Product Sheet ASDE

Air Situation Data Exchange (ASDE)

1 Product Description

1.1 Abstract

The Air Situation Data Exchange (ASDE) system manages the controlled exchange of the recognised air picture (RAP) data with partner nations (PN) by filtering and downgrading the classification of the NATO air picture to ensure releasability.

1.2 Detailed

The NATO requirement for a bi-directional exchange of a RAP between NATO nations and PN resulted in the development of the ASDE.

This system manages the controlled exchange of air picture data by filtering and downgrading the classification of the NATO air picture in such a manner that it is releasable to partner nations.

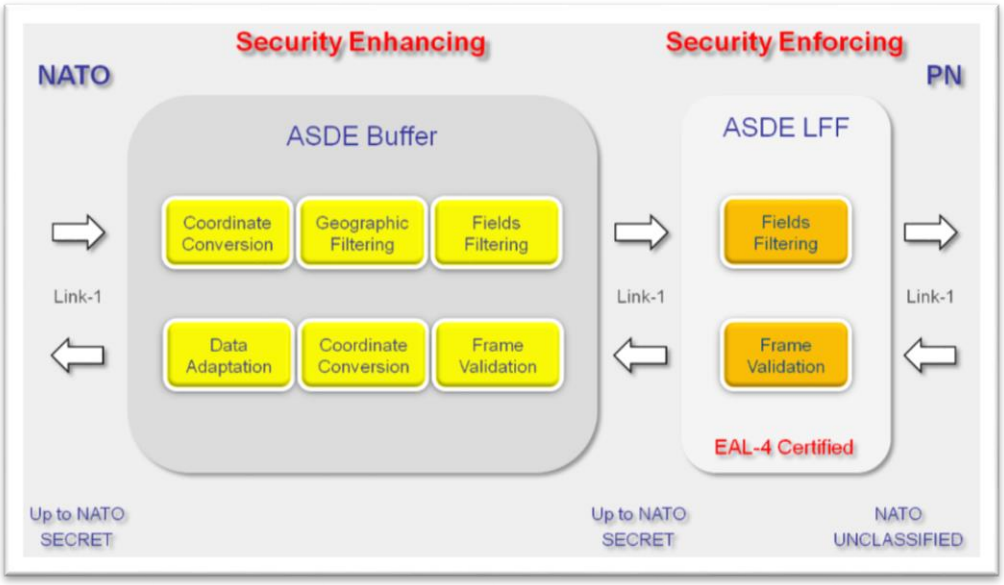
The basis for the data exchange through the ASDE system is the Tactical Data Link (TDL) Link 1.

ASDE acts as a border protection device and is NATO's first of its kind for Link 1.

1.2.1 Functional Description

The ASDE system provides a security enhancing (ASDE Buffer sub-system) and a dedicated security enforcing capability (ASDE Link Forward Filter sub-system). The latter is subject for formal security certification against Common Criteria, EAL4 level.

Figure 1: ASDE System Overview



The ASDE system will allow four operational modes:

- Peacetime Operations Mode
- Exercise Operations Mode
- Crisis Response Operations Mode
- Article 5 Operations Mode

The operational modes will determine the set of filter rules the ASDE Buffer and LFF will apply.

The ASDE security enhancing capability will, in implementing the security requirements, provide the following capabilities:

- coordinate conversion: masking of the originator site positions by using an arbitrary, bi-laterally agreed Data Link Reference Point (DLRP);
- geographic filtering: selection of information for data exchange based on geographical areas;
- filtering: message and data field filtering for sensitive information;
- validation: message frame validation (on receipt from PN only).

The ASDE security enforcing capability will provide the following capability:

- Trusted computing base: verification of message fields filtering and message frame validation.

1.2.2 Interface Standards

The ASDE system implements the Tactical Data Link protocol Link 1 in accordance with STANAG 5501, edition 6.

2 Product Strategy

2.1 Overall Strategy

The scope of the ASDE programme is to provide TDL Link 1 connections between NATO and selected Partner Nations.

The overall strategy for ASDE is to maintain the current system in support of the already approved installations. The potential ASDE scope extension comprises any NAC approved increase in the number of identified ASDE partner nations, as well as the use of ASDE in NATO site to NATO site data exchange scenarios to allow Link 1 exchange across security classification boundaries.

The ASDE system is independent of other NATO C2 interim systems and will also be a cornerstone in the data exchange in the ACCS era. Therefore, maintenance and further development of ASDE beyond the cessation of interim systems maintenance is expected.

Throughout the life of the ASDE, NCI Agency AirC2 PO&S Glons will continue to provide cost effective and efficient support including obsolescence management of the fielded systems in accordance with tasking from the ACCS Software Committee (ASC) and the Control and Reporting Sub-Committee (SC-2).

2.2 Operational Plans/Objectives

The development of future ASDE baselines/systems shall be limited to the minimum necessary to fulfil the NATO Integrated Air and Missile Defence System (NATINAMDS) operational requirements and in support of any fielded or future installations.

Emerging requirements, such as the aforementioned NATO-to-NATO configuration shall be incorporated into the ASDE system baseline to provide NATO a cost effective border protection device for the TDL Link 1. (Note: The emerging requirement is a result of the need to interface a legacy/interim CRC (NC) to an ACCS entity (NS) in the transition period during ACCS implementation.)

With the expansion of the interface to include ASTERIX tracks, the use of ASDE may be widened to allow the provision of the unclassified RAP to Air Traffic Control (ATC) in support of their mission.

An expansion of the interface to include radar data exchange will support connectivity of sensors and C2 units operating in different classification domains.

Any further ASDE development will consist of an out of the box solution that minimizes operator intervention as much as possible.

2.3 Technical Plans / Objectives

Technical support will mainly comprise corrective and adaptive maintenance activities to support the fielded operational system baseline.

In support of the NATO to NATO configuration, the ASDE system shall be adapted to allow for Link 1 frame validation only, in both directions (i.e. no data modification/filtering shall occur). The number of supported links in this specific configuration will be further increased to support 8 Link 1 channels simultaneously.

Hardware obsolescence issues are relevant for any future ASDE development activities. Further, the ASDE system must remain compatible with other relevant NATO/national systems and avoid incompatibilities due to obsolete hardware.

Hardware modifications/changes in response to obsolescence issues may affect current security target specifications and the security certification. The future security target shall be specified as generic as possible to minimise the need for re-certification.

The re-certification for the security target shall be arranged with an officially recognised security certification authority. The outcome of the certification is a required input for NATO accreditation through the SHAPE OPI COI.

3 Product Variants

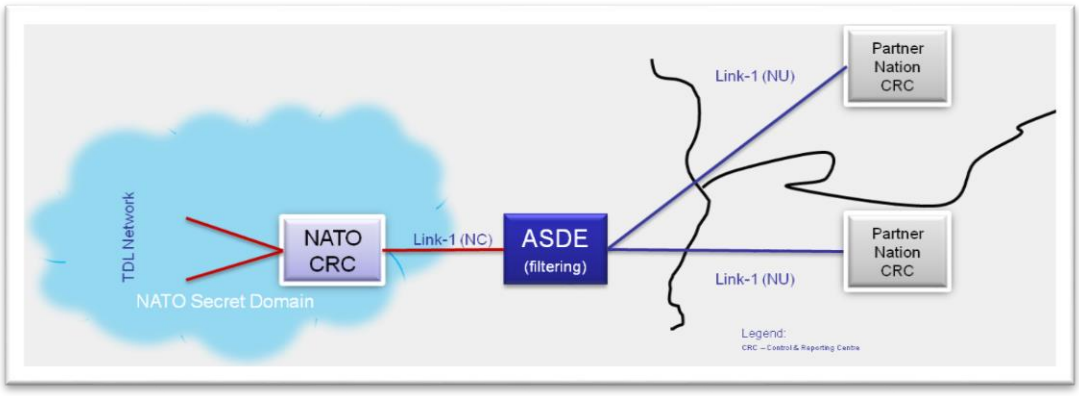
Currently, there is only 1 product variant available. The second variant for the NATO-to-NATO mode is under development.

3.1 Product Variant 1 - ASDE

3.1.1 Product Use Case

The following figure shows the prime use case for the ASDE:

Figure 2: ASDE Prime Use Case



3.1.2 Supported Version

The currently supported version is the ASDE Buffer 3.02 and ASDE LFF 1.5.

3.1.3 Product Artefacts

The following depicts the product artefacts of the ASDE system

- ASDE operational software
- Operating system
- ASDE hardware
- Communications equipment
- Documentation

3.1.4 Product Dependencies

3.1.4.1 Other NCI Agency AirC2 PO&S Products Requirements

Not applicable.

3.1.4.2 Hardware Requirements

Not applicable as it is a part of the product artefacts.

3.1.4.3 Software Requirements

Not applicable as it is a part of the product artefacts.

3.1.4.4 Communications Requirements

The data exchange through ASDE will be performed through analogue, serial or synchronous point-to-point line. As data communication equipment (DCE) modems capable of handling speeds up 9600 Baud are required.

4 Product Related Services

Sub-Service	Service	Applicability
Customer Support		
	First Line support (FLS)	✔
	Second Line Support incl. Third Line Support (TLS)	✔
	Delivery	✔
Site Intervention		
	Coordination	✔
	Repair	✔
	Installation	✔
	Test	✔
Operational Support		
	Coordination of Equipment Downtime	
	System Status and Statistics	
	Interoperability	✔
	Liaison	
	Management of Operational Database	

Sub-Service	Service	Applicability
Management		
	Financial	
	Contracts	
	License	
	Configuration	✔
Logistics		
	Supply	
	ILS	
	LSAR	
Training		
	Individual Technical Training	(✔)[1]
	Collective Training & Simulation Material	
Engineering		
	System	✔
	Safety	
	Security	✔
	Software Core	✔
	Software Other	✔
	Data	✔
	Hardware	✔
	Bearer Communications and Network	✔
	Deployable Equipment	
	Obsolescence	✔
	Documentation	✔

5 Product Focal Points

5.1 Operational Sponsor

SHAPE OPI OSP AC2

5.2 NCI Agency AirC2 PO&S Product Point of Contact

Product Manager (RT), Kevin Richardson, email: kevin.richardson@ncia.nato.int

5.3 NCI Agency AirC2 PO&S Support Contact

NCI Agency AirC2 PO&S Customer Service Desk, email: servicedesk.glons@ncia.nato.int, Tel: +32 4 289 9475

[1] Through On the Job Training (OJT)