line Help screen just by clicking anywhere else, or there shall be another single action hiding mechanism.	BL 2												
4.2.9.5.1.0-1.0-22	[T1-R825]	TRITON On-line Help shall include a searchable Index that allows the user to locate keywords or phrases (identified by enclosure within double-quotation marks) in the User Manual.	BL 2												
4.2.9.5.1.0-1.0-23	[T1-R826]	TRITON shall support search queries for finding help items in the On-line Help.	BL 2												
4.2.9.5.1.0-1.0-24	[T1-R827]	TRITON shall be able to display search query results for finding help items in the On-line Help in a list. TRITON shall display the help item when the user selects a query result in this list.	BL 2												
4.2.9.5.2		**Computer-Based Training**													
4.2.9.5.2.0-1.0-1	[T1-R828]	TRITON shall provide a Computer-Based Trainina (CBT) capability for both TRITON-NS and TRITON-NU.	BL 3												
4.2.9.5.2.0-1.0-2	[T1-R829]	TRITON CBT shall provide interactive training by defining and explaining the key concepts and terminology of the TRITON features and functions.	BL 3												
4.2.9.5.2.0-1.0-3	[T1-R830]	TRITON CBT shall complement the TRITON On-line Help function by defining and explaining key concepts and terminology of the TRITON operational process incorporated into TRITON features and functions.	BL 3												
4.2.9.5.2.0-1.0-4	[T1-R831]	TRITON CBT packages shall be capable of conducting on-site, in-house initial and sustainment training of staff users.	BL 3												
4.2.9.5.2.0-1.0-5	[T1-R832]	TRITON CBT shall include training functionality within and between each component to maintain user proficiency in TRITON.	BL 3												
4.2.9.5.2.0-1.0-6	[T1-R833]	TRITON CBT content package shall be compliant to Sharable Content Object Reference Model (SCORM) Edition 2004 or newer.	BL 3												
4.2.9.5.2.0-1.0-7	[T1-R834]	TRITON CBT shall be integrated with TRITON On-line Help so that the users can switch back and forth between On-Line Help and the CBT without losing the navigation history.	BL 3												
4.2.9.5.2.0-1.0-8	[T1-R835]	TRITON CBT shall be accessible from the On-line Help that is available in each User Application and shall allow the user to select the relevant chapter/paragraph of the CBT.	BL 3												
4.2.9.5.2.0-1.0-9	[T1-R836]	TRITON CBT shall be accessible on any Bi-SC AIS workstation.	BL 3												
4.2.9.5.2.0-1.0-10	[T1-R837]	The TRITON CBT shall provide links to applicable keywords in the TRITON On-line Help function.	BL 3												
4.2.9.5.2.0-1.0-11	[T1-R838]	TRITON CBT shall provide lessons for a subject or group of related subjects for at least three (3) hours.	BL 3												
4.2.9.5.2.0-1.0-12	[T1-R839]	TRITON CBT shall use the same general appearance of the GUI as the TRITON Functional Services itself.	BL 3												
4.2.9.5.2.0-1.0-13	[T1-R840]	TRITON shall establish a workflow to guide the users to the CBT feature and run the training program and record the results.	BL 3												
4.2.9.5.2.0-1.0-14	[T1-R841]	TRITON CBT shall be limited to the allocated functions to the user positions and roles and the applicable security restrictions.	BL 3												
4.2.9.5.2.0-1.0-15	[T1-R842]	TRITON CBT shall share the access rights given for TRITON Functional Services and these access rights shall be managed from the same User Management function.	BL 3												
4.2.9.5.2.0-1.0-16	[T1-R843]	TRITON CBT "should" be easy to maintain without having to apply all HMI modifications.	BL 3												
4.2.9.5.3		**On-line Tutorials**													
4.2.9.5.3.0-1.0-1	[T1-R844]	TRITON shall have On-line Tutorials integrated with TRITON On-line Helo.	BL 3												
4.2.9.5.3.0-1.0-2	[T1-R845]	TRITON On-line Tutorials shall be accessible from the TRITON Clients.	BL 3												
4.2.9.5.3.0-1.0-3	[T1-R846]	TRITON shall adhere to the Microsoft standard GUI methods for accessing on-line documentation resources.	BL 1												
4.2.9.5.3.0-1.0-4	[T1-R847]	TRITON On-line Tutorials shall be integrated with TRITON On-line Help so that the users can switch back and forth between On-Line Help and the On-line Tutorial without losing the navigation history.	BL 3												
4.2.9.5.4		**Frequently Asked Questions**													
4.2.9.5.4.0-1.0-1	[T1-R848]	TRITON shall maintain a list of Frequently Asked Questions (FAQ).	BL 2												
4.2.9.5.4.0-1.0-2	[T1-R849]	TRITON FAQ shall be integrated with On-line Help functionality.	BL 2												
4.2.9.5.4.0-1.0-3	[T1-R850]	TRITON shall allow the authorised user to maintain (add. modifv. delete) questions in the TRITON FAQ List.	BL 2												
4.2.9.5.4.0-1.0-4	[T1-R851]	TRITON shall allow the user to perform search in the TRITON FAQ List and displav the results in sortable tabular form.	BL 2												
4.2.9.5.4.0-1.0-5	[T1-R852]	TRITON shall allow the user to ask questions to the NCI Agency Service Desk in electronic form by using the TRITON FAQ.	BL 2												
4.2.9.5.4.0-1.0-6	[T1-R853]	TRITON shall support answering the user questions by sending back existing or newly-added FAQ entries.	BL 2												
4.2.9.5.5		**Printing**													
4.2.9.5.5.0-1.0-1	[T1-R854]	TRITON shall support printing to local and network printers including printing into a file in Portable Document Format (PDF).	BL 2												
4.2.9.5.5.0-1.0-2	[T1-R855]	TRITON shall ensure that the application maintains stability when printing if no printer is installed.	BL 2												
4.2.9.5.5.0-1.0-3	[T1-R856]	TRITON shall be able to print user-selected Information Products and screenshot to the resolutions supported by the printer or output device.	BL 2												
4.2.9.5.5.0-1.0-4	[T1-R857]	TRITON shall support printing documents that contain, text in various sizes, styles and colours using TrueType and Postscript fonts.	BL 2												
4.2.9.5.5.0-1.0-5	[T1-R858]	TRITON shall support printing to printers with Long File Names (e.g. printer names include all legal Long File Name characters and are at least 128 characters long).	BL 2												
4.2.9.5.5.0-1.0-6	[T1-R859]	TRITON shall support printing of landscape, portrait and all other supported paper sizes and layouts.	BL 2												
4.2.9.5.5.0-1.0-7	[T1-R860]	TRITON shall allow the user to preview (Print Preview) a TRITON print product before it is printed.	BL 2												
4.2.9.5.5.0-1.0-8	[T1-R861]	The VC Print Preview shall displav the print content to the user with the selected printer settinas.	BL 2												
4.2.9.6		**User Notification Management**													
4.2.9.6.1		**Warnings**													
4.2.9.6.1.0-1.0-1	[T1-R862]	TRITON shall issue a critical warning when a predefined event that effects the system operations occurs.	BL 1												
4.2.9.6.1.0-1.0-2	[T1-R863]	TRITON shall use modal popup window with acknowledge option for critical warnings to notify the authorised user.	BL 1												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
4.2.9.6.1.0-1.0-3	[T1-R864]	TRITON shall allow the authorised user to acknowledge a critical warning with a popup window.	BL 1												
4.2.9.6.1.0-1.0-4	[T1-R865]	TRITON shall remove a critical warning when the authorised user acknowledges it.	BL 1												
4.2.9.6.1.0-1.0-5	[T1-R866]	TRITON shall postpone a critical warning if the authorised user snoozes it.	BL 1												
4.2.9.6.1.0-1.0-6	[T1-R867]	TRITON shall issue a non-critical warning of a predefined type when a predefined event that needs to be escalated to user occurs.	BL 1												
4.2.9.6.1.0-1.0-7	[T1-R868]	TRITON shall provide the authorised user with a listing of non-critical warnings with filtering on warning types.	BL 1												
4.2.9.6.1.0-1.0-8	[T1-R869]	TRITON shall allow the authorised user to cancel non-critical warnings.	BL 1												
4.2.9.6.1.0-1.0-9	[T1-R870]	TRITON shall automatically remove non-critical warnings when the state of the originating component changes.	BL 1												
4.2.9.6.1.0-1.0-10	[T1-R871]	TRITON shall use unique identification numbers for each event requiring notification and provide a brief explanation for the cause of the warning and the guidance to recover.	BL 1												
4.2.9.6.2		**Alerts**													
4.2.9.6.2.0-1.0-1	[T1-R872]	TRITON shall maintain an Alert List for each authorised user.	BL 1												
4.2.9.6.2.0-1.0-2	[T1-R873]	TRITON shall allow the authorised user to manage (create, modify, delete, set, cancel) the Alert List.	BL 1												
4.2.9.6.2.0-1.0-3	[T1-R874]	TRITON shall allow the user to set an Alert for a recognised event.	BL 1												
4.2.9.6.2.0-1.0-4	[T1-R875]	TRITON shall allow the authorised user to view the Alert List in sortable tabular format.	BL 1												
4.2.9.6.2.0-1.0-5	[T1-R876]	TRITON shall use modeless popup window with acknowledge option for notifying users.	BL 1												
4.3		**C4ISR Visualisation Component Requirements**													
4.3.1		**General Architecture**													
4.3.1.1		**TRITON Architecture**													
4.3.1.2		**Operational Modes**													
4.3.1.2.1		**Integrated Mode**													
4.3.1.2.1.0-1.0-1	[T1-R877]	The VC GeoView (the Client-side of the VC) shall have Connected and Disconnected States in the Integrated Mode of operation.	VC-BL 1												
4.3.1.2.1.0-1.0-2	[T1-R878]	The VC GeoView shall be fully operational when it is in Connected State.	VC-BL 1												
4.3.1.2.1.0-1.0-3	[T1-R879]	The VC GeoView shall be able to store the visible C4ISR Objects and relevant geospatial information (received from the GIS Server) in a local cache to be used when it is switched to Disconnected State.	VC-BL 3												
4.3.1.2.1.0-1.0-4	[T1-R880]	The VC GeoView shall be able to continue to display the cached C4ISR Objects and their relevant geospatial information when it is in Disconnected State. The C4ISR Objects being displayed shall be deleted after a configurable time period with a notification to the user.	VC-BL 3												
4.3.1.2.1.0-1.0-5	[T1-R881]	The VC GeoView shall display the connectivity status and notify the user in case its connection to the VC Server is lost more than a configurable time period. The default time period to switch to Disconnected State shall be thirty (30) seconds.	VC-BL 1												
4.3.1.2.1.0-1.0-6	[T1-R882]	The VC GeoView shall be able to display, as a minimum, a Topographic Base Map covering the entire Earth surface when a higher scale map is not available.	VC-BL 1												
4.3.1.2.1.0-1.0-7	[T1-R883]	The VC GeoView shall be able to switch to Connected State automatically when the connection is restored.	VC-BL 1												
4.3.1.2.1.0-1.0-8	[T1-R884]	The VC GeoView shall be terminated when the user closes the browser or explicitly exits from the GeoView with confirmation. The GeoView external connections shall be reset at termination.	VC-BL 1												
4.3.1.2.1.0-1.0-9	[T1-R885]	The VC GeoView shall be terminated automatically when AppView is terminated.	VC-BL 1												
4.3.1.2.1.0-1.0-10	[T1-R886]	The VC Viewer Server shall manage connections of GeoViews and handle the disconnected and terminated GeoViews.	VC-BL 1												
4.3.1.2.2		**Standalone Mode**													
4.3.1.2.2.0-1.0-1	[T1-R887]	The VC shall be able to run as a standalone application in Standalone Mode when it is packed as a component, deployed and configured. This type of operational use shall be limited to displaying the Geo-information provided by the GIS Server.	VC-BL 2												
4.3.1.2.2.0-1.0-2	[T1-R888]	The VC shall be able to integrate NATO Core Services as required when it is deployed as standalone application.	VC-BL 2												
4.3.2		**C4ISR Visualisation Component Elements**													
4.3.2.1		**Symbology Service**													
4.3.2.1.0-1.0-1	[T1-R889]	The VC shall have a Symbology Service as a Web service to provide standard symbol set to be used in the GeoView and AppView. In order to improve network efficiency, default and most used symbol sets will be transferred to the Client side during initialisation.	VC-BL 1												
4.3.2.1.0-1.0-2	[T1-R890]	The VC Symbology Service shall maintain a Portrayal Catalogue.	VC-BL 1												
4.3.2.1.0-1.0-3	[T1-R891]	The VC Symbology Service Portrayal Catalogue shall support the standards given in the Description. It shall include labels, annotations and the publication of those definitions. It "should" include Civil-Military Cooperation (CIMIC) symbology set as defined in [AM-86-1-1].	VC-BL 1												
4.3.2.1.0-1.0-4	[T1-R892]	The VC shall allow the authorised user to configure the Symbology Service. For example, the most used symbols can be defined with respect to the Functional Service.	VC-BL 1												
4.3.2.1.0-1.0-5	[T1-R893]	The VC Symbology Service shall enable all GeoViews and AppViews to apply the supported symbol sets to features and C4ISR Objects in an automated fashion.	VC-BL 1												
4.3.2.1.0-1.0-6	[T1-R894]	The VC Symbology Service shall have mechanisms to improve network efficiency (e.g. providing a subset of the default and most used symbols during the initialisation, caching the used symbols).The caching of Sprite Sheets and tile maps shall also be supported by consumers and proxy services.	VC-BL 1												
4.3.2.1.0-1.0-7	[T1-R895]	The VC Symbology Service shall be able to provide one or more symbols upon request.	VC-BL 1												
4.3.2.1.0-1.0-8	[T1-R896]	The VC Symbology Service shall provide the means to retrieve a Sprite Sheet, as defined in the Description, as a single image containing all the point symbols for a given symbology standard.	VC-BL 1												
4.3.2.1.0-1.0-9	[T1-R897]	The VC Symbology Service shall provide the means to specify the general size of symbols provided in a Sprite Sheet.	VC-BL 1												
4.3.2.1.0-1.0-10	[T1-R898]	The VC Symbology Service shall provide the means to retrieve a tile map applicable to a Sprite Sheet for a given symbology standard.	VC-BL 1												
4.3.2.1.0-1.0-11	[T1-R899]	The VC Symbology Service shall be able to provide country flags, as icons, indexed by the NATO Standard Country Codes Table. The table shall be configured by the authorised user.	VC-BL 1												
4.3.2.1.0-1.0-12	[T1-R900]	The VC Symbology Service shall provide the means to add user-defined symbols to the Portrayal Catalogue.	VC-BL 2												
4.3.2.1.0-1.0-13	[T1-R901]	The VC Symbology Service shall provide the means to add new Symbol Sets to the Portrayal Catalogue.	VC-BL 1												
4.3.2.1.0-1.0-14	[T1-R902]	The VC Symbology Service shall provide the means to retrieve metadata for a single symbol, including the semantic meaning of the symbol.	VC-BL 1												
4.3.2.1.0-1.0-15	[T1-R903]	The VC Symbology Service shall provide the means to retrieve metadata for the configured symbol sets and individual symbols, sufficient to support data driven UI components for finding and selecting symbology.	VC-BL 2												
4.3.2.1.0-1.0-16	[T1-R904]	The VC Symbology Service shall have Service Interface Profile documented in the VC ICD.	VC-BL 2												
4.3.2.2		**Viewer Server**													
4.3.2.2.0-1.0-1	[T1-R905]	The VC Viewer Server shall provide the Application Server functionality.	VC-BL 1												
4.3.2.2.0-1.0-2	[T1-R906]	The VC shall store the internal Configuration Settings given in the Description inside the Viewer Server.	VC-BL 1												
4.3.2.2.0-1.0-3	[T1-R907]	The VC shall allow the authorised user to manage the Configuration Settings.	VC-BL 1												
4.3.2.3		**GeoView**													
4.3.2.3.0-2.0-1	[T1-R908]	The VC Visualisation Framework shall implement the visualisation capability as a browser-based application.	VC-BL 1												
4.3.2.3.0-2.0-2	[T1-R909]	The VC shall provide a suit of re-usable software modules as "Re-usable UI Components".	VC-BL 1												
4.3.2.3.0-2.0-3	[T1-R910]	The VC Reusable UI Components shall have independent functionality which can be integrated into the application in which they are required.	VC-BL 1												
4.3.2.3.0-2.0-4	[T1-R911]	The VC Reusable UI Components shall have API documented in the VC ICD.	VC-BL 1												
4.3.2.3.0-2.0-5	[T1-R912]	The VC shall validate all data according to predefined syntax, structure, completeness and validity, types and limits received from external interfaces prior to processing.	VC-BL 1												
4.3.2.3.0-2.0-6	[T1-R913]	The VC shall manage the display-related events sent by the AppView to geospatially locate C4ISR Objects and to display them on the map using the Portrayal Rules.	VC-BL 1												
4.3.2.3.0-2.0-7	[T1-R914]	The VC GIS Library shall implement the Web services to interact with the NATO Core GIS.	VC-BL 1												
4.3.2.4		**GeoView User Interface Components**													
4.3.2.4.1		**Header**													
4.3.2.4.1.1		**Title Bar**													
4.3.2.4.1.1.0-1.0-1	[T1-R915]	The VC GeoView shall have a Title Bar to display the Functional Service Application Name and coloured label containing the environment classification (a.k.a. security policy, classification and release caveats).	VC-BL 1												
4.3.2.4.1.1.0-1.0-2	[T1-R916]	The VC GeoView Title Bar shall allow the user to control (minimise, maximise, close) the window associated with the Title Bar.	VC-BL 1												
4.3.2.4.1.2		**Ribbon Bar**													
4.3.2.4.1.2.0-1.0-1	[T1-R917]	The VC GeoView shall have a Ribbon Bar as a series of tabs to provide the user with easy access to all GeoView functions and control (show, hide) the Graphical Components.	VC-BL 1												
4.3.2.4.1.2.0-1.0-2	[T1-R918]	The VC GeoView Ribbon Bar shall display the currently logged-in user's name and the selected Operation Name.	VC-BL 1												
4.3.2.4.1.2.0-1.0-3	[T1-R919]	The VC GeoView Ribbon Bar shall have Quick Access Buttons (e.g. On-line Help).	VC-BL 1												
4.3.2.4.1.2.0-1.0-4	[T1-R920]	The VC GeoView Ribbon Bar shall be configurable to show/hide tabs, panels, buttons and fields as required.	VC-BL 1												
4.3.2.4.1.2.0-1.0-5	[T1-R921]	The VC GeoView Ribbon Bar shall be configurable to add new ribbon components (buttons, tabs, panels, fields, combo-lists, etc.) as required.	VC-BL 1												
4.3.2.4.2		**Map Panel**													
4.3.2.4.2.1		**Main Map**													
4.3.2.4.2.1.0-1.0-1	[T1-R922]	The VC GeoView shall have a Map Panel to visualise user-selected maps, features and C4ISR Objects.	VC-BL 1												
4.3.2.4.2.1.0-1.0-2	[T1-R923]	The VC GeoView shall display a Base Map inside the Map Panel as generated by the selected GIS Server.	VC-BL 1												
4.3.2.4.2.1.0-1.0-3	[T1-R924]	The VC GeoView Map Panel shall display the Map Legend when enabled by the user.	VC-BL 1												
4.3.2.4.2.1.0-1.0-4	[T1-R925]	The VC GeoView Map Panel shall display restrictions for the visualized data, including copyright, limited distribution and releasability.	VC-BL 1												
4.3.2.4.2.1.0-1.0-5	[T1-R926]	The VC GeoView Map Panel shall provide the means to visualise map, feature and C4ISR Object data as a set of Layers.	VC-BL 1												
4.3.2.4.2.1.0-1.0-6	[T1-R927]	The VC GeoView Map Panel shall provide the means to re-order the Layers to achieve the desired visualisation.	VC-BL 1												
4.3.2.4.2.1.0-1.0-7	[T1-R928]	The VC GeoView Map Panel shall be able to display multiple Layers allowing the user to switch between them (swipe) temporarily.	VC-BL 3												
4.3.2.4.2.2		**Overview Map**													
4.3.2.4.2.2.0-1.0-1	[T1-R929]	The VC GeoView shall display a configurable Overview Map inside the Map Panel, which shows the Base Map at a smaller scale indicating the current visible section with a rectangle. The rectangle shall indicate the extent of the Base Map in a user configurable ratio.	VC-BL 1												
4.3.2.4.2.2.0-1.0-2	[T1-R930]	The VC GeoView shall allow the user to navigate through the Base Map by dragging and resizing the rectangle in the Overview Map.	VC-BL 1												
4.3.2.4.2.2.0-1.0-3	[T1-R931]	The VC GeoView shall align navigation of the Overview Map with the Map Panel Navigation Functions and the selected Base Map projection.	VC-BL 1												
4.3.2.4.2.2.0-1.0-4	[T1-R932]	The VC GeoView shall allow the user to enable/disable and change the location of the Overview Map.	VC-BL 1												
4.3.2.4.2.3		**Scale Bar**													
4.3.2.4.2.3.0-1.0-1	[T1-R933]	The VC GeoView shall have a Scale Bar which displays the Scale Ratio and distances at this scale with one or two measurement units as defined by the user preferences.	VC-BL 1												
4.3.2.4.2.3.0-1.0-2	[T1-R934]	The VC GeoView Scale Bar shall label the distances with the selected unit. Adequate units to keep the numbers in a reasonable range between 1 and 1000 should be used.	VC-BL 1												
4.3.2.4.2.3.0-1.0-3	[T1-R935]	The VC GeoView Scale Bar shall automatically be updated when the scale of the Map Panel is changed, i.e. with each zoom in or zoom out.	VC-BL 1												
4.3.2.4.2.3.0-1.0-4	[T1-R936]	The VC GeoView shall allow the user to enable/disable and change the location of the Scale Bar.	VC-BL 1												
4.3.2.4.2.4		**Displaying Maps**													
4.3.2.4.2.4.0-1.0-1	[T1-R937]	The VC shall allow the user to select the Base Map from the Map Catalogue provided by the GIS Server.	VC-BL 1												
4.3.2.4.2.4.0-1.0-2	[T1-R938]	The VC Map Panel shall be able to use a WMS [OGC WMS] to get the maps. The VC shall support WMS Versions 1.0.0, 1.1.0, 1.1.1 and 1.3.0 as defined in ICore GIS SIP1.	VC-BL 1												
4.3.2.4.2.4.0-1.0-3	[T1-R939]	The VC GeoView shall be able to display received maps in JPEG or PNG (with transparency). GIF and JPEG2K "should" be supported.	VC-BL 1												
4.3.2.4.2.4.0-1.0-4	[T1-R940]	The VC Map Panel shall be able to use a WMTS [OGC WMTS] to get the map tiles. The VC shall support WMTS Version 1.0.0.	VC-BL 1												
4.3.2.4.2.4.0-1.0-5	[T1-R941]	The VC Map Panel shall display the Base Map received via a WMS. If the WMS is not used as a Base Map, the background of the WMS Layer shall be displayed as transparent.	VC-BL 1												
4.3.2.4.2.4.0-1.0-6	[T1-R942]	The VC shall be able to add a WMS and WMTS to the Layer Manager.	VC-BL 1												
4.3.2.4.2.4.0-1.0-7	[T1-R943]	The VC shall be able to use Geospatial Web Map Services as defined in [Core GIS SIP]. The VC shall also be able to use other Geospatial Services like Gazetteer and Web Processing Services as provided by the GIS Server.	VC-BL 1												
4.3.2.4.2.4.0-1.0-8	[T1-R944]	The VC Map Panel shall use WGS84 as the default datum.	VC-BL 1												
4.3.2.4.2.4.0-1.0-9	[T1-R945]	The VC Map Panel shall be able to display a selected map within ten (10) seconds on a Client running on a Standard Workstation on a standard NATO Static Site Network.	VC-BL 1												
4.3.2.4.2.5		**Displaying Map Labels**													
4.3.2.4.2.5.0-1.0-1	[T1-R946]	The VC GeoView Map Panel shall be able to display Map Label Text as provided by WFS, Shape File, Drawing Layers or C2 Layers.	VC-BL 1												
4.3.2.4.2.5.0-1.0-2	[T1-R947]	The VC GeoView Map Panel shall display or hide Map Labels according to the Label Settings of a Layer.	VC-BL 1												
4.3.2.4.2.5.0-1.0-3	[T1-R948]	The VC GeoView shall allow the user to configure Map Label, fonts (True Type Fonts, Open Type Fonts, PostScript Fonts) and position through the Map Label Settings.	VC-BL 1												
4.3.2.4.2.5.0-1.0-4	[T1-R949]	The VC Map Panel shall de-conflict overlapping Map Labels at the time of map creation.	VC-BL 1												
4.3.2.4.2.6		**Coordinate Reference Systems**													
4.3.2.4.2.6.0-1.0-1	[T1-R950]	The VC GeoView Map Panel shall support the Coordinate Reference Systems given in the Description.	VC-BL 1												
4.3.2.4.2.6.0-1.0-2	[T1-R951]	The VC GeoView shall allow the user to select a Coordinate Reference System to be used in the display of locations.	VC-BL 1												
4.3.2.4.2.6.0-1.0-3	[T1-R952]	The VC GeoView shall allow the user to select a Coordinate Reference System to be used for the input of locations.	VC-BL 1												
4.3.2.4.2.7		**Map Projection**													
4.3.2.4.2.7.0-1.0-1	[T1-R953]	The VC GeoView Map Panel shall support the Map Projections given in the Description.	VC-BL 1												
4.3.2.4.2.7.0-1.0-2	[T1-R954]	The VC GeoView shall allow the user to select the desired Projection from a list of supported Map Projections.	VC-BL 1												
4.3.2.4.2.8		**Map Scaling**													
4.3.2.4.2.8.0-1.0-1	[T1-R955]	The VC GeoView shall adjust the View Scale of the Map Panel according to the user selected View Scale. Any used Web services shall also be scaled accordingly.	VC-BL 1												
4.3.2.4.2.8.0-1.0-2	[T1-R956]	The VC GeoView Map Panel shall ensure that the expansion process during scaling occurs non-disruptively so that no outages are required, no reconfiguration of the existing storage is needed, and the user can continue working during scaling.	VC-BL 1												
4.3.2.4.2.8.0-1.0-3	[T1-R957]	The VC GeoView Map Panel shall compute the Cluster Distance of symbols in correlation with changing the View Scale and apply automatically.	VC-BL 1												
4.3.2.4.2.8.0-1.0-4	[T1-R958]	The VC GeoView shall allow the user to set the current View Scale of the Map Panel by selecting a Fixed View Scale with from a configurable list (the default values are given in the Description) on the Ribbon Bar, by entering a scale value manually or by using the View Scale Bar.	VC-BL 1												
4.3.2.4.2.8.0-1.0-5	[T1-R959]	The VC GeoView Map Panel shall apply de-cluttering of labels for every View Scale change if enabled by the user.	VC-BL 1												
4.3.2.4.2.8.0-1.0-6	[T1-R960]	The VC GeoView shall display the current View Scale of the Map Panel.	VC-BL 1												
4.3.2.4.2.9		**Grid Network**													

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
4.3.2.4.2.9.0-1.0-1	[T1-R961]	The VC GeoView Map Panel shall support displaying the Grid Reference Systems given in the Description.	VC-BL 1												
4.3.2.4.2.9.0-1.0-2	[T1-R962]	The VC GeoView Map Panel shall comply with STANAG 2211 and [Bi-SC 80-4] for geodetic datum, Map Projections and Grid References.	VC-BL 1												
4.3.2.4.2.9.0-1.0-3	[T1-R963]	The VC GeoView Map Panel shall display a Grid Reference System when received from the AppView according to the parameters given in the Description.	VC-BL 1												
4.3.2.4.2.9.0-1.0-4	[T1-R964]	The VC GeoView shall allow the user to show, hide, and configure the graticule ticks, lines and their colour for each Grid Reference System.	VC-BL 1												
4.3.2.4.2.9.0-1.0-5	[T1-R965]	The VC GeoView shall allow the user to show or hide the grid lines and show or hide the grid labels.	VC-BL 1												
4.3.2.4.2.9.0-1.0-6	[T1-R966]	The VC GeoView Map Panel shall use the Grid Line Calculation as explained in the Description to compute the number of grid lines to be displayed.	VC-BL 1												
4.3.2.4.2.10		**Navigational Controls**													
4.3.2.4.2.10.1		**Navigation Icons**													
4.3.2.4.2.10.1.0-1.0-1	[T1-R967]	The VC Map Panel shall have Navigation Icons for panning over the map and changing the View Scale.	VC-BL 1												
4.3.2.4.2.10.1.0-1.0-2	[T1-R968]	The VC Navigation Panel shall allow the user to pan and to change the View Scale through interaction with the Panning and View Scale icons.	VC-BL 1												
4.3.2.4.2.10.2		**Cursor**													
4.3.2.4.2.10.2.0-1.0-1	[T1-R969]	The VC GeoView shall allow the user to move the cursor with the available pointing device.	VC-BL 1												
4.3.2.4.2.10.2.0-1.0-2	[T1-R970]	The VC GeoView shall allow the user to pick a geospatial position by clicking on the Map Panel. This information can further be used for processing (e.g. copy to clipboard).	VC-BL 1												
4.3.2.4.2.10.3		**Pan**													
4.3.2.4.2.10.3.0-1.0-1	[T1-R971]	The VC GeoView shall pan the Map Panel according to the user control.	VC-BL 1												
4.3.2.4.2.10.3.0-1.0-2	[T1-R972]	The VC GeoView shall allow the user to pan the Map Panel with the pointing device (click and drag).	VC-BL 1												
4.3.2.4.2.10.3.0-1.0-3	[T1-R973]	The VC GeoView shall allow the user to pan the Map Panel by pressing the Navigation Icons.	VC-BL 1												
4.3.2.4.2.10.3.0-1.0-4	[T1-R974]	The VC GeoView shall allow the user to pan the Map Panel by using keyboard arrow keys.	VC-BL 1												
4.3.2.4.2.10.3.0-1.0-5	[T1-R975]	The VC GeoView shall allow the user to pan the Map Panel by using multi-touch gestures (i.e. drag) when a touch-screen device is used.	VC-BL 3												
4.3.2.4.2.10.4		**Centre**													
4.3.2.4.2.10.4.0-1.0-1	[T1-R976]	The VC GeoView shall take the centre of the Map Panel to a position indicated by the user.	VC-BL 1												
4.3.2.4.2.10.4.0-1.0-2	[T1-R977]	The VC GeoView shall allow the user to take the selected position as the centre of the Map Panel.	VC-BL 1												
4.3.2.4.2.10.4.0-1.0-3	[T1-R978]	The VC GeoView shall allow the user to enter a geographic position as the centre of the Map Panel.	VC-BL 1												
4.3.2.4.2.10.4.0-1.0-4	[T1-R979]	The VC GeoView shall allow the user to use Own Position as the centre of the Map Panel with an option to follow. If that option is selected, the Map Panel centre shall follow the Object as it changes its position.	VC-BL 1												
4.3.2.4.2.10.4.0-1.0-5	[T1-R980]	The VC GeoView shall allow the user to use Ribbon Bar or keyboard Function key to invoke the Centre Function.	VC-BL 1												
4.3.2.4.2.10.4.0-1.0-6	[T1-R981]	The VC GeoView shall allow the user to select a C4ISR Object as the centre of the Map Panel with an option to follow the Object. If that option is selected, the Map Panel centre shall follow the Object as it changes its position.	VC-BL 1												
4.3.2.4.2.10.5		**Select**													
4.3.2.4.2.10.5.0-1.0-1	[T1-R982]	The VC GeoView shall be able to apply a function to one or more selected Objects.	VC-BL 1												
4.3.2.4.2.10.5.0-1.0-2	[T1-R983]	The VC GeoView shall highlight the selected Objects or map features with a user-configurable indication mark.	VC-BL 1												
4.3.2.4.2.10.5.0-1.0-3	[T1-R984]	The VC GeoView shall allow the user to select one or more Objects or map features on the Map Panel.	VC-BL 1												
4.3.2.4.2.10.5.0-1.0-4	[T1-R985]	The VC GeoView shall allow the user to use a key-button combination (e.g. Control + Click) or a circle or a polygon to select more than one Object.	VC-BL 1												
4.3.2.4.2.10.5.0-1.0-5	[T1-R986]	The VC GeoView shall provide a manageable list for multi-selection of Objects. The user shall be able to add more Objects to the selection list or remove Objects from the list.	VC-BL 1												
4.3.2.4.2.10.6.0-1.0-1	[T1-R987]	The VC GeoView shall change the Map Panel Viewing Scale as the user zooms in or out.	VC-BL 1												
4.3.2.4.2.10.6.0-1.0-2	[T1-R988]	The VC GeoView shall allow the user to control the zoom level of the Map Panel by using one of the Zoom Control Actions given in the Description.	VC-BL 1												
4.3.2.4.2.10.6.0-1.0-3	[T1-R989]	The VC GeoView shall allow the user to control the zoom of the Map Panel through multi-touch gestures (i.e. pinch-to-zoom) when a touch-screen device is used.	VC-BL 3												
4.3.2.4.2.10.7		**Context-sensitive Menus**													
4.3.2.4.2.10.7.0-1.0-1	[T1-R990]	The VC GeoView shall display Context-sensitive Menus when the right button of the pointing device is pressed. The content of the menu shall be determined according to the area of the component in which the cursor is positioned.	VC-BL 1												
4.3.2.4.2.10.7.0-1.0-2	[T1-R991]	The VC GeoView Context-sensitive Menus shall activate the selected function.	VC-BL 1												
4.3.2.4.2.10.7.0-1.0-3	[T1-R992]	The VC GeoView Context-sensitive Menus shall be configurable to allow the addition of menu items, including sub-menus.	VC-BL 1												
4.3.2.4.2.10.7.0-1.0-4	[T1-R993]	The VC GeoView Context-sensitive Menus shall be configurable to allow the enabling or disabling of menu items.	VC-BL 1												
4.3.2.4.2.10.7.0-1.0-5	[T1-R994]	The VC GeoView Context-sensitive Menus shall be configurable to allow the hiding or showing of menu items.	VC-BL 1												
4.3.2.4.2.10.7.0-1.0-6	[T1-R995]	The VC GeoView Context-sensitive Menus shall be configurable to allow the association with a shortcut keystroke with a menu item.	VC-BL 1												
4.3.2.4.2.10.8.0-1.0-1	[T1-R996]	The VC GeoView shall be able to mark an entered Goto location if it is in the current Spatial Extent; if not the location will be brought to the centre of the Map Panel (panning).	VC-BL 1												
4.3.2.4.2.10.8.0-1.0-2	[T1-R997]	The VC GeoView shall allow the user to enter a position of a location to be marked when the Goto Function is invoked.	VC-BL 1												
4.3.2.4.2.10.8.0-1.0-3	[T1-R998]	The VC GeoView shall allow the user to convert the entered value(s) from one Coordinate System to another.	VC-BL 3												
4.3.2.4.2.10.9		**Bookmarks**													
4.3.2.4.2.10.9.0-1.0-1	[T1-R999]	The VC GeoView shall be able to save the current view of the GeoView as a Bookmark.	VC-BL 3												
4.3.2.4.2.10.9.0-1.0-2	[T1-R1000]	The VC GeoView shall maintain a list of Bookmarks per user, accessible from the Ribbon Bar.	VC-BL 1												
4.3.2.4.2.10.9.0-1.0-3	[T1-R1001]	The VC GeoView shall allow the user to manage (add, retrieve, modify, delete) the Bookmark List.	VC-BL 1												
4.3.2.4.2.10.9.0-1.0-4	[T1-R1002]	The VC GeoView shall apply the settings of the selected Bookmark to the GeoView.	VC-BL 1												
4.3.2.4.3		**Control Panel**													
4.3.2.4.3.1		**C2 Pane**													
4.3.2.4.3.1.0-1.0-1	[T1-R1003]	The VC GeoView shall have a C2 Pane to control the display of C4ISR Objects in Layers of the Map Panel.	VC-BL 1												
4.3.2.4.3.1.0-1.0-2	[T1-R1004]	The VC GeoView shall allow the user to configure the C2 Pane content.	VC-BL 1												
4.3.2.4.3.1.0-1.0-3	[T1-R1005]	The VC GeoView C2 Pane shall allow the user to group C4ISR Objects according to a common attribute (e.g. Country, Type) by applying a filter.	VC-BL 1												
4.3.2.4.3.1.0-1.0-4	[T1-R1006]	The VC GeoView C2 Pane shall display the content in a tree structure with at least eight (8) levels.	VC-BL 1												
4.3.2.4.3.1.0-1.0-5	[T1-R1007]	The VC GeoView C2 Pane shall allow the user to navigate within the tree structure by expanding and collapsing.	VC-BL 1												
4.3.2.4.3.1.0-1.0-6	[T1-R1008]	The VC GeoView C2 Pane shall allow the user to make multiple selections of C4ISR Objects or feature types in the tree structure.	VC-BL 1												
4.3.2.4.3.2		**Layer Control Pane**													
4.3.2.4.3.2.0-2.0-1	[T1-R1009]	The VC GeoView shall be able to display C4ISR Objects and map features on separate Layers.	VC-BL 1												
4.3.2.4.3.2.0-2.0-2	[T1-R1010]	The VC GeoView shall maintain a list of Layers where each Layer is controlled by its own Display Settings.	VC-BL 1												
4.3.2.4.3.2.0-2.0-3	[T1-R1011]	The VC GeoView shall have a Layer Manager to control receiving data from an Application and displaying it on the specified Layer according to Layer Display Settings.	VC-BL 1												
4.3.2.4.3.2.0-2.0-4	[T1-R1012]	The VC GeoView Layer Control Pane shall allow the user to manage (add, modify, remove, configure) the Layers and Web services	VC-BL 1												
4.3.2.4.3.2.0-2.0-5	[T1-R1013]	The VC GeoView Layer Control Pane shall allow the user to configure the Layer Display Settings for each Layer as given in the Description.	VC-BL 1												
4.3.2.4.3.2.0-2.0-6	[T1-R1014]	The VC GeoView Layer Control Pane shall allow the authorised user to restrict general user access to certain Layers which are displayed on the Map Panel.	VC-BL 1												
4.3.2.4.3.2.0-2.0-7	[T1-R1015]	The VC GeoView Layer Control Pane shall allow the user to zoom to (or Goto) a selected feature. The scale of this zoom shall be customizable in the User Settings. The selection of the feature shall be possible either by a simple query or by identifying the feature or location by clicking at a location on the map.	VC-BL 1												
4.3.2.4.3.2.0-2.0-8	[T1-R1016]	The VC GeoView Layer Control Pane shall allow the user to set the Map Panel view to "fit to the full spatial extent" covering all features of a particular Layer.	VC-BL 1												
4.3.2.4.3.2.0-2.0-9	[T1-R1017]	The VC GeoView Layer Control Pane shall allow the user to temporarily switch off (flicker) a Layer to see what is underneath without having to hide it.	VC-BL 3												
4.3.2.4.3.2.0-2.0-10	[T1-R1018]	The VC GeoView Layer Control Panel shall allow the user to temporarily move a Layer onto another Layer (swipe). When the swipe function is invoked, the Map Panel shall display two Layers with a line to control the swiping to left or right.	VC-BL 3												
4.3.2.4.3.2.0-2.0-11	[T1-R1019]	The VC GeoView Layer Control Panel shall display brief information about the metadata of each layer or service while hovering the cursor on it.	VC-BL 2												
4.3.2.4.3.3		**Placemarks Pane**													
4.3.2.4.3.3.0-1.0-1	[T1-R1020]	The VC GeoView shall maintain a Placemark List.	VC-BL 1												
4.3.2.4.3.3.0-1.0-2	[T1-R1021]	The VC GeoView shall allow the user to manage (add, delete, modify, search, set visibility, show, hide) the Placemark List.	VC-BL 1												
4.3.2.4.3.3.0-1.0-3	[T1-R1022]	The VC GeoView shall allow the user to export the selected Placemarks in the Placemark List to an exported Placemark file in KML/KMZ format.	VC-BL 2												
4.3.2.4.3.3.0-1.0-4	[T1-R1023]	The VC GeoView shall allow the user to import Placemarks from a exported Placemark file in KML/KMZ format.	VC-BL 2												
4.3.2.4.3.3.0-1.0-5	[T1-R1024]	The VC GeoView shall allow the user to select a Placemark and invoke the Goto Function to mark the location on the Map Panel.	VC-BL 1												
4.3.2.4.3.4		**Timeline Panel**													
4.3.2.4.3.4.0-1.0-1	[T1-R1025]	The VC GeoView shall have a Timeline Panel which controls the replaying a given set of geospatial data as explained in the Description.	VC-BL 2												
4.3.2.4.3.4.0-1.0-2	[T1-R1026]	The VC GeoView Timeline Panel shall allow the user to pick the date and time of the replay period.	VC-BL 2												
4.3.2.4.3.4.0-1.0-3	[T1-R1027]	The VC GeoView Timeline Panel shall appear automatically when an animation is activated by the Geo Player.	VC-BL 2												
4.3.2.4.4		**Footer**													
4.3.2.4.4.1		**Status Panel**													
4.3.2.4.4.1.0-1.0-1	[T1-R1028]	The VC GeoView shall have a Status Panel for displaying the status information given in the Description.	VC-BL 1												
4.3.2.4.4.1.0-1.0-2	[T1-R1029]	The VC GeoView Status Panel shall be able to display status information as received from the VC or AppView.	VC-BL 1												
4.3.2.4.4.2		**Time Panel**													
4.3.2.4.4.2.0-1.0-1	[T1-R1030]	The VC GeoView shall have a Time Panel to display the current date and time in decimal units.	VC-BL 1												
4.3.2.4.4.2.0-1.0-2	[T1-R1031]	The VC GeoView Time Panel shall display the current time in local time zone, operational theatre time zone or UTC.	VC-BL 1												
4.3.2.4.4.2.0-1.0-3	[T1-R1032]	The VC GeoView Time Panel shall allow the user to select the time zone. The default shall be UTC.	VC-BL 1												
4.3.2.4.4.2.0-1.0-4	[T1-R1033]	The VC GeoView Time Panel shall allow the user to select the format for the display of the date time.	VC-BL 1												
4.3.2.4.4.3		**Notification Panel**													
4.3.2.4.4.3.0-1.0-1	[T1-R1034]	The VC GeoView shall have a Notification Panel to display non-critical errors or warnings.	VC-BL 1												
4.3.2.4.4.3.0-1.0-2	[T1-R1035]	The VC GeoView Notification Panel shall be able to display error or warning messages sent by the VC or Application.	VC-BL 1												
4.3.2.4.4.4		**Coordinate Panel**													
4.3.2.4.4.4.0-1.0-1	[T1-R1036]	The VC GeoView shall have a Coordinate Panel to display the position information of the cursor position.	VC-BL 1												
4.3.2.4.4.4.0-1.0-2	[T1-R1037]	The VC GeoView shall display the elevation/depth and slope information based on the cursor position on the Coordinate Panel.	VC-BL 1												
4.3.2.4.4.4.0-1.0-3	[T1-R1038]	The VC GeoView shall use Web Services provided by the GIS Server to get the elevation/depth and slope information of an indicated position.	VC-BL 1												
4.3.2.4.4.4.0-1.0-4	[T1-R1039]	The VC GeoView shall allow the user to enable/disable the displaying of elevation/depth and slope information.	VC-BL 1												
4.3.2.4.4.4.0-1.0-5	[T1-R1040]	The VC GeoView shall allow the user to configure the Settings of the Coordinate Panel.	VC-BL 1												
4.3.2.4.4.5		**Symbol Selector**													
4.3.2.4.4.5.0-1.0-1	[T1-R1041]	The VC GeoView shall provide a Symbol Selector.	VC-BL 3												
4.3.2.4.4.5.0-1.0-2	[T1-R1042]	The VC GeoView Symbol Selector shall allow the user to choose a symbol from those provided by the Symbology Service.	VC-BL 3												
4.3.2.4.4.5.0-1.0-3	[T1-R1043]	The VC GeoView Symbol Selector shall support all symbology standards available through the Symbology Service.	VC-BL 3												
4.3.2.4.4.5.0-1.0-4	[T1-R1044]	The VC GeoView Symbol Selector shall support all point, line, area and multi-point based symbology provided by the Symbology Service.	VC-BL 3												
4.3.2.4.4.5.0-1.0-5	[T1-R1045]	The VC GeoView Symbology Selector shall utilise the Symbology Service for the rendering of the symbols.	VC-BL 3												
4.3.2.4.4.5.0-1.0-6	[T1-R1046]	The VC GeoView Symbol Selector shall consume the Symbology Service metadata for the purpose of presenting the available symbology to the user.	VC-BL 3												
4.3.2.4.4.5.0-1.0-7	[T1-R1047]	The VC GeoView Symbol Selector shall display the symbol and metadata associated with a selected C4ISR Object or C2 Drawing.	VC-BL 3												
4.3.2.4.4.5.0-1.0-8	[T1-R1048]	The VC GeoView Symbol Selector shall provide the means to display the Symbology Service metadata in a tree format.	VC-BL 3												
4.3.2.4.4.5.0-1.0-9	[T1-R1049]	The VC GeoView Symbol Selector shall provide the means to search for a symbol and display the results in a tree format.	VC-BL 3												
4.3.3		**User Interface Layout**													
4.3.4		**Handling Geospatial Objects**													
4.3.4.1		**Displaying C4ISR Objects**													
4.3.4.1.1		**Object Display**													

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
4.3.4.1.1.0-1.0-1	[T1-R1050]	The VC GeoView shall request C4ISR Objects from the AppView to display on the Map Panel with their geospatial information. The request filter shall be derived from the current Map Extent.	VC-BL 1												
4.3.4.1.1.0-1.0-2	[T1-R1051]	The VC GeoView shall update the positions of the displayed C4ISR Objects when they are updated by the AppView.	VC-BL 1												
4.3.4.1.1.0-1.0-3	[T1-R1052]	The VC GeoView shall be able to extrapolate positions of the displayed C4ISR Objects to current time using the last known kinematics when the user wants to view the Current Status as defined in the Description.	VC-BL 1												
4.3.4.1.1.0-1.0-4	[T1-R1053]	The VC GeoView shall be able to extrapolate the positions of all visible C4ISR Objects when the user wants to view the Current Status, and display the Objects at their future positions as defined in the Description for a configurable amount of time.	VC-BL 1												
4.3.4.1.1.0-1.0-5	[T1-R1054]	The VC GeoView shall use the last known kinematics of C4ISR Objects for extrapolation to current time. If the movement vectors of an Object are not available at the last position update, then the VC shall derive movement vectors from the historical positions available within the last six (6) hours. If no historical position is available, then the Object will not be extrapolated to future position and displayed with faded symbol.	VC-BL 1												
4.3.4.1.1.0-1.0-6	[T1-R1055]	The VC GeoView shall be able to extrapolate the positions of all visible C4ISR Objects when the user wants to view the Current Status, and display the Objects at their future positions as defined in the Description for a configurable amount of time or until the user cancels.	VC-BL 1												
4.3.4.1.1.0-1.0-7	[T1-R1056]	The VC GeoView shall allow the user to view the Current Status as defined in the Description.	VC-BL 1												
4.3.4.1.1.0-1.0-8	[T1-R1057]	The VC GeoView shall allow the user to set duration to view the Current Status. The duration shall be configurable between five (5) seconds to one minute.	VC-BL 1												
4.3.4.1.2		**Symbology**													
4.3.4.1.2.0-1.0-1	[T1-R1058]	The VC GeoView shall display the C4ISR Objects on the Map Panel using the symbology standards supported by the Symbology Service.	VC-BL 1												
4.3.4.1.2.0-1.0-2	[T1-R1059]	The VC GeoView shall allow the authorised user to manage (publish, update, delete) symbols and associated rules from the Portrayal Catalogue of the Symbology Service.	VC-BL 1												
4.3.4.1.2.0-1.0-3	[T1-R1060]	The VC GeoView shall allow the user to select a Symbol Set from the list of available sets provided by the Symbology Service and set it as a personal default.	VC-BL 1												
4.3.4.1.2.0-1.0-4	[T1-R1061]	The VC GeoView Map Panel shall apply the selected symbol set to all objects and features automatically.	VC-BL 1												
4.3.4.1.2.0-1.0-5	[T1-R1062]	The VC GeoView Map Panel shall be able to display symbols with faded colours when such a feature is functionally required. For example, when all Objects are extrapolated to future positions, those Objects not suitable for extrapolation will be displayed with faded symbols temporarily.	VC-BL 1												
4.3.4.1.2.0-1.0-6	[T1-R1063]	The VC GeoView Map Panel shall display the Speed Leader or Direction & Movement [APP-6] of a moving Object if enabled.	VC-BL 1												
4.3.4.1.2.0-1.0-7	[T1-R1064]	The VC shall use the mechanisms provided by the Symbology Service to improve network efficiency (e.g. receiving only a subset of the default and most used symbols during the initialisation, caching the used symbols and Sprite Sheets (see Symbology Service)).	VC-BL 1												
4.3.4.1.3		**Object Labels**													
4.3.4.1.3.0-1.0-1	[T1-R1065]	The VC GeoView shall display Object Labels as a configurable text box at a user-selected position with respect to the symbol.	VC-BL 1												
4.3.4.1.3.0-1.0-2	[T1-R1066]	The VC GeoView shall receive data to be displayed on Object Labels from the Application.	VC-BL 1												
4.3.4.1.3.0-1.0-3	[T1-R1067]	The VC GeoView shall support the Object Label fonts given in the Description.	VC-BL 1												
4.3.4.1.3.0-1.0-4	[T1-R1068]	The VC GeoView shall allow the authorised user to configure the general structure and size of the Object Labels.	VC-BL 1												
4.3.4.1.3.0-1.0-5	[T1-R1069]	The VC GeoView shall allow the user to configure the appearance (lines to be displayed, background colour, text type/size and colour) of the Object Labels.	VC-BL 1												
4.3.4.1.3.0-1.0-6	[T1-R1070]	The VC GeoView shall allow the user to re-position Object Labels by selecting, dragging and dropping at any position of the Map Panel.	VC-BL 1												
4.3.4.1.4		**Clustering**													
4.3.4.1.4.0-1.0-1	[T1-R1071]	The VC GeoView shall allow the user to enable/disable Clustering for a selected Layer.	VC-BL 1												
4.3.4.1.4.0-1.0-2	[T1-R1072]	The VC GeoView shall allow the user to configure Clustering settings which includes at least the clustering distance, scale, number of allowable objects in one rectangle and excluded features.	VC-BL 1												
4.3.4.1.4.0-1.0-3	[T1-R1073]	The VC GeoView shall automatically cluster overlapping point symbols displayed on the Map Panel according to the user settings when Clustering is enabled.	VC-BL 1												
4.3.4.1.4.0-1.0-4	[T1-R1074]	The VC GeoView shall provide an option to exclude an Object from clustering.	VC-BL 1												
4.3.4.1.4.0-1.0-5	[T1-R1075]	The VC GeoView Map Panel shall re-cluster symbols when the content of the layer is changed.	VC-BL 1												
4.3.4.1.5		**Object Grouping**													
4.3.4.1.5.0-1.0-1	[T1-R1076]	The VC GeoView shall display a group of Objects with a combined symbol at the geometric centre of the group. A single Object Label shall be used which includes the text of the individual Object Labels.	VC-BL 2												
4.3.4.1.5.0-1.0-2	[T1-R1077]	The VC GeoView shall display the grouped Objects when Clustering is enabled.	VC-BL 2												
4.3.4.1.5.0-1.0-3	[T1-R1078]	The VC GeoView shall allow the user manage Object Grouping (e.g. selecting logically-related objects (e.g. tracks, areas), assigning a label and an annotation).	VC-BL 2												
4.3.4.1.5.0-1.0-4	[T1-R1079]	The VC GeoView shall update the centre of the object group when the object positions are updated.	VC-BL 2												
4.3.4.1.5.0-1.0-5	[T1-R1080]	The VC GeoView shall rearrange grouping if an object is deleted and disable grouping automatically when only one object remains.	VC-BL 2												
4.3.4.1.6		**Object History**													
4.3.4.1.6.0-1.0-1	[T1-R1081]	The VC GeoView shall be able to display historical positions of moving C4ISR Objects on the Map Panel when enabled.	VC-BL 2												
4.3.4.1.6.0-1.0-2	[T1-R1082]	The VC GeoView shall allow the user to configure historical position settings including duration and intervals for a set of selected C4ISR Objects.	VC-BL 2												
4.3.4.1.6.0-1.0-3	[T1-R1083]	The VC GeoView shall display the History Tail (the last positions within a configurable time) for all moving Objects for their last known positions. The number of positions shall be user configurable in the Display Settings.	VC-BL 2												
4.3.4.1.7		**Label De-confliction**													
4.3.4.1.7.0-1.0-1	[T1-R1084]	The VC GeoView shall be able to declutter Object Labels according to their position, number of visible objects and the available space in the current view.	VC-BL 1												
4.3.4.1.7.0-1.0-2	[T1-R1085]	The VC GeoView shall allow the user to enable/disable Label De-confliction for a selected layer.	VC-BL 1												
4.3.4.1.7.0-1.0-3	[T1-R1086]	The VC GeoView shall de-conflict the Object Labels and Map Labels automatically if the function is enabled for a selected layer.	VC-BL 1												
4.3.4.1.7.0-1.0-4	[T1-R1087]	The VC GeoView shall de-conflict the labels automatically when the Map Scale, position of objects, the number of visible objects in the layer or content, font and size of the labels are changed.	VC-BL 1												
4.3.4.1.7.0-1.0-5	[T1-R1088]	The VC GeoView shall allow the user to change the label locations manually if the function is not enabled.	VC-BL 1												
4.3.4.1.7.0-1.0-6	[T1-R1089]	The VC GeoView shall, when re-applying the declutter function, strive to keep the majority of the label locations constant. The intent is to avoid most labels jumping to a new location with each application of the declutter function.	VC-BL 1												
4.3.4.1.8		**Tinting**													
4.3.4.1.8.0-1.0-1	[T1-R1090]	The VC GeoView shall be able to apply tinting of symbols and labels as set by the user for each Layer.	VC-BL 1												
4.3.4.1.8.0-1.0-2	[T1-R1091]	The VC GeoView shall allow the user to change the attributes of the symbols and labels given in the Description.	VC-BL 1												
4.3.4.1.8.0-1.0-3	[T1-R1092]	The VC GeoView shall be able to generate default groups like "grouping by equal interval" and "grouping by unique value tinting".	VC-BL 1												
4.3.4.1.9		**Object Information Display**													
4.3.4.1.9.0-1.0-1	[T1-R1093]	The VC GeoView shall display the Simple Information, given in the Description, for a selected C4ISR Object, as a Tooltip when the cursor is hovered on its symbol.	VC-BL 1												
4.3.4.1.9.0-1.0-2	[T1-R1094]	The VC GeoView shall display an Object Information Box as a flyout when the user selects a symbol. The Box can be docked on the GeoView.	VC-BL 1												
4.3.4.1.9.0-1.0-3	[T1-R1095]	The VC GeoView shall allow the user to activate an Object Information Box as a flyout by either double-clicking on a symbol or selecting from the Context-sensitive Menu or pressing an Function Key.	VC-BL 1												
4.3.4.1.9.0-1.0-4	[T1-R1096]	The VC GeoView shall be able to display a configurable number of separate Object Information Boxes simultaneously with indications (e.g. lines to the symbols) to the related Objects.	VC-BL 1												
4.3.4.1.9.0-1.0-5	[T1-R1097]	The VC GeoView shall configure the content of the Object Information Box as defined by the AppView according to the type of the selected C4ISR Object.	VC-BL 1												
4.3.4.1.9.0-1.0-6	[T1-R1098]	The VC GeoView shall display the Default Information, given in the Description, in an Object Information Box when a C4ISR Object is selected.	VC-BL 1												
4.3.4.1.9.0-1.0-7	[T1-R1099]	The VC GeoView shall display the Detailed Information, given in the Description, in the Object Information Box when detailed information for the C4ISR Object is requested by the user.	VC-BL 1												
4.3.4.1.9.0-1.0-8	[T1-R1100]	The VC GeoView shall be able to retrieve the augmented information from the AppView and display it in the Object Information Box as defined by the AppView.	VC-BL 1												
4.3.4.1.9.0-1.0-9	[T1-R1101]	The VC GeoView shall allow the user to adjust the update rate of a C4ISR Object being displayed in the Object Information Box. When the user quits the Box. the update rate shall be reset to its configured parameter.	VC-BL 1												
4.3.4.1.10		**Tooltips**													
4.3.4.1.10.0-1.0-1	[T1-R1102]	The VC shall display a Tooltip for a C4ISR Object or a Map Feature when the cursor is hovered on its symbol for more than five-hundred (500) milliseconds. The Tooltip shall be removed when the cursor is moved away or when a duration given in the Configuration Settings has elapsed. The default shall be five (5) seconds.	VC-BL 1												
4.3.4.1.10.0-1.0-2	[T1-R1103]	The VC GeoView shall allow the user to configure Tooltip text format (e.g. font, size, colour) as part of the User Settings.	VC-BL 1												
4.3.4.1.10.0-1.0-3	[T1-R1104]	The VC GeoView shall allow the user to configure Tooltip text as part of the related Object attributes. Same structure as Object Labels shall be used for Tooltips.	VC-BL 1												
4.3.4.2		**Manaaine Spatial Extent**													
4.3.4.2.0-1.0-1	[T1-R1105]	The VC GeoView shall manage the Spatial Extent by zooming in or out and by drawing an extent rectangle.	VC-BL 1												
4.3.4.2.0-1.0-2	[T1-R1106]	The VC GeoView shall send the calculated rectangular coverage area to the AppView via NMAPI and shall render the returned features and C4ISR Objects.	VC-BL 1												
4.3.4.2.0-1.0-3	[T1-R1107]	The VC GeoView shall allow the user to set the Spatial Extent Mode with an area selection.	VC-BL 1												
4.3.4.2.0-1.0-4	[T1-R1108]	The VC GeoView shall adjust the Spatial Extent according to the request defined by the AppView for displaying selected C4ISR Objects.	VC-BL 1												
4.3.4.2.0-1.0-5	[T1-R1109]	The VC GeoView shall be able to update the default data of the C4ISR Objects in the current Spatial Extent with a rate of at least one-thousand (1000) Objects per minute for a Client running on a Standard Workstation on a standard NATO Static Site Network.	VC-BL 1												
4.3.4.3		**Disolavine Geo-Information**													
4.3.4.3.0-1.0-1	[T1-R1110]	The VC GeoView shall be able to display Geo-information given in the Description.	VC-BL 1												
4.3.4.3.0-1.0-2	[T1-R1111]	The VC GeoView shall be able to display Application-specific features provided by the NMAPI.	VC-BL 1												
4.3.4.3.0-1.0-3	[T1-R1112]	The VC GeoView shall be able to interrogate the GIS Server for OGC compliant Web Services, list the available Services and display the selected services as Layers.	VC-BL 1												
4.3.4.3.0-1.0-4	[T1-R1113]	The VC GeoView shall allow the user to select the Web Services for displaying as Layers.	VC-BL 1												
4.3.4.3.0-1.0-5	[T1-R1114]	The VC GeoView shall display attribute data associated with the displayed Geo-features and AppView-features.	VC-BL 1												
4.3.4.3.0-1.0-6	[T1-R1115]	The VC GeoView shall be able to apply filter to the Geo-information features based on attribute data.	VC-BL 1												
4.3.4.3.0-1.0-7	[T1-R1116]	The VC GeoView shall display Geo-information according to the current Projection and Coordinate System.	VC-BL 1												
4.3.4.4		**Disolavine KML and KMZ**													
4.3.4.4.0-1.0-1	[T1-R1117]	The VC GeoView shall be able to display data given in KML/KMZ format in a Layer of the Map Panel with their descriptions and tags.	VC-BL 1												
4.3.4.4.0-1.0-2	[T1-R1118]	The VC GeoView shall be able to add a KML/KMZ Layer to the Control Panel.	VC-BL 1												
4.3.4.4.0-1.0-3	[T1-R1119]	The VC GeoView Map Panel shall be able to process a file in KML/KMZ format indicated by the user.	VC-BL 1												
4.3.4.4.0-1.0-4	[T1-R1120]	The VC GeoView shall allow the user to select a KML/KMZ file or a drag the file and drop it over the Map Panel to display the content. If the file format is incorrect the user shall be notified.	VC-BL 1												
4.3.4.4.0-1.0-5	[T1-R1121]	The VC GeoView shall be able to export the contents of a Layer to a KML/KMZ file as indicated by the user.	VC-BL 1												
4.3.4.5		**Disolavine NVG**													
4.3.4.5.0-1.0-1	[T1-R1122]	The VC GeoView shall be able to display NVG data in Layers of the Map Panel indicated by the Application. The Layer Manager shall control the flow of data.	VC-BL 1												
4.3.4.5.0-1.0-2	[T1-R1123]	The VC GeoView shall be able to display description and tag of NVG data as detail.	VC-BL 1												
4.3.4.5.0-1.0-3	[T1-R1124]	The VC GeoView shall be able to add a NVG Layer to the Control Panel.	VC-BL 1												
4.3.4.5.0-1.0-4	[T1-R1125]	The VC GeoView shall allow the user to select a file having NVG data or a drag the file and drop it over the Map Panel to display the content. If the file format is incorrect the user shall be notified.	VC-BL 1												
4.3.4.5.0-1.0-5	[T1-R1126]	The VC GeoView shall be able to process a file having NVG data indicated by the user.	VC-BL 1												
4.3.4.5.0-1.0-6	[T1-R1127]	The VC GeoView shall be able to export the contents of a Layer to a NVG file as indicated by the user.	VC-BL 1												
4.3.4.6		**Disolavine Media**													
4.3.4.6.0-1.0-1	[T1-R1128]	The VC GeoView shall have an Image Viewer to display image files in Recognised Graphics File Format.	VC-BL 2												
4.3.4.6.0-1.0-2	[T1-R1129]	The VC GeoView Image Viewer shall allow the user to manage (open, resize, adjust colour and brightness, save) image files.	VC-BL 2												
4.3.4.6.0-1.0-3	[T1-R1130]	The VC GeoView shall be able to display images related to C4ISR Objects in the Object Information Box of that object.	VC-BL 2												
4.3.4.6.0-1.0-4	[T1-R1131]	The VC GeoView shall have a Media Player to display video allowing the user to control the replay.	VC-BL 2												
4.3.4.6.0-1.0-5	[T1-R1132]	The VC GeoView shall be able to display the content of a GeoTIFF file which is processed by the GIS Server and served as WMS.	VC-BL 2												
4.3.4.6.0-1.0-6	[T1-R1133]	The VC GeoView shall allow the user to manage (load, edit geodetic information, adjust colour, save, send to GIS Server) GeoTIFF files and have them disolaved on the Mao Panel.	VC-BL 2												
4.3.4.7		**Animating C4ISR Objects**													
4.3.4.7.0-1.0-1	[T1-R1134]	The VC GeoView shall have a Geo Player which can animate a given set of C4ISR Objects with geospatial, date and time data. The data set shall be received from the AppView.	VC-BL 3												
4.3.4.7.0-1.0-2	[T1-R1135]	The VC Geo Player shall perform the object animation on a separate layer of the Map Panel.	VC-BL 3												
4.3.4.7.0-1.0-3	[T1-R1136]	The VC Geo Player shall be controlled by the Timeline Panel.	VC-BL 3												
4.3.5		**Handling Geospatial Drawings**													
4.3.5.0-1		Geospatial Drawings (Geo-drawings) are graphical drawing objects, with geometry and other properties which can be managed by users or applications. These Geo-drawings can be processed by AppView. Users can create Geo-drawings and digitize their geometry using drawing primitives, assign values to their attributes, save them and retrieve them for displaying in a Layer. The VC GeoView will be able to handle the following types of Geo-drawings:													
4.3.5.1		**C2 Drawines**													
4.3.5.1.1		**C2 Drawine Primitives**													
4.3.5.1.1.0-1.0-1	[T1-R1137]	The VC GeoView shall support a drawing capability on the Map Panel by using a Drawing Palette and the pointing device.	VC-BL 1												
4.3.5.1.1.0-1.0-2	[T1-R1138]	The VC GeoView shall allow the user to create a C2 Drawing on the Map Panel using the Drawing Palette and the pointing device.	VC-BL 1												
4.3.5.1.1.0-1.0-3	[T1-R1139]	The VC GeoView shall allow the user to associate symbology with individual Drawing Primitives in the C2 Drawing.	VC-BL 1												
4.3.5.1.1.0-1.0-4	[T1-R1140]	The VC GeoView shall allow the user to undo and redo for the drawing actions while creating a C2 Drawing using the Primitives and the pointing device.	VC-BL 1												
4.3.5.1.1.0-1.0-5	[T1-R1141]	The VC GeoView shall allow the user to associate descriptive text (annotation) with each Drawine Primitive.	VC-BL 1												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
4.3.5.1.1.0-1.0-6	[T1-R1142]	The VC GeoView shall allow the user to create Complex Drawings by combining Drawing Primitives from the Drawing Palette.	VC-BL 2												
4.3.5.1.1.0-1.0-7	[T1-R1143]	The VC GeoView shall allow the user to create a composite Drawing Primitive composed of multiple Drawing Primitives. The composite Drawing Primitive indicates that all contained Drawing Primitives are treated as a single representation of the concept being expressed.	VC-BL 2												
4.3.5.1.1.0-1.0-8	[T1-R1144]	The VC GeoView shall allow the user to associate metadata with each Drawing Primitive.	VC-BL 1												
4.3.5.1.1.0-1.0-9	[T1-R1145]	The VC GeoView shall allow exclusion areas to be specified on all area based Drawing Primitives.	VC-BL 1												
4.3.5.1.1.0-1.0-10	[T1-R1146]	The VC GeoView shall allow Min and Max Altitude to be specified on all area based Drawing Primitives.	VC-BL 2												
4.3.5.1.2		**C2 Drawing Properties**													
4.3.5.1.2.0-1.0-1	[T1-R1147]	The VC GeoView shall maintain a list of Properties for each C2 Drawing as given in the Description.	VC-BL 1												
4.3.5.1.2.0-1.0-2	[T1-R1148]	The VC GeoView shall allow the user to assign values to the C2 Drawing Properties.	VC-BL 1												
4.3.5.1.2.0-1.0-3	[T1-R1149]	The VC GeoView shall allow the user to modify a C2 Drawing by changing its Properties.	VC-BL 1												
4.3.5.1.3		**Handling C2 Drawings**													
4.3.5.1.3.0-1.0-1	[T1-R1150]	The VC GeoView shall allow the user to manage (create, modify, delete) the C2 Drawings.	VC-BL 2												
4.3.5.1.3.0-1.0-2	[T1-R1151]	The VC GeoView shall allow the user to select an Editable Layer as an active Drawing Layer. Only the selected Drawing Layer shall be used for creating a new C2 Drawing.	VC-BL 2												
4.3.5.1.3.0-1.0-3	[T1-R1152]	The VC GeoView shall be able to send the Metadata of a C2 Drawing to the AppView, using the NMAPI, for further management and processing.	VC-BL 2												
4.3.5.1.3.0-1.0-4	[T1-R1153]	The VC GeoView shall be able to receive the Metadata of a C2 Drawing, from the AppView, using the NMAPI, and display it on the indicated Layer of the Map Panel according to the current Map Projection.	VC-BL 2												
4.3.5.1.3.0-1.0-5	[T1-R1154]	The VC GeoView shall allow the user export a selected C2 Drawing into a file of type SVG, NVG, KML or KMZ.	VC-BL 2												
4.3.5.1.3.0-1.0-6	[T1-R1155]	The VC GeoView shall allow the user import a previously exported C2 Drawing from a file, in SVG, NVG, KML or KMZ format, and display it on the Map Panel according to its Properties.	VC-BL 2												
4.3.5.2		**C2 Areas**													
4.3.5.2.1		**C2 Area Templates**													
4.3.5.2.1.0-1.0-1	[T1-R1156]	The VC GeoView shall be able to generate C2 Areas from predefined Templates.	VC-BL 2												
4.3.5.2.1.0-1.0-2	[T1-R1157]	The VC GeoView shall provide a Template Editor to build C2 Area Templates.	VC-BL 2												
4.3.5.2.1.0-1.0-3	[T1-R1158]	The VC GeoView shall allow the authorised user to manage (create, edit, save, delete) the C2 Area Templates.	VC-BL 2												
4.3.5.2.2		**User-based C2 Areas**													
4.3.5.2.2.0-1.0-1	[T1-R1159]	The VC GeoView shall implement the Default User-based C2 Area Templates given in the Description for TRITON Increment 1.	VC-BL 2												
4.3.5.2.2.0-1.0-2	[T1-R1160]	The VC GeoView shall be able to create a User-based C2 Area from a Template and display it on the indicated Layer of the Map Panel.	VC-BL 2												
4.3.5.2.2.0-1.0-3	[T1-R1161]	The VC GeoView shall allow the user to create a User-based C2 Area using a Template.	VC-BL 2												
4.3.5.2.2.0-1.0-4	[T1-R1162]	The VC GeoView shall be able to receive the Metadata of a User-based C2 Area, from the AppView using NMAPI, and display it on the indicated Layer of the Map Panel.	VC-BL 2												
4.3.5.2.2.0-1.0-5	[T1-R1163]	The VC GeoView shall be able to update a User-based C2 Area automatically when its Metadata is modified by the user or AppView.	VC-BL 2												
4.3.5.2.3		**Application-based C2 Areas**													
4.3.5.2.3.0-1.0-1	[T1-R1164]	The VC GeoView shall implement the Default Application-based C2 Area Templates given in the Description.	VC-BL 2												
4.3.5.2.3.0-1.0-2	[T1-R1165]	The VC GeoView shall be able to receive the Metadata of an Application-based C2 Area, from the AppView using NMAPI, and display it on the indicated Layer of the Map Panel.	VC-BL 2												
4.3.5.2.3.0-1.0-3	[T1-R1166]	The VC GeoView shall be able to update an Application-based C2 Area automatically when its Metadata is updated by the AppView over the NMAPI.	VC-BL 2												
4.3.5.2.4		**Displaying C2 Areas**													
4.3.6		**Handling Geospatial Information**													
4.3.6.1		**Gazetteer**													
4.3.6.1.0-1.0-1	[T1-R1167]	The VC GeoView shall be able to use the Gazetteer Service of the NATO Core GIS.	VC-BL 2												
4.3.6.1.0-1.0-2	[T1-R1168]	The VC GeoView shall be capable of utilising the gazetteer data via an available Gazetteer Web Service.	VC-BL 2												
4.3.6.1.0-1.0-3	[T1-R1169]	The VC GeoView shall allow the user to load the gazetteer data from a selected source.	VC-BL 2												
4.3.6.1.0-1.0-4	[T1-R1170]	The VC GeoView shall allow the user to search for features in the gazetteer.	VC-BL 2												
4.3.6.1.0-1.0-5	[T1-R1171]	The VC GeoView shall display the gazetteer search results in sortable tabular format with an option to indicate the selected item on the map.	VC-BL 2												
4.3.6.1.0-1.0-6	[T1-R1172]	The VC GeoView shall hold gazetteer dataset as a vector dataset, with the place names as attributes.	VC-BL 2												
4.3.6.2		**Search**													
4.3.6.2.0-1.0-1	[T1-R1173]	The VC GeoView shall provide a Search capability to allow the user to look for a C4ISR Object or map feature using a query.	VC-BL 2												
4.3.6.2.0-1.0-2	[T1-R1174]	The VC GeoView Search shall display the Search Results in sortable tabular format with an option to find and display an item on the Map Panel. The search results shall enable hyperlinks within attributes.	VC-BL 2												
4.3.6.2.0-1.0-3	[T1-R1175]	The VC GeoView Search shall allow the user to constrain the search to a geographic area defined by the user, a feature or C4ISR Object.	VC-BL 2												
4.3.6.3		**Geo-Data Export and Import**													
4.3.6.3.0-1.0-1	[T1-R1176]	The VC shall be able to export components (i.e. the current view including all Layers, symbology, annotations, etc.) of the Map Panel into a file in Recognised Geo-Output File Format (including a reloadable file format compatible with the NATO Core GIS and data exchange formats) as defined in the Description or in Recognised Graphics File Format (as defined in Paragraph 1.5).	VC-BL 2												
4.3.6.3.0-1.0-2	[T1-R1177]	The VC shall be able to export selected layers into single file for NVG and KML/KMZ.	VC-BL 2												
4.3.6.3.0-1.0-3	[T1-R1178]	The VC shall be able to export and losslessly compress all files referring to the same Shape File into an archived file (e.g. zip).	VC-BL 2												
4.3.6.3.0-1.0-4	[T1-R1179]	The VC shall keep classification, releasability, user name and timestamp information in NVG and KML/KMZ files as a key-value pair while exporting. For Shape File, classification shall be kept as a "zip" file name. Timestamp and user name of a Shape File shall be kept in geospatial metadata in XML format compliant to [STANAG 2586].	VC-BL 2												
4.3.6.3.0-1.0-5	[T1-R1180]	The VC shall be able to export individual or selected set of features as an NVG or KML file.	VC-BL 2												
4.3.6.3.0-1.0-6	[T1-R1181]	The VC shall be able to import active elements from a Recognised Geo-Input File Format as defined in the Description into a Layer indicated by the user.	VC-BL 2												
4.3.6.3.0-1.0-7	[T1-R1182]	The VC shall be able to activate the import process when the user drags a file and drops it into the GeoView. If the process cannot be completed. the user shall be notified.	VC-BL 2												
4.3.6.3.0-1.0-8	[T1-R1183]	The VC GeoView shall allow the user to select the elements to be exported into a Recognised Geo-Output File Format as defined in the Description and provide the file name and path.	VC-BL 2												
4.3.6.4		**Screenshot**													
4.3.6.4.0-1.0-1	[T1-R1184]	The VC GeoView shall be able to capture the Map Panel and all its visible layers as a screenshot and save it to a file in Recognised Graphics File Format given in Paragraph 1.5.	VC-BL 2												
4.3.6.4.0-1.0-2	[T1-R1185]	The VC GeoView shall allow the user to select only the Base Map or indicated Map Features including the visible Layers to be captured as a Screenshot.	VC-BL 2												
4.3.6.4.0-1.0-3	[T1-R1186]	The VC GeoView shall allow the user to save the Screenshot into a file with a user-provided name and path.	VC-BL 2												
4.3.6.4.0-1.0-4	[T1-R1187]	The VC GeoView shall allow the user to send the Screenshot directly to a printer.	VC-BL 2												
4.3.6.5		**Printing**													
4.3.6.5.0-1.0-1	[T1-R1188]	The VC shall support printing to local and network printers including printing into a file in Portable Document Format (PDF) at a user defined resolution.	VC-BL 2												
4.3.6.5.0-1.0-2	[T1-R1189]	The VC shall ensure that it maintains stability when printing if no printer is installed.	VC-BL 2												
4.3.6.5.0-1.0-3	[T1-R1190]	The VC shall be able to print Map Panel Screenshot to the resolutions supported by the printer or output device.	VC-BL 2												
4.3.6.5.0-1.0-4	[T1-R1191]	The VC shall support printing to printers with Long File Names (e.g. printer names include all legal Long File Name characters and are at least 128 characters lonal.	VC-BL 2												
4.3.6.5.0-1.0-5	[T1-R1192]	The VC shall support printing of landscape. portrait and all other supported paper sizes and layouts.	VC-BL 2												
4.3.6.5.0-1.0-6	[T1-R1193]	The VC shall allow the user to preview (Print Preview) the print content before it is printed.	VC-BL 2												
4.3.6.5.0-1.0-7	[T1-R1194]	The VC Print Preview shall display the print content to the user with the selected printer settings.	VC-BL 2												
4.3.6.6		**Presentation Support**													
4.3.6.6.0-1.0-1	[T1-R1195]	The VC shall be able generate presentation slides and export them into an Office Open XML Presentation (pptx) file.	VC-BL 2												
4.3.6.6.0-1.0-2	[T1-R1196]	The VC shall allow the user to configure the presentation slide master outline, select the Presentation Options given in the Description, and initiate the export.	VC-BL 2												
4.3.6.6.0-1.0-3	[T1-R1197]	The VC shall allow the user to define a coverage area on the Map Panel, select the C4ISR Objects and geospatial information to be included in the presentation slides.	VC-BL 2												
4.3.7		**Geo Processing Tools**													
4.3.7.1		**Distance Measurement**													
4.3.7.1.0-1.0-1	[T1-R1198]	The VC GeoView shall allow the user to measure the horizontal distance between two user-selected points as a line in the projected map plane.	VC-BL 1												
4.3.7.1.0-1.0-2	[T1-R1199]	The VC GeoView shall calculate and display the horizontal distance between two points and the bearing from the starting point using the selected Base Line (as given in the Description) for grid bearing calculation.	VC-BL 1												
4.3.7.1.0-1.0-3	[T1-R1200]	The VC GeoView shall allow the user to measure the horizontal distance and the slant range (if applicable) between two selected C4ISR Objects.	VC-BL 1												
4.3.7.1.0-1.0-4	[T1-R1201]	The VC GeoView shall calculate the distance between two selected C4ISR Objects based on their last known positions and display the true bearing from the first object to the second and the distance. The height or depth attribute of the Objects shall be taken into account for slant range calculations and displayed separately.	VC-BL 1												
4.3.7.1.0-1.0-5	[T1-R1202]	The VC GeoView shall allow the user to measure the horizontal distance between two points following a path with any number of waypoints.	VC-BL 1												
4.3.7.1.0-1.0-6	[T1-R1203]	The VC GeoView shall calculate and display the total distance of a path with waypoints according to the current map projection.	VC-BL 1												
4.3.7.1.0-1.0-7	[T1-R1204]	The VC GeoView shall allow the user to move any vertex of the measurement line or of the path to a new position by using the pointing device.	VC-BL 1												
4.3.7.1.0-1.0-8	[T1-R1205]	The VC GeoView shall adjust the visualisation of the moved measurement line or path according to the current projection and re-compute the projected curve and the values for starting and end bearing.	VC-BL 1												
4.3.7.1.0-1.0-9	[T1-R1206]	The VC GeoView shall display the measured path on the Map Panel, in units selected by the user, until it is cleared or a new measurement is started.	VC-BL 1												
4.3.7.2		**Area Measurement**													
4.3.7.2.0-1.0-1	[T1-R1207]	The VC GeoView shall allow the user to measure an area determined by a polygon or a circle drawn by the pointing device.	VC-BL 1												
4.3.7.2.0-1.0-2	[T1-R1208]	The VC GeoView shall compute the area of the footprint based on the current projection system and display it in units selected by the user. The area of a polygon shall be calculated when the polygon shape is completed (closed), and the area of circle shall be calculated continuously as the pointer is moved.	VC-BL 1												
4.3.7.3		**Line of Sight Analysis**													
4.3.7.3.0-1.0-1	[T1-R1209]	The VC GeoView shall allow the user to perform LOS Analysis if the available GIS Server can provide it as a service.	VC-BL 1												
4.3.7.3.0-1.0-2	[T1-R1210]	The VC GeoView shall be able to use LOS Service and Elevation Service provided by the GIS Server.	VC-BL 1												
4.3.7.3.0-1.0-3	[T1-R1211]	The VC GeoView shall allow the user to set the parameters of a LOS Analysis by manually entering values.	VC-BL 1												
4.3.7.3.0-1.0-4	[T1-R1212]	The VC GeoView shall allow the user to set the centre point of a LOS Analysis by selecting a geographical point on the map. If the height information is available on the map, it shall be used in the calculation.	VC-BL 1												
4.3.7.3.0-1.0-5	[T1-R1213]	The VC GeoView shall allow the user to perform more than one LOS Analysis and display them on the Map Panel as layers.	VC-BL 1												
4.3.7.3.0-1.0-6	[T1-R1214]	The VC GeoView shall allow the user to delete the selected LOS illustration from the Map Panel.	VC-BL 1												
4.3.7.4		**Depth Analysis**													
4.3.7.4.0-1.0-1	[T1-R1215]	The VC GeoView shall be able to use Depth/Elevation Service provided by the GIS Server for depth analysis.	VC-BL 2												
4.3.7.4.0-1.0-2	[T1-R1216]	The VC GeoView shall allow the user to perform Depth Analysis if the available GIS Server can provide it as a service.	VC-BL 2												
4.3.7.4.0-1.0-3	[T1-R1217]	The VC GeoView shall allow the user to set the parameters of a Depth Analysis by manually entering area values or drawing a circle or polygon on the Map Panel.	VC-BL 2												
4.3.7.4.0-1.0-4	[T1-R1218]	The VC GeoView shall allow the user to perform more than one Depth Analysis and display them on the Map Panel as Layers.	VC-BL 2												
4.3.7.4.0-1.0-5	[T1-R1219]	The VC GeoView shall display the minimum and maximum depth values of the selected area on the Map Panel.	VC-BL 2												
4.3.7.5		**Height Analysis**													
4.3.7.5.0-1.0-1	[T1-R1220]	The VC GeoView shall be able to use Depth/Elevation Service provided by the GIS Server for height analysis.	VC-BL 2												
4.3.7.5.0-1.0-2	[T1-R1221]	The VC GeoView shall allow the user to perform Height Analysis if the available GIS Server can provide it as a service.	VC-BL 2												
4.3.7.5.0-1.0-3	[T1-R1222]	The VC GeoView shall allow the user to set the parameters of a Height Analysis by manually entering area values or drawing a circle or polygon on the Map Panel.	VC-BL 2												
4.3.7.5.0-1.0-4	[T1-R1223]	The VC GeoView shall allow the user to perform more than one Height Analysis and display them on the Map Panel as Layers.	VC-BL 2												
4.3.7.5.0-1.0-5	[T1-R1224]	The VC GeoView shall display the minimum and maximum height values of the selected area on the Map Panel.	VC-BL 2												
4.3.7.6		**Range Rings**													
4.3.7.6.0-1.0-1	[T1-R1225]	The VC GeoView shall allow the user to configure the settings related to the Range Rings.	VC-BL 2												
4.3.7.6.0-1.0-2	[T1-R1226]	The VC GeoView shall allow the user to initiate displaying Range Rings by selecting its position on the map or selecting a C4ISR Object.	VC-BL 2												
4.3.7.6.0-1.0-3	[T1-R1227]	The VC GeoView shall display Range Rings according to user defined parameters on the Map Panel as a separate layer. The distances are referring to geodesic distances on the Earth ellipsoid (potentially a spherical approximation) and shall be rendered in the map in the map projection.	VC-BL 2												
4.3.7.6.0-1.0-4	[T1-R1228]	The VC GeoView shall adjust the size of the Range Rings with respect to the current map scale.	VC-BL 2												
4.3.7.6.0-1.0-5	[T1-R1229]	The VC GeoView shall display the Range Rings with orientation from True North to three-hundred fifty-nine (359) degrees True.	VC-BL 2												
4.3.7.6.0-1.0-6	[T1-R1230]	The VC GeoView shall display the Range Rings with orientation which dynamically matches with the heading of the selected (slaved) object if it has heading value.	VC-BL 2												
4.3.8		**3D Visualisation**													
4.3.8.1		**3D Display Framework**													
4.3.8.1.0-3.0-1	[T1-R1231]	The VC shall provide infrastructure for supporting Three-Dimensional (3D) or Pseudo-Three-Dimensional (2.5D) Display capability. The guidance in [MIL-STD-2525D] should be used.	VC-BL 1												
4.3.8.1.0-3.0-2	[T1-R1232]	The VC GeoView "should" allow the user to select 2D or 3D Display in the Map Panel. The 3D Display should be used in the Map Panel with configurable settings (e.g. default height of the Viewpoint. perspective ratio).	VC-BL 3												
4.3.8.1.0-3.0-3	[T1-R1233]	The VC "will" receive maps with terrain data from the GIS Server, display them in a 2.5D environment as guided in [MIL-STD-2525D].	VC-BL 3												
4.3.8.1.0-3.0-4	[T1-R1234]	The VC 3D Display "should" be able to display C4ISR Objects in a 2.5D environment as described in [MIL-STD-2525D] using Symbicons and Marker Posts.	VC-BL 3												
4.3.8.1.0-3.0-5	[T1-R1235]	The VC 3D Display "should" be able to provide fly-through over the terrain.	VC-BL 3												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
4.3.8.1.0-3.0-6	[T1-R1236]	The VC 3D Display "should" allow the user to control the fly-through using the pointing device and keyboard.	VC-BL 3												
4.3.8.2		**Navigation**													
4.3.8.2.0-1.0-1	[T1-R1237]	The VC 3D Display "should" provide navigation control by adjusting the Navigation Controls given in the Description.	VC-BL 3												
4.3.8.2.0-1.0-2	[T1-R1238]	The VC 3D Display "should" allow the user to navigate through the Map Panel by changing the Navigation Controls given in the Description with the combination of the pointing device and the keyboard.	VC-BL 3												
4.3.8.2.0-1.0-3	[T1-R1239]	The VC 3D Display "should" allow the user to return to the Default Viewpoint using the Navigation Controls.	VC-BL 3												
4.3.8.2.0-1.0-4	[T1-R1240]	The VC 3D Display "should" be able to render the display, including the terrain data and movement of C4ISR Objects at a rate of at least fifteen (15) frames per second at a display resolution of at least 1280x1024 when navigation is started.	VC-BL 3												
4.3.8.2.0-1.0-5	[T1-R1241]	The VC 3D Display "should" be able to initiate a fly-through over the terrain by setting the Navigation Controls given in the Description.	VC-BL 3												
4.3.8.2.0-1.0-6	[T1-R1242]	The VC 3D Display "should" display the Direction Indicators in a fly-through.	VC-BL 3												
4.3.8.2.0-1.0-7	[T1-R1243]	The VC 3D Display "should" allow the user to change the settings during a fly-through.	VC-BL 3												
4.3.8.2.0-1.0-8	[T1-R1244]	The VC 3D Display "should" be able to slave the Viewpoint to a selected C4ISR Object so that it moves together with the Object from a user-selected distance during the lifecycle of the Object. For example, the Viewpoint can be slaved to an aircraft and updated as the kinematics of the aircraft is updated. The Object motion "should" be extrapolated according to a configurable frame rate with a default of fifteen (15) Hertz.	VC-BL 3												
4.3.8.2.0-1.0-9	[T1-R1245]	The VC 3D Display "should" allow the user to select a C4ISR Object, select a distance, Viewing Angle, Viewing Direction relative to the Object motion, and initiate a fly-through. The fly-through "should" be stopped when the users stops it or the Object is deleted.	VC-BL 3												
4.3.8.3		**Animation**													
4.3.8.3.0-1.0-1	[T1-R1246]	The VC 3D Display "should" be able to animate the motion of selected C4ISR Objects with the geospatial data provided by the AppView.	VC-BL 3												
4.3.8.3.0-1.0-2	[T1-R1247]	The VC 3D Display "should" allow the user to control the animated motion using the GeoView Timeline.	VC-BL 3												
4.3.9		**User Settings**													
4.3.9.1		**Theme Selection**													
4.3.9.1.0-1.0-1	[T1-R1248]	The VC GeoView shall support configurable Themes for the GUI elements.	VC-BL 3												
4.3.9.1.0-1.0-2	[T1-R1249]	The VC GeoView shall provide a Dark Theme and Light Theme as the default.	VC-BL 3												
4.3.9.1.0-1.0-3	[T1-R1250]	The VC GeoView shall maintain a list of Personal Themes.	VC-BL 3												
4.3.9.1.0-1.0-4	[T1-R1251]	The VC GeoView shall be able to use Style Sheets.	VC-BL 3												
4.3.9.1.0-1.0-5	[T1-R1252]	The VC GeoView shall allow the user to manage (load, modify, save) the Personal Theme List.	VC-BL 3												
4.3.9.1.0-1.0-6	[T1-R1253]	The VC GeoView shall allow the user to select a predefined Theme.	VC-BL 3												
4.3.9.2		**Most Used Functions**													
4.3.9.2.0-1.0-1	[T1-R1254]	The VC GeoView shall have a list of the last used functions, if applicable, the Most Used Functions.	VC-BL 3												
4.3.9.2.0-1.0-2	[T1-R1255]	The VC GeoView shall allow the user to manage (add, modify, delete) the Most Used Functions List.	VC-BL 3												
4.3.9.2.0-1.0-3	[T1-R1256]	The VC GeoView shall execute the function when the user selects it from the Most Used Function List.	VC-BL 3												
4.3.9.3		**Own Position**													
4.3.9.3.0-1.0-1	[T1-R1257]	The VC GeoView shall be able to receive a C4ISR Object designated as Own Position from the AppView (as part of the API) as an option.	VC-BL 2												
4.3.9.3.0-1.0-2	[T1-R1258]	The VC GeoView shall allow the user to set Own Position to a geographic position or to a selected C4ISR Object.	BL 2												
4.3.9.4		**Display Settings**													
4.3.9.4.0-1.0-1	[T1-R1259]	The VC shall be able to retrieve the personal Display Settings given in the Description from the AppView using the NMAPI and apply them.	VC-BL 1												
4.3.9.4.0-1.0-2	[T1-R1260]	The VC shall allow the user to configure the Display Settings according to personal preferences and send them to the AppView using the NMAPI to be saved in the Functional Service Application context.	VC-BL 1												
4.3.9.4.0-1.0-3	[T1-R1261]	The VC shall automatically save the Display Settings when the user terminates the GeoView or logs out from the AppView.	VC-BL 1												
4.3.9.4.0-1.0-4	[T1-R1262]	The VC shall provide the defaults for the Display Settings as set by the authorised user.	VC-BL 1												
4.3.10		**Security**													
4.3.10.0-1.0-1	[T1-R1263]	The VC shall conform the security requirements defined for TRITON in Subsection 5.2.	VC-BL 1												
4.3.11		**Error Handling**													
4.3.11.0-1.0-1	[T1-R1264]	The VC shall handle all occurring errors and report them to the AppView.	VC-BL 1												
4.3.11.0-1.0-2	[T1-R1265]	The VC shall notify the user when an error occurred within the sub-components of the VC.	VC-BL 1												
4.3.12		**On-line Help**													
4.3.12.0-1.0-1	[T1-R1266]	The VC shall support On-line Help describing the basic functionality of the VC by using Contents, Index with its associated Search and a link to the On-line Help provided by the AppView (if exists).	VC-BL 2												
4.3.12.0-1.0-2	[T1-R1267]	The VC On-line Help shall translate every use case and scenario into a browsing sequence. Every browsing sequence shall be structured according to a generic user workflow.	VC-BL 2												
4.3.12.0-1.0-3	[T1-R1268]	The VC shall allow the user to access the On-line Help function at any stage of execution of a function.	VC-BL 2												
4.3.12.0-1.0-4	[T1-R1269]	The VC On-line Help shall describe each basic VC function, the interrelationships between and the logical sequence of functions.	VC-BL 2												
4.3.12.0-1.0-5	[T1-R1270]	The VC On-line Help shall explain all menu items, dialog windows, data entry and query fields implemented in the VC Product Baseline.	VC-BL 2												
4.3.12.0-1.0-6	[T1-R1271]	The VC On-line Help shall include a glossary providing definitions of all terms and acronyms implemented in the VC Product Baseline.	VC-BL 2												
4.3.12.0-1.0-7	[T1-R1272]	All definitions in the VC glossary shall be available in roll-over, pop-up windows linked to every appearance in On-line Help of the corresponding term or acronym.	VC-BL 2												
4.3.12.0-1.0-8	[T1-R1273]	The VC shall provide On-line Help option for each dialogue, menu item, toolbar item, function, field or button (each item on the screen). This shall be clearly visible, but not intrusive.	VC-BL 2												
4.3.12.0-1.0-9	[T1-R1274]	The VC On-line Help shall provide meaningful advice and hints to the users appropriate to the actions they are trying to take.	VC-BL 2												
4.3.12.0-1.0-10	[T1-R1275]	The VC On-line Help shall be concise, compact and clear to the user.	VC-BL 2												
4.3.12.0-1.0-11	[T1-R1276]	The VC On-line Help shall include screenshots of the GeoView. The screenshots shall be provided in a suitable lightweight format (e.g. GIF, PNG) approved by the Purchaser.	VC-BL 2												
4.3.12.0-1.0-12	[T1-R1277]	Pictures in the VC On-line Help showing more than five (5) GUI elements/controls shall have a clickable image map describing each element.	VC-BL 2												
4.3.12.0-1.0-13	[T1-R1278]	If the VC On-line Help topic requires a large picture that does not fit on a normal page, a reduced copy shall be additionally included on the Help page that will expand to its full size on user request.	VC-BL 2												
4.3.12.0-1.0-14	[T1-R1279]	The VC On-line Help shall be context-sensitive (i.e. based on a specific point in the state of the software and providing help for the situation that is associated with that state on action being performed).	VC-BL 2												
4.3.12.0-1.0-15	[T1-R1280]	The Security Classification of any example data that is displayed in VC On-line Help shall not be higher than NATO UNCLASSIFIED.	VC-BL 2												
4.3.12.0-1.0-16	[T1-R1281]	The VC On-line Help context-sensitive GUI elements shall be linked to the relevant User Manual topics.	VC-BL 2												
4.3.12.0-1.0-17	[T1-R1282]	The VC On-line Help shall be given by a small pop-up screen or infotip screen. This screen shall appear quickly and be very easy to hide, for instance clicking anywhere within it.	VC-BL 2												
4.3.12.0-1.0-18	[T1-R1283]	The VC On-line Help shall open a dedicated Web page when the user requests access to the full content of the On-line Help. The On-line Help shall not be preventing the user to perform on the GeoView.	VC-BL 2												
4.3.12.0-1.0-19	[T1-R1284]	The VC GeoView shall allow the user to hide the On-line Help screen just by clicking anywhere else, or there shall be another single action hiding mechanism.	VC-BL 2												
4.3.12.0-1.0-20	[T1-R1285]	The VC On-line Help shall include a searchable Index that allows the user to locate keywords or phrases (identified by enclosure within double-quotation marks) in the User Manual.	VC-BL 2												
4.3.12.0-1.0-21	[T1-R1286]	The VC shall support search queries for finding help items in the On-line Help.	VC-BL 2												
4.3.12.0-1.0-22	[T1-R1287]	The VC On-line Help shall be able to display search query results for finding help items in the On-line Help in a list. The VC GeoView shall display the help item when the user selects a query result in this list.	VC-BL 2												
4.3.12.0-1.0-23	[T1-R1288]	The VC On-line Help shall be prepared as a compiled/scripted HTML help file (.chm) which shall include all project-related source elements and graphics.	VC-BL 2												
4.3.13		**External Interfaces**													
4.3.13.1		**Application Programming Interface**													
4.3.13.1.1		**NATO Map API**													
4.3.13.1.1.0-1.0-1	[T1-R1289]	The VC shall provide an API named as "NATO Map API" for interfacing between the AppView and GeoView.	VC-BL 1												
4.3.13.1.1.0-1.0-2	[T1-R1290]	The VC shall implement CMAPI v1.3.0 for the NMAPI.	VC-BL 1												
4.3.13.1.1.0-1.0-3	[T1-R1291]	The VC NMAPI shall include definition of C4ISR Objects and their data model.	VC-BL 1												
4.3.13.1.1.0-1.0-4	[T1-R1292]	The VC NMAPI and integration issues shall be defined and documented in the VC ICD for enabling the use of the VC within other Functional Services.	VC-BL 1												
4.3.13.1.2		**Application Framework**													
4.3.13.1.2.0-1.0-1	[T1-R1293]	The VC shall provide the necessary implementation details in its documentation to implement the API within the interfacing Application.	VC-BL 1												
4.3.13.2		**Map Interface**													
4.3.13.2.0-1.0-1	[T1-R1294]	The VC shall have an interface with the NATO Core GIS relying on file and information exchange formats described in GIS Services Standards and File Formats [Core GIS SIP].	VC-BL 1												
4.3.13.2.0-1.0-2	[T1-R1295]	The VC shall have interfaces compliant with Web Services Common Standard [OGC WSCommon].	VC-BL 1												
4.3.13.2.0-1.0-3	[T1-R1296]	The VC shall be able to receive data in NVG and KML format, and display them.	VC-BL 1												
4.3.13.2.1		**Web Map Service**													
4.3.13.2.1.0-1.0-1	[T1-R1297]	The VC shall be able to consume OGC-compliant, WMS defined by the OGC specifications [OGC WMS].	VC-BL 1												
4.3.13.2.1.0-1.0-2	[T1-R1298]	The VC shall be able to display the maps in JPEG and PNG (with transparency) provided by the WMS. The map formats given in the Description shall be applicable.	VC-BL 1												
4.3.13.2.2		**Web Map Tile Service**													
4.3.13.2.2.0-1.0-1	[T1-R1299]	The VC shall be able to use OGC-compliant, WMTS-based services defined by the OGC specifications [OGC WMTS].	VC-BL 1												
4.3.13.2.3		**Web Processing Service**													
4.3.13.2.3.0-1.0-1	[T1-R1300]	The VC shall be able to use OGC-compliant, WPS-based services defined by the OGC specifications [OGC WPS].	VC-BL 1												
4.3.13.3		**Geo Services Interfaces**													
4.3.13.3.0-1.0-1	[T1-R1301]	The VC shall be able to use the Geo Services given in the Description as Geo Services Interfaces.	VC-BL 1												
4.3.13.3.0-1.0-2	[T1-R1302]	The VC shall provide feedback to the user within five (5) seconds in a static network environment when a Geo Service is invoked by the user. If the data cannot be made available within ten (10) seconds, the user shall be notified with an option to cancel the request.	VC-BL 3												
4.3.13.4		**Symbology Service Interface**													
4.3.13.4.0-1.0-1	[T1-R1303]	The VC Symbology Service shall have a Web service for its interface defined in its Service Interface Profile.	VC-BL 2												
4.3.13.4.0-1.0-2	[T1-R1304]	The VC ICD shall include the Service Interface Profile for the Symbology Service.	VC-BL 2												
4.3.13.5		**Interface Control Description**													
4.3.13.5.0-1.0-1	[T1-R1305]	The VC shall have an ICD describing all the API, integration procedures, and interfaces with the GIS Server and Symbology Server, data and error handling mechanisms and applicable standards.	VC-BL 1												
4.3.13.5.0-1.0-2	[T1-R1306]	The VC ICD shall be developed and made available in increments.	VC-BL 1												
4.3.13.6		**Conformance Test Kit**													
4.3.13.6.0-1.0-1	[T1-R1307]	The VC shall have a Conformance Test Kit to allow testing the external interfaces and correctness of the computations.	BL 3												
4.4		**TRITON Deployable Kit Requirements**													
4.4.1		**TDK Hardware**													
4.4.1.1		**TDK Case**													
4.4.1.1.0-1.0-1	[T1-R1308]	TDK Case shall enclose a 19-inch rack with height not exceeding eight (8) Rack-Unit (RU).	BL 4												
4.4.1.1.0-1.0-2	[T1-R1309]	TDK Case shall be watertight, dust proof, crush proof, equipped with anti-vibration shock mounts and Automatic Pressure Equalization Valve (suitable for transportation with air cargo).	BL 4												
4.4.1.1.0-1.0-3	[T1-R1310]	TDK Case size shall not exceed one hundred and twenty (120) cm long X seventy (70) cm wide X sixty (60) cm high.	BL 4												
4.4.1.1.0-1.0-4	[T1-R1311]	TDK Case weight including the content shall not exceed sixty (60) kg in total.	BL 4												
4.4.1.1.0-1.0-5	[T1-R1312]	TDK Case shall have handles or special harnesses both on their sides and on top (in order to be able to carry in vertical position over ship ladders and durable enough to use crane).	BL 4												
4.4.1.1.0-1.0-6	[T1-R1313]	TDK Case shall have detachable wheels with locking mechanism.	BL 4												
4.4.1.1.0-1.0-7	[T1-R1314]	TDK Case shall have front and end lids with securing locks and keys.	BL 4												
4.4.1.2		**Carrying Case**													
4.4.1.2.0-1.0-1	[T1-R1315]	TDK Carrying Case shall be watertight, dust proof, crush proof and lockable, equipped with inner cushions, Automatic Pressure Equalization Valve (suitable for transportation with air cargo), handles and wheels.	BL 4												
4.4.1.2.0-1.0-2	[T1-R1316]	TDK Carrying Case size shall not exceed one hundred and twenty (120) cm long X seventy (70) cm wide X sixty (60) cm high.	BL 4												
4.4.1.2.0-1.0-3	[T1-R1317]	TDK Carrying Case weight including the content shall not exceed sixty (60) kg in total.	BL 4												
4.4.1.2.0-1.0-4	[T1-R1318]	TDK Carrying Case interior design shall be configurable.	BL 4												
4.4.1.2.0-1.0-5	[T1-R1319]	TDK Carrying Case used as the Secure Box shall have security labels and locks.	BL 4												
4.4.1.3		**Uninterruptible Power Supply**													
4.4.1.3.0-1.0-1	[T1-R1320]	TDK UPS shall support all components within a TDK Unit for at least thirty (30) minutes after the main power is gone.	BL 4												
4.4.1.3.0-1.0-2	[T1-R1321]	TDK UPS shall be able to operate using both 110 VAC 60Hz and 220 VAC 50Hz as the main power input.	BL 4												
4.4.1.3.0-1.0-3	[T1-R1322]	TDK UPS shall have replaceable batteries.	BL 4												
4.4.1.4		**Central Control Unit**													
4.4.1.4.0-1.0-1	[T1-R1323]	Each TDK Unit shall have a Central Control Unit (CCU).	BL 4												
4.4.1.4.0-1.0-2	[T1-R1324]	TDK CCU shall have power distribution capability to all components inside the TDK Cases.	BL 4												
4.4.1.4.0-1.0-3	[T1-R1325]	TDK CCU shall monitor the main power and the UPS status continuously.	BL 4												
4.4.1.4.0-1.0-4	[T1-R1326]	TDK CCU shall be able to detect main power loss within one second and provide a visual and an audible notification (e.g. beep and flashing light).	BL 4												
4.4.1.4.0-1.0-5	[T1-R1327]	TDK CCU shall have a control switch to initiate the start-up and shut-down sequences.	BL 4												
4.4.1.4.0-1.0-6	[T1-R1328]	TDK CCU shall provide the System Management with the current power status (i.e. power source as external or UPS, UPS power percentage and remaining time to auto shut-down) using SNMP.	BL 4												
4.4.1.4.0-1.0-7	[T1-R1329]	TDK CCU shall provide a single Grounding Point for all components inside the TDK Cases using grounding cables (sheets).	BL 4												
4.4.1.4.0-1.0-8	[T1-R1330]	TDK CCU shall be able to receive a shut-down command from the server unit and initiate the orderly shut-down process for all components.	BL 4												
4.4.1.4.0-1.0-9	[T1-R1331]	TDK CCU shall issue an automatic shut-down command to all components if the UPS remaining power gets below the critical threshold.	BL 4												
4.4.1.5		**Monitor Keyboard Unit**													
4.4.1.5.0-1.0-1	[T1-R1332]	Each TDK Unit shall have a 19-inch, one (1) RU, slide-out standard English QWERTY keyboard with built-in two-button pointing device and a fold-down colour LCD monitor with at least Full HD resolution connected to the Server Unit.	BL 4												
4.4.1.6		**Installation Kit**													
4.4.1.6.0-1.0-1	[T1-R1333]	TDK shall have an Installation Kit including a fixing gear, power cables, grounding cables and data cables.	BL 4												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
4.4.1.6.0-1.0-2	[T1-R1334]	TDK Installation Kit shall have harnesses and gears to securely fix the TDK Cases on the deck allowing both vertical (one case on top of the other one) and horizontal (side-by-side) orientation.	BL 4												
4.4.1.6.0-1.0-3	[T1-R1335]	TDK Installation Kit shall allow the installation crew to fasten the TDK Cases on the deck to withstand ship movements at Sea State seven (7).	BL 4												
4.4.1.6.0-1.0-4	[T1-R1336]	TDK Installation Kit shall allow the installation crew to unfasten the TDK Cases, move them to another compartment and fasten them there in case of a re-planning or an emergency.	BL 4												
4.4.1.6.0-1.0-5	[T1-R1337]	TDK Installation Kit shall have at least ten (10) metres of power cable with an industrial type plug and potential adapters for each of the NS and NU Unit.	BL 4												
4.4.1.6.0-1.0-6	[T1-R1338]	TDK Installation Kit shall have at least twenty (20) metres of both fibre-optic and copper Gigabit Ethernet cables (CAT-6) with commercial-type jacks (i.e. RJ-45) for each of the NS and NU Unit.	BL 4												
4.4.1.6.0-1.0-7	[T1-R1339]	TDK Installation Kit shall have a grounding cable (sheet) to connect the TDK Unit Grounding Point to the ship grounding point. A combined grounding cable can be used for both units.	BL 4												
4.4.1.7		**Computing Hardware**													
4.4.1.7.1		**Server Unit**													
4.4.1.7.1.0-1.0-1	[T1-R1340]	TDK Server Unit shall host the TRITON Operational Software configured for ACP.	BL 4												
4.4.1.7.1.0-1.0-2	[T1-R1341]	TDK Server Unit shall be 19-inch rack type whose chassis height does not exceed two (2) RU.	BL 4												
4.4.1.7.1.0-1.0-3	[T1-R1342]	TDK Server Unit shall have at least two (2) physical CPUs each having at least four (4) cores.	BL 4												
4.4.1.7.1.0-1.0-4	[T1-R1343]	TDK Server Unit shall have at least one-hundred-and-twenty-eight (128) Gigabytes of memory.	BL 4												
4.4.1.7.1.0-1.0-5	[T1-R1344]	TDK Server Unit shall have graphics support capability for the local fold-down KVM.	BL 4												
4.4.1.7.1.0-1.0-6	[T1-R1345]	TDK Server Unit shall have at least five (5) Terabytes of storage. If SAN is used, one (1) Terabytes of local storage shall be included in the Server Unit.	BL 4												
4.4.1.7.1.0-1.0-7	[T1-R1346]	TDK Server Unit shall be compliant to the general specifications for the static site Server Unit.	BL 4												
4.4.1.7.1.0-1.0-8	[T1-R1347]	In case processing capacity for the TDK Server Unit is considered to be less than the required level, then additional components shall be provided and integrated into the existing infrastructure, including the management features.	BL 4												
4.4.1.7.2		**Storage Unit**													
4.4.1.7.2.0-1.0-1	[T1-R1348]	TDK Storage Unit shall be 19-inch rack type whose chassis height does not exceed two (2) RU.	BL 4												
4.4.1.7.2.0-1.0-2	[T1-R1349]	TDK Storage Unit shall have a capacity of at least five (5) Terabytes.	BL 4												
4.4.1.7.2.0-1.0-3	[T1-R1350]	TDK Storage Unit shall be compliant to the general specifications for the static site Storage Unit.	BL 4												
4.4.1.7.2.0-1.0-4	[T1-R1351]	In case storage capacity of the TDK Storage Unit (including I/O performance, Storage Network Capacity and licences) is considered to be less than the required level, then additional components shall be provided and integrated into the existing infrastructure, including the management features.	BL 4												
4.4.1.7.3		**Network Elements**													
4.4.1.7.3.0-1.0-1	[T1-R1352]	TDK Network Switch shall be 19-inch rack type whose chassis height does not exceed two (2) RU.	BL 4												
4.4.1.7.3.0-1.0-2	[T1-R1353]	TDK Network Switch shall support at least 10/100/1000 Mbps UTP and 1/10 Gbps fibre channels.	BL 4												
4.4.1.7.3.0-1.0-3	[T1-R1354]	TDK Network Switch shall have at least eight (8) UTP and eight (8) fibre ports.	BL 4												
4.4.1.7.3.0-1.0-4	[T1-R1355]	TDK Network Switch shall have manageability, routing and Quality of Service capability.	BL 4												
4.4.1.7.3.0-1.0-5	[T1-R1356]	In case networking capacity (ports, bandwidth or other performance levels, licences) for the Network Elements is considered to be less than the required level, then additional components shall be provided and integrated into the existing infrastructure, including the management features.	BL 4												
4.4.1.7.4		**IEG-Data Diode**													
4.4.1.7.4.0-1.0-1	[T1-R1357]	The IEG-Data Diode shall provide secure, one-way data transfer from the NU Domain to the NS Domain.	BL 4												
4.4.1.7.4.0-1.0-2	[T1-R1358]	The IEG-Data Diode shall be compliant to the specification provided by the Purchaser.	BL 4												
4.4.1.7.4.0-1.0-3	[T1-R1359]	The IEG-Data Diode shall be in a form of 19-inch rack type whose chassis height does not exceed one (1) RU.	BL 4												
4.4.1.7.5		**Client Workstations**													
4.4.1.7.5.0-1.0-1	[T1-R1360]	TDK Unit shall have two (2) Workstations and two (2) Laptops to be used as TRITON Clients.	BL 4												
4.4.1.7.5.0-1.0-2	[T1-R1361]	TDK Client Workstation shall have a similar configuration to the NATO Workstation Hardware Configuration as a Thin Client. The Server Unit shall provide the computing platform for the Thin Clients.	BL 4												
4.4.1.7.5.0-1.0-3	[T1-R1362]	TDK Client Workstation shall have two (2) twenty-two (22) inch monitors with at least Full HD (1920 x 1080) resolution, one standard English QWERTY keyboard and one mouse with two buttons and a wheel.	BL 4												
4.4.1.7.5.0-1.0-4	[T1-R1363]	TDK Client Workstation and Laptop "should" have small form factor, preferably in industrial standards, suitable to be used on board ships in small, air-conditioned compartments with 110/220V 50/60Hz.	BL 4												
4.4.1.7.5.0-1.0-5	[T1-R1364]	TDK Client Laptop shall have a similar configuration to the NATO Laptop Hardware Configuration with at least Full HD (1920 x 1080) screen resolution, standard English QWERTY keyboard and touch-pad with two buttons.	BL 4												
4.4.2		**TDK Software**													
4.4.2.1		**Infrastructure Software**													
4.4.2.1.0-1.0-1	[T1-R1365]	TDK Infrastructure Software shall be identical to the static site Infrastructure Software.	BL 4												
4.4.2.1.0-1.0-2	[T1-R1366]	TDK Infrastructure Software shall be configurable according to the operational use of TDK.	BL 4												
4.4.2.1.0-1.0-3	[T1-R1367]	TDK Infrastructure Software shall have its own Core Services to be able to operate in Standalone Mode. Instances of NATO Core Enterprise Services shall be used.	BL 4												
4.4.2.1.0-1.0-4	[T1-R1368]	TDK Infrastructure Software shall support automated monitoring of devices and services via Simple Network Management Protocol (SNMP).	BL 4												
4.4.2.1.0-1.0-5	[T1-R1369]	TDK Infrastructure Software on each TDK Unit shall be able to support at least fifty (50) concurrent users.	BL 4												
4.4.2.2		**Local Geospatial Services**													
4.4.2.2.0-1.0-1	[T1-R1370]	TDK shall utilise a Local Geospatial Service in both Networked and Standalone Modes for each Unit.	BL 4												
4.4.2.2.0-1.0-2	[T1-R1371]	TDK shall use the NATO Bi-SC AIS Core GIS as the default Local Geospatial Service if available. If the NATO Core GIS is not available for TDKs, an Interim Local Geospatial Service shall be provided. This interim solution can be replaced by the NATO Core GIS when it becomes available.	BL 4												
4.4.2.2.0-1.0-3	[T1-R1372]	TDK Interim Local Geospatial Service shall provide, as a minimum, map handling capability with an interface compliant with the Service Interface Profile that NATO Core GIS provides [Core GIS SIP].	BL 4												
4.4.2.2.0-1.0-4	[T1-R1373]	TDK Interim Local Geospatial Service shall be able to use the geo-information exported from the NATO Core GIS.	BL 4												
4.4.2.2.0-1.0-5	[T1-R1374]	TDK Interim Local Geospatial Service shall provide means to import the geo-information and Geospatial Service configurations already exported from the NATO Core GIS.	BL 4												
4.4.2.2.0-1.0-6	[T1-R1375]	TDK Interim Local Geospatial Service shall be readily available as a re-usable component in any context in both NS and NU Domains with no additional license cost if open source or custom-developed components are used.	BL 4												
4.4.2.3		**TRITON Operational Software**													
4.4.2.3.0-1.0-1	[T1-R1376]	TDK shall host the TRITON-NS Operational Software configured for ACP on the NS-Unit.	BL 4												
4.4.2.3.0-1.0-2	[T1-R1377]	TDK shall host the TRITON-NU Operational Software configured for ACP on the NU-Unit.	BL 4												
4.4.2.3.0-1.0-3	[T1-R1378]	TDK shall have its own installation tools and configuration procedures to install and operate the TRITON Operational Software.	BL 4												
4.5		**TRITON Support Systems Requirements**													
4.5.1		**TRITON Test Systems**													
4.5.1.1		**Operational Software**													
4.5.1.1.0-1.0-1	[T1-R1379]	TRITON Test Systems shall have the TRITON Operational Software Baseline to be tested.	BL 1												
4.5.1.1.0-1.0-2	[T1-R1380]	TRITON Test Systems shall provide interface simulators and test data to test the interfaces for any external system.	BL 1												
4.5.1.2		**Infrastructure**													
4.5.1.2.0-1.0-1	[T1-R1381]	TRITON Test Systems shall have their own Virtualised Environment including operating systems and any other required third party software.	BL 1												
4.5.1.2.0-1.0-2	[T1-R1382]	TRITON Test Systems shall have the same Infrastructure Software as the TRITON Functional Services at static sites.	BL 1												
4.5.1.2.0-1.0-3	[T1-R1383]	Each TRITON Test System shall be able to support at least one-hundred (100) concurrent users.	BL 1												
4.5.2		**TRITON Reference Systems**													
4.5.2.1		**Operational Software**													
4.5.2.1.0-1.0-1	[T1-R1384]	TRITON Reference Systems shall have the TRITON Operational Software Baseline to be tested.	BL 2												
4.5.2.1.0-1.0-2	[T1-R1385]	TRITON Reference Systems shall provide interface simulators and test data to test the interfaces for any external system.	BL 2												
4.5.2.2		**Infrastructure**													
4.5.2.2.0-1.0-1	[T1-R1386]	TRITON Reference Systems shall utilise the Virtualised Environment provided by the Purchaser.	BL 2												
4.5.2.2.0-1.0-2	[T1-R1387]	TRITON Reference Systems shall have the same Infrastructure Software as TRITON Functional Services at static sites.	BL 2												
4.5.2.2.0-1.0-3	[T1-R1388]	Each TRITON Reference System shall be able to support at least one-hundred (100) concurrent users.	BL 2												
4.5.3		**TRITON Training Systems**													
4.5.3.1		**Operational Software**													
4.5.3.1.0-1.0-1	[T1-R1389]	TRITON Training Systems shall have the TRITON Operational Software installed as Operational Baseline.	BL 2												
4.5.3.1.0-1.0-2	[T1-R1390]	TRITON Training Systems shall have the Training Environment to simulate external systems and services based on user-based scenario.	BL 2												
4.5.3.2		**Infrastructure**													
4.5.3.2.0-1.0-1	[T1-R1391]	TRITON Training Systems shall utilise the Virtualised Environment provided by the Purchaser.	BL 2												
4.5.3.2.0-1.0-2	[T1-R1392]	TRITON Training Systems shall have the same Infrastructure Software as TRITON Functional Services at static sites. Instances of NATO Core Services shall be used to the extent possible.	BL 2												
4.5.3.2.0-1.0-3	[T1-R1393]	Each TRITON Training System shall be able to support at least one-hundred (100) concurrent users.	BL 2												
5		**NON-FUNCTIONAL REQUIREMENTS**													
5.1		**Quality Requirements**													
5.1.1		**Performance Efficiency**													
5.1.1.1		**Performance by Time Behaviour**													
5.1.1.1.0-1.0-1	[T1-R1394]	TRITON Functional Services shall become available according to the Initial Availability Criteria as given in the Description within ten (10) minutes after the operating system of the TRITON Server is started up.	BL 1												
5.1.1.1.0-1.0-2	[T1-R1395]	TRITON shall complete mode changes in less than five (5) minutes and become ready to accept user input in less than ten (10) minutes for both static and afloat Servers.	BL 3												
5.1.1.1.0-1.0-3	[T1-R1396]	In case a critical failure in the TRITON Static Server is detected, the authorised user shall be notified, and TRITON Functional Services shall be switch to the specified secondary Static Server within five (5) minutes after the authorised user acknowledgement. The authorised user shall continuously be informed about the status of the server change process.	BL 3												
5.1.1.1.0-1.0-4	[T1-R1397]	TRITON shall be available for accepting user commands within thirty (30) seconds after accessing or starting a user application via a Client at a static site.	BL 1												
5.1.1.1.0-1.0-5	[T1-R1398]	TRITON shall be available for accepting user commands within sixty (60) seconds after accessing or starting a user application via a Client at an afloat site.	BL 4												
5.1.1.1.0-1.0-6	[T1-R1399]	TRITON shall be able to support at least twenty (20) concurrent update events per node.	BL 1												
5.1.1.1.0-1.0-7	[T1-R1400]	TRITON shall be able to update the Maritime Operational Objects to be displayed at Clients with a rate of at least one-thousand (1000) tracks per minute.	BL 1												
5.1.1.1.0-1.0-8	[T1-R1401]	TRITON shall provide a response to a user, in either AppView or GeoView, in any environment, for any action, in less than five (5) seconds.	BL 3												
5.1.1.2		**Performance by Bandwidth Efficiency**													
5.1.1.2.0-1.0-1	[T1-R1402]	TRITON shall be designed and implemented to minimise the use of network bandwidth (e.g. caching, light-weight previewing, metadata exchange, lazy loading, query pairing) and computational resources.	BL 3												
5.1.1.2.0-1.0-2	[T1-R1403]	TRITON shall implement a caching mechanism to improve user performance and minimise bandwidth utilisation wherever possible.	BL 3												
5.1.1.2.0-1.0-3	[T1-R1404]	TRITON shall use data compression methods to reduce bandwidth usage by at least twenty-percent (20%) during information exchange between TRITON Servers.	BL 3												
5.1.1.2.0-1.0-4	[T1-R1405]	TRITON Clients shall be able to operate with selected static TRITON Servers using network bandwidth as low as five-hundred (500) Kbps and network latency as high as five-hundred (500) milliseconds. The efficiency shall be tested on the Test System simulating the bandwidth and latency characteristics.	BL 3												
5.1.1.2.0-1.0-5	[T1-R1406]	TRITON ACP Server shall be able to synchronise itself with a selected static Server using five-hundred (500) Kbps of network bandwidth on the Test System. The test shall be executed in a test environment simulating the bandwidth.	BL 4												
5.1.1.3		**Performance by Network Status**													
5.1.1.3.0-1.0-1	[T1-R1407]	When the LAN is degraded by more than fifty percent (50%),TRITON shall automatically change its operational state to "Degraded" and shall be capable of providing the same range and level of services to individual users with a reduction in performance not more than fifty percent (50%).	BL 1												
5.1.1.3.0-1.0-2	[T1-R1408]	TRITON Deployable Kit shall be able to operate in Standalone Mode when WAN connectivity is lost more than a configurable time period. The detection of the loss of WAN connectivity will be subject to the netwotk infrastructure located on board.	BL 4												
5.1.1.4		**Resource Utilisation**													
5.1.1.4.0-1.0-1	[T1-R1409]	TRITON shall notify the authorised user when seventy-five percent (75%) of the allocated storage is reached.	BL 1												
5.1.1.4.0-1.0-2	[T1-R1410]	TRITON shall not exceed fifty percent (50%) of the dedicated processor capacity in average.	BL 1												
5.1.1.5		**Capacity**													
5.1.1.5.0-1.0-1	[T1-R1411]	TRITON shall be able to provide service for at least five-hundred (500) concurrent users per Instance at static sites. The test shall be executed in a test environment with virtual users.	BL 3												
5.1.1.5.0-1.0-2	[T1-R1412]	TRITON shall not have any licensing restrictions on the number of users who can simultaneously access a particular functionality.	BL 3												
5.1.1.5.0-1.0-3	[T1-R1413]	TRITON shall be able to support at least twenty percent (20%) increase in users with no performance degradation during surge situations.	BL 3												
5.1.1.5.0-1.0-4	[T1-R1414]	TRITON shall be able to support storage size of at least ten (10) Terabytes per Instance at static sites.	BL 3												
5.1.1.5.0-1.0-5	[T1-R1415]	TRITON shall have growth potential beyond the figures given to indicate data storage capacity, database or list sizes, and shall not deem any limitation on design.	BL 3												
5.1.2		**Compatibility**													
5.1.2.1		**Co-existence**													
5.1.2.1.0-1.0-1	[T1-R1416]	TRITON shall operate with other Bi-SC AIS Functional Services in the same environment without causing any error condition in itself or in other systems.	BL 3												
5.1.2.2		**Interooerability**													
5.1.2.2.0-1.0-1	[T1-R1417]	TRITON shall provide coherent interfaces for others to access its services. The External Interfaces are described in Section 6.	BL 1												
5.1.2.2.0-1.0-2	[T1-R1418]	TRITON shall be compliant to the standards given in the NISP [ADatP-34].	BL 1												
5.1.3		**Usability**													
5.1.3.1		**Appropriateness Recognisability**													
5.1.3.1.0-1.0-1	[T1-R1419]	TRITON "should" provide the user with capabilities that are easy to understand to perform user functions. Usability Engineering	BL 1												
5.1.3.2		**Learnability**													
5.1.3.2.0-1.0-1	[T1-R1420]	TRITON shall have role-based access control to authorise users on functionalities according to certain expertise (e.g. WSM Operator, RMP Operator).	BL 1												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
5.1.3.2.0-1.0-2	[T1-R1421]	Any user with basic computer skills shall be able to operate TRITON general user functions with no more than two (2) days of training.	BL 1												
5.1.3.2.0-1.0-3	[T1-R1422]	A user with basic system administrator skills (i.e. MS Windows system administrator) shall be able to install the TRITON Infrastructure and Operational Software, and configure it, perform node admisnitration tasks (e.g. manage users, manage domain values) with a maximum of one (1) week of Svstem Administrator Training.	BL 1												
5.1.3.3		**Operability**													
5.1.3.3.0-1.0-1	[T1-R1423]	TRITON shall allow the user to control all the functionality associated to a specific application.	BL 1												
5.1.3.3.0-1.0-2	[T1-R1424]	TRITON shall provide the user to always enter data with correct type and format.	BL 1												
5.1.3.3.0-1.0-3	[T1-R1425]	TRITON shall provide the user with error tolerance by restricting inappropriate function execution (e.g. the user shall be prevented to press a button which is not allowed at a certain stage of a function).	BL 1												
5.1.3.4		**User Error Protection**													
5.1.3.4.0-1.0-1	[T1-R1426]	TRITON shall be tolerant to input errors. Users shall be given guidance and suggestions to help them correct or overcome mistakes they have already made.	BL 1												
5.1.3.4.0-1.0-2	[T1-R1427]	TRITON shall provide Error Management capability which is readily distinguishable from other displayed information (e.g. Pop-up Error Window).	BL 1												
5.1.3.4.0-1.0-3	[T1-R1428]	TRITON shall provide the users with meaningful error messages and informed about the actions they need to take in order to fix or at least to report the problem.	BL 1												
5.1.3.5		**User Interface Aesthetics**													
5.1.3.5.1		**User Friendliness**													
5.1.3.5.1.0-1.0-1	[T1-R1429]	TRITON shall provide User Guidance Information, given in the Description, which is readily distinguishable from other displayed information.	BL 1												
5.1.3.5.1.0-1.0-2	[T1-R1430]	TRITON shall use menu dialogues with the Menu Aspects, given in the Description, when use of the system is infrequent and the user does not know what options are available and shall be considered in order to provide the user with useful information in due time and low effort.	BL 1												
5.1.3.5.1.0-1.0-3	[T1-R1431]	TRITON shall comply with the Dialogue Principles given in the Description.	BL 1												
5.1.3.5.1.0-1.0-4	[T1-R1432]	TRITON shall comply with the Information Presentation Criteria given in the Description.	BL 1												
5.1.3.5.1.0-1.0-5	[T1-R1433]	TRITON shall keep page size limited on one screen and in order to reduce the need for scrolling to see the submit button.	BL 1												
5.1.3.5.1.0-1.0-6	[T1-R1434]	Interactions with TRITON with a pointing device or keyboard shall produce similar results in and throughout all applications. TRITON shall provide the use of keyboard shortcuts and MS Windows accelerators.	BL 1												
5.1.3.5.1.0-1.0-7	[T1-R1435]	TRITON shall maintain changes of data entered on any form and inform the user on cancellation of change (or browse away from form) for loss of data.	BL 1												
5.1.3.5.1.0-1.0-8	[T1-R1436]	TRITON shall notify the user who has initiated an action that processing of the action has started and convey the sense of processing progress (by means of a progress indicator, dialog boxes).	BL 1												
5.1.3.5.2		**Ease of Navigation**													
5.1.3.5.2.0-1.0-1	[T1-R1437]	TRITON shall made navigation possible with both keyboard and pointing device and both shall be self-explanatory.	BL 1												
5.1.3.5.2.0-1.0-2	[T1-R1438]	TRITON shall provide on-screen "drill-down" features to view lower-level details (where and whenever lower level details are available). For example, a summary of track label can be available on the display, more information can be accessed by initiating track detailed information dialog. Augmented information will be available if the track is associated to a vessel.	BL 1												
5.1.3.5.2.0-1.0-3	[T1-R1439]	TRITON shall reflect the updated information to all levels while a user is in drill-down process.	BL 1												
5.1.3.5.2.0-1.0-4	[T1-R1440]	TRITON table columns shall be selectable and switchable so as to present data in any desired form, complex sorting and filtering capabilities shall be provided on the table rows.	BL 1												
5.1.3.5.2.0-1.0-5	[T1-R1441]	TRITON shall support editing of displayed information in a logical order. The GUI forms shall allow navigation using the tab key in a logical order. This means that the tab order shall represent the same logical order shown on screen.	BL 1												
5.1.3.5.2.0-1.0-6	[T1-R1442]	TRITON shall disable the submit button for a form on click and re-enabled after any change to the entry content. This prevents clicking twice or more resulting in duplicate entries.	BL 1												
5.1.3.5.2.0-1.0-7	[T1-R1443]	TRITON shall provide GUI lavouts which are uniform and standardised.	BL 1												
5.1.3.5.2.0-1.0-8	[T1-R1444]	In TRITON, the submit button for a form shall become disabled on click and re-enabled after any change to the entry content. This prevents clicking twice or more times resulting in duplicate entries.	BL 1												
5.1.3.5.2.0-1.0-9	[T1-R1445]	In TRITON the ENTER key shall not trigger form submission, especially in cases where forms are too long to display on one screen (e.g. where the submit button may fall below the initially visible area).	BL 1												
5.1.3.5.2.0-1.0-10	[T1-R1446]	In TRITON, scrolling bars (i.e. horizontal and vertical) shall be available when information does not fit onto one screen.	BL 1												
5.1.3.5.2.0-1.0-11	[T1-R1447]	The TRITON GUI shall provide Breadcrumbs on Web interfaces to reflect "where I am now in the system".	BL 1												
5.1.3.5.3		**Appearance**													
5.1.3.5.3.0-1.0-1	[T1-R1448]	The look of the TRITON GUI shall resemble the interfaces of existing operational systems or operational prototypes, with which users are alreadv familiar.	BL 1												
5.1.3.5.3.0-1.0-2	[T1-R1449]	The design of the TRITON GUI shall be based on a single theme with variations. TRITON shall have a common look and feel carried across the entire application's GUI within which a small number of similar but easily distinguished layouts are used. Similar parts of the application should have similar GUIs and layouts throughout the application.	BL 1												
5.1.3.5.3.0-1.0-3	[T1-R1450]	Visual elements and interaction schemes of the TRITON GUI shall be reused on similar functions and features. Uniformity is created this way, which helps users to understand where they are and what they can do.	BL 1												
5.1.3.5.3.0-1.0-4	[T1-R1451]	TRITON GUI shall use a consistent font across Applications.	BL 1												
5.1.3.5.3.0-1.0-5	[T1-R1452]	TRITON GUI shall be structured so that options, features and functions of the application are organised in a way that reflects their relationships.	BL 1												
5.1.3.5.3.0-1.0-6	[T1-R1453]	The presence of required fields and their styling shall always be noted in advance. Although it is common to flag required fields with an asterisk, this shall be noted at the top of the form, not as a footnote at the bottom. Redundant flagging of required fields with a special character or glyph plus bolding, highlighting, outlining, or a distinct colour shall be considered as the best practice.	BL 1												
5.1.3.5.3.0-1.0-7	[T1-R1454]	TRITON shall support the display of textual data in tabular displays with backgrounds, tabs, buttons and borders that are semi opaque. Transparency of a panel in the display shall be configurable by the user.	BL 1												
5.1.3.5.3.0-1.0-8	[T1-R1455]	Web-based functionality under TRITON "should" be designed with a GUI conforming [W3C MWBP] which can be customised for viewing on mobile devices.	BL 3												
5.1.3.5.4		**Menus. Pointing Device Actions and Shortcuts**													
5.1.3.5.4.0-1.0-1	[T1-R1456]	TRITON GUI shall produce similar results for actions initiated by a pointing device (mouse of trackball) or keyboard throughout all applications. The options given in Description shall be used.	BL 1												
5.1.3.5.4.0-1.0-2	[T1-R1457]	TRITON GUI shall provide clickable (selectable) links and buttons that are clearly distinguishable from non-clickable text.	BL 1												
5.1.3.5.4.0-1.0-3	[T1-R1458]	TRITON GUI shall made keyboard shortcuts available to access functions.	BL 1												
5.1.3.5.4.0-1.0-4	[T1-R1459]	TRITON GUI shall support Selection Options as given in the Description and extended selection by Ctrl (i.e. individual selected items) and Shift (i.e. select from-to) keys.	BL 1												
5.1.3.5.4.0-1.0-5	[T1-R1460]	TRITON GUI shall support normal MS Windows Accelerators given in the Description.	BL 1												
5.1.3.5.4.0-1.0-6	[T1-R1461]	TRITON GUI shall support context (i.e. right-button) menus. The use of context menus shall be limited for advanced options only. General and common functions shall also be accessible through the Ribbon, view or dialog buttons.	BL 1												
5.1.3.5.4.0-1.0-7	[T1-R1462]	TRITON GUI shall support the Selection Functions given in the Description unless otherwise specified.	BL 1												
5.1.3.5.5		**Role-based Presentation**													
5.1.3.5.5.0-1.0-1	[T1-R1463]	TRITON GUI shall work on the principle of "visibility" which means the application shows Users whatever they need for the current task without distracting or overwhelming them with unrelated tasks or options.	BL 1												
5.1.3.5.5.0-1.0-2	[T1-R1464]	TRITON GUI shall filter user-accessed information according to the user's authorisation, so that users can only see what they are allowed to view and/or change (including both data and functionality).	BL 1												
5.1.3.5.5.0-1.0-3	[T1-R1465]	TRITON GUI shall only show functionality (e.g. menu items, buttons, selections) that is appropriate to the situation based on user role and permissions and object status. TRITON shall hide or clearly disable (e.g. grey out) functionality not appropriate at the time, including items on second-level and lower-level menus and dialogue boxes.	BL 1												
5.1.3.5.5.0-1.0-4	[T1-R1466]	TRITON GUI shall be minimised according to what the user can do. The GUI shall only show entities and attributes (e.g. forms and fields) and functions (e.g. menus and buttons) that are actually available within the security authorisation of the user. Disabled functions due to permissions shall not be shown at all.	BL 1												
5.1.3.5.6		**Data Entry**													
5.1.3.5.6.0-1.0-1	[T1-R1467]	TRITON GUI 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 may be done via tooltips, greyed-out example content, additional labels, or some other means.	BL 1												
5.1.3.5.6.0-1.0-2	[T1-R1468]	TRITON GUI shall be tolerant to the delimiters of input format, including Date format (e.g. dd-mm-yyyy could also be entered as ddmmyyyy or d-m-yy without error or picked from a calendar) and Location format (e.g. latitude/longitude could be entered as degrees-minutes-seconds or degrees.decimal degrees).	BL 1												
5.1.3.5.6.0-1.0-3	[T1-R1469]	TRITON shall apply automatic layout (format) of data where possible (e.g. correct format of dates).	BL 1												
5.1.3.5.6.0-1.0-4	[T1-R1470]	TRITON shall prevent ambiguity and make it clear what information in what format is required for each data entry field. All information shall have its units of measure when applicable (e.g. degrees, metres, yards, knots, seconds).	BL 1												
5.1.3.5.6.0-1.0-5	[T1-R1471]	For all attributes related to geographic coordinates, TRITON GUI 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). TRITON shall automatically identify and parse the Location Information Entrv as given in the Description.	BL 1												
5.1.3.5.6.0-1.0-6	[T1-R1472]	TRITON GUI shall use predefined drop-down or pull-down lists in appropriate situations to speed up the entry if information and prevent input mistakes. Open text input fields shall be avoided to prevent errors during input.	BL 1												
5.1.3.5.6.0-1.0-7	[T1-R1473]	TRITON GUI shall allow usage of the keyboard to directly input the code of a value of a list. TRITON shall verify the code and match it against the Domain Values for that list.	BL 1												
5.1.3.5.6.0-1.0-8	[T1-R1474]	TRITON GUI shall retain entered data even after use of the back or reload button or any other user action except conscious choice to delete the data or empty (or reset) the web form fields.	BL 1												
5.1.3.5.6.0-1.0-9	[T1-R1475]	TRITON GUI shall not lose, discard, or corrupt user input without user consent.	BL 1												
5.1.3.5.7		**Real-Estate Management**													
5.1.3.5.7.0-1.0-1	[T1-R1476]	TRITON GUI shall keep page size limited on one screen and in order to reduce the need for scrolling to see the submit button to the extent possible. For additional information tabbed forms shall be used, where appropriate.	BL 1												
5.1.3.5.7.0-1.0-2	[T1-R1477]	TRITON GUI shall be designed to support various screen sizes. TRITON pages shall expand to the right size of the user screen to the extent where the GUI is not distorted.	BL 1												
5.1.3.5.7.0-1.0-3	[T1-R1478]	TRITON shall allow grouping of items with expand/minimise buttons (Microsoft Explorer style) in tree views, or using a "group by column" feature in tabular views.	BL 1												
5.1.3.5.7.0-1.0-4	[T1-R1479]	TRITON shall provide wizards if input of certain information requires filling out more than one form, or require a form larger than one screen. This means long forms or lists shall be split up over different subpages (or tabs) within the wizard.	BL 1												
5.1.3.5.8		**Time Display**													
5.1.3.5.8.0-1.0-1	[T1-R1480]	TRITON shall use Coordinated Universal Time (UTC) (temps universel coordonné) for all time stamps and DTGs to be stored internally.	BL 1												
5.1.3.5.8.0-1.0-2	[T1-R1481]	TRITON shall display time in UTC by default. It shall be displayed on the GUI with Zulu Time Zone.	BL 1												
5.1.3.5.8.0-1.0-3	[T1-R1482]	TRITON shall present the local time of any other possible time zone if selected by the user.	BL 1												
5.1.3.5.8.0-1.0-4	[T1-R1483]	TRITON shall clearly identify time values as Zulu (e.g. 0815Z) or Local in user displays and logs.	BL 1												
5.1.3.5.8.0-1.0-5	[T1-R1484]	TRITON shall represent date/time data according to ISO 8601 [ISO 8601] by default. Application-specific displays of date/time data shall use the military convention for DTG.	BL 1												
5.1.3.5.9		**Standard Functionality**													
5.1.3.5.9.0-1.0-1	[T1-R1485]	TRITON GUI shall support copying and pasting from other applications via the Clipboard (including text and graphics). The copy and paste action shall take into account the view and the status of the view (e.g. sorting, labelling) from which the information was copied and into which type of application it was pasted. As an example, information copied from a Matrix View and pasted into Microsoft Excel shall cause the information to be placed into corresponding cells (i.e. not a single cell containing all copied/pasted information) in the same sort order.	BL 1												
5.1.3.5.9.0-1.0-2	[T1-R1486]	TRITON GUI shall allow an operation to apply to multiple-selected objects where possible.	BL 1												
5.1.3.5.9.0-1.0-3	[T1-R1487]	TRITON GUI shall render row and column headers for data matrices.	BL 1												
5.1.3.5.9.0-1.0-4	[T1-R1488]	TRITON GUI shall allow the user to sort (with an initial default of 'ascending') the contents of a matrix or list by clicking on the column header for the attribute on which the sort is to be based.	BL 1												
5.1.3.5.9.0-1.0-5	[T1-R1489]	TRITON GUI shall allow the user to reverse the sort order (i.e. ascending to descending, descending to ascending) by clicking again on the column header for the attribute on which the current sort is based.	BL 1												
5.1.3.5.9.0-1.0-6	[T1-R1490]	TRITON GUI shall allow the user to select which columns are displayed in matrix-views (i.e. hide/unhide columns). The user shall be able to store the column selection as a preference.	BL 1												
5.1.3.5.9.0-1.0-7	[T1-R1491]	TRITON GUI shall allow the user to select the order in which columns in a matrix-view are displayed. The user shall be able to store the column order as a preference.	BL 1												
5.1.3.5.9.0-1.0-8	[T1-R1492]	TRITON GUI shall allow the user to enable or disable screen tips and visual aids.	BL 1												
5.1.3.5.9.0-1.0-9	[T1-R1493]	TRITON GUI shall support screen tips (as titles or alt-text) on all icons and attributes that offer added explanation and assistance.	BL 1												
5.1.3.5.9.0-1.0-10	[T1-R1494]	TRITON GUI shall provide undo/redo functionality for changes to objects to the largest extent possible (not limited to formatting), at least until the last save action.	BL 1												
5.1.3.5.9.0-1.0-11	[T1-R1495]	For changes that cannot be undone, TRITON shall ask the user to confirm with an additional warning about the irreversible effect of the action.	BL 1												
5.1.3.5.9.0-1.0-12	[T1-R1496]	TRITON GUI shall save the positions and states of the GUI elements for each user between application sessions, and shall restore the GUI on starting another session.	BL 1												
5.1.3.5.9.0-1.0-13	[T1-R1497]	TRITON GUI shall allow the user to navigate on tabular lists row-by-row or by paging.	BL 1												
5.1.3.5.9.0-1.0-14	[T1-R1498]	TRITON GUI, when suitable, shall use asynchronous technologies, to provide native application's responsiveness experience on the Web interface.	BL 1												
5.1.3.5.10		**Defaults**													
5.1.3.5.10.0-1.0-1	[T1-R1499]	TRITON GUI shall provide auto-completion feature with session-available information to be filled automatically by TRITON (i.e. date/time, name and other profile information of the user, classification). This shall apply to "entry fields" (including text-fields, drop down lists. radio-buttons).	BL 1												
5.1.3.5.10.0-1.0-2	[T1-R1500]	TRITON GUI shall apply automatic layout (format) of data where possible (e.g. capitalisation of names, correct format of dates, geographic positions).	BL 1												
5.1.3.5.10.0-1.0-3	[T1-R1501]	TRITON shall provide data defaults where applicable.	BL 1												
5.1.3.5.11		**User Feedback**													
5.1.3.5.11.0-1.0-1	[T1-R1502]	TRITON GUI shall provide user feedback for each user action.	BL 1												
5.1.3.5.11.0-1.0-2	[T1-R1503]	After the user has initiated a prolonged action, TRITON GUI shall inform that processing of an action has started and convey the sense of processing progress (by means of an animated progress indicator such as sand glass and progress bar). Where the action is quantifiably measurable (e.g. performing N actions) the animation shall provide a quantifiable display (e.g. a progress bar, time remaining). Where the action is not quantifiably measurable (e.g. awaiting a response) the animation shall provide a generic display (e.g. sand glass).	BL 1												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
5.1.3.5.11.0-1.0-3	[T1-R1504]	TRITON GUI shall provide prompts (i.e. allow cancellation or confirmation) when input or changes may be lost due to navigation or logging out.	BL 1												
5.1.3.5.11.0-1.0-4	[T1-R1505]	TRITON GUI shall provide user feedback on required fields which have not been correctly entered (i.e. by highlighting the field or the field label in red).	BL 1												
5.1.3.5.12		**Tooltips**													
5.1.3.5.12.0-1.0-1	[T1-R1506]	TRITON GUI shall provide Tooltips to describe the function when a user hovers the cursor over a GUI symbol.	BL 2												
5.1.3.6		**Accessibility**													
5.1.3.6.0-1.0-1	[T1-R1507]	Sufficient contrast shall be used throughout the application. Highlighting information shall not rely on colours only.	BL 1												
5.1.3.6.0-1.0-2	[T1-R1508]	TRITON GUI shall comply with "Level A" of the Web Content Accessibility Guidelines as defined by the W3C (see [WCAG]).	BL 1												
5.1.3.6.0-1.0-3	[T1-R1509]	The TRITON accessibility features shall apply to the application GUI, including the help pages, CBT pages, the error/warning/notification messages, etc.	BL 1												
5.1.3.6.0-1.0-4	[T1-R1510]	TRITON information on screens shall also contain text. Reliance on pictures or icons alone is not desired.	BL 1												
5.1.3.6.0-1.0-5	[T1-R1511]	TRITON shall scale the user interface to fit the screen when low resolutions are used for poor vision accessibility.	BL 1												
5.1.3.7		**Language**													
5.1.3.7.0-1.0-1	[T1-R1512]	TRITON shall use "UK English" as the default language. This shall apply to all system and supporting components, including views, dialogs, help screens, tooltips, CBT, error/notification/warning messages and documentation.	BL 1												
5.1.3.7.0-1.0-2	[T1-R1513]	TRITON shall allow the user to set localisation (alternative languages/regional settings).	BL 1												
5.1.3.7.0-1.0-3	[T1-R1514]	All TRITON On-line Help screens, CBT pages and User Guides shall have a score of at least forty (40) in the Flesch Reading Ease test.	BL 3												
5.1.3.7.0-1.0-4	[T1-R1515]	TRITON shall use the common Maritime Domain terminology consistent with this SRS and other NATO documents.	BL 1												
5.1.3.7.0-1.0-5	[T1-R1516]	Labels used in TRITON shall be context-dependent, meaningful and descriptive to the function or action at hand.	BL 1												
5.1.3.7.0-1.0-6	[T1-R1517]	TRITON internal development documentation shall be in English.	BL 1												
5.1.3.7.0-1.0-7	[T1-R1518]	TRITON source code shall be readable in English (i.e. variables. functions and procedures shall be in English).	BL 1												
5.1.4		**Reliability**													
5.1.4.0-1.0-1	[T1-R1519]	TRITON shall gracefully degrade in case the conditions given in the System Configuration Settings and the Dependent Services given in the Description are not available (see Operational States and State Transitions). The status of internal components shall be reported to Enterprise SMC via System Management.	BL 1												
5.1.4.0-1.0-2	[T1-R1520]	TRITON shall provide data integrity during mode and state changes. The last state of data before the state change shall be preserved.	BL 3												
5.1.4.1		**Maturity**													
5.1.4.1.0-1.0-1	[T1-R1521]	TRITON Operational Software at each installed operational node shall exhibit a Mean-Time-Between-Failure (MTBF) characteristic of less than one (1) failure in twenty-four (24) hours, and that shall not be affected by the total number of nodes which are active during that period. The MTBF measurement shall not include failures resulting from factors determined to be external to TRITON (e.g. loss of domain controller).	BL 4												
5.1.4.2		**Availability**													
5.1.4.2.0-1.0-1	[T1-R1522]	TRITON, including hardware, infrastructure and Operational Software, shall be available for use at static sites (via Data Centres) twenty-four (24) hours per day, three-hundred and sixty-five (365) days per year with an availability of ninety-nine point zero percent (99.0%) (Level 3 of Operational Continuity).	BL 3												
5.1.4.2.0-1.0-2	[T1-R1523]	TRITON Operational Software shall be available for at least ninety-nine point nine percent (99.9%) of time (Level 2 of Operational Continuity) at Data Centres using multi-site operation capability.	BL 3												
5.1.4.2.0-1.0-3	[T1-R1524]	TRITON Deployable Kit, including the hardware, the infrastructure and the Operational Software, shall be available at least ninety-nine point zero percent (99.0%) of time (Level 3 of Operational Continuity).	BL 4												
5.1.4.2.0-1.0-4	[T1-R1525]	One TRITON instance shall provide a Mean-Time-To-Repair (MTTR) of one (1) hour or less.	BL 3												
5.1.4.2.0-1.0-5	[T1-R1526]	TRITON shall always be available for any incoming service request even though it is executing time-consuming function.	BL 3												
5.1.4.2.0-1.0-6	[T1-R1527]	TRITON shall ensure system availability to users so that they do not experience interruption of services as a result of intermittent connection, except as it impacts their direct access to Web Application Server for an in-progress action. Intermittent connection is defined as loss of connectivity that is less than thirty (30) seconds.	BL 3												
5.1.4.2.0-1.0-7	[T1-R1528]	TRITON shall ensure system availability to users so that they do not experience interruption of services as a result of Limited Bandwidth. Limited Bandwidth is defined as a bandwidth of less than sixty-four (64) kbps for afloat sites and five-hundred-and-twelve (512) kbps for static sites.	BL 3												
5.1.4.2.0-1.0-8	[T1-R1529]	TRITON shall ensure system availability to users so that they do not experience interruption of services as a result of high latency. High latency is defined as latency exceeding one-thousand-and-one-hundred (1100) milliseconds.	BL 3												
5.1.4.2.0-1.0-9	[T1-R1530]	In case of TRITON failure the availability interruption shall not exceed two (2) hours in eighty percent (80%) of cases for an individual TRITON user at static site. In no case shall the availability interruption exceed twenty-four (24) hours for an individual TRITON User at static site. Measurements of availability shall not include failures resulting from factors determined to be external to TRITON (e.g. loss of domain controller, loss of network connectivity).	BL 3												
5.1.4.2.0-1.0-10	[T1-R1531]	TRITON non-availability time shall be measured by adding the Downtime period (time elapsed from Time of Occurrence to Time of Recoverv) for each svstem. service or application failure.	BL 3												
5.1.4.3		**Accuracy**													
5.1.4.3.0-1.0-1	[T1-R1532]	TRITON shall provide accuracy of timing for information object time stamps (e.g. time of update) to one second. Other system-level functions (e.g. process synchronisation) may require additional accuracy as required for correct operation.	BL 1												
5.1.4.3.0-1.0-2	[T1-R1533]	TRITON geographic location accuracy shall be less than 0.0001 minutes, distance accuracy less than one metre (i.e. sub-metre accuracy) for translation of values (UTM, Latitude/Longitude, others). Confidence interval shall be shown within values.	BL 1												
5.1.4.3.0-1.0-3	[T1-R1534]	TRITON shall ensure consistency and accuracy of all the data displayed on all open views and applications.	BL 1												
5.1.4.4		**Fault Tolerance**													
5.1.4.4.0-1.0-1	[T1-R1535]	TRITON shall not have any unhandled exceptions. All errors shall be handled and minimise the impact upon the users workflow.	BL 1												
5.1.4.4.0-1.0-2	[T1-R1536]	TRITON shall notify the user for potential loss/deletion of information objects during modification of any information object (e.g. by cascading deletion). When prompted by a notification about the data that might be lost/deleted, the user shall be able to choose the action that shall be taken by the system (e.g. cancel, continue).	BL 1												
5.1.4.4.0-1.0-3	[T1-R1537]	TRITON shall automatically report errors and suggested corrective actions with respect to the creation, change, exchange and storage of data elements, objects and products.	BL 1												
5.1.4.4.0-1.0-4	[T1-R1538]	TRITON messages (e.g. error, warning, notification, and informative messages) shall contain initiating module information, and contain context sensitive help and directives on where to find answers and solutions. Technical or debugging error scripts are not acceptable (e.g. "Java object 01 not accessible").	BL 1												
5.1.4.4.0-1.0-5	[T1-R1539]	TRITON shall report errors in context (e.g. given within the same page where they are encountered). An error message shall be displayed or provided in a popup. Invalid entries shall be highlighted or marked so they can be quickly identified and corrected.	BL 1												
5.1.4.4.0-1.0-6	[T1-R1540]	TRITON shall popup screens or windows are used to report about errors. They shall be closable with a single click.	BL 1												
5.1.4.4.0-1.0-7	[T1-R1541]	TRITON shall display only one error report popup screen for the same error.	BL 1												
5.1.4.4.0-1.0-8	[T1-R1542]	TRITON shall not in any case permit loss of user-entered data due to receipt of an error or other message. User input shall never be lost, discarded or corrupted unless a user actually chooses to delete or reset the input.	BL 1												
5.1.4.4.0-1.0-9	[T1-R1543]	TRITON shall allow a user to report problems, bugs and change requests when they encounter a problem or an unexpected result. The feature shall send a message to the Organizational Node Administrators for their review. The user shall not need to do any configuration of the actual sending of the message; the system shall handle that automatically.	BL 1												
5.1.4.4.0-1.0-10	[T1-R1544]	TRITON error messages shall provide the users the capability of attaching the user comments on the nature of the problem in addition of automatic reporting the error messages, screen dumps and other related system data for problem reports.	BL 1												
5.1.4.4.0-1.0-11	[T1-R1545]	TRITON error message content shall allow the TRITON System Administrator to re-create the conditions when the problem occurred (e.g. the appropriate screen and information content that caused the problem).	BL 1												
5.1.4.4.0-1.0-12	[T1-R1546]	TRITON Server shall gracefully degrade in the condition where any dependent services and components are not available and notify the user for the limited functionality. Upon restoration of services, TRITON Server shall become fully operational. TRITON shall change its Operational State accordingly.	BL 1												
5.1.4.4.0-1.0-13	[T1-R1547]	TRITON shall be able to queue requests to an unavailable Core Service and deliver them when the Service becomes available again. TRITON shall change its Operational State accordingly.	BL 1												
5.1.4.5		**Recoverability**													
5.1.4.5.0-1.0-1	[T1-R1548]	In case of a TRITON Server failure, TRITON shall be capable of switching to a TRITON Backup Server within three (3) minutes.	BL 3												
5.1.4.5.0-1.0-2	[T1-R1549]	TRITON operation shall not be interrupted during incorporation of in-service equipment updates or maintenance software updates.	BL 3												
5.1.4.6		**Survivability**													
5.1.4.6.0-1.0-1	[T1-R1550]	TRITON shall support fail-over in its architecture. Clients shall be able to survive failure of the Application Server without crashing or affecting the stability of the overall system.	BL 3												
5.1.4.6.0-1.0-2	[T1-R1551]	TRITON shall be able to roll-back if transactions are not completed due to an error.	BL 3												
5.1.4.6.0-1.0-3	[T1-R1552]	TRITON shall provide data survivability by using backups and archiving.	BL 3												
5.1.4.6.0-1.0-4	[T1-R1553]	TRITON shall automatically detect the availability and re-establishment of network connectivity and shall automatically continue or restart tasks that were on-going at the time a failure occurred, initiate subsequent tasks as though network connectivity had not been lost, provide a visual notification of the connectivity status (connected, limited, unconnected) and highlight a change in status.	BL 3												
5.1.4.6.0-1.0-5	[T1-R1554]	TRITON shall not cause data corruption or loss of data integrity due to connection failure or other hardware/software failures.	BL 3												
5.1.5		**Maintainability and Supportability**													
5.1.5.1.0-1.0-1	[T1-R1555]	TRITON components shall be capable of being installed by a MS Windows Installer or similar service/product installation package in any Bi-SC AIS approved platform.	BL 1												
5.1.5.1.0-1.0-2	[T1-R1556]	TRITON shall be capable of being installed and correctly run on multi-processor and multi-core systems.	BL 1												
5.1.5.1.0-1.0-3	[T1-R1557]	TRITON shall support successful installation on both 32-bit and 64-bit operating systems (e.g. where the default program files folder is "Program Files (x86)").	BL 1												
5.1.5.1.0-1.0-4	[T1-R1558]	TRITON shall allow the authorised user to install all or selected components of TRITON Infrastructure and Operational Software.	BL 1												
5.1.5.1.0-1.0-5	[T1-R1559]	TRITON shall detect, during installation, if the user has insufficient privileges required for installation (e.g. folder or registry access). TRITON shall report the details of the access failure to the user before aborting the installation.	BL 1												
5.1.5.1.0-1.0-6	[T1-R1560]	The TRITON installer shall detect and appropriately address issues of disk space and drives with "not enough" space prior to beginning installation.	BL 1												
5.1.5.1.0-1.0-7	[T1-R1561]	The TRITON installer shall detect and appropriately address a previous installation of the same application. In this case, the installer shall notify the authorised user and prompt if the user wants to reinstall, repair or cancel, and proceed accordingly.	BL 1												
5.1.5.1.0-1.0-8	[T1-R1562]	The TRITON installer shall detect and appropriately address an earlier version of the application. In this case, the installer shall notify the authorised user and prompt if the user wants to upgrade or cancel the installation, and proceed accordingly.	BL 1												
5.1.5.1.0-1.0-9	[T1-R1563]	The TRITON installer shall detect and appropriately address files protected by MS Windows File Protection (if MS Windows is chosen as the operating system) or other operating system file protection function, and not attempt to replace these files.	BL 1												
5.1.5.1.0-1.0-10	[T1-R1564]	TRITON shall ensure that all shared application files are referenced during installation.	BL 1												
5.1.5.1.0-1.0-11	[T1-R1565]	TRITON shall install into "Program Files" application directory by default or allow alternate directory/drive to be selected for installation.	BL 1												
5.1.5.1.0-1.0-12	[T1-R1566]	TRITON shall support successful installation and running on non-English language versions of MS Windows (e.g. the Italian version of MS Windows uses "Programmi" instead of "Program Files") if MS Windows is chosen as the operating system.	BL 1												
5.1.5.1.0-1.0-13	[T1-R1567]	TRITON shall allow, as appropriate, "Complete", "Typical" and "Custom" installation options to perform complete (i.e. all components), typical (i.e. typical components for a standard installation) and custom (i.e. User-selected components), respectively.	BL 1												
5.1.5.1.0-1.0-14	[T1-R1568]	TRITON shall provide an installation supported by a complete. clearly-worded Installation Manual.	BL 1												
5.1.5.1.0-1.0-15	[T1-R1569]	TRITON shall ensure the ability to re-run, allow addition or removal of components that have been or are still to be installed.	BL 1												
5.1.5.1.0-1.0-16	[T1-R1570]	The TRITON installer shall detect and appropriately address components shared with other applications. The installer shall not adversely affect other installed applications.	BL 1												
5.1.5.1.0-1.0-17	[T1-R1571]	The TRITON installer shall detect and appropriately address issues of disk space and drives with "not enough" space prior to beginning installation.	BL 1												
5.1.5.1.0-1.0-18	[T1-R1572]	The TRITON installer shall detect and appropriately address files protected by MS Windows File Protection (if MS Windows is chosen as the Operating System), and not attempt to replace these files.	BL 1												
5.1.5.1.0-1.0-19	[T1-R1573]	The TRITON installer shall detect and appropriately address the presence or absence of special hardware (e.g. Deployable Kit Central Control Unit).	BL 1												
5.1.5.1.0-1.0-20	[T1-R1574]	The TRITON installer shall set-up Program group/folders as appropriate. All expected program group folders, shortcuts and links (icons) shall appear correctly and be installed where expected.	BL 1												
5.1.5.1.0-1.0-21	[T1-R1575]	TRITON shall allow termination of the installation before it is complete. Cancellation of an installation shall terminate the process and remove all program files and directories, registry entries, program and group directories, as appropriate, retaining all shared and system files. Restart of the installation shall allow the installation to complete without error.	BL 1												
5.1.5.1.0-1.0-22	[T1-R1576]	Once installed by an administrator, TRITON shall be usable by all authorised users of the system (i.e. it shall not require all users to have administrator privileges).	BL 1												
5.1.5.2		**Uninstallation**													
5.1.5.2.0-1.0-1	[T1-R1577]	TRITON shall provide a capability to uninstall the TRITON Operational Software and individual applications.	BL 1												
5.1.5.2.0-1.0-2	[T1-R1578]	The TRITON Uninstallation Capability shall be available from the Control Panel's add/remove programs applet (Application Manager) for only the authorised user.	BL 1												
5.1.5.2.0-1.0-3	[T1-R1579]	TRITON shall prompt the authorised user to confirm the uninstallation.	BL 1												
5.1.5.2.0-1.0-4	[T1-R1580]	The TRITON Uninstallation Capability shall remove all program files and folders, registry entries, program and group folders, as appropriate, retaining all shared and system files.	BL 1												
5.1.5.2.0-1.0-5	[T1-R1581]	The TRITON Uninstallation Capability shall retain all shared and system files, and shall not adversely impact other installed applications.	BL 1												
5.1.5.3		**Co-existence**													
5.1.5.3.0-1.0-1	[T1-R1582]	Installing, running and uninstalling the capability shall not adversely impact other applications or the system it is installed on, running on or uninstalled from.	BL 1												
5.1.5.4		**Configuration Data**													
5.1.5.4.0-1.0-1	[T1-R1583]	TRITON shall store temporary files only in the user's temporary folder.	BL 1												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
5.1.5.4.0-1.0-2	[T1-R1584]	TRITON shall not store any user data in Registry unless approved by the Purchaser.	BL 1												
5.1.5.4.0-1.0-3	[T1-R1585]	TRITON shall ensure that the application stores user configuration data in User Profile to prevent loe-in delays. etc.	BL 1												
5.1.5.5		**Remote Automated Deolovment and Reporting**													
5.1.5.5.0-1.0-1	[T1-R1586]	TRITON shall support remote deployment, restore, configuration and uninstallation of all TRITON components and updates.	BL 1												
5.1.5.5.0-1.0-2	[T1-R1587]	TRITON shall support collection and reporting of asset inventory metrics for all TRITON components using Microsoft System Centre Configuration Manager, if MS Windows is chosen as the operating system, including memory, operating system, peripherals, services, login tracking, licensing, software existence and usage.	BL 1												
5.1.5.6		**Usage Scope and Limitations**													
5.1.5.6.0-1.0-1	[T1-R1588]	TRITON shall be installable and executable by NATO resources only.	BL 1												
5.1.5.6.0-1.0-2	[T1-R1589]	TRITON shall bear no limitation on the usage scope in term of time. duration and location of usage.	BL 1												
5.1.5.6.0-1.0-3	[T1-R1590]	TRITON usage shall be permitted for any type of event or activities, including but not limited to training, demonstration, exercise, static, deployed, mobile, civil or military locations, aircrafts or ships.	BL 1												
5.1.5.6.0-1.0-4	[T1-R1591]	TRITON shall not bear additional licences and charges for deployment of TRITON if used in a NATO context (exercise, mission, static and deployable commands, NRF).	BL 1												
5.1.5.7		**Supportability**													
5.1.5.7.0-1.0-1	[T1-R1592]	TRITON Operational Software shall permit the authorised users to perform First Level of Support, such as routine daily administration, data management, disaster recovery and back up at the local level.	BL 1												
5.1.5.7.0-1.0-2	[T1-R1593]	TRITON Operational Software shall permit the authorised users to perform Second Level of Support such as client/server installation, configuration management, help desk, identification of required corrective actions, etc., remotely from a centralised support site.	BL 1												
5.1.6		**Portability**													
5.1.6.1		**Environment**													
5.1.6.1.0-1.0-1	[T1-R1594]	TRITON Operational Software shall run on both 32-bit and 64-bit Intel architecture.	BL 1												
5.1.6.1.0-1.0-2	[T1-R1595]	TRITON Client shall be able to be run in any Web Browser present and Web Browser plug-ins present on the Approved Fielded Product List at the time of deployment.	BL 1												
5.1.6.1.0-1.0-3	[T1-R1596]	TRITON Client software shall run natively (no emulation) on the Standard NATO Bi-SC AIS Workstation (Desktop Environment).	BL 1												
5.1.6.1.0-1.0-4	[T1-R1597]	TRITON shall support the use of IPv6 without impaired functionality and performance within a network environment.	BL 1												
5.1.6.1.0-1.0-5	[T1-R1598]	TRITON shall not rely on the NetBIOS interface to communicate with other applications, clients or management services. Disabling NetBIOS shall not affect the applications operation or interoperability in any way.	BL 1												
5.1.6.1.0-1.0-6	[T1-R1599]	TRITON shall run successfully independent of environment regional settings (e.g. decimal symbol, date/time format).	BL 1												
5.1.6.2		**Customisability**													
5.1.6.2.0-1.0-1	[T1-R1600]	TRITON shall support customisation of user environment with Workspaces.	BL 1												
5.1.6.2.0-1.0-2	[T1-R1601]	TRITON shall allow a change to the GUI only when committed separately by the authorised user. If no commit is entered, the GUI will revert to the previous state.	BL 1												
5.1.6.3		**Adaptability**													
5.1.6.3.0-1.0-1	[T1-R1602]	TRITON Operational Software shall be adaptable to newer versions of the virtualised environment.	BL 1												
5.1.6.3.0-1.0-2	[T1-R1603]	TRITON Operational Software output design shall be adaptable to changing environment. It shall be possible to apply changes on the system display and output such as screen layouts, data fields, table formats, report formats.	BL 1												
5.1.6.4		**Replaceability**													
5.1.6.4.0-1.0-1	[T1-R1604]	TRITON shall support replaceability through reusable software components. The defined software component for this Increment shall be the "C4ISR Visualisation Component".	BL 3												
5.1.6.4.0-1.0-2	[T1-R1605]	TRITON Deployable Kit shall support replaceability through hardware components.	BL 4												
5.1.7		**Modularity**													
5.1.7.0-1.0-1	[T1-R1606]	TRITON design shall support modular approach by defining Components, User Applications and Technical Services as defined in NAF [AC/322-D(2007)0048] and [C3TAXO].	BL 1												
5.1.8		**Reusability**													
5.1.8.0-1.0-1	[T1-R1607]	TRITON design shall include identifying and implementing reusable software components. The defined reusable software components for this Increment shall be the C4ISR Visualisation Component.	BL 3												
5.1.8.0-1.0-2	[T1-R1608]	TRITON design shall include reusing software modules and libraries that are developed for a particular function.	BL 3												
5.1.9		**Analysability**													
5.1.9.0-1.0-1	[T1-R1609]	TRITON shall provide the authorised user with capabilities to measure the performance level of the Operational Software.	BL 1												
5.1.9.0-1.0-2	[T1-R1610]	TRITON shall provide the authorised user with capabilities to diagnose for causes of failures.	BL 1												
5.1.9.0-1.0-3	[T1-R1611]	TRITON shall provide the authorised user with capabilities to analyse the system output against the actual data inputs (e.g. by comparing the result of a process when data is input).	BL 1												
5.1.9.0-1.0-4	[T1-R1612]	TRITON shall have input data logging capability for analysing external system interfaces.	BL 1												
5.1.9.0-1.0-5	[T1-R1613]	TRITON shall allow the user to turn on and off the input data logging capability.	BL 1												
5.1.10		**Modifiability**													
5.1.10.0-1.0-1	[T1-R1614]	TRITON design shall support maintenance of software modules without effecting the rest of the system.	BL 1												
5.1.11		**Testability**													
5.1.11.0-1.0-1	[T1-R1615]	TRITON shall be designed and implemented to allow testing and validating the whole or part of the Operational Software.	BL 1												
5.1.12		**Scalability**													
5.1.12.0-1.0-1	[T1-R1616]	TRITON shall be scalable and technically upgradeable to maintain performance against threat growth.	BL 1												
5.1.12.0-1.0-2	[T1-R1617]	TRITON shall use an architecture that allows vertical scalability and allows the various components to be deployed on separate machines.	BL 1												
5.1.12.0-1.0-3	[T1-R1618]	TRITON shall use an architecture that allows horizontal scalability and allows the same component to be deployed on multiple machines without interference.	BL 1												
5.1.12.0-1.0-4	[T1-R1619]	TRITON shall be dimensioned and configured to scale in performance to support at least twenty percent (20%) increase in users at each site and at least twenty percent (20%) growth in data per year for five (5) years without degradation of performance.	BL 1												
5.1.12.0-1.0-5	[T1-R1620]	The TRITON databases shall be dimensioned to support all the relevant data based on current estimates of numbers and sizes of Maritime Information Entities and provide an additional twenty percent (20%) of space a year for five (5) years.	BL 1												
5.2		**Security Requirements**													
5.2.1		**General**													
5.2.1.0-1.0-1	[T1-R1621]	TRITON-NS shall run on the NS Network provided by both static and afloat sites.	BL 1												
5.2.1.0-1.0-2	[T1-R1622]	TRITON-NU shall run on the NU Network provided by both static and afloat sites.	BL 2												
5.2.1.0-1.0-3	[T1-R1623]	TRITON-NU shall be able to run on the NR Network (aka Private Business Network - PBN) if it is available on the static sites.	BL 2												
5.2.1.0-1.0-4	[T1-R1624]	TRITON shall be able to run on a Mission Network if it is deployed and configured.	BL 3												
5.2.1.0-1.0-5	[T1-R1625]	TRITON shall be compliant with NATO document [C-M(2002)49] for the protection of NATO classified information, supporting systems services and resources in CIS, or other storing devices, processing and transmitting systems.	BL 1												
5.2.1.0-1.0-6	[T1-R1626]	TRITON shall operate in the "System High" mode of operation with security levels. That is, all individuals with access to the system are cleared to the highest classification of the information stored, processed or transmitted within the system, but not all individuals with access to the system have a common need to know for the information stored, processed or transmitted within the system.	BL 1												
5.2.2		**Compliance with Bi-SC AIS Security Requirements**													
5.2.2.0-1.0-1	[T1-R1627]	The security settings of TRITON shall be compliant with the Secure AIS CSRS for Bi-SC AIS Security Settings and File Systems.	BL 1												
5.2.2.0-1.0-2	[T1-R1628]	TRITON shall be capable of operating across multiple security domains including National, NATO, Coalition and Mission. These domains shall include SIGINT COINS, NS, MS, NR and NU networks) in accordance with the security policy set by the Purchaser.	BL 1												
5.2.2.0-1.0-3	[T1-R1629]	Performance of a TRITON instance on a security domain shall not be degraded more than 10% because of the presence of other security domains.	BL 1												
5.2.2.0-1.0-4	[T1-R1630]	TRITON shall be compliant with the security infrastructure as provided by the Bi-SC AIS Core Services. The Service Interface Profiles [NCIA-06.02.01]. [NCIA-06.02.02]. [NCIA-06.02.03]. [NCIA-06.02.04] shall be applicable.	BL 1												
5.2.2.0-1.0-5	[T1-R1631]	TRITON shall adhere to NATO INFOSEC security requirements as specified in [ACO-70-1].	BL 1												
5.2.2.1		**Bi-SC AIS Security Settings**													
5.2.2.1.0-1.0-1	[T1-R1632]	TRITON shall be capable of operating within the NS, MS, NR and NU WAN environment (including servers, network, services and workstations) in the presence of the approved NATO Security Settings (target version to be provided by the Purchaser during the Design Stage).	BL 1												
5.2.2.1.0-1.0-2	[T1-R1633]	TRITON shall be compliant to the NCIRC Configuration Guides which will be provided by the Purchaser according to the selected COTS products. 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.	BL 1												
5.2.2.2		**Cross-Domain Support**													
5.2.2.2.1		**Data Labelling**													
5.2.2.2.1.0-1.0-1	[T1-R1634]	TRITON shall assign Confidentiality Labels as defined in [ADatP-4774] and [ADatP-4778] to all Maritime Information Entities including information products, information objects, messages, files, bounded data streams that are subject to be transferred over IEG.	BL 1												
5.2.2.2.1.0-1.0-2	[T1-R1635]	TRITON shall use a binding mechanism to indicate the relationship between a Maritime Information Entity and its label(s) or marking. The methods of binding are defined in the NATO Directives.	BL 1												
5.2.2.2.1.0-1.0-3	[T1-R1636]	TRITON shall maintain Confidentiality Label information for Maritime Information Entity across TRITON Services.	BL 1												
5.2.2.2.1.0-1.0-4	[T1-R1637]	TRITON shall maintain Confidentiality Label information for Maritime Information Entity in the data sent by every Web services that TRITON expose.	BL 1												
5.2.2.2.1.0-1.0-5	[T1-R1638]	TRITON shall support Confidentiality Labels upon Maritime Information Entity entry and create the corresponding Security Classification using approved NATO labelling standards for each Maritime Information Entity. "Entry" refers to direct creation in TRITON. Entities imported from an external system/file shall be required to have security labels.	BL 1												
5.2.2.2.1.0-1.0-6	[T1-R1639]	TRITON shall maintain Security Classification on received information using Confidentiality Labels across all TRITON Services and using NATO approved labelling standards.	BL 1												
5.2.2.2.1.0-1.0-7	[T1-R1640]	TRITON shall create Confidentiality Label upon information production based on Security Classification.	BL 1												
5.2.2.2.1.0-1.0-8	[T1-R1641]	TRITON shall sign the Confidentiality Label using the source entity credentials upon production of information.	BL 1												
5.2.2.2.1.0-1.0-9	[T1-R1642]	TRITON shall allow the authorised user to set the Confidentiality Label of any Maritime Information Entity.	BL 1												
5.2.2.2.2		**IEG**													
5.2.2.2.2.0-1.0-1	[T1-R1643]	TRITON shall be able to use the IEG-A to securely exchange information with Nations on National Enclaves.	BL 3												
5.2.2.2.2.0-1.0-2	[T1-R1644]	TRITON shall be able to use IEG-C to securely exchange information with Mission Network when necessary.	BL 3												
5.2.2.2.2.0-1.0-3	[T1-R1645]	TRITON shall be able to use the existing Data Diode to securely transfer information from the NU Domain to the NS Domain on static sites (e.g. transferring WP from TRITON-NU to TRITON-NS).	BL 3												
5.2.2.2.2.0-1.0-4	[T1-R1646]	TRITON shall make use of the Data Diode to securely transfer information from the NU Domain to the NS Domain on TRITON Deployable Kits.	BL 4												
5.2.2.3		**Web Security Features**													
5.2.2.3.1		**Validation of Input**													
5.2.2.3.1.0-1.0-1	[T1-R1647]	TRITON shall validate all user input at the front end of the User Interface before accepting and using it.	BL 1												
5.2.2.3.1.0-1.0-2	[T1-R1648]	TRITON shall automatically validate the entries, given in the Descripton, into TRITON to ensure that they conform to the required formats and limits.	BL 1												
5.2.2.3.2		**Enforcement of Access Control**													
5.2.2.3.2.0-1.0-1	[T1-R1649]	TRITON shall ensure that privilege restrictions of authenticated users are properly enforced.	BL 1												
5.2.2.3.2.0-1.0-2	[T1-R1650]	TRITON shall not rely on the secrecy of identification information (i.e. IDs) for protection.	BL 1												
5.2.2.3.2.0-1.0-3	[T1-R1651]	TRITON shall prevent Forced Browsing. as defined in the Descriotion. oast access control checks.	BL 1												
5.2.2.3.2.0-1.0-4	[T1-R1652]	TRITON shall prevent Path Traversal. as defined in the Description. oast access control checks.	BL 1												
5.2.2.3.2.0-1.0-5	[T1-R1653]	TRITON shall securely configure and enforce file permissions. Unless specifically authorised by the Purchaser, only files that are specifically intended to be presented shall be marked as readable. Best practices suggest that most directories should not be readable, and very few files, if any, should be marked as executable.	BL 1												
5.2.2.3.2.0-1.0-6	[T1-R1654]	TRITON shall prevent compromise of information via client-side caching, including best practice use of mechanisms such as HTTP headers and meta tags.	BL 1												
5.2.2.3.3		**Authentication and Session Management**													
5.2.2.3.3.0-1.0-1	[T1-R1655]	TRITON shall use the Directory Services or operating system to authenticate a user. TRITON shall not maintain its own set of usernames and passwords.	BL 1												
5.2.2.3.3.0-1.0-2	[T1-R1656]	TRITON shall ensure that account credential and session tokens are properly protected.	BL 1												
5.2.2.3.3.0-1.0-3	[T1-R1657]	TRITON shall lock user accounts for which a configurable number of failed authentication attempts have been made to await administrator action. By default, TRITON shall lock user accounts after three (3) failed login attempts.	BL 1												
5.2.2.3.3.0-1.0-4	[T1-R1658]	TRITON shall protect authentication details in the storage. All authentication details shall be stored in either hashed or encrypted form to protect them from exposure, regardless of where they are stored.	BL 1												
5.2.2.3.3.0-1.0-5	[T1-R1659]	Authentication details shall not be hard-coded in any part of the source code. Decryption keys shall be strongly protected to prevent unauthorised access.	BL 1												
5.2.2.3.3.0-1.0-6	[T1-R1660]	TRITON shall protect user credentials in transit. TRITON shall employ encryption of the entire authentication transaction using SSL or similar technologies.	BL 1												
5.2.2.3.3.0-1.0-7	[T1-R1661]	TRITON shall protect session IDs. TRITON shall protect the user's entire session via SSL to ensure that the session ID (e.g. session cookie) cannot be read off the network. Session IDs shall never be included in any URL or sent in the referrer header to prevent caching by the browser. Session IDs shall be long, complicated random numbers which cannot be easily guessed. Session IDs chosen by a user shall not be accepted.	BL 1												
5.2.2.3.3.0-1.0-8	[T1-R1662]	TRITON shall not submit authentication and session data as part of a GET. Authentication pages shall be marked with all varieties of the no cache tag to prevent use of the back button in the web browser and re-submission of the credentials. Best practices suggest the use of "autocomplete=false" flag to prevent storing of credentials in autocomplete caches.	BL 1												
5.2.2.3.3.0-1.0-9	[T1-R1663]	TRITON shall allow the System Administrator to set a "timeout" period which shall automatically log-out any sessions which have been inactive for that period of time. The system administrator shall be able to disable this feature.	BL 1												
5.2.2.3.3.0-1.0-10	[T1-R1664]	TRITON shall allow the System Administrator to prevent multiple concurrent authentications from the same user from different locations (IP addresses). The system administrator shall be able to disable this feature.	BL 1												
5.2.2.3.4		**Cross-Site Scripting**													
5.2.2.3.4.0-1.0-1	[T1-R1665]	TRITON shall perform validation of all headers, cookies, query strings, form fields and hidden fields.	BL 1												
5.2.2.3.4.0-1.0-2	[T1-R1666]	TRITON shall ensure that the HTTP TRACE method is turned off on all Web servers to prevent compromise of cookie data.	BL 1												
5.2.2.3.4.0-1.0-3	[T1-R1667]	TRITON shall encode user-supplied output using the best practices for Conversion of Characters to prevent XSS.	BL 1												
5.2.2.3.5		**Injection Flows**													
5.2.2.3.5.0-1.0-1	[T1-R1668]	TRITON shall constrain the input by validating it for type, length, format and range.	BL 1												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
5.2.2.3.5.0-1.0-2	[T1-R1669]	TRITON shall use type-safe SQL parameters. Input shall be treated as a literal value, and TRITON shall not treat it as executable code.	BL 1												
5.2.2.3.5.0-1.0-3	[T1-R1670]	TRITON shall use filter routines that sanitise the code, adding escape characters that have special meaning to SQL.	BL 1												
5.2.2.3.5.0-1.0-4	[T1-R1671]	TRITON shall create custom error pages to prevent server error messages from being disclosed.	BL 1												
5.2.2.3.6		**Buffer Overflow**													
5.2.2.3.6.0-1.0-1	[T1-R1672]	TRITON shall be configured with the latest patches to the web and application server products.	BL 1												
5.2.2.3.6.0-1.0-2	[T1-R1673]	TRITON shall ensure that application code which accepts input from Users via the HTTP request provides appropriate size checking on all inputs.	BL 1												
5.2.2.3.7		**Improper Error Handling**													
5.2.2.3.7.0-1.0-1	[T1-R1674]	TRITON shall use custom error pages to prevent server error messages from being disclosed.	BL 1												
5.2.2.3.8		**Unsecured Storage**													
5.2.2.3.8.0-1.0-1	[T1-R1675]	TRITON shall properly apply selected asymmetric encryption mechanisms (SSL and SQL server security mechanisms) according to the standards approved by NATO Infosec Technical Centre (NITC) to protect information and credentials.	BL 1												
5.2.2.3.9		**Application Denial of Service**													
5.2.2.3.9.0-1.0-1	[T1-R1676]	TRITON shall protect itself against application denial of service using best practices.	BL 1												
5.2.2.3.9.0-1.0-2	[T1-R1677]	TRITON shall limit the number of resources allocated to any user to a bare minimum. For authenticated users, TRITON shall consider implementing quotas to limit the amount of load a particular user can put on the system.	BL 1												
5.2.2.3.9.0-1.0-3	[T1-R1678]	TRITON shall limit the number of requests a user can have active at any one time.	BL 1												
5.2.2.3.9.0-1.0-4	[T1-R1679]	TRITON shall avoid unnecessary access to databases or other expensive resources. Consideration should also be given to caching the content received by unauthenticated Users instead of generating it or accessing databases to retrieve it.	BL 1												
5.2.2.3.10		**Unsecured Configuration Management**													
5.2.2.3.10.0-1.0-1	[T1-R1680]	TRITON security mechanisms shall be properly configured according to the best practices.	BL 1												
5.2.2.3.10.0-1.0-2	[T1-R1681]	TRITON components and software elements shall be configured with the latest security patches and updated with the latest security guidelines from the NATO Information Assurance Technical Centre (NIATC).	BL 1												
5.2.2.4		**File System**													
5.2.2.4.0-1.0-1	[T1-R1682]	TRITON shall support access to the file system using MS Windows standards, including long file names and legal naming characters.	BL 1												
5.2.2.4.0-1.0-2	[T1-R1683]	TRITON shall allow saving to and opening from the (Secure) Bi-SC AIS-supported devices given in the Description.	BL 1												
5.2.3		**Accountability, Auditability and Non-Repudiation**													
5.2.3.1		**Audit Logging**													
5.2.3.1.0-1.0-1	[T1-R1684]	TRITON shall provide audit capability for all types of Maritime Information Entities by recording important events into Audit Log.	BL 1												
5.2.3.1.0-1.0-2	[T1-R1685]	TRITON shall use the details of the External Service user and of the Logged-in User to maintain the audit traceability.	BL 1												
5.2.3.1.0-1.0-3	[T1-R1686]	TRITON traceability mechanisms shall be embedded in the data itself and independent of the way data are exchanged.	BL 1												
5.2.3.1.0-1.0-4	[T1-R1687]	TRITON audit tracing system shall be permanently effective.	BL 1												
5.2.3.1.0-1.0-5	[T1-R1688]	All errors and faults in TRITON shall be recorded in an Error Log which shall be centrally and locally maintained.	BL 1												
5.2.3.1.0-1.0-6	[T1-R1689]	TRITON Error Log and Audit Log shall contain all required information in order to provide the support staff with interpretable and comprehensive information about the cause and nature of the error/change.	BL 1												
5.2.3.1.0-1.0-7	[T1-R1690]	TRITON shall allow the authorised user to view the audit traceability for the objects authorised for a user.	BL 1												
5.2.3.1.0-1.0-8	[T1-R1691]	TRITON shall allow the authorised user to view faults and errors in the Error Log.	BL 1												
5.2.3.1.0-1.0-9	[T1-R1692]	TRITON shall allow the authorised user to select the events to be logged in the Audit Log.	BL 1												
5.2.3.2		**User Auditing**													
5.2.3.2.0-1.0-1	[T1-R1693]	TRITON shall record in traceable Audit Logs all selected transactions, database activities, technical events (e.g. dataset synchronisation, directory replication) and accessing of data.	BL 1												
5.2.3.2.0-1.0-2	[T1-R1694]	TRITON shall ensure that any Information Object can always be traced to its original source (i.e. Organizational Node, User and/or system).	BL 1												
5.2.3.2.0-1.0-3	[T1-R1695]	TRITON shall maintain a record of the date, time and user that created an Information Object in the Audit Log.	BL 1												
5.2.3.2.0-1.0-4	[T1-R1696]	TRITON shall maintain a record of the date, time, details of the change and user that last modified an Information Object.	BL 1												
5.2.3.2.0-1.0-5	[T1-R1697]	TRITON shall support audit trailing to all user and TRITON system actions and user activities if so configured.	BL 1												
5.2.3.2.0-1.0-6	[T1-R1698]	TRITON shall log all configurations changes with the trace to persons or systems if so configured.	BL 1												
5.2.3.2.0-1.0-7	[T1-R1699]	TRITON shall log the use of all system functions and their corresponding messages including data exchanges with the trace to persons or systems if so configured.	BL 1												
5.2.3.2.0-1.0-8	[T1-R1700]	TRITON shall log a user action by user, timestamp and function name(s) if so configured.	BL 1												
5.2.3.2.0-1.0-9	[T1-R1701]	TRITON shall log changes by user, timestamp, field name, new value and old value if so configured.	BL 1												
5.2.3.3		**System Monitoring**													
5.2.3.3.0-1.0-1	[T1-R1702]	TRITON shall record each of the Auditable Events given in the Description in the Audit Log.	BL 1												
5.2.3.3.0-1.0-2	[T1-R1703]	TRITON shall associate individual user identities to Auditable Events, and shall include date and time of the event, type of event, user identity, and the outcome (success or failure) of the event.	BL 1												
5.2.3.3.0-1.0-3	[T1-R1704]	TRITON shall notify the authorised user and the Enterprise Management System when the Audit Log reaches ninety-percent (90%) of its maximum permitted size.	BL 1												
5.2.3.3.0-1.0-4	[T1-R1705]	TRITON shall archive the Audit Log after a period of time as configured by the authorised user. By default the log shall be archived after forty-eight (48) hours of Logging Period. If the log activity reaches the limit of the log file size before the Logging Period completed, TRITON shall create another log file and continue logging with notification to the authorised user.	BL 1												
5.2.3.3.0-1.0-5	[T1-R1706]	TRITON shall use integrity checking countermeasures to ensure that the Audit Log has been archived successfully after each archiving process.	BL 1												
5.2.3.3.0-1.0-6	[T1-R1707]	TRITON shall generate warning for the System Events for Warning given in Description.	BL 1												
5.2.3.3.0-1.0-7	[T1-R1708]	TRITON shall generate error condition for the System Events for Error given in the Description.	BL 1												
5.2.3.3.0-1.0-8	[T1-R1709]	TRITON shall allow the authorised user to display system events using standard system management tools like the MS Windows Management Console and TRITON System Technical Management functions.	BL 1												
5.2.3.3.0-1.0-9	[T1-R1710]	TRITON shall allow the authorised user to filter and sort system events by date/time range, event Identifier, event type, category, description text, Operating System (OS) User/OS User Group, or source.	BL 1												
5.2.3.3.0-1.0-10	[T1-R1711]	TRITON shall allow the authorised user to perform system event log clearing and backup.	BL 1												
5.2.3.3.0-1.0-11	[T1-R1712]	TRITON shall be able to generate debug messages with multiple levels of verboseness.	BL 1												
5.2.3.3.0-1.0-12	[T1-R1713]	TRITON shall allow the authorised user to dynamically set (i.e. a node configuration setting) the level of verboseness for debug messages.	BL 1												
5.2.3.3.0-1.0-13	[T1-R1714]	TRITON shall notify the user when a system event of type "Error" arises.	BL 1												
5.2.3.3.0-1.0-14	[T1-R1715]	TRITON shall log a memory dump of the whole system when TRITON Server crashes.	BL 1												
5.2.3.3.0-1.0-15	[T1-R1716]	TRITON shall be able to maintain a Performance Log, selectively (i.e. as a configuration setting) logging queries and accesses to Maritime Information Entities.	BL 1												
5.2.3.3.0-1.0-16	[T1-R1717]	TRITON shall allow the authorised user to review the Performance Log.	BL 1												
5.2.4		**Authenticity**													
5.2.4.0-1.0-1	[T1-R1718]	TRITON shall implement Identification and Authentication (I&A) for uniquely identifying and authenticating users.	BL 1												
5.2.4.0-1.0-2	[T1-R1719]	TRITON shall comply with the Authentication Standards given in the Description.	BL 1												
5.2.5		**Authorisation**													
5.2.5.0-1.0-1	[T1-R1720]	TRITON shall provide authorisation for an authenticated user after login. The associated privileges shall be given to the user during the authorisation.	BL 1												
5.2.6		**Confidentiality**													
5.2.6.0-1.0-1	[T1-R1721]	TRITON shall protect its data for confidentiality purposes.	BL 1												
5.2.6.0-1.0-2	[T1-R1722]	TRITON shall ensure that Security Classifications are automatically included into all TRITON products (showing the highest classification of information they contain).	BL 1												
5.2.6.0-1.0-3	[T1-R1723]	TRITON shall provide visual confirmation to users of the Security Classification of the displayed data. The visual confirmation shall include a configurable colour-based visual cue in addition to text to indicate classification. The highest Security Classification shall be displayed as the Header on both AppView and GeoView.	BL 1												
5.2.6.0-1.0-4	[T1-R1724]	TRITON shall use the Security Classification as a domain value for each Maritime Operation.	BL 1												
5.2.6.0-1.0-5	[T1-R1725]	TRITON shall insert a Security Classification construct into headers/footers and metadata of generated, created or exported reports, MS Office files and PDF files. The user shall be prompted during the process. By default TRITON shall propose the highest classification level of the selected objects. If no classification is specified for the selected objects, then the repository classification level shall be proposed. The user shall be able to override the proposed classification level by choosing another level.	BL 1												
5.2.6.0-1.0-6	[T1-R1726]	For generated or export file formats that do not use headers/footers (e.g. screen, print-out, MS Excel files) TRITON shall include the Security Classification of a file into an appropriate part of the file so that it is clearly visible to users.	BL 1												
5.2.7		**Data Protection Policy**													
5.2.7.1		**Protection of System and Maritime Information**													
5.2.7.1.0-1.0-1	[T1-R1727]	TRITON shall ensure that the system, the information and functionalities are only available to authorised users using authorised functionality.	BL 1												
5.2.7.1.0-1.0-2	[T1-R1728]	TRITON shall ensure that access to system and information available users only via authorised TRITON applications, unless specifically authorised.	BL 1												
5.2.7.1.0-1.0-3	[T1-R1729]	TRITON shall ensure that mechanisms to provide access to system and information via authorised TRITON applications shall not, as a side effect, also provide access via non-authorised applications.	BL 1												
5.2.7.1.0-1.0-4	[T1-R1730]	Maritime Information Entities within TRITON shall be updated/removed by only authorised users.	BL 1												
5.2.7.1.0-1.0-5	[T1-R1731]	TRITON shall prevent access by non-TRITON Users (e.g. external systems) to Maritime Information Entities marked as unfinished products.	BL 1												
5.2.7.1.0-1.0-6	[T1-R1732]	TRITON shall ensure that unfinished products are not shared with, or included in data exchanges with other systems.	BL 1												
5.2.7.1.0-1.0-7	[T1-R1733]	TRITON shall contain residual information protection mechanisms to ensure that deleted information is no longer accessible (i.e. information that has been logically deleted).	BL 1												
5.2.7.1.0-1.0-8	[T1-R1734]	TRITON shall ensure that newly created objects do not contain information that shall not be accessible.	BL 1												
5.2.7.1.0-1.0-9	[T1-R1735]	TRITON shall prevent a user to open simultaneously more than one 'database' (e.g. operational, training, exercise) being opened by a single TRITON application execution.	BL 1												
5.2.7.2		**Protection of Licensed Information**													
5.2.7.2.0-1.0-1	[T1-R1736]	TRITON shall be able to restrict the access to collections of information based on user attributes (e.g. Country, Organization).	BL 1												
5.2.7.2.0-1.0-2	[T1-R1737]	TRITON shall allow the access to collections of information to be limited based on the number of simultaneous users.	BL 1												
5.2.7.2.0-1.0-3	[T1-R1738]	TRITON shall allow the auditing of access to collections of information (e.g. number of simultaneous users).	BL 1												
5.2.7.3		**Protection of Personal Information**													
5.2.7.3.0-1.0-1	[T1-R1739]	TRITON shall provide protection and management of Personal Information (e.g. User Profile and expertise information) held within TRITON.	BL 1												
5.2.7.3.0-1.0-2	[T1-R1740]	TRITON shall provide protection and management of information related to people such as Person of Maritime Interest.	BL 1												
5.3		**Safety Requirements**													
5.3.1		**Safety at Static Deployment**													
5.3.2		**Safety at Afloat Deployment**													
5.3.2.0-1.0-1	[T1-R1741]	The TRITON Deployable Kits shall be able to withstand ship movements at Sea States at least seven (7) without harming surrounding equipment and personnel.	BL 4												
5.3.2.0-1.0-2	[T1-R1742]	The TRITON Deployable Kits shall be able to withstand instantaneous shocks up to one G from any direction without causing any harm to surroundings (i.e. no parts or pieces will be scattered around).	BL 4												
5.3.2.0-1.0-3	[T1-R1743]	Each carrying case of the TRITON Deployable Kit shall be carried safely by two persons.	BL 4												
5.3.2.0-1.0-4	[T1-R1744]	Each carrying case of the TRITON Deployable Kit shall be safely lifted by a crane using its designated handles.	BL 4												
5.4		**Computer Resource Requirements**													
5.4.1		**Virtualised Environment**													
5.4.1.0-1.0-1	[T1-R1745]	The TRITON infrastructure requirements for each instance shall be identified in terms of Service Parameters as defined in the Description.	BL 1												
5.4.1.0-1.0-2	[T1-R1746]	The Virtual Machine Performance Parameters shall be scaled not to exceed fifty percent (50%) load on average in twenty-four (24) hours.	BL 1												
5.4.1.0-1.0-3	[T1-R1747]	TRITON shall use Open Virtualisation Format, Option B. Mission Participant can create single, pre-packaged appliances and service providers can export and import virtual machines that can run across different virtualisation platforms.	BL 1												
5.4.1.0-1.0-4	[T1-R1748]	TRITON shall be able to execute in the virtualisation hypervisor environments supported by NATO, namely "MS Hyper-V Server 12 or later" and "VMWare 5.5 or later".	BL 1												
5.4.1.0-1.0-5	[T1-R1749]	The Server deployment package (virtual appliance or installation package) shall be tested against the used hypervisors, configured in accordance with NATO Security Settings "VMWare ESXi 5.5 or later" and "Microsoft Hyper-V 2012 or later".	BL 1												
5.4.2		**Operating System**													
5.4.2.0-1.0-1	[T1-R1750]	TRITON shall use a COTS Operating System on a Virtualised Environment. If the proposed solution does not use MS Windows, it shall be specified, documented, justified and the necessary licenses shall be provided.	BL 1												
5.4.2.0-1.0-2	[T1-R1751]	TRITON shall comply with the latest versions of the operating system available and supported by the Bi-SC AIS Servers and Workstations. This should include all versions of the operating systems planned to become available for the Bi-SC AIS prior to the TRITON System Integration Tests.	BL 1												
5.4.2.0-1.0-3	[T1-R1752]	The Operating System selected for TRITON shall have an operating lifetime of at least five (5) years. Any deviations shall be described and justified in the Obsolescence Management Plan (OMP). Standard documentation shall be provided.	BL 1												
5.4.3		**Virtualised Servers**													
5.4.3.0-1.0-1	[T1-R1753]	TRITON shall be able to utilise Virtualised Server provided by the Virtualised Environment.	BL 1												
5.4.3.0-1.0-2	[T1-R1754]	TRITON Virtualised Server shall be designed considering performance, scalability and load balancing factors.	BL 1												
5.4.3.0-1.0-3	[T1-R1755]	TRITON Virtualised Server shall use the Server Components given in the Description. Any necessary third-party software and licenses shall be provided for each instance of TRITON.	BL 1												
5.4.3.0-1.0-4	[T1-R1756]	TRITON Virtualised Server shall be compatible with the native file system used on NATO Servers. Any deviation shall be documented in detail with justification and be subject to the Purchaser's evaluation and approval.	BL 1												
5.4.4		**Virtualised Data Storage**													
5.4.4.0-1.0-1	[T1-R1757]	TRITON shall be able to utilise Virtualised Data Storage provided by the Virtualised Environment.	BL 1												
5.4.4.0-1.0-2	[T1-R1758]	The TRITON Operational Software shall not have any direct dependency to the physical parameters of the storage environment (such as disk type, connection type, Storage Area Network and protocol) provided by the Virtualised Environment.	BL 1												
5.4.4.0-1.0-3	[T1-R1759]	All UNC, File Path, Drive Letter or similar storage location settings used in TRITON Virtualised Data Storage shall be parametric, configurable, and possible to automate for unattended installation, backup, recovery. No hard-coded location setting shall be used.	BL 1												
5.4.5		**Third-Party COTS Software**													
5.4.5.0-1.0-1	[T1-R1760]	TRITON may use third-party COTS Software or Open Source Software to support its Infrastructure Software. Samples are given in the Description.	BL 1												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
5.4.5.0-1.0-2	[T1-R1761]	The third-party COTS Software shall be the latest commercial version with the latest updates, unless agreed by the Purchaser.	BL 1												
5.4.5.0-1.0-3	[T1-R1762]	The licensing for all third-party COTS Software components (including versions/editions, client access licenses, etc.) shall allow the component to take full advantage of the number of allocated processors and memory of the Virtualised Server to support the maximum number of users.	BL 1												
5.4.5.0-1.0-4	[T1-R1763]	All third-party COTS Software shall have standard product documentation, a product support and validity time of at least five (5) years. Any deviations shall be described in the Obsolescence Management Plan.	BL 1												
5.4.5.0-1.0-5	[T1-R1764]	TRITON may use COTS Software in its architecture in place of dedicated solutions when the functionalities of a COTS product matches the requirements for a service with no or minimal adaptation.	BL 1												
5.4.5.0-1.0-6	[T1-R1765]	When COTS solutions are used, adaptations shall be delivered as additional services that complement the COTS Software native functionalities.	BL 1												
5.4.6		**Network Configuration**													
5.4.6.0-1.0-1	[T1-R1766]	All URL, DNS, IP Addressing and similar network settings used in TRITON shall be parametric, configurable, and possible to automate for unattended installation. backup. recoverv. No hard-coded address settings shall be used.	BL 1												
5.4.7		**Client Environment**													
5.4.7.0-1.0-1	[T1-R1767]	TRITON Client shall be able to run on a NATO Standard Workstation with the Client Configuration given in the Description.	BL 1												
5.4.7.0-1.0-2	[T1-R1768]	TRITON Client installation requirements (workstation software, add-ons, plug-ins) shall be clearly defined in advance and their use shall be subject to approval of the Purchaser.	BL 1												
5.4.7.0-1.0-3	[T1-R1769]	TRITON GUI shall be able to handle normalised input events which are not bounded to an input device. The GUI should have growth potential to be used on mobile devices with touch screens conforming to [W3C WBMP].	BL 3												
5.5		**Design and Construction Constraints**													
5.5.1		**Reference Architecture**													
5.5.1.1		**User Applications**													
5.5.1.2		**Technical Services**													
5.5.1.3		**Information Products**													
5.5.2		**Architectural Views**													
5.5.2.0-1.0-1	[T1-R1770]	TRITON shall be designed considering the standards given in the section "Applicable Standards". Any proposed deviation shall be subjected to the Purchaser's approval.	BL 1												
5.5.2.0-1.0-2	[T1-R1771]	The proposed software architecture, development environment, middleware and the separation of components (Human-Machine Interface. Business and Data) for TRITON shall be documented and explained in detail.	BL 1												
5.5.2.0-1.0-3	[T1-R1772]	TRITON shall expose selected functionality as Technical Services, as components of SOA to encourage reuse and interoperability with other applications in a distributed way. The criteria used for selection of functionality shall be documented.	BL 1												
5.5.2.0-1.0-4	[T1-R1773]	The TRITON Technical Services shall comply with the C3 Taxonomy [C3TAXO].	BL 1												
5.5.2.0-1.0-5	[T1-R1774]	TRITON shall, where applicable, make use of Representational State Transfer (REST) architecture according to the Service Interface Profile given in [NCIA-06.02.07] to make resources available over a URL in promotion of interoperability.	BL 1												
5.5.2.0-1.0-6	[T1-R1775]	The TRITON design process shall balance design implementation with cost for implementation and support to minimise life cycle cost. TRITON design shall take into account the technical. support and cost impacts for NATO.	BL 1												
5.5.3		**Browser-based Functionality**													
5.5.3.0-1.0-1	[T1-R1776]	TRITON user functionality shall be provided via browser-based Web applications, except as specifically waived by the Purchaser.	BL 1												
5.5.3.0-1.0-2	[T1-R1777]	TRITON user functionality shall require only a browser and should not require the installation of additional software, components or plug-ins on the user workstation, except as specifically waived by the Purchaser.	BL 1												
5.5.3.0-1.0-3	[T1-R1778]	TRITON shall use browser-based applications with standard internet addressing, Universal Resource Locator (URL) and Universal Resource Identifier (URI).	BL 1												
5.5.4		**Comoonent-Based Develoament**													
5.5.4.0-1.0-1	[T1-R1779]	TRITON software architecture shall be able to support loosely-coupled software components through an infrastructural framework.	BL 3												
5.5.4.0-1.0-2	[T1-R1780]	TRITON shall integrate with the C4ISR Visualisation Component at both server and client side.	BL 1												
5.5.4.0-1.0-3	[T1-R1781]	TRITON "should" have a Middleware as a replaceable component to provide communication between all internal components.	BL 3												
5.5.4.0-1.0-4	[T1-R1782]	TRITON "should" have a WSM/PMI Component to provide basic computation for subsurface mission space management.	BL 3												
5.5.4.0-1.0-5	[T1-R1783]	TRITON "should" have Formatted Message Handling Component as a replaceable component to handle (parse or prepare) Formatted Messages.	BL 3												
5.5.4.0-1.0-6	[T1-R1784]	TRITON "should" have Interface Simulators as replaceable components to simulate interfaces of external systems as defined in the Interfaces Section.	BL 2												
5.5.4.0-1.0-7	[T1-R1785]	TRITON "should" have an Interim Local Geospatial Service as a replaceable component in case NATO Core GIS is not available for for static or afloat sites.	BL 4												
5.5.4.0-1.0-8	[T1-R1786]	TRITON "should" have Local Core Services as replaceable components to support standalone operation of TRITON Deployable Kits.	BL 4												
5.5.5		**Implementation Constraints**													
5.5.5.0-1.0-1	[T1-R1787]	TRITON shall be designed to work within the Bi-SC AIS environment as a Functional Service without causing any interference to other Functional Services. All components of TRITON shall use the same software architecture.	BL 1												
5.5.5.0-1.0-2	[T1-R1788]	TRITON Deployable Kits shall be designed to work in low bandwidth for synchronising their databases with a static TRITON instance over the available communication environment.	BL 4												
5.5.6		**Programming Languages**													
5.5.6.0-1.0-1	[T1-R1789]	TRITON "will" be developed using the latest version of Microsoft Visual Studio .NET if C# is used as the programming language.	BL 1												
5.5.6.0-1.0-2	[T1-R1790]	TRITON shall be compatible with the .NET Framework version 4.5 or newer if .NET Framework is utilised for development.	BL 1												
5.5.6.0-1.0-3	[T1-R1791]	TRITON shall comply with the standards and language specifications given in the Description as the Preferred Languages. Any variations from the languages or specifications shall be agreed with the Purchaser.	BL 1												
5.5.6.0-1.0-4	[T1-R1792]	TRITON scripting language and standard shall be JavaScript and compliant to [ECMA-262].	BL 1												
5.5.6.0-1.0-5	[T1-R1793]	TRITON shall not use DCOM, COM, ActiveX and/or COM+ unless specifically authorised in advance by the Purchaser.	BL 1												
5.5.6.0-1.0-6	[T1-R1794]	TRITON shall use XML as the main data and document format. The XML Standards given in the Description shall be used.	BL 1												
5.5.6.0-1.0-7	[T1-R1795]	All information exchanged across TRITON boundaries shall be available in XML format.	BL 1												
5.5.7		**Code Documentation**													
5.5.7.0-1.0-1	[T1-R1796]	All TRITON software source code shall be documented with in-line comments using the best practices in the level of commenting.	BL 1												
5.5.7.0-1.0-2	[T1-R1797]	Comments in TRITON source code shall clarify the intent of the code by considering the Basic Usage of Comments given in the Description.	BL 1												
5.5.7.0-1.0-3	[T1-R1798]	Comments in TRITON source code shall be formatted according with best practices applicable to the specific programming language and allow for the automated extraction and formatting for augmenting technical documentation. The source code comments of the client applications shall be removed by an automated process before entering into production.	BL 1												
5.5.8		**Codine Standards**													
5.5.8.0-1.0-1	[T1-R1799]	Whilst the specifics of coding syntax are not specified, a convention shall be adopted and applied consistently across all code artefacts for each programming language employed. Sample sets of rules are given in the Description.	BL 1												
5.5.8.0-1.0-2	[T1-R1800]	TRITON ".NET" components shall be developed in conformance to Microsoft's ".NET Framework Design Guidelines" and in compliance of the Microsoft FXCop Static Code Analysis Tool rule sets.	BL 1												
5.5.8.0-1.0-3	[T1-R1801]	All code delivered as part of the TRITON Contract shall comply with the standards defined in the SRS. Code derived from other sources (e.g. prototype systems, COTS products, open source components) shall be refactored as necessary to meet standards.	BL 1												
5.5.9		**Free and Oaen Source Software**													
5.5.9.0-1.0-1	[T1-R1802]	TRITON may use Free and Open Source Software (FOSS) components which shall comply with the NATO strategy on the use of FOSS in NATO systems.	BL 3												
5.5.9.0-1.0-2	[T1-R1803]	Any TRITON component based on FOSS shall be provided with the source code of the FOSS. The source code shall correspond to the delivered component (i.e. same version), and that component shall be capable of being built from the delivered source code with the provided documentation.	BL 3												
5.5.9.0-1.0-3	[T1-R1804]	Use of a FOSS component shall not limit the deployment or use of the TRITON in any way and shall not require the release of code developed for TRITON.	BL 3												
5.5.9.0-1.0-4	[T1-R1805]	Any component-based on FOSS shall be verified for compliance to other non-functional requirements, including security requirements.	BL 3												
5.5.10		**Code Refactoring**													
5.5.10.0-1.0-1	[T1-R1806]	All code delivered as part of TRITON shall comply with the Contractor's QA Standard. The Contractor's QA Standard shall be approved by the Purchaser. Code derived from other sources (e.g. prototype systems, COTS products, open source components) may be refactored as necessary to meet standards when proposed by the Contractor and approved by the Purchaser.	BL 1												
5.5.11		**Data Modelling**													
5.5.11.0-1.0-1	[T1-R1807]	TRITON shall have documented Conceptual, Logical and Physical Data Models.	BL 1												
5.5.11.0-1.0-2	[T1-R1808]	TRITON Data Model documentation shall be comoliant with RAS (OMG Reusable Asset Soecification).	BL 1												
5.5.11.0-1.0-3	[T1-R1809]	TRITON Data Model file format for the svstem of record shall be XMI (OMG XML Metadata Interchanae).	BL 1												
5.5.11.0-1.0-4	[T1-R1810]	TRITON Data Model shall support multiple Security Classifications.	BL 1												
5.5.11.0-1.0-5	[T1-R1811]	TRITON Data Model shall internally use storage values in International System (S.I.) units (unless otherwise specified).	BL 1												
5.5.11.0-1.0-6	[T1-R1812]	TRITON Data Model shall be compliant with the NATo Core Metadata Specification [AC/322-D(2014)0010].	BL 1												
5.5.12		**Registry Settings**													
5.5.12.0-1.0-1	[T1-R1813]	All usage of the MS Windows Registry by TRITON Applications shall be fully documented in the User Guides.	BL 1												
5.5.12.0-1.0-2	[T1-R1814]	TRITON shall not use Registry hives other than HKEY_LOCAL_MACHINE (during installation) and HKEY_CURRENT_USER (during application operation) except as approved by the Purchaser not later than the System Detailed Design.	BL 1												
5.5.13		**Time Manaaement**													
5.5.13.0-1.0-1	[T1-R1815]	In order to set the time of TRITON Services, TRITON shall verify and complement Operating System time with an external Secured Time source.	BL 1												
5.5.13.0-1.0-2	[T1-R1816]	TRITON shall use the same time source for all time stamping services and application within the same Server.	BL 1												
5.5.13.0-1.0-3	[T1-R1817]	TRITON Instance shall be able to synchronise itself with a Time Server in compliance with NTPv4 [IETF RFC 5905].	BL 1												
5.5.13.0-1.0-4	[T1-R1818]	TRITON Deployable Kit shall use the internal Time Server when it is switched to Standalone Mode.	BL 4												
5.5.13.0-1.0-5	[T1-R1819]	TRITON shall set a centralised time across all services based on the Secured Time.	BL 1												
5.5.13.0-1.0-6	[T1-R1820]	TRITON shall allow the authorised user to select the Time Server available on the network.	BL 1												
5.5.13.0-1.0-7	[T1-R1821]	TRITON shall use a separate Trainina Time and maintain the corresoondence between Trainine Time and Secured Time.	BL 3												
5.5.13.0-1.0-8	[T1-R1822]	TRITON shall notify the authorised user if the available time source has more than one (1) second different than the current internal time.	BL 1												
5.5.13.0-1.0-9	[T1-R1823]	TRITON shall notify the authorised user if time-based computations result in unexpected behaviour. For example, last time of update of a track is greater than the current time.	BL 1												
5.5.13.0-1.0-10	[T1-R1824]	TRITON Clients shall use the time source available on their own network.	BL 1												
5.5.13.0-1.0-11	[T1-R1825]	TRITON shall use UTC while exchanging time-stamped data among servers.	BL 1												
5.6		**System Environment Requirements**													
5.6.0-1.0-1	[T1-R1826]	Certificate of Conformance for not using hazardous material shall be delivered for any hardware component developed under this Contract.	BL 4												
5.6.0-1.0-2	[T1-R1827]	The equipment used indoors shall be subject to temperature ranging between +10 degrees C and +35 degrees C.	BL 4												
5.6.0-1.0-3	[T1-R1828]	The equipment used indoors shall be subject to humidity ranging from 10 to 90% non-condensing.	BL 4												
5.6.0-1.0-4	[T1-R1829]	The equipment used indoors shall be able to withstand the accumulation of residual dust and sand as can be expected in moderately sheltered environment.	BL 4												
5.6.0-1.0-5	[T1-R1830]	The equipment used indoors shall be fully operational on altitudes at least 3.000 m above mean sea level.	BL 4												
5.6.0-1.0-6	[T1-R1831]	Best commercial practices shall be used to ensure that prolonged periods of exposure to a fungus environment will not result in evidence of fungal growth on component or equipment surfaces.	BL 4												
5.6.0-1.0-7	[T1-R1832]	Any equipment openings (e.g. fans or heating devices) associated with the risk of letting sand, dust, water, snow, and/or moisture into the equipment and shall be described and solutions to overcome the risk of these affecting system availability shall be defined.	BL 4												
5.6.0-1.0-8	[T1-R1833]	All connectors and cables shall have bungs and caps firmly attached to them so that they cannot be lost, in order to prevent the ingress of sand, water and dust. Exceptions to this requirement shall be addressed on a case-by-case basis, and are subject to review and approval by the Purchaser.	BL 4												
5.6.0-1.0-9	[T1-R1834]	The equipment shall be made with non-corroding or suitably protected materials corresponding to the area of operation for a minimum of three (3) years.	BL 4												
5.6.0-1.0-10	[T1-R1835]	All equipment shall be capable of operating in close proximity to other COTS equipment without causing mutual interference problems. Tested and documented compliance with officially recognised Electromagnetic Interference or Electromagnetic Compatibility standards is sufficient to meet this requirement (e.g. Emission Standard EN55022, Immunity Standard EN50022 or FCC Part 15 Class A).	BL 4												
5.7		**Training-Related Requirements**													
5.8		**Logistic-Related Requirements**													
5.8.1		**Spares**													
5.8.1.0-1.0-1	[T1-R1836]	TRITON Deployable Kit Spare Part List shall include at least the items given in the Description.	BL 4												
5.8.2		**Operating Documentation**													
5.8.2.1		**System User Manuals**													
5.8.2.1.0-1.0-1	[T1-R1837]	TRITON shall have System User Manuals (SUM) for each applicable system which includes the subjects given in the Description.	BL 1												
5.8.2.2		**Quick User Guide**													
5.8.2.2.0-1.0-1	[T1-R1838]	TRITON shall have a Quick User Guide (QUG) which describes the frequently-used user functions and main GUI windows.	BL 1												
5.8.2.2.0-1.0-2	[T1-R1839]	The TRITON QUG should be printed on a single page, double-sided, durable paper.	BL 1												
5.8.2.3		**Briefing Manual**													
5.8.2.3.0-1.0-1	[T1-R1840]	TRITON shall have a Briefing Manual which provides a brief overview of TRITON user functionality and the processes that these functions support.	BL 1												
5.8.2.4		**System Administrator Manual**													
5.8.2.4.0-1.0-1	[T1-R1841]	TRITON shall have a System Administrator Manual (SAM) which includes the subjects given in the Description.	BL 1												
6		**INTERFACE REQUIREMENTS**													
6.1		**Interfaces**													

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
6.1.1		**System Interface Services**													
6.1.1.0-1.0-1	[T1-R1842]	TRITON shall implement a SIS Framework providing isolated processing capability. Utilisation of multiple CPUs and load balancing shall be considered during system design and deployment.	BL 1												
6.1.2		**Interface Control Description**													
6.1.2.0-1.0-1	[T1-R1843]	TRITON shall have an Interface Control Description (ICD) having the content given in the Description for its External Interfaces/Services. The External Interfaces/Services are described in Subsection 6.2.	BL 1												
6.1.3		**Interface Mechanisms**													
6.1.3.1		**Network Communication**													
6.1.3.1.0-1.0-1	[T1-R1844]	TRITON shall comply with the Network Communication Interface Standards given in the Description.	BL 1												
6.1.3.1.0-1.0-2	[T1-R1845]	TRITON shall be able to use TCP/IP or UDP/IP for interfacing external Network Addresses.	BL 2												
6.1.3.1.0-1.0-3	[T1-R1846]	TRITON shall be able to reconnect automatically within one second if the TCP/IP or UDP/IP connection is broken.	BL 2												
6.1.3.1.0-1.0-4	[T1-R1847]	TRITON shall use configuration settings for Network Communication Parameters.	BL 2												
6.1.3.1.0-1.0-5	[T1-R1848]	TRITON shall allow the authorised user to alter the configuration settings for a Network Communication.	BL 2												
6.1.3.2		**Web Services**													
6.1.3.2.0-1.0-1	[T1-R1849]	TRITON shall provide an implementation supported by Extensible Mark-up Language (XML) technology and standards for all external interfaces.	BL 2												
6.1.3.2.0-1.0-2	[T1-R1850]	All Web services published by TRITON shall adapt a single, consistent exception handling and error reporting mechanism within the SIS Framework as defined in its SIP.	BL 2												
6.1.3.2.0-1.0-3	[T1-R1851]	TRITON Web service design shall consider alternative response mechanisms where a long running process between request and response results (e.g. sync-on-async pattern interaction).	BL 2												
6.1.3.2.0-1.0-4	[T1-R1852]	TRITON shall avoid the practice, as both a publisher and consumer, of treating Web services as a high frequency, pollable call.	BL 2												
6.1.3.2.0-1.0-5	[T1-R1853]	TRITON shall observe the best practice of preferring primitive types for Web service parameters.	BL 2												
6.1.3.2.0-1.0-6	[T1-R1854]	TRITON shall consider the best practice of avoiding long running Web services to be a design goal.	BL 2												
6.1.3.2.0-1.0-7	[T1-R1855]	TRITON shall observe best practice and prefer message-based interactions over the remote procedure call (RPC) style while implementing Web services.	BL 2												
6.1.3.2.0-1.0-8	[T1-R1856]	TRITON Web services shall observe best practice in the design of chunky interfaces to realise the design goal of minimising round trips.	BL 2												
6.1.3.2.0-1.0-9	[T1-R1857]	TRITON Web services shall be non-sticky (avoid maintaining server state between calls) in order to facilitate scaling out of web services.	BL 2												
6.1.3.2.0-1.0-10	[T1-R1858]	TRITON shall incorporate a compression mechanism for both request and response payloads of Web services.	BL 2												
6.1.3.2.0-1.0-11	[T1-R1859]	TRITON shall use the event-driven mechanisms compliant with OASIS WS-Notifications protocols to consume event driven, time sensitive and critical web services of other system.	BL 2												
6.1.3.2.0-1.0-12	[T1-R1860]	TRITON shall provide Service Interface Profiles (SIP) for all its Service Inter-Operability Points (SIOP) (Web services) using service modelling language.	BL 2												
6.1.3.2.0-1.0-13	[T1-R1861]	TRITON shall promote usage of SOA, by isolating the existing interfaces to the lowest level of communication and transforming information from these channels to SOA compatible means. (i.e. Legacy System Adapter concept in SOA, integration with legacy systems, protocols, etc.)	BL 2												
6.1.3.2.1		**Web Service Standards**													
6.1.3.2.1.0-1.0-1	[T1-R1862]	TRITON shall use the standards given in the Description for the implementation of Web services.	BL 2												
6.1.3.2.1.0-1.0-2	[T1-R1863]	TRITON shall be compliant with the W3C, Web Services Security standards given in the Description.	BL 2												
6.1.3.2.1.0-1.0-3	[T1-R1864]	TRITON shall provide W3C XML schemas to express all XML file formats.	BL 2												
6.1.3.2.1.0-1.0-4	[T1-R1865]	TRITON shall use the XML to facilitate publish and subscribe information brokering as a standard language.	BL 2												
6.1.3.2.1.0-1.0-5	[T1-R1866]	TRITON shall be able to make all information exchanged across its boundaries available in XML format.	BL 2												
6.1.3.2.1.0-1.0-6	[T1-R1867]	TRITON shall validate all received XML files against the schemas published by the suppliers.	BL 2												
6.1.3.2.1.0-1.0-7	[T1-R1868]	TRITON shall have the syntax of the XML documents it accepts and produces in its ICD using models and XML schemas.	BL 2												
6.1.3.2.1.0-1.0-8	[T1-R1869]	TRITON shall use the SOAP XML format to exchange information between the service provider and the service requester.	BL 2												
6.1.3.2.1.0-1.0-9	[T1-R1870]	TRITON shall support both SOAP Web and RESTfull Services to exchange information between the service provider and the service requester.	BL 2												
6.1.3.2.1.0-1.0-10	[T1-R1871]	TRITON shall use the Web Service Description Language (WSDL) XML format to describe the Web services provided.	BL 2												
6.1.3.2.1.0-1.0-11	[T1-R1872]	TRITON shall use the Universal Description, Discovery and Integration (UDDI) protocol [OASIS-UDDI] to publish the Web service metadata.	BL 2												
6.1.3.2.1.0-1.0-12	[T1-R1873]	TRITON shall use XPATH expressions or Schematron to specify semantics that cannot be captured by XML Schema.	BL 2												
6.1.3.2.1.0-1.0-13	[T1-R1874]	TRITON shall prefer, where appropriate, XmlReader or SAX-based parsers over DOM type in-memory expansions.	BL 2												
6.1.3.2.1.0-1.0-14	[T1-R1875]	TRITON Web services shall be compliant with the W3C, XML Digital Signature Standard and Processing.	BL 2												
6.1.3.2.1.0-1.0-15	[T1-R1876]	TRITON shall support XML, Namespaces, XPath, XSLT, XQuery to perform XML-level transformation of document instances. All XML W3C Recommendations shall be supported.	BL 2												
6.1.3.2.2		**Web Service - Service Level Aereement**													
6.1.3.2.2.0-1.0-1	[T1-R1877]	Each TRITON Web service shall be delivered in conjunction with a Web Service - SLA.	BL 2												
6.1.3.2.2.0-1.0-2	[T1-R1878]	TRITON Web Service SLA shall specify performance target values for Availability, Throughput and Response Time, including specification of local and wide-area network capability dependencies.	BL 2												
6.1.3.2.2.0-1.0-3	[T1-R1879]	TRITON Web Service SLA shall specify security configurations for authentication, authorisation, confidentiality, integrity and non-repudiation.	BL 2												
6.1.3.2.2.0-1.0-4	[T1-R1880]	TRITON Web Service SLA shall provide adequate documentation, using a service modelling language, for the meaning of the documents it produces or accepts (An adequate definition is one that enables a programmer or user to understand the meaning of the data and determine whether it is suitable for the intended use). This documentation shall be expressed as annotations on the XML schema for the XML payload.	BL 2												
6.1.3.2.2.0-1.0-5	[T1-R1881]	TRITON shall supply a text definition for every element, attribute, and enumeration value defined in the schema.	BL 2												
6.1.3.2.2.0-1.0-6	[T1-R1882]	TRITON shall publish the XML schema for every external XML interface it defines.	BL 2												
6.1.3.2.3		**Web Service Performance**													
6.1.3.2.3.0-1.0-1	[T1-R1883]	TRITON Web services shall meet the non-functional performance requirements specified in their Web Service SLA.	BL 2												
6.1.3.2.3.0-1.0-2	[T1-R1884]	TRITON shall provide mechanisms to monitor and audit the performance, availability, throughput and response times of Web services that it publishes.	BL 2												
6.1.3.2.4		**Web Service Security**													
6.1.3.2.4.0-1.0-1	[T1-R1885]	TRITON Web services shall meet the non-functional security requirements specified in their Web Service SLA.	BL 2												
6.1.3.2.4.0-1.0-2	[T1-R1886]	TRITON Web services shall be compliant with [OASIS WS-Security] set of specifications for publishing and consuming web services.	BL 2												
6.1.3.2.4.0-1.0-3	[T1-R1887]	TRITON Web services shall support auditing and non-repudiation.	BL 2												
6.1.3.2.4.0-1.0-4	[T1-R1888]	TRITON Web services shall support point-to-point integrity.	BL 2												
6.1.3.2.4.0-1.0-5	[T1-R1889]	TRITON Web services shall support point-to-point confidentiality.	BL 2												
6.1.3.2.4.0-1.0-6	[T1-R1890]	TRITON Web services shall incorporate authorisation according to the Role-Based Access mechanisms.	BL 2												
6.1.3.2.4.0-1.0-7	[T1-R1891]	TRITON Web services shall incorporate authentication.	BL 2												
6.1.3.2.4.0-1.0-8	[T1-R1892]	TRITON shall implement role-based access for accessing external services and service operations.	BL 2												
6.1.3.2.4.0-1.0-9	[T1-R1893]	TRITON shall use approved X.509 certificates produced by the responsible security administrators.	BL 2												
6.1.3.2.4.0-1.0-10	[T1-R1894]	TRITON shall sign a validated service request to external services using its Bi-SC AIS credentials defined in its X.509 certificate.	BL 2												
6.1.3.2.4.0-1.0-11	[T1-R1895]	TRITON shall only accept data signed by external services with valid X.509 certificates.	BL 2												
6.1.3.2.5		**TRITON as a Service Consumer**													
6.1.3.2.5.0-1.0-1	[T1-R1896]	TRITON shall use the Role-Based Access Mechanism for authorization and authentication purposes, for systems interfacing with TRITON.	BL 2												
6.1.3.2.5.0-1.0-2	[T1-R1897]	TRITON shall be able to communicate with NATO Meta-data Registry and Repository to find the available services that it can interact with.	BL 2												
6.1.3.2.5.0-1.0-3	[T1-R1898]	TRITON shall validate the received XML documents against the schemas published by external parties.	BL 2												
6.1.3.2.6		**TRITON as a Service Provider**													
6.1.3.2.6.0-1.0-1	[T1-R1899]	TRITON shall provide interfaces based on the Web services concept which will allow validated clients to access data and functionality. TRITON shall also provide Web service interfaces for the data that it will accept from external systems (e.g. Nations' input).	BL 2												
6.1.3.2.6.0-1.0-2	[T1-R1900]	TRITON shall support both read-only Web services with select and filter capabilities; and write Web services with insert, update, and delete capabilities.	BL 2												
6.1.3.2.6.0-1.0-3	[T1-R1901]	TRITON shall register its Web services to the NATO Meta-data Registry and Repository. If this is not possible, then it shall build and maintain an XML Registry defining its XML interfaces.	BL 2												
6.1.3.2.6.0-1.0-4	[T1-R1902]	TRITON shall publish the W3C XML schemas for every external XML interface it defines. Every element in the defined schema shall be documented using annotations and Interface Control Description document.	BL 2												
6.1.3.2.6.0-1.0-5	[T1-R1903]	TRITON shall guarantee that the XML documents that are generated are valid according to the XML schema that has been published.	BL 2												
6.1.3.2.6.0-1.0-6	[T1-R1904]	TRITON shall provide an implementation supported by XML technology for all external interfaces.	BL 2												
6.1.3.2.6.0-1.0-7	[T1-R1905]	TRITON shall allow the authorised User to export a web service into an XML file in order its data would be consumed by disconnected external systems.	BL 2												
6.1.3.2.6.0-1.0-8	[T1-R1906]	Every Web service method in TRITON shall also include a NATO Confidentiality Label field to determine the sensitivity of the data that is sent. This label will be used by NATO Information Exchange Gateway (IEG) in cross-domain data exchange.	BL 2												
6.1.3.3		**File Exchange**													
6.1.3.3.0-1.0-1	[T1-R1907]	TRITON shall use XML as the primary mechanism for file-level information exchange.	BL 1												
6.1.3.3.0-1.0-2	[T1-R1908]	TRITON shall provide adequate documentation for the content and meaning of the file formats it produces or accepts. An adequate definition is one that enables a programmer or user to understand the meaning of the data and determine whether it is suitable for its intended use. TRITON shall supply a definition for every element, attribute, and enumeration value defined in the file format.	BL 1												
6.1.3.3.0-1.0-3	[T1-R1909]	TRITON shall, to the extent possible, validate the format and contents of all incoming and outgoing files according to the documented format.	BL 1												
6.1.3.4		**Direct Database Access**													
6.1.3.4.0-1.0-1	[T1-R1910]	In TRITON, as a design rule, direct database access by external systems should be avoided.	BL 1												
6.1.3.4.0-1.0-2	[T1-R1911]	TRITON shall allow the authorised users to directly access the database used in TRITON.	BL 1												
6.1.3.4.0-1.0-3	[T1-R1912]	TRITON shall allow the controlled access of authenticated and authorised external systems or components to internal databases via the Direct Database Access Control Mechanism for information items (e.g. records, files) and structures (e.g. tables, directories) to perform an authorised function.	BL 1												
6.1.3.5		**Multi-lateral Interoperability Program Data Exchange Mechanism Information Exchange**													
6.1.3.5.0-1.0-1	[T1-R1913]	TRITON "should" have a growth potential to implement information exchange defined by MIP-DEM.	BL 3												
6.1.3.6		**Application Programming Interface**													
6.1.3.6.0-1.0-1	[T1-R1914]	As a design rule, the use of an API "should" be minimized in TRITON to the extent possible.	BL 1												
6.1.3.6.0-1.0-2	[T1-R1915]	TRITON shall provide adequate documentation for any API it supports.	BL 1												
6.1.3.6.0-1.0-3	[T1-R1916]	TRITON shall allow authorised external systems or components to access the TRITON API.	BL 1												
6.1.3.6.0-1.0-4	[T1-R1917]	TRITON shall allow the controlled access of authenticated and authorised external systems or components through its API.	BL 1												
6.1.4		**Information Products**													
6.1.4.0-1.0-1	[T1-R1918]	TRITON shall be able to export selected information as an Information Product into a file in Recognised Export File Format. For example, a WSM Area can be saved into a Formatted Message as an Information Product.	BL 1												
6.1.4.0-1.0-2	[T1-R1919]	TRITON shall use the "TRITON Track Specification - NS" to receive tracks from external systems and to make the RMP available as an Information Product to the external world on the NS Domain. The TRITON Track Specification - NS shall be documented in the TRITON ICD.	BL 1												
6.1.4.0-1.0-3	[T1-R1920]	TRITON shall use "TRITON Track Specification - NU" to receive tracks from the external world and to make the WP available as an Information Product to the external world on the NU Domain. The TRITON Track Specification - NU shall be documented in the TRITON ICD.	BL 2												
6.2		**External Interface Requirements**													
6.2.1		**NATO Systems and Services**													
6.2.1.1		**NATO Bi-SC AIS Core Services**													
6.2.1.1.1		**Windows Domain Services**													
6.2.1.1.1.0-1.0-1	[T1-R1921]	TRITON shall be integrated with the Bi-SC AIS Directory Services based on MS Windows Active Directory in compliance with the standards given in the Description.	BL 1												
6.2.1.1.1.0-1.0-2	[T1-R1922]	TRITON shall interface with the Active Directory Forest on the NSWAN.	BL 1												
6.2.1.1.1.0-1.0-3	[T1-R1923]	If TRITON requires a schema change, these schema extensions shall be documented.	BL 1												
6.2.1.1.1.0-1.0-4	[T1-R1924]	TRITON shall be compatible with Windows Active Directory services and protocols (e.g. LDAP).	BL 1												
6.2.1.1.1.0-1.0-5	[T1-R1925]	TRITON shall support, as appropriate, Active Directory read, write, change operations.	BL 1												
6.2.1.1.1.0-1.0-6	[T1-R1926]	TRITON shall support interoperability with the name resolution mechanism in the Directory Services.	BL 1												
6.2.1.1.1.0-1.0-7	[T1-R1927]	TRITON shall support integration with MS Windows Server 2016 (or later) File and Print Services (including publishing and lookup through Active Directory).	BL 1												
6.2.1.1.1.0-1.0-8	[T1-R1928]	TRITON shall support integration with MS Windows Server 2016 (or later) built-in services (e.g. Internet Information Services, RUP, Terminal Server).	BL 1												
6.2.1.1.1.0-1.0-9	[T1-R1929]	TRITON shall support integration with MS Windows Server 2016 (or later) Security Services.	BL 1												
6.2.1.1.1.0-1.0-10	[T1-R1930]	TRITON shall support integration with Active Directory-supported Security Access Control (e.g. ACL, security groups).	BL 1												
6.2.1.1.1.0-1.0-11	[T1-R1931]	TRITON shall be able to operate with the latest security settings from the NATO Information Assurance Technical Centre (NIATC) without change.	BL 1												
6.2.1.1.2		**SOA Platform Information Assurance Services**													
6.2.1.1.2.0-1.0-1	[T1-R1932]	TRITON shall provide for SAML-based authentication and authorization.	BL 1												
6.2.1.1.2.0-1.0-2	[T1-R1933]	TRITON shall use a Policy Decision Point to evaluate a request and provide the authorisation decision for services.	BL 1												
6.2.1.1.2.0-1.0-3	[T1-R1934]	TRITON shall use a Policy Enforcement Point as defined in [NCIA-06.02.04] to secure all Services.	BL 1												
6.2.1.1.2.0-1.0-4	[T1-R1935]	TRITON shall use a Security Token Service as defined in [NCIA-06.02.02] to generate, validate and exchange security tokens.	BL 1												
6.2.1.1.2.0-1.0-5	[T1-R1936]	TRITON shall be compatible with the Service Interface Profile for Security Services as defined in [NCIA-06.02.01], [NCIA-06.02.02], [NCIA-06.02.03] and [NCIA-06.02.04].	BL 1												
6.2.1.1.2.0-1.0-6	[T1-R1937]	If the Bi-SC AIS SOA Platform IA Services are not available, TRITON shall establish its own supporting services for the NS and NU Domains.	BL 2												
6.2.1.1.2.0-1.0-7	[T1-R1938]	TRITON shall ensure that no security warnings are generated in the applicable system log as a result of normal operation.	BL 1												
6.2.1.1.3		**Directory Storage Services**													
6.2.1.1.3.0-1.0-1	[T1-R1939]	TRITON shall interface with the NATO-wide Enterprise Directory Services (NEDS) through Lightweight Directory Access Protocol (LDAP) [RFC4510].	BL 1												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
6.2.1.1.3.0-1.0-2	[T1-R1940]	TRITON shall be compatible with the Enterprise Directory Services SIP [NCIA-06.02.05].	BL 1												
6.2.1.1.3.0-1.0-3	[T1-R1941]	TRITON shall include the necessary administration tool(s) to manage the interface with the NEDS if required by the NEDS Agreement.	BL 1												
6.2.1.1.3.0-1.0-4	[T1-R1942]	TRITON shall be able to use the NEDS Directory as its own directory.	BL 1												
6.2.1.1.3.0-1.0-5	[T1-R1943]	In case TRITON cannot use the NEDS Directory as its own directory, then it shall establish its own directory and that directory shall interface with the NEDS either through the NEDS Meta-Tool or directly by reading/writing into the NEDS Directory through LDAP, and as required by the agreement.	BL 2												
6.2.1.1.4		**Enterprise Management System**													
6.2.1.1.4.0-1.0-1	[T1-R1944]	TRITON shall report its internal performance metrics, enterprise-level errors and suggested corrective actions to the Bi-SC AIS EMS automatically.	BL 1												
6.2.1.1.4.0-1.0-2	[T1-R1945]	TRITON shall be able to report its performance values (load, transaction ratio, active users, active sessions) to the NATO EMS environment (in addition to any project specific requirements).	BL 1												
6.2.1.1.5		**E-mail Services**													
6.2.1.1.5.0-1.0-1	[T1-R1946]	TRITON shall be integrated with the Bi-SC AIS E-mail Services based on MS Exchange.	BL 1												
6.2.1.1.5.0-1.0-2	[T1-R1947]	TRITON shall be compatible with Bi-SC AIS E-mail Services and protocols (e.g. MAPI and SMTP).	BL 1												
6.2.1.1.5.0-1.0-3	[T1-R1948]	E-mail messages produced by TRITON to be provided to the Bi-SC AIS E-mail Services shall be compatible with the formats used in the Bi-SC AIS (e.g. classification header).	BL 1												
6.2.1.1.6		**NATO Information Portal**													
6.2.1.1.6.0-1.0-1	[T1-R1949]	TRITON shall support the information exchange interface standards for the NATO Information Portal.	BL 3												
6.2.1.1.7		**Metadata Repository Services**													
6.2.1.1.7.0-1.0-1	[T1-R1950]	TRITON Web Services shall support WSDL to specify the way to connect to supported Web Services, and the structure of messages that are exchanged with them.	BL 1												
6.2.1.1.7.0-1.0-2	[T1-R1951]	TRITON shall use, when applicable, the NATO Guidance for XML naming and design (see [EAPC(AC/322-SC/5-WG/4)N(2008)0004]) as a reference to work with XML artefacts.	BL 1												
6.2.1.1.7.0-1.0-3	[T1-R1952]	If available, TRITON shall use the NATO Metadata Registry and Repository (NMRR) or other metadata repository services on the related security domain.	BL 1												
6.2.1.1.8		**Service Discovery Services**													
6.2.1.1.8.0-1.0-1	[T1-R1953]	TRITON shall support discovery of Web Services via service discovery/registry mechanisms.	BL 1												
6.2.1.1.8.0-1.0-2	[T1-R1954]	TRITON shall be able to communicate with the provided service discovery/registry mechanism to discover available services which it can utilise.	BL 1												
6.2.1.1.9		**Malware Detection Services**													
6.2.1.1.9.0-1.0-1	[T1-R1955]	TRITON shall coexist (i.e. work correctly and not adversely impact other applications) with Bi-SC AIS standard Anti-Virus software during installation and operation.	BL 1												
6.2.1.1.9.0-1.0-2	[T1-R1956]	TRITON shall be equipped with security software that can detect malicious software contained in files of TRITON-delivered workstations and servers. The software shall have the ability to scan any file or directory to detect any malicious software. The supplied software shall be compatible with the NATO Anti-Virus management centre and approved by the Purchaser.	BL 1												
6.2.1.1.10		**Generic Security Services Application Programming Interface**													
6.2.1.1.10.0-1.0-1	[T1-R1957]	TRITON shall use Generic Security Services Application Program Interface (GSS-API), if possible, as the API for accessing security services.	BL 1												
6.2.1.1.10.0-1.0-2	[T1-R1958]	TRITON security API shall be compliant with [RFC2078].	BL 1												
6.2.1.1.10.0-1.0-3	[T1-R1959]	TRITON primary security services (access control, confidentiality, integrity, authentication, and non-repudiation) shall be supported by X.509.	BL 1												
6.2.1.1.10.0-1.0-4	[T1-R1960]	TRITON X.509 support to primary security services shall be compliant with NATO Public Key Infrastructure (NPKI).	BL 1												
6.2.1.2		**NATO Bi-SC AIS Enabling Services**													
6.2.1.2.1		**NIRIS**													
6.2.1.2.1.0-1.0-1	[T1-R1961]	TRITON shall have a dedicated interface for NIRIS on the NS Domain.	BL 3												
6.2.1.2.1.0-1.0-2	[T1-R1962]	TRITON shall allow the authorised user to select which NIRIS Server will be used for interfacing.	BL 3												
6.2.1.2.1.0-1.0-3	[T1-R1963]	TRITON shall be able to receive surface and subsurface tracks from NIRIS using the NIRIS API according to [NIRIS ICD].	BL 3												
6.2.1.2.1.0-1.0-4	[T1-R1964]	TRITON shall be able to receive available tactical information from NIRIS using the NIRIS API according to [NIRIS ICD].	BL 3												
6.2.1.2.1.0-1.0-5	[T1-R1965]	TRITON shall be able to handle multiple track sources coming from the same NIRIS interface.	BL 3												
6.2.1.3		**NATO Bi-SC AIS Functional Services**													
6.2.1.3.1		**Environmental FS**													
6.2.1.3.1.0-1.0-1	[T1-R1966]	TRITON shall have a dedicated interface for ENV-FS on the NS Domain and implement [ENV-FS ICD].	BL 3												
6.2.1.3.1.0-1.0-2	[T1-R1967]	TRITON shall be able to receive Environmental Information, given in the Description, from ENV-FS according to [ENV-FS ICD] and process it in Environmental Information Management function. If Core GIS can provide it as a service, this service shall be used.	BL 3												
6.2.1.3.2		**CBRN Defence FS**													
6.2.1.3.2.0-1.0-1	[T1-R1968]	TRITON shall have a dedicated interface for CBRN-FS on the NS Domain and implement [CBRN-FS ICD].	BL 3												
6.2.1.3.2.0-1.0-2	[T1-R1969]	TRITON shall be able to receive CBRN Information, given in the Description, from CBRN-FS according to [CBRN-FS ICD] and process it in CBRN Information Management function.	BL 3												
6.2.1.3.3		**Intelligence FS**													
6.2.1.3.3.0-1.0-1	[T1-R1970]	TRITON shall have a dedicated interface for INTEL-FS on the NS Domain and implement [INTEL-FS ICD].	BL 3												
6.2.1.3.3.0-1.0-2	[T1-R1971]	TRITON shall be able to receive the Intelligent Information given in the Description from INTEL-FS according to [INTEL-FS ICD] and process it in Intelligence Information Management function.	BL 3												
6.2.1.3.3.0-1.0-3	[T1-R1972]	TRITON shall be able to send a query to INTEL-FS prepared according to [INTEL-FS ICD] to request intelligence information on an object, and process the returned result in Intelligence Information Management function.	BL 3												
6.2.1.4		**NATO Systems and Capabilities**													
6.2.1.4.1		**Message Handling System**													
6.2.1.4.1.0-1.0-1	[T1-R1973]	TRITON shall have a dedicated interface for MHS over Mail Exchange on the NS Domain.	BL 3												
6.2.1.4.1.0-1.0-2	[T1-R1974]	TRITON shall be able to exchange Formatted Messages with Mail Exchange using SMTP.	BL 3												
6.2.1.4.2		**NCOP**													
6.2.1.4.2.0-1.0-1	[T1-R1975]	TRITON shall have a dedicated interface for NCOP on the NS Domain.	BL 3												
6.2.1.4.2.0-1.0-2	[T1-R1976]	TRITON shall be able to receive RAP from NCOP via NCOP Web Service according to [NCOP ICD].	BL 3												
6.2.1.4.2.0-1.0-3	[T1-R1977]	TRITON shall be able to receive RGP from NCOP via NCOP Web Service according to [NCOP ICD].	BL 3												
6.2.1.4.3		**MCCIS**													
6.2.1.4.3.0-1.0-1	[T1-R1978]	TRITON shall have a dedicated interface for each MCCIS Server on the NS Domain.	BL 1												
6.2.1.4.3.0-1.0-2	[T1-R1979]	TRITON shall be able to receive track and overlay information from MCCIS Server using OTH-T GOLD Messages.	BL 1												
6.2.1.4.3.0-1.0-3	[T1-R1980]	TRITON shall be able to handle interfaces with more than one MCCIS Server.	BL 3												
6.2.1.4.3.0-1.0-4	[T1-R1981]	TRITON shall be able to send selected track information to the selected MCCIS Server usine OTH-T GOLD Messages.	BL 3												
6.2.1.4.4		**Alliance Ground Surveillance System**													
6.2.1.4.4.0-2	[T1-R1982]	TRITON shall have a dedicated interface for AGS on the NS Domain.	BL 3												
6.2.1.4.4.0-3	[T1-R1983]	TRITON shall be able to receive Track Data from AGS via a Web service if the [AGS ICD] is available at the time of implementation. If not, a generic Track Data interface shall be provided for test purposes.	BL 3												
6.2.1.4.4.0-4	[T1-R1984]	TRITON shall be able to receive AIS track data from AGS via a Web service. If AGS is not available at the time of implementation, the interface shall be tested with simulated AIS data.	BL 3												
6.2.2		**Non-NATO Systems and Services**													
6.2.2.1		**AIS Data Source**													
6.2.2.1.0-1.0-1	[T1-R1985]	TRITON shall have a dedicated interface for each AIS Data Source specified on either NS or NU Domain.	BL 2												
6.2.2.1.0-1.0-2	[T1-R1986]	TRITON shall be able to receive AIS track data from a dedicated source on the NU Domain.	BL 2												
6.2.2.1.0-1.0-3	[T1-R1987]	TRITON shall be able to receive AIS track data from a dedicated source on the NS Domain if data source is available at the time of System Integration.	BL 3												
6.2.2.2		**MSSIS**													
6.2.2.2.0-1.0-1	[T1-R1988]	TRITON shall have a dedicated interface for MSSIS via TV32 on the NU Domain.	BL 2												
6.2.2.2.0-1.0-2	[T1-R1989]	TRITON shall be able to receive AIS messages from TV32 using NMEA 0183 format via TCP/IP connection over the Internet.	BL 2												
6.2.2.2.0-1.0-3	[T1-R1990]	TRITON shall be able to process all data received from MSSIS without anv loss.	BL 2												
6.2.2.3		**AIS Data Services**													
6.2.2.3.0-1.0-1	[T1-R1991]	TRITON shall have a dedicated interface for a contracted AIS Data Service on the NU Domain.	BL 2												
6.2.2.3.0-1.0-2	[T1-R1992]	TRITON shall be able to receive AIS data from a contracted AIS Data Service via TCP/IP connection over the Internet.	BL 2												
6.2.2.3.0-1.0-3	[T1-R1993]	TRITON shall be able to process all data received from a AIS Data Service without any loss. Lost track reports shall be recorded as KPI.	BL 2												
6.2.2.3.0-1.0-4	[T1-R1994]	TRITON shall allow the authorised user to adjust the update rate of tracks received from AIS Data sources.	BL 2												
6.2.2.4		**LRIT Data Centre**													
6.2.2.4.0-1.0-1	[T1-R1995]	TRITON shall have a dedicated interface with a contracted LRIT Data Centre to receive LRIT Position Reports on the NU Domain.	BL 2												
6.2.2.4.0-1.0-2	[T1-R1996]	TRITON shall extract track information from LRIT Position Reports, resolve identity of the vessel and process it as a new track or update an existing track.	BL 2												
6.2.2.5		**Space-Based Asset Source**													
6.2.2.5.0-1.0-1	[T1-R1997]	TRITON shall have a dedicated interface for a generic SBA-IU on the NU Domain.	BL 2												
6.2.2.5.0-1.0-2	[T1-R1998]	TRITON shall allow the authorised user to define a region with a timeframe and issue a surveillance request to the SBA-IU.	BL 2												
6.2.2.5.0-1.0-3	[T1-R1999]	TRITON shall generate an XML file that includes the surveillance request and send it to the SBA-IU.	BL 2												
6.2.2.5.0-1.0-4	[T1-R2000]	TRITON shall be able to receive track data in XML file or as a stream from the SBA-IU.	BL 2												
6.2.2.5.0-1.0-5	[T1-R2001]	TRITON shall be able to receive an image file from the SBA-IU with geospatial data and display it in the GeoView in a separate Layer.	BL 2												
6.2.2.5.0-1.0-6	[T1-R2002]	TRITON shall provide an SBA-IU Simulator for interface test purposes.	BL 2												
6.2.2.5.0-1.0-7	[T1-R2003]	TRITON SBA-IU Simulator shall be able to receive surveillance area request from TRITON, and send a predefined image file and at least one-hundred (100) radar and one-hundred (100) AIS tracks in the surveillance region.	BL 2												
6.2.2.6		**Generic Track Source**													
6.2.2.6.0-1.0-1	[T1-R2004]	TRITON shall provide a Generic Track Source Interface module which can be implemented according to a particular external system interface specification.	BL 3												
6.2.2.6.0-1.0-2	[T1-R2005]	TRITON Generic Interface Module shall have a re-usable software module which consists of a standard and a modifiable part to implement an interface for a particular track source. The interface module shall be introduced to the system by configuring the System Management.	BL 3												
6.2.3		**Nation Interfaces**													
6.2.3.1		**Nation Interface - NS**													
6.2.3.1.0-3.0-1	[T1-R2006]	TRITON shall have a dedicated interface per Nation as a service on the NS Domain.	BL 3												
6.2.3.1.0-3.0-2	[T1-R2007]	TRITON shall allow the authorised user to control and monitor each Nation Interface - NS.	BL 3												
6.2.3.1.0-3.0-3	[T1-R2008]	TRITON shall allow a National System to register to the Nation Interface with the RMP Specification as given in the Description.	BL 3												
6.2.3.1.0-3.0-4	[T1-R2009]	TRITON shall make the RMP available according to the RMP Specification via the Nation Interface - NS as a Web Service.	BL 3												
6.2.3.1.0-3.0-5	[T1-R2010]	TRITON shall be able to send the RMP to a registered Nation as a stream on TCP/UDP/IP in compliance with the TRITON Track Specification - NS.	BL 3												
6.2.3.1.0-3.0-6	[T1-R2011]	TRITON shall be able to receive track reports from a Nation as a Web Service in compliance with the TRITON Track Specification - NS.	BL 3												
6.2.3.1.0-3.0-7	[T1-R2012]	TRITON shall be able to receive track reports from a Nation as a stream on TCP/UDP/IP in compliance with the TRITON Track Specification - NS.	BL 3												
6.2.3.1.0-3.0-8	[T1-R2013]	TRITON shall allow the authorised user to specify the destination addresses for the Nation to which the RMP will be disseminated with point-to-point Formatted Messages.	BL 3												
6.2.3.2		**Nation Interface - NU**													
6.2.3.2.0-1.0-1	[T1-R2014]	TRITON shall have a dedicated interface per Nation as a service on the NU Domain.	BL 2												
6.2.3.2.0-1.0-2	[T1-R2015]	TRITON shall allow the authorised user to control and monitor each Nation Interface - NU.	BL 2												
6.2.3.2.0-1.0-3	[T1-R2016]	TRITON shall allow a National System to register to the Nation Interface with the WP Specification as given in the Description.	BL 2												
6.2.3.2.0-1.0-4	[T1-R2017]	TRITON shall make the WP available according to the WP Specification via the Nation Interface - NU as a Web Service.	BL 2												
6.2.3.2.0-1.0-5	[T1-R2018]	TRITON shall be able to send the WP to a registered Nation as a stream on TCP/UDP/IP in compliance with the TRITON Track Specification - NU.	BL 2												
6.2.3.2.0-1.0-6	[T1-R2019]	TRITON shall be able to receive track reports from a Nation as a Web Service in compliance with the TRITON Track Specification - NU or AIS data in NMEA 0183 format.	BL 2												
6.2.3.2.0-1.0-7	[T1-R2020]	TRITON shall be able to receive track reports from a Nation as a stream on TCP/UDP/IP in compliance with the TRITON Track Specification - NU or AIS data in NMEA 0183 format.	BL 2												
6.2.4		**Afloat Command Platform Interfaces**													
6.2.4.1		**ACP Interface - NS**													
6.2.4.1.0-1.0-1	[T1-R2021]	TDK-NS shall have an ACP Interface on the NS Domain for interfacing the systems available on the Command Ship.	BL 4												
6.2.4.1.0-1.0-2	[T1-R2022]	TDK-NS shall allow the authorised user to control and monitor the ACP Interface - NS.	BL 4												
6.2.4.1.0-1.0-3	[T1-R2023]	TDK-NS shall allow an external system to register to the ACP Interface with the RMP Specification (as described in Nation Interface - NS).	BL 4												
6.2.4.1.0-1.0-4	[T1-R2024]	TDK-NS shall make the RMP available according to the RMP Specification (as described in Nation Interface - NS) via the ACP Interface as a service.	BL 4												
6.2.4.1.0-1.0-5	[T1-R2025]	TDK-NS shall be able to receive track reports from an external system as a stream in compliance with the TRITON Track Specification - NS via the ACP Interface - NS.	BL 4												
6.2.4.1.0-1.0-6	[T1-R2026]	TDK-NS shall be able to receive Own Ship Data from external systems as a stream in compliance with the TRITON Own Ship Data Specification via the ACP Interface - NS.	BL 4												
6.2.4.1.0-1.0-7	[T1-R2027]	TDK-NS shall maintain Own Ship Data and automatically initiate and update a track with the highest Confidence Level.	BL 4												
6.2.4.1.0-1.0-8	[T1-R2028]	TDK-NS shall allow the authorised user to manually enter the attributes of Own Ship Data.	BL 4												
6.2.4.1.0-1.0-9	[T1-R2029]	TDK-NS shall have the RMP Service to be activated and controlled by the authorised user if needed.	BL 4												
6.2.4.2		**ACP Interface - NU**													
6.2.4.2.0-1.0-1	[T1-R2030]	TDK-NU shall have an ACP Interface on the NU Domain for interfacing the systems available on the ACP.	BL 4												
6.2.4.2.0-1.0-2	[T1-R2031]	TDK-NU shall allow the authorised user to control and monitor the ACP Interface - NU.	BL 4												
6.2.4.2.0-1.0-3	[T1-R2032]	TDK-NU shall allow an external system to register to the ACP Interface with the WP Specification (as described in Nation Interface - NU).	BL 4												
6.2.4.2.0-1.0-4	[T1-R2033]	TDK-NU shall make the WP available according to the WP Specification (as described in Nation Interface - NU) via the ACP Interface as a service.	BL 4												
6.2.4.2.0-1.0-5	[T1-R2034]	TDK-NU shall be able to receive track reports from an external system as a stream in compliance with the TRITON Track Specification - NU via the ACP Interface - NU.	BL 4												

Object Number	Requirement Number	Heading / Requirement	Default Baseline	Availability of TRITON Functions							Availability of VC Functions				Remarks
				BT	CDS	BL 1	BL 2	BL 3	BL 4	NI	VC-BL 1	VC-BL 2	VC-BL 3	NI	
6.2.4.2.0-1.0-6	[T1-R2035]	TDK-NU shall be able to receive Own Ship Data from external systems as a stream in compliance with the TRITON Own Ship Data Specification via the ACP Interface - NU.	BL 4												
6.2.4.2.0-1.0-7	[T1-R2036]	TDK-NU shall maintain Own Ship Data to automatically initiate and update a track with the highest Confidence Level.	BL 4												
6.2.4.2.0-1.0-8	[T1-R2037]	TDK-NU shall allow the authorised user to manually enter the attributes of Own Ship Data.	BL 4												
6.2.4.2.0-1.0-9	[T1-R2038]	TDK-NU shall have the WP Service to be activated and controlled by the authorised user if needed.	BL 4												
6.2.4.3		**Message Handling System Interface**													
6.2.4.3.0-1.0-1	[T1-R2039]	TDK-NS shall have a dedicated interface service for MHS over Mail Exchange.	BL 4												
6.2.4.3.0-1.0-2	[T1-R2040]	TDK-NS shall be able to exchange Formatted Messages with Mail Exchange using SMTP.	BL 4												
6.2.5		**TRITON External Interfaces**													
6.2.5.1		**RMP Service**													
6.2.5.1.0-1.0-1	[T1-R2041]	TRITON shall have an interface service named as "RMP Service" on the NS Domain.	BL 3												
6.2.5.1.0-1.0-2	[T1-R2042]	TRITON shall make the RMP available according to the RMP Specification (defined in the Description) via a Web service.	BL 3												
6.2.5.1.0-1.0-3	[T1-R2043]	TRITON shall allow external systems/services to register themselves to the RMP Service with the RMP Specification.	BL 3												
6.2.5.1.0-1.0-4	[T1-R2044]	TRITON RMP Service shall provide a search capability compliant to Open Search [Open Search].	BL 3												
6.2.5.1.0-1.0-5	[T1-R2045]	TRITON shall allow the authorised user to control and monitor the RMP dissemination process.	BL 3												
6.2.5.1.0-1.0-6	[T1-R2046]	TRITON shall be able to provide the RMP to external systems/services as a track data stream in compliance with the TRITON Track Specification - NS within one second after applying the requested RMP Specification including filtering.	BL 3												
6.2.5.1.0-1.0-7	[T1-R2047]	TRITON shall be able to send the RMP to the external systems/services using Formatted Messages and point-to-point communication.	BL 3												
6.2.5.1.0-1.0-8	[T1-R2048]	TRITON shall be able to send the RMP to the external systems/services using NVG format according to [NVG].	BL 3												
6.2.5.1.0-1.0-9	[T1-R2049]	TRITON Deployable Kit (NS) shall have the same RMP Service if activated and controlled by the authorised user.	BL 4												
6.2.5.1.0-1.0-10	[T1-R2050]	TRITON RMP Service interface shall be defined in the TRITON ICD.	BL 3												
6.2.5.2		**WP Service**													
6.2.5.2.0-1.0-1	[T1-R2051]	TRITON shall have an interface service named "WP Service" on the NU Domain.	BL 2												
6.2.5.2.0-1.0-2	[T1-R2052]	TRITON shall make the WP available according to the WP Specification (as described above) via a Web service.	BL 2												
6.2.5.2.0-1.0-3	[T1-R2053]	TRITON shall allow the external systems/services to register themselves to the WP Service with the WP Specification.	BL 2												
6.2.5.2.0-1.0-4	[T1-R2054]	TRITON shall be able to provide the WP to external systems/services as a track data stream in compliance with the TRITON Track Specification - NU within one second after applying the requested WP Specification including filtering.	BL 2												
6.2.5.2.0-1.0-5	[T1-R2055]	TRITON WP Service shall provide a search capability compliant to Open Search [Open Search].	BL 2												
6.2.5.2.0-1.0-6	[T1-R2056]	TRITON shall allow the authorised user control and monitor the WP dissemination process.	BL 2												
6.2.5.2.0-1.0-7	[T1-R2057]	TRITON Deployable Kit (NU) shall have the same WP Service if activated and controlled by the authorised user.	BL 4												
6.2.5.2.0-1.0-8	[T1-R2058]	TRITON WP Service interface shall be defined in the TRITON ICD.	BL 2												
6.2.5.3		**Information of Common Interest Service**													
6.2.5.3.0-1.0-1	[T1-R2059]	TRITON shall have an interface service named as "Information of Common Interest (ICI) Service" on both NS and NU Domains.	BL 2												
6.2.5.3.0-1.0-2	[T1-R2060]	TRITON shall allow the authorised user to control the releasability of information of Common Interest.	BL 2												
6.2.5.3.0-1.0-3	[T1-R2061]	TRITON shall make the Maritime Task Organization List available via the ICI Service.	BL 3												
6.2.5.3.0-1.0-4	[T1-R2062]	TRITON shall make the Area of Interest List available via the ICI Service.	BL 3												
6.2.5.3.0-1.0-5	[T1-R2063]	TRITON shall make the Rules of Engagement List available via the ICI Service.	BL 3												
6.2.5.3.0-1.0-6	[T1-R2064]	TRITON shall make the WSM/PMI Areas available via the ICI Service.	BL 3												
6.2.5.3.0-1.0-7	[T1-R2065]	TRITON shall make the Vessel List available via the ICI Service.	BL 3												
6.2.5.3.0-1.0-8	[T1-R2066]	TRITON shall make the Person of Maritime Interest List available via the ICI Service.	BL 3												
6.2.5.3.0-1.0-9	[T1-R2067]	TRITON shall make the Lloyd's Maritime Intelligence Unit List available via the ICI Service.	BL 2												
6.2.5.3.0-1.0-10	[T1-R2068]	TRITON shall make the Detention List available via the ICI Service.	BL 2												
6.2.5.3.0-1.0-11	[T1-R2069]	TRITON shall make the requested data available within one second via the ICI Service.	BL 2												
6.2.5.3.0-1.0-12	[T1-R2070]	TRITON ICI Service shall provide a search capability compliant to Open Search [Open Search].	BL 3												
6.2.5.3.0-1.0-13	[T1-R2071]	TRITON Deployable Kit (NS and NU) shall have the same ICI Services if activated and controlled by the authorised user.	BL 4												
6.2.5.3.0-1.0-14	[T1-R2072]	TRITON ICI Service interface shall be defined in the TRITON ICD.	BL 2												
6.3		**TRITON Internal Interface Requirements**													
6.3.1		**TRITON Internal Interfaces**													
6.3.2		**TRITON-to-TRITON Interfaces**													
6.3.2.0-2.0-1	[T1-R2073]	A static TRITON Instance shall have a dedicated and configurable interfaces with other static TRITON Instances to enable Multi-site Operation.	BL 3												
6.3.2.0-2.0-2	[T1-R2074]	The Static TRITON Instance on a static site having the Master Role, shall have a dedicated interface for each Deployed TRITON Instance toto enable Multi-site Operation. The interface should be able to select the appropriate mechanism for enabling network communication in low bandwidth environment (e.g. reducing the update rate).	BL 3												
6.3.2.0-2.0-3	[T1-R2075]	The TRITON Instance on a static site having the Master Role, shall have a dedicated interface for each Afloat TRITON Instance to enable Multi-site Operation. The interface should be able to select the appropriate mechanism for enabling network communication in low bandwidth environment (e.g. reducing the update rate).	BL 3												
6.3.2.0-2.0-4	[T1-R2076]	The TRITON Instance on an afloat site shall have a dedicated configurable interface for a Static TRITON Instance to enable Multi-site Operation. It shall be able to receive data from a designated IP address without requiring request and acknowledgement.	BL 4												
6.3.2.0-2.0-5	[T1-R2077]	A static TRITON Instance having a System Interface Service for another static TRITON Instance shall be able to synchronise data to enable Multi-site Operation.	BL 3												
6.3.2.0-2.0-6	[T1-R2078]	TRITON shall allow the static site authorised user to control and monitor the System Interface Services for other static or afloat TRITON Instances.	BL 3												
6.3.2.0-2.0-7	[T1-R2079]	TRITON shall allow the afloat site authorised user to control and monitor the System Interface Services for static TRITON Instances.	BL 4												
6.3.2.0-2.0-8	[T1-R2080]	TRITON shall be able to send a selected set of data to a dedicated IP address without requiring request and acknowledgement. The data shall be sent with a logic which provides continuity of dynamic data as explained in the Description.	BL 3												
6.3.2.0-2.0-9	[T1-R2081]	TRITON shall allow the static site authorised user to set the System Interface Service for a selected afloat TRITON Instance to send a selected set of data.	BL 4												
6.3.2.0-2.0-10	[T1-R2082]	TRITON shall allow the authorised user to dynamically add or remove System Interface Services for the selected TRITON Instances.	BL 3												