



NEC CCIS

Northern European Command
Command and Control Information System
- a NATO Air C2 System

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Executive Summary

NEC CCIS is a mature system supporting NATO Air operations and exercises. The system is a rapidly adaptable Air C2 application that can evolve to emerging user and technical requirements. It is designed to interface and interoperate with other NATO and National military systems via numerous communication methods. NEC CCIS is cost-effective through the capability it provides, and the distribution of costs negotiated between the MOU signatories.

NEC CCIS is a reliable tool that stands out with its extensive functionality that covers both the requirements of the typically NATO-led command level such as a CAOC, and those associated requirements of the lower tactical and typically national command levels, such as NAOC, CRC, SBADOC, WOC and SQOC. The system provides a modern, user-friendly interface in a web browser, as a front end to a complex set of functionalities.

Introduction

NEC CCIS is a NATO-owned Air C2 system used by nations and NATO HQs and units. It is governed through a Memorandum of Understanding (MOU) currently signed by SHAPE, Norway, NATO Airborne Early Warning & Control Force (NAEW&C F) and NATO Intelligence, Surveillance, and Reconnaissance Force (NISRF) and is funded through a negotiated cost-share agreement between the participants. NEC CCIS provides a wide spectrum of Air Command and Control (Air C2) operational functionality used for planning, tasking, execution, and reporting of air operations. From the Combined Air Operations Centre (CAOC) or national equivalent, Control and Reporting Centres (CRCs) to the Wing Operation Centre (WOC), Squadron Operation Centre (SQOC) and Surface Based Air Defence (SBAD) level, NEC CCIS is recognised for its comprehensive operational functionality, including several specialized tools. Driven by a bottom-up feedback structure, the operational effectiveness of NEC CCIS is enhanced through interfaces identified and requested by NEC CCIS users at every level of the command structure.

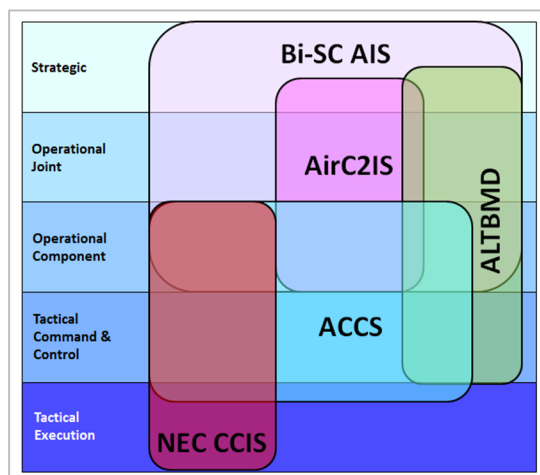


Fig 1 NEC CCIS in NATINAMDS¹

¹ NATO Integrated Air and Missile Defence System

NEC CCIS has served NATO and NEC CCIS member nations for decades, and constantly kept up to date by adapting to shifting operational needs and technological developments. It supports air operations at more than 30 sites, HQs, CRCs, and air bases including NAEW&CF Geilenkirchen (DEU), NISRF Sigonella (ITA), Estonia, Iceland, Lithuania and Norway. During operations and exercises, NEC CCIS can be deployed to forward operating locations using NEC CCIS deployable kits, supporting for instance forward presence and Quick Reaction Alert (QRA) missions. Interoperability with Air C2 entities in the NATO Command Structure (NCS) is taken care of by the NEC CCIS – ICC Interface (NISI) and the NEC CCIS – ACCS interface. NAEW&CF in Geilenkirchen uses NEC CCIS to provide message handling, scheduling, mission planning and current ops functionality to the E-3A Component. NISRF uses NEC CCIS to cover much the same operational needs as NAEW&CF, in addition to using NEC CCIS to support the planning of data collection activities for their surveillance aircraft fleet.

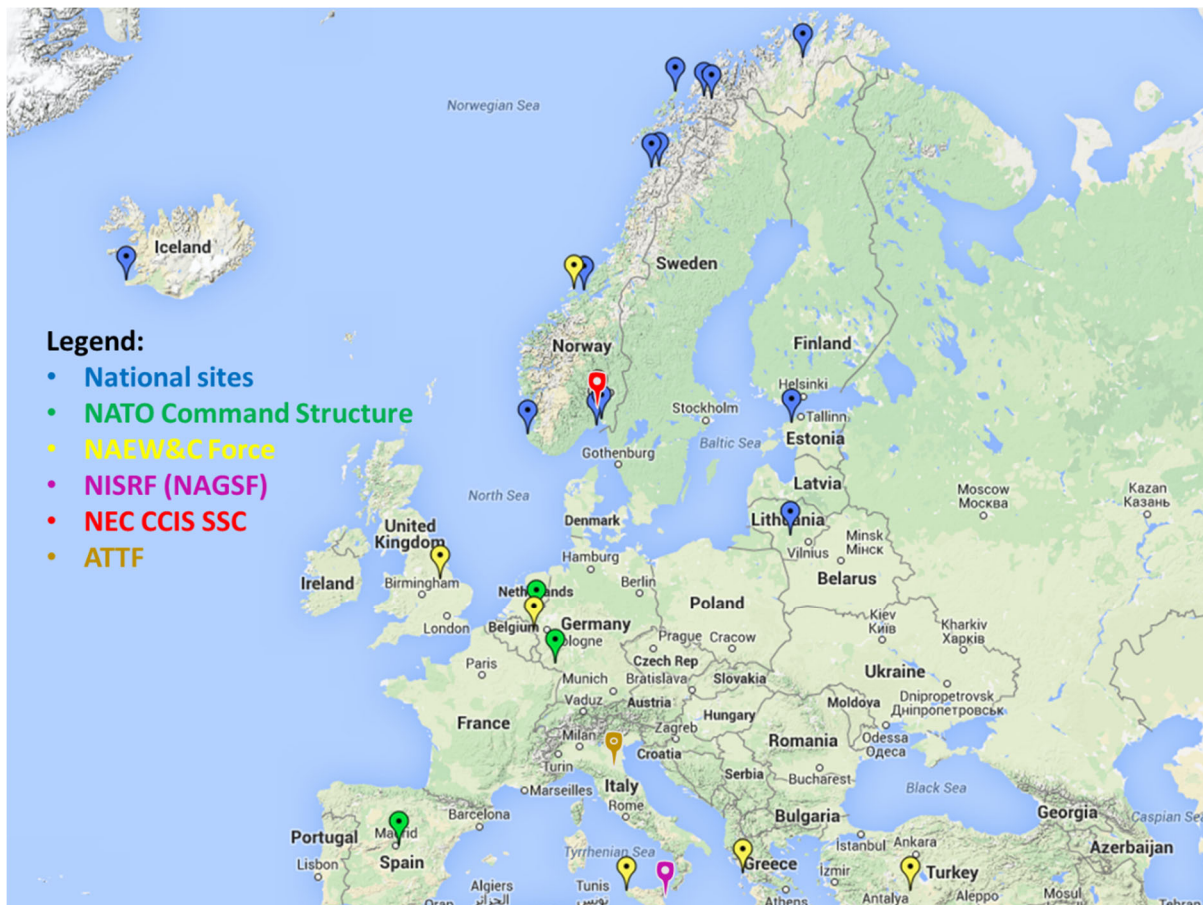


Fig 2 NEC CCIS Footprint

The NEC CCIS System Support Centre (SSC)

The NEC CCIS System Support Centre (SSC) is part of the NATO Peacetime Establishment (PE) structure, part of Supreme Headquarters Allied Powers Europe (SHAPE). The SSC is located at Kolsås (nearby Oslo), Norway.

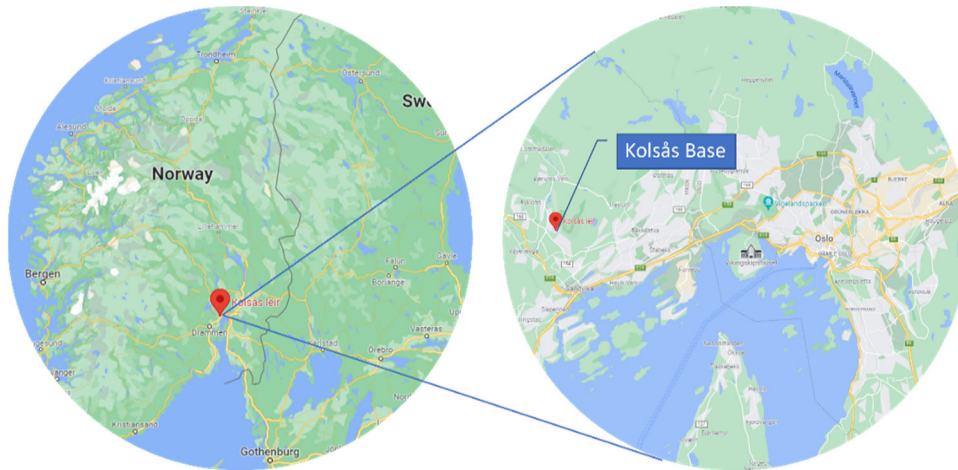


Fig 3 Location NEC CCIS System Support Centre (SSC)

The SSC has two main tasks:

1. Ensure the software works as intended, including supporting the operational and technical user community in their use of NEC CCIS in daily operations in peace, crisis, exercise, and conflict.
2. Maintain the NEC CCIS software suite to support the changing operational and security requirements.

The SSC Commander reports to the Assistant Chief of Staff Strategic Development of Forces at SHAPE in Mons, Belgium. The current SSC Peacetime Establishment (PE) manning consists of 19 NATO civilian and military staff, in addition to some Nationally Assigned Posts (NAP).

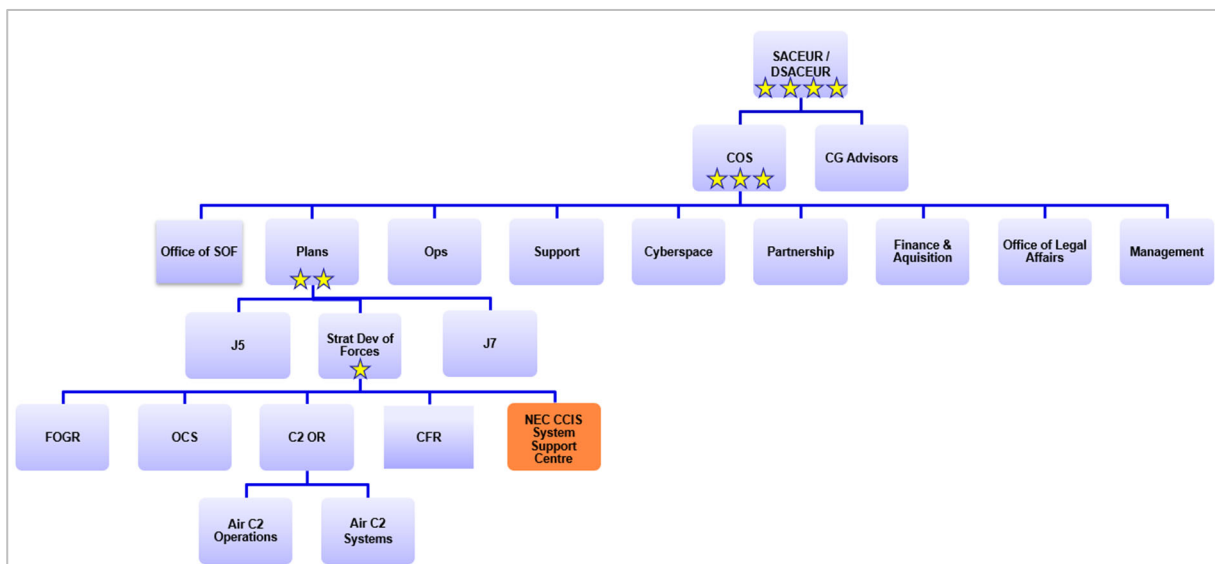


Fig 4 SHAPE Organisation Chart

The software support provided by the SSC is compliant with NATO and national operational, technical, and security requirements. The SSC also supports NATO and national units during live operations, exercises, and trials, including problem-solving and support to local NEC CCIS system administrators and operators.

NEC CCIS hardware procurement and maintenance is the responsibility of the respective site/nation; however, the SSC can provide hardware recommendations on request.

Governance

The SSC is governed by the NEC CCIS Board with the MOU signatories as voting members (current members are SHAPE, NAEW&CF, NISRF, and NOR). The Board has representatives from all NATO units and nations using NEC CCIS. The NEC CCIS Board, chaired by SHAPE, is the tasking authority for the SSC, managed through the Programme of Work (POW) approved by the Board meeting twice a year.

The POW contains a work plan for the SSC, detailing the areas where the SSC shall put its resources. The different areas are defined in Work Packages (WPs), the POW document thus contains a prioritized list of WPs. The operational requirements are staffed through the NEC CCIS User Group (NUG) consisting of both operational and technical members from all user sites. Likewise, the NEC CCIS Technical Coordination Meeting (NTCM) addresses and advises the Board on technical matters.

The Operations and Maintenance (O&M) budget of the SSC is subject to a cost sharing agreement between the NEC CCIS partners, described in the MoU. The NEC CCIS Board endorsed budget is annually forwarded to the participants' authorities for final approval. Should any voting members require specific modifications that do not fit in the annual O&M budget, special projects can be created to cover extraordinary requirements.

Operational Functionality

NEC CCIS covers critical non-real time Air C2 functions such as planning, tasking, reporting, and execution. The operational functionality of NEC CCIS is user driven and continues to evolve. Currently, it contains more than 400 totes² to support the total scope of NEC CCIS C2 functionality.

Copy All Aircraft to new DB level																				
A/C Data 28 / 28 rows																				
*A/C Type	Long Name	*Speed	*Refuel Type	Fuel		*Refuel Time	Burn Rate lbs/hr					Extra %	Communication			Log AC Type	RIC	AEW Tag	Simulator Type	Symbol Type
				*Capacity	*Type		*Low	*Medium	*High	*Take Off %	*Landing %		Link 16	Link 11	VMF					
A400M	ATLAS	340	BOM	50000	JP8	5	3000	3000	3000	7	7	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
AN12	Z-CUB	250	BOM	40000	JP8	5	5000	5000	5000	5	5	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
AV8B	HARRIER	400	CBD	28000	JP8	5	2400	3600	3800	5	10	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
AW159	WILDCAT	160	NO	4000	JP8	0	250	250	250	5	5	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
B412	BELL 412	120	NO	2500	JP8	0	1200	700	700	2	4	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
C130	HERCULES	250	BOM	40000	JP8	5	5000	5000	5000	6	6	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
CH53E	SUPERSTALLION	120	CBD	12700	JP8	5	300	300	300	5	5	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
DJIM3	DJI MAVIC3	50	NO	100	ELEC	0	120	120	120	5	5	0	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
E3	SENTRY	420	BOM	180000	JP8	5	13000	13000	13000	8	7	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
EH101	MERLIN	120	BOM	8000	JP8	5	300	300	300	5	5	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
F18	HORNET	480	CBD	14000	JP8	5	4000	4000	4000	5	5	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
F35A	F35A LIGHTNING	485	BOM	18250	JP8	5	6700	6700	6700	5	7	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
F35B	F35B LIGHTNING	485	BOM	13500	JP8	5	6700	6700	6700	5	7	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					

Fig 5 Tote example (A/C Data)

NEC CCIS can simultaneously support live operations and synthetic exercises and is currently configured to support up to 100 simultaneous operations. NEC CCIS is interoperable with NATO

² Tote – Text or Tabular Entry, much like an electronic information board or a web page.

simulation tools like Integrated Training Capability (ITC) over NISI to ICC, Joint Theatre Level Simulation (JTLS) and Integrated Simulation Package (ISP).



Fig 6 GIS showing tracks, ACO and intel collection sensor plan

When the built-in maps are used in conjunction with the input from external systems, the user can build a Common Operational Picture (COP). The NATO Joint Secure Tactical Chat (JChat) can also run on the NEC CCIS platform to provide an Extensible Messaging and Presence Protocol (XMPP)-based chat system. Dynamic JChat forms with a selection of chat-templates are integrated in the NEC CCIS C2 application.

The NEC CCIS C2 functionality supports several aspects of the processes and required products according to NATO doctrines and procedures for Allied Air Operations at operational level, such as Air Space Management, production of Air Tasking Orders (ATO), Tactical Battle Management Functions (TBMF), Emission Control (EMCON), NATO Crisis and Response System (NCRS), Air Raid Warning (ARW), Scramble Order and Rules of Engagement (ROE).

At tactical level, NEC CCIS provides functionality for CRC, WOC and SQOC, for example Current Ops (WOC), Fighter Squadron (SQOC), Helicopter (SQOC), Multi-engine (SQOC), CRC and GBAD/SBAD. Together with the Mission Monitor tote and the Dynamic JChat forms, these tools are excellent for monitoring mission execution and reporting to maintain situational awareness.

The software can also to some extent support Joint and Multi Domain Operations (MDO), such as Joint ISR functionality, Land situational awareness (own forces and TIC-reports), Maritime situational awareness (Recognised Maritime Picture (RMP) display), Logistics and Targeting (JTS and PTL).

Entity specific functionality has been developed to support AEW Mission & Air Crew Planning, Force Management (Integrated Scheduling Tool (IST) tailored for AEW and AGS), Logbooks, Force Protection, Intelligence, Electronic Warfare and more.

Peace-time Daily Training

If a squadron needs to conduct missions outside of an ATO, they can insert their own missions. These missions will automatically be shared (via database replication) and displayed at higher echelons, in the same way as standard ATO missions. Operators can insert requests for training activities along with requests for airspace and control units for their training missions. The squadron can send a request for the next day to the CAOC/NAOC. The CAOC/NAOC can accept or reject the request. If accepted, the data goes directly into the ATO planning tool and the planner can add Identification Friend or Foe (IFF) codes (including Mode S and 5), callsign, radio frequencies, control agency, etc. This makes it possible to coordinate activities at all levels, resulting in an efficient use of airpower resources, and promotes situational awareness.

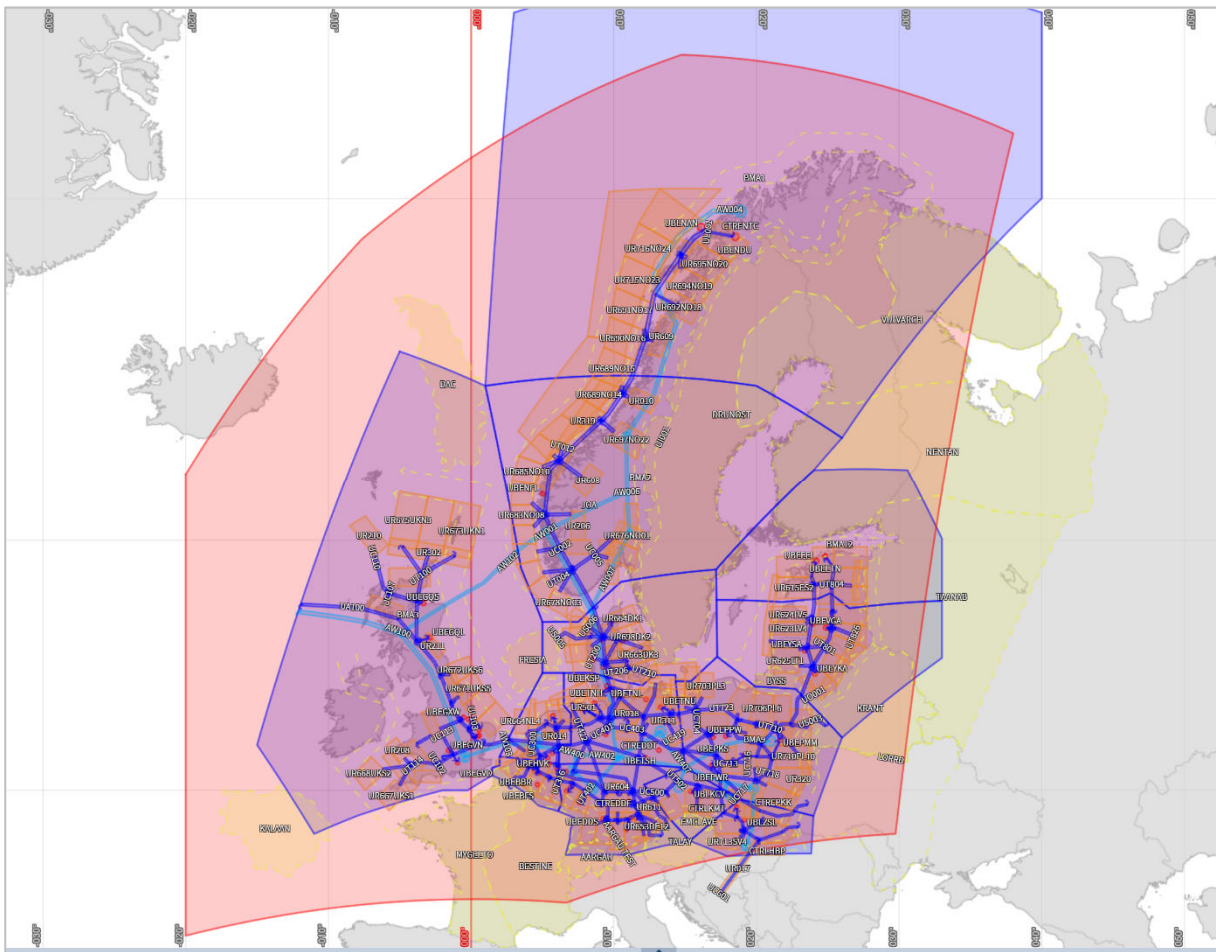


Fig 9 ACO in 2D view

Mission Monitor

When a mission is executed, the WOC or the SQOC enters the take-off time. This take-off time will automatically be replicated to all NEC CCIS sites and is instantly available in totes at the WOC/SQOC and the CRC, to enable mission control. For the logistics totes, the aircraft will have a status of “airborne” and this is locked until the aircraft has landed. When the mission ends, the aircraft status will change and unlock the aircraft. The mission status will automatically change to “terminated” at all levels when the landing time is inserted.

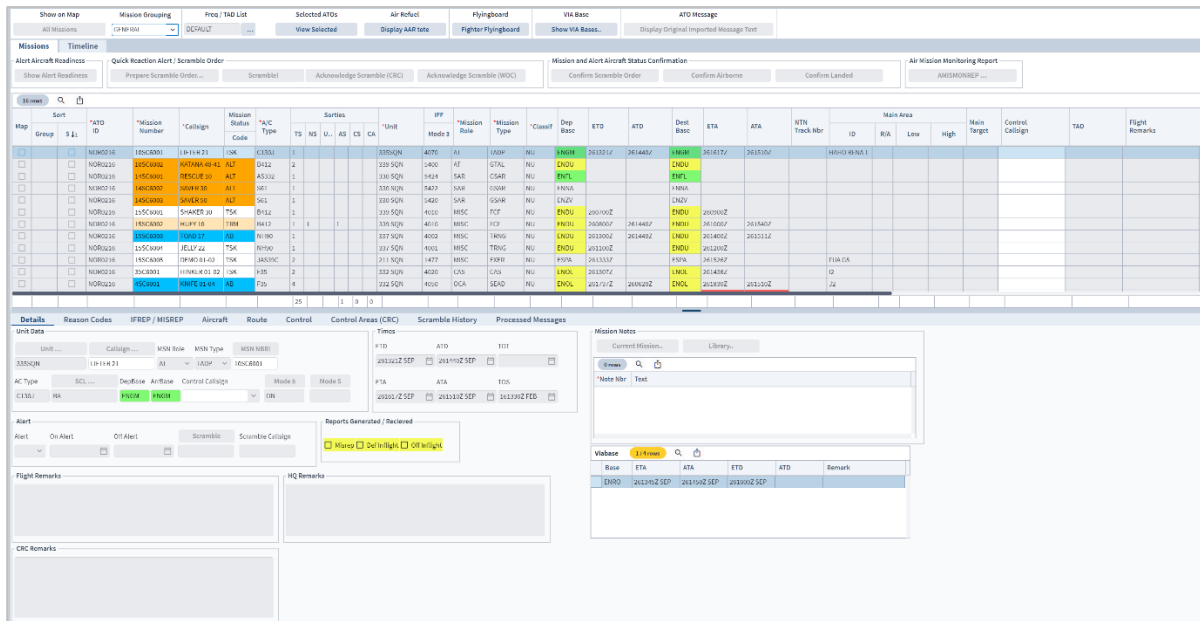


Fig 10 Misson Monitor

Targeting

The targeting module can import target data from JTS³ and the CAOC Prioritized Target List (PTL) in ICC via NISI. The data is presented in different views (target data/details) and is editable by the user. Target data for different campaigns or exercises are stored in a structured form.

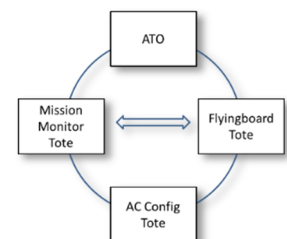
Event Log (Logbook)

Several Event Logs are available in the system and can be used at all levels. With this functionality, every position/cell at a NEC CCIS site can record events, and at the same time share information or action orders to other positions/cells. The cells can acknowledge each event, to perform unit C2, and all information can be tracked in NEC CCIS.

Fighter Squadron Flying Board

To support the planning and tasking cycle at the Squadron level, a Flying Board has been developed. The Flying Board contains all the necessary information to support a Fighter Aircraft (A/C) from workshop, line, armament, step-desk, airborne and landing. The Flying Board is also monitored by the CAOC/NAOC and the control agency, such as a CRC.

The Flying Board is used at the SQOC for detailed planning of all flying activities. Data is automatically updated from the ATO - including ATO txt, radio frequencies, callsigns, mission notes etc. The planner assigns aircraft (A/C) and pilots to the actual mission. An A/C Configuration Tote is used by the ground crew and weapon crew to report A/C status pr tail number, changes to the A/C configuration, parking spot etc. Data from the A/C Configuration Tote updates the Flying Board automatically. Take-off and landing times are either



³ Joint Targeting System (JTS) is NATO's designated targeting tool for developing target folders, managing target lists, and maintaining a legal record of target development and target operations. It is a joint tool with mapping and web-service capabilities.

transferred to the Flying Board from Mission Monitor based on WOC input or entered directly into the Flying Board by the SQOC. Airbase, runway status and local weather information will also be displayed in the Flying Board.

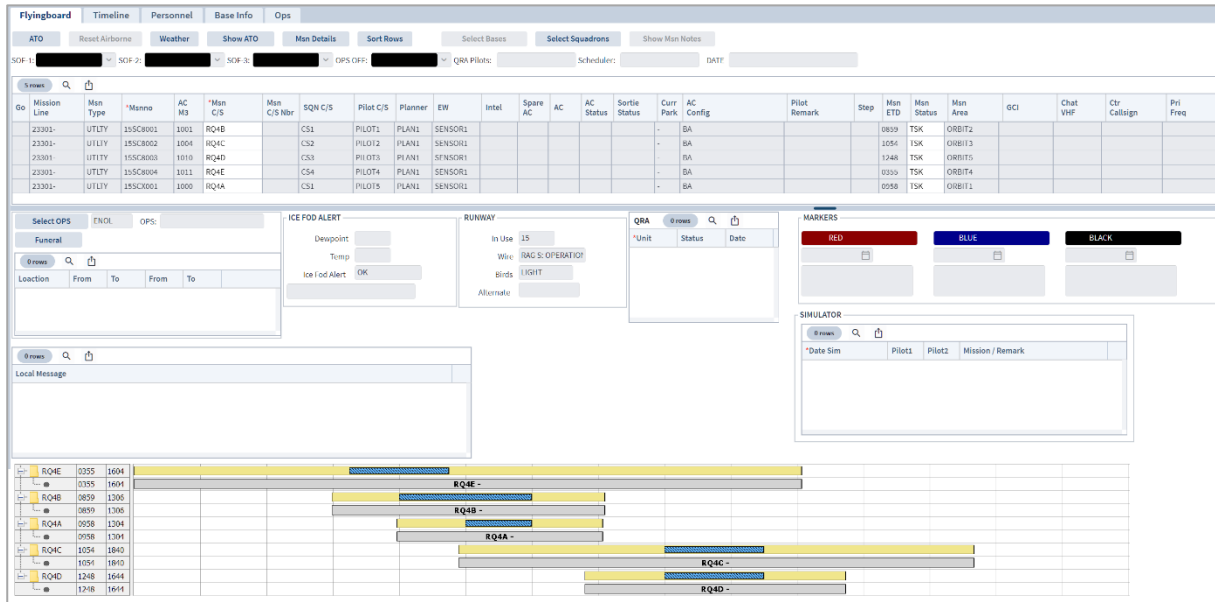


Fig 11 Flying Board and Timeline

NATO Airborne Early Warning (NAEW)

The NAEW module is custom made to replace functionality previously provided by the decommissioned NAEW&CF Mission Support System (MSS). The NAEW module contains functionality to support NAEW&C message handling, NAEW&C scheduling, NAEW&C mission planning and NAEW&C current ops (WOC/SQOC). The NAEW totes can be used by the CAOCs and HQ AIRCOM for monitoring Air Operations, planning and tasking.

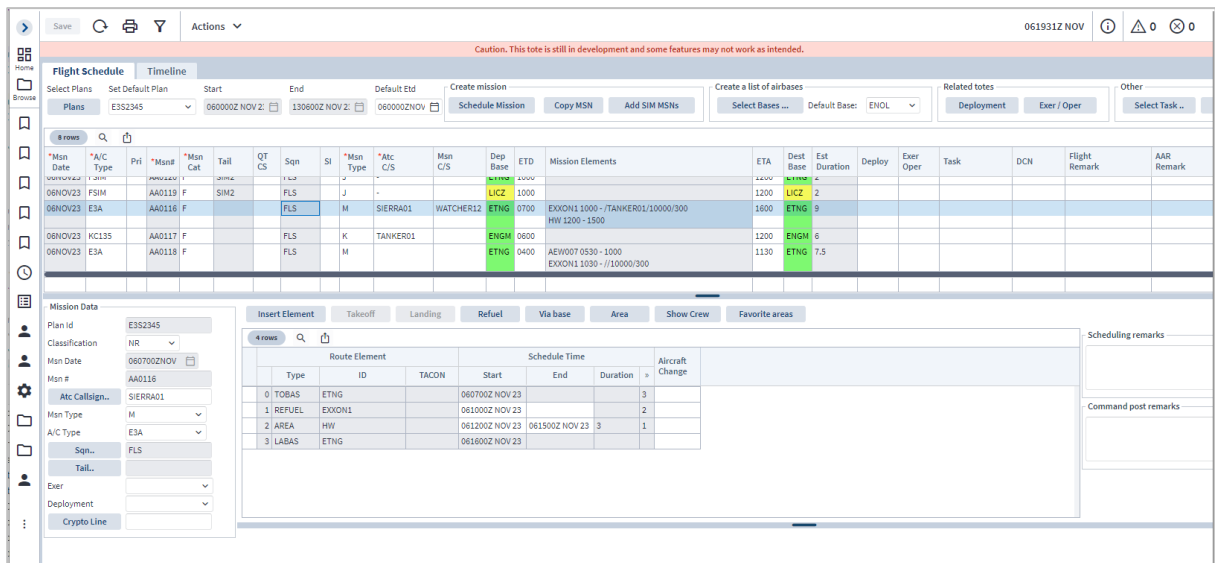


Fig 12 AEW Missions, Flight Schedule

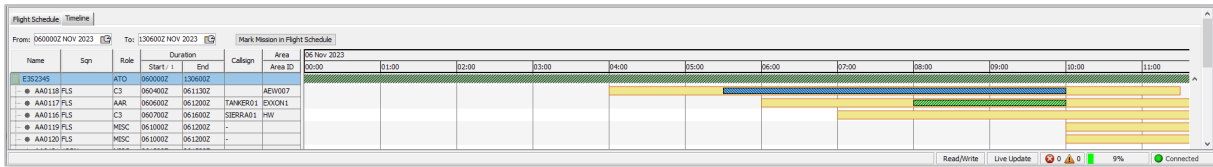


Fig 13 AEW Missions Timeline

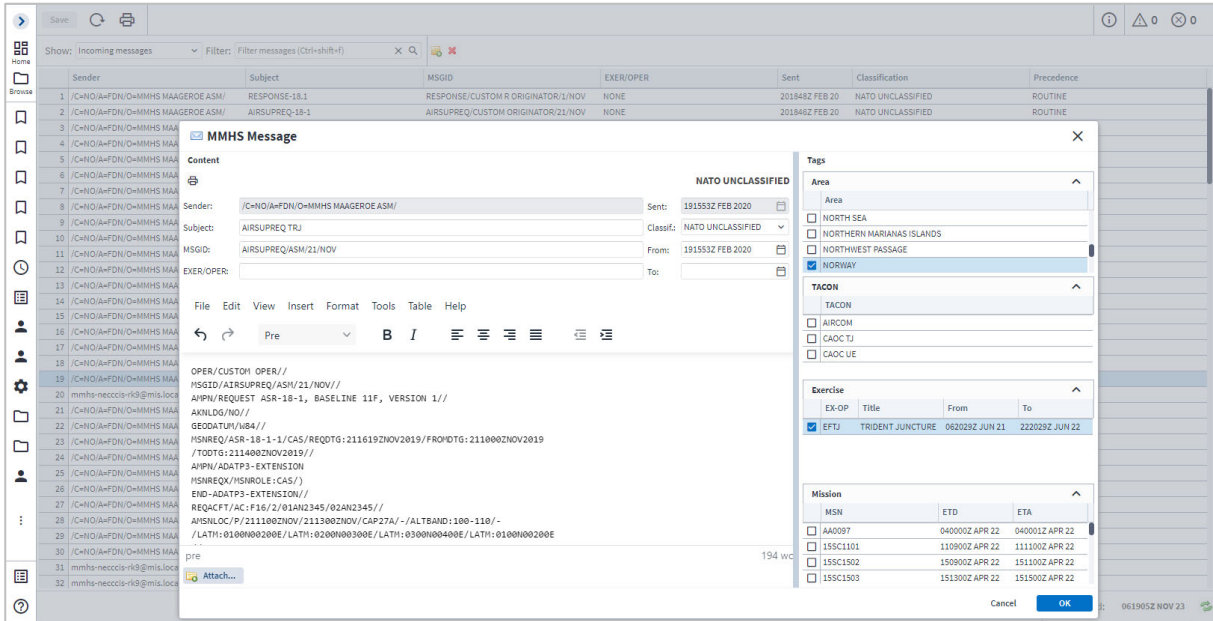


Fig 14 Message Processing

SBAD

The SBAD module has extensive functionality supporting specific requirements for SBAD mobility and C2 coordination with higher echelons.

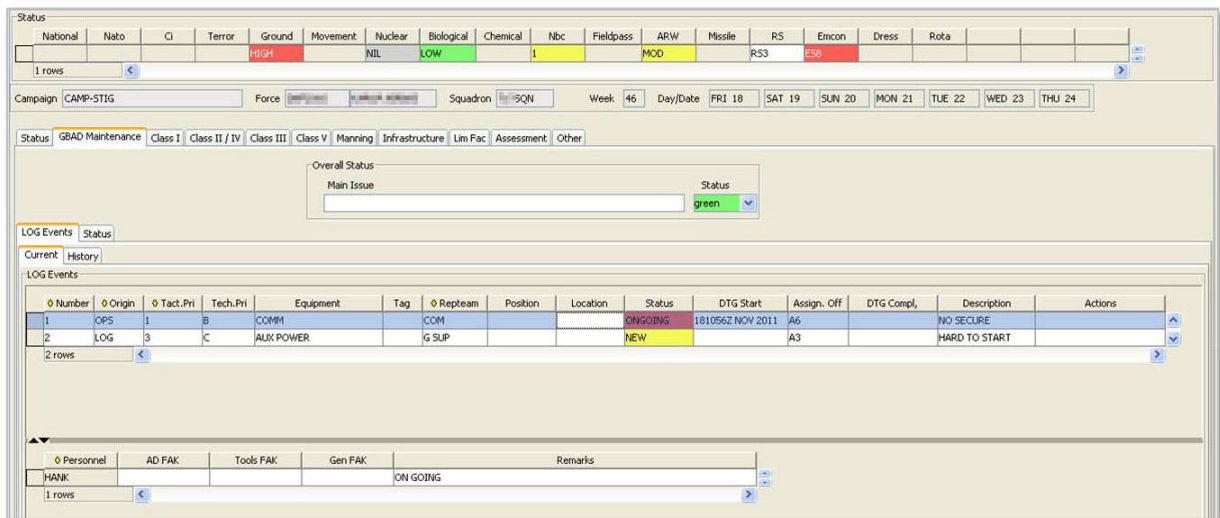


Fig 15 GBAD Logistics

Logistics Tool

With the logistics tool provided in NEC CCIS, a unit can record the status of its equipment (e.g. Air Frames) and generate reports for higher units based on the logistics classes I-V. In addition, infrastructure and manning status/planning is supported.

Integrated Scheduling Tool (IST)

The integrated scheduling support in NEC CCIS consists of a selection of totes that add crew management to the air mission scheduling process, enabling the integration of personnel management into the short- and long-term air planning process. For example, the assignment of aircrews to missions. To effectively support this, the Integrated Scheduling Tool also includes support for personnel status i.e., training management, air currency logging/monitoring and absence management (leave, sickness, deployments). The inclusion of support for personnel functions feeds into the user-centric dashboard where aircrew can monitor individual future tasks and plans.

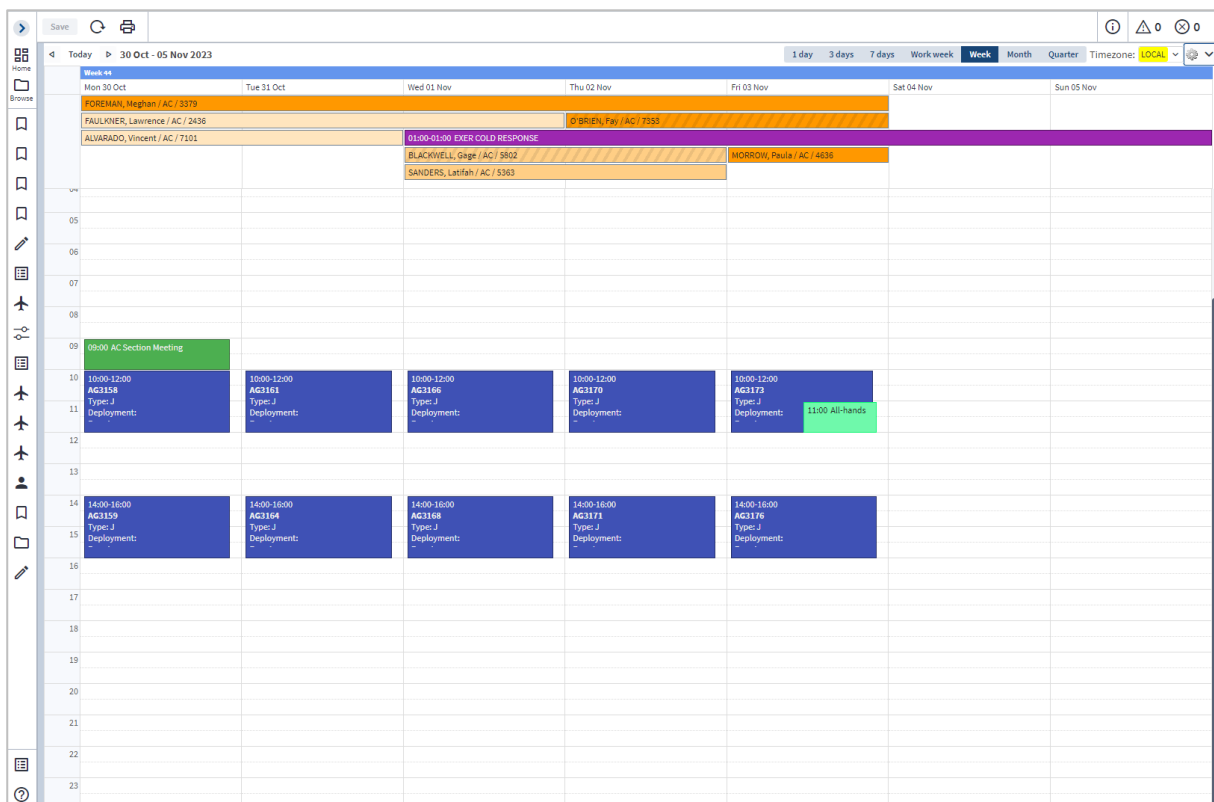


Fig 16 Squadron calendar

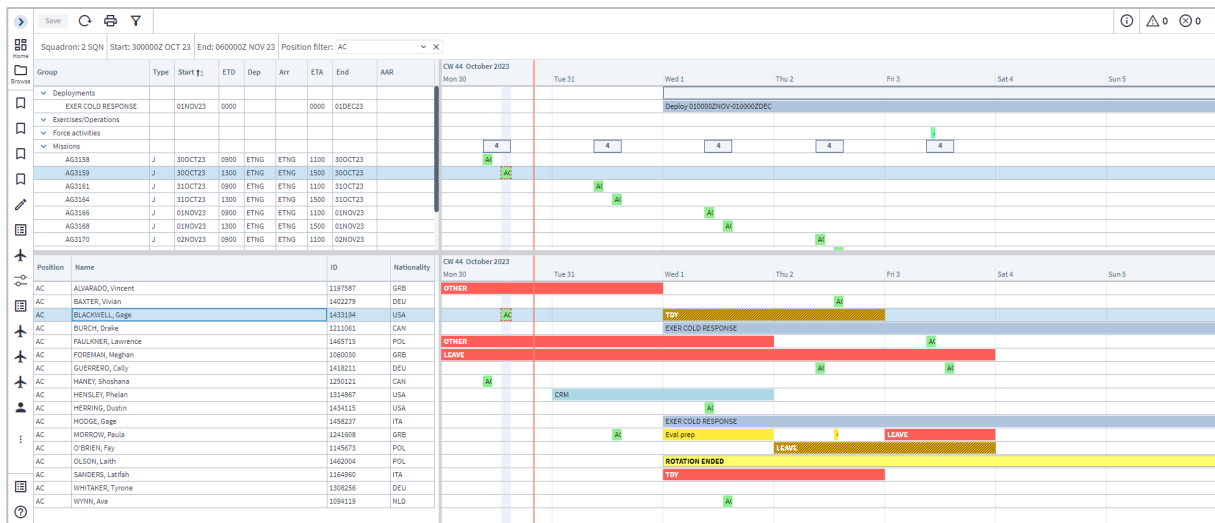


Fig 17 Squadron consolidated plan

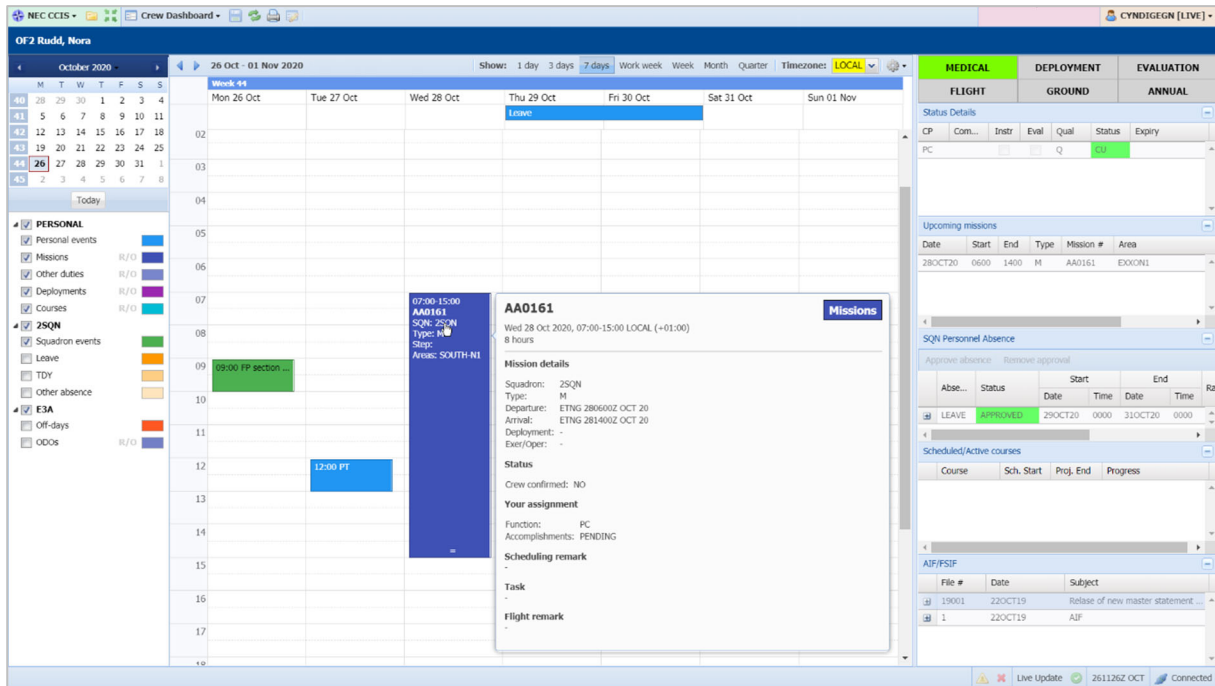


Fig 18 Personal dashboard

Messaging

NEC CCIS can be integrated with Military Message Handling Systems (MMHS) such as Thales XOMail. NEC CCIS can also transfer messages via Microsoft Exchange (or other standard email servers) using the standard POP3/IMAP/SMTP email protocol.

Data maintenance

A prerequisite to use any C2 system, for example to produce and execute a plan, a set of basic data which is used as a basis for the C2 products must be created. In the Air C2 domain, this pertains to airbase information, aircraft lists, target information, air space means, etc.

At a NEC CCIS site, the basic data set is managed through a set of data maintenance totes. A site data manager would then use these totes to ensure that the basic data set is current, without duplication and ambiguity etc. The common data is normally replicated between NEC CCIS sites, which ensures that the distributed NEC CCIS databases are consistent.

A common data set is even more important when two C2 systems exchange data, for example when NISI is used to connect ICC to NEC CCIS, or ADatP-3 messages is used to exchange data between ACCS and NEC CCIS. For example, if a squadron is named "332sqn" in one system and "332 SQN" in the other, data exchange will normally fail on this object - a human being will easily see that this is the same unit, but a computer will not.

NATO has initiated an activity to establish a Master Data Repository (MDR) for Air C2, intended to be used in all NATO Air C2 system, including ACCS, ICC, and NEC CCIS. The SSC has taken part in the MDR activity for a long time and have provided the MDR products as installable data packages for the NEC CCIS C2 users. The MDR activity is a prerequisite for Air C2 interoperability, but there is still a long way to go for the nations to agree on a common data set, and to use the MDR data sets when they are issued.

Finally, the SSC provides regular data dumps to be installed at the NEC CCIS sites of extracts from the Digital Aeronautical Flight Information File (DAFIF), which provides a lot of background data required for Air C2 functionality, such as airport data, navigation aids etc.

The NEC CCIS System

System Architecture

The NEC CCIS software suite implements a standard three-tier architecture:

- The database backend.
- The NEC CCIS application server.
- The NEC CCIS client applications.

An operational user gets access to the NEC CCIS functionality either through a desktop application (a piece of software installed on their Windows workstations) or via their web browser.

The NEC CCIS application server is implemented as Java EE modules running within the Wildfly application server running on Oracle Solaris. There is an ongoing activity to port the application server to a containerized solution, using Oracle Linux as the host operating system.

The NEC CCIS database server is implemented in Oracle RDBMS running on Oracle Solaris. Similar to the application server, there is an ongoing activity to port the database to a containerized solution hosted on Oracle Linux.

A site installation using NEC CCIS will have their normal infrastructure servers and workstations, for example using Microsoft Windows as their network operating system, which means using Active Directory as the directory service. The NEC CCIS servers are installed locally at the site and are thus accessible on this network, so that the users can use their client application (either desktop or web) to access the NEC CCIS functionality. It is also possible to access remote NEC CCIS servers from the workstations (both from desktop and web client) if the network connectivity is in place.

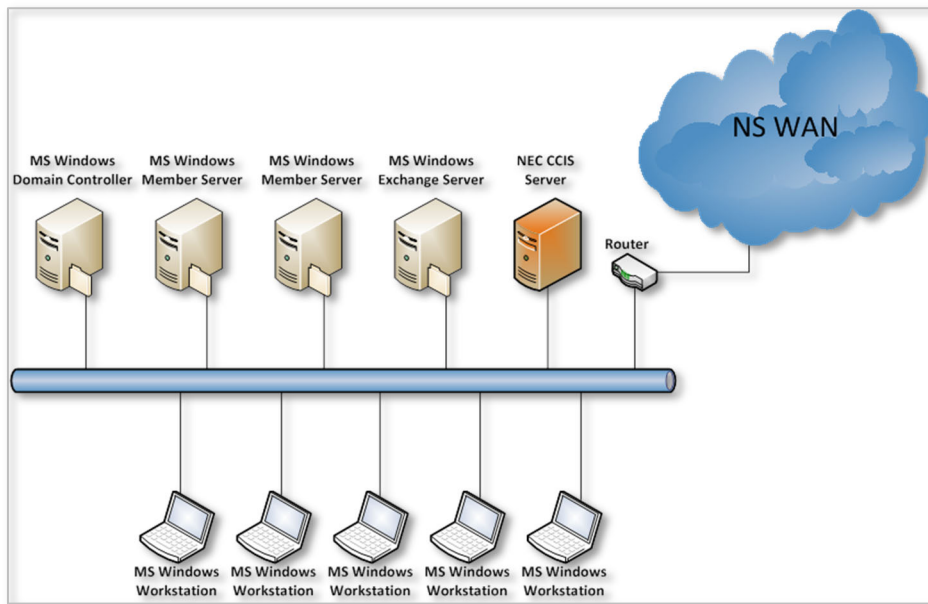


Fig 19 NEC CCIS site architecture

A NEC CCIS site can be implemented on a fully virtualised infrastructure, with traditional server virtualisation (all Windows server and the NEC CCIS Solaris servers on x86), and desktop virtualisation for the Windows workstations; all running on top of a few physical servers at each site. The virtual desktops are displayed to the operational users through zero clients, providing a high performance, low maintenance solution with clear security benefits, as no data is stored locally. The zero clients are unclassified as soon as power is turned off.

Database Replication

Each operational site has a database storing all operational data. Data stored in the NEC CCIS database are synchronised across the geographically dispersed sites through sophisticated data replication mechanisms. This ensures that information inserted at one site will automatically replicate to all other NEC CCIS sites as defined.

Figure 19 depicts a hub-and-spoke architecture for the NEC CCIS replication cloud. This is just one example of a replication architecture; the system is flexible and can be used in many ways.

Here we see that the NEC CCIS sites (identified by small cylinders) in each nation replicate all-to-all. This ensures that the data is shared effectively between the NEC CCIS sites inside each country. One server in each nation is designated as a bridgehead, which then exchanges data with a centralized hub server (in this example at CAOC A). This hub server ensures that data is shared between the different nations. The figure also shows that it is possible to assign backup replication hubs in case the primary hub fails.

Each nation will normally limit the amount of data that is replicated out of the nation. This can be done by applying filtering at the bridgehead server. A common example is the Air Tasking Order. NATO will issue a NATO ATO from a central NATO site, while the nation will have national ATOs for their national use. The replication can then be configured to replicate only data relating to the NATO ATO through the bridgehead server, while updates to the national ATOs are kept within the country borders.

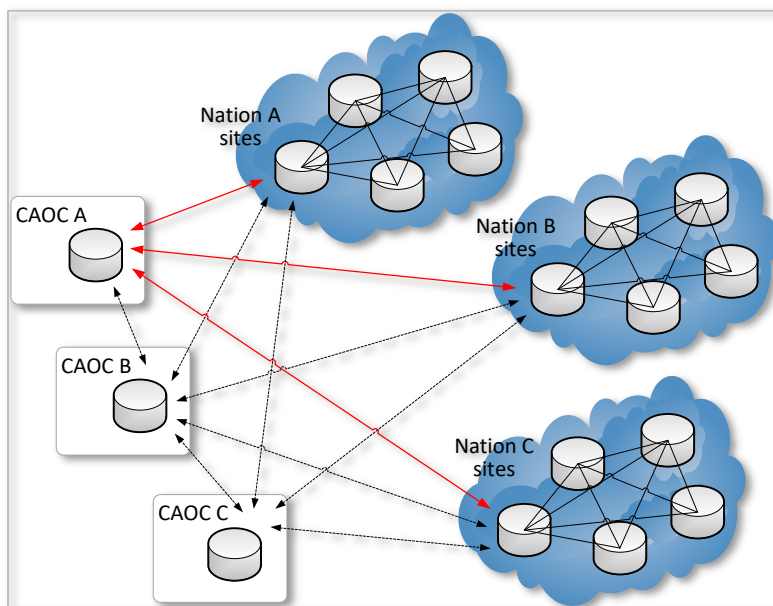


Fig 20 NEC CCIS database replication

NEC CCIS also supports the Live Update mechanism, which automatically updates the operator totes when data changes in the database. New or modified data items are highlighted in the tote for users that are viewing the data item in question.

NEC CCIS allows the operator to view data as text (totes), as military messages, or as graphical objects in the Graphical Information System (GIS), the map. Information can be updated or altered directly on the totes or on the map. When such data updates are made, the combination of data replication and live update in NEC CCIS creates one tightly integrated system, where such data updates are immediately available and displayed at all sites in the established NEC CCIS replication cloud.

A full NEC CCIS site can operate autonomously if connectivity is lost to the wider network. Each operational user can then continue the work with the data that have been replicated into the site before connectivity was lost. Once connectivity is re-established, the operational data will

automatically synchronise with the other NEC CCIS sites, through standard database replication. This can lead to data conflicts (for example if there are updates to the same data item). The basic concept applied by NEC CCIS is that the latest update available will be applied to the database. Standard Operating Procedures (SOPs) must be established by the operational users on how to handle such situations.

Interoperability

Interoperability is critical in any C2 system. In a networked environment, it should not be necessary to implement all required functionality in each system – instead, each system should be able to exchange data with other systems, so that data is shared among them.

This policy has been applied in NEC CCIS as it has developed over the years. For example, the original versions of NEC CCIS dating back to the 1990s contained software to implement full TDL handling and military messaging. This was necessary, since there were few other systems that implemented this, and it was not trivial to connect such system to each other. As time went by, specialized systems for TDL and message handling appeared, and it became easier to connect the system. Today, NEC CCIS relies on an interface to NIRIS to obtain TDL, while an interface to Thales XOMail takes care of military messaging. The software pieces for TDL and military message handling in NEC CCIS could then be vastly reduced, which eased the maintenance load and avoids duplication of functionality.

NEC CCIS interfaces with the following systems or technologies:

- Multi-AEGIS Site Emulator (MASE) – Link-1
- CRC SAM Interface (CSI) – Link-1
- NIRIS RAP (Link-16, link-11, Joint-Range Extension (JRE))
- Flight plans - AIMS (ADEXP subset)
- National meteorological services (METEO, METAR, TAF)
- Integrated Command and Control (ICC) – NISI (NEC CCIS - ICC System Interface)
- Air Command and Control System (ACCS) – ADatP-3 – XOMail/X400 – Link-11B
- Maritime Command and Control Information System (MCCIS) (OTH/Gold)
- Military Message Handling System (MMHS)
- NATO SEW (Shared Early Warning)
- Joint Mission Planning System (JMPS) for F-16/F-35 - USMTF
- Joint Theatre Level Simulation (JTLS)
- Digital Aeronautical Flight Information File (DAFIF), data load part of software releases.

NISI is a database-to-database interface maintained by the SSC for exchanging operational data in predefined functional areas between NEC CCIS and ICC. NISI provides seamless and automatic data transfer between the two systems. The functional areas covered include, but are not limited to Friendly Order Of Battle, Airspace Control Order (ACO), Air Tasking Order (ATO), ASACS functions, statuses, and reports.

Maintaining interoperability with ACCS is an important task for the SSC, to ensure a seamless AirC2 structure within the NATO Command Structure and NATO nations, also known as NATO Integrated Air and Missile Defence System (NATINAMDS). Originally, ACCS was intended to replace other C2

systems including NEC CCIS. Due to reductions in functionality of ACCS, especially within the area of WOC/SQOC, NEC CCIS is fielded alongside ACCS and ICC.

Security

To ensure NEC CCIS remains in compliance with current NATO and National security requirements, the NEC CCIS system security is controlled by a dedicated NEC CCIS Security Accreditation Board (NAB). The NAB has voting members from all NATO and national security accreditation authorities having one or more NEC CCIS sites within their Area Of Responsibility (AOR). NEC CCIS holds a formal security accreditation at the NATO SECRET level in the System High mode of operation and is subject to a full re-accreditation by the NAB every three years. Currently, two of the four annual NEC CCIS releases are submitted for NATO approval, through NCIA's Agency Approved Software List (A2SL) testing regime.

Software Management

The SSC submits a new version of the NEC CCIS software four times per year, one version per quarter. This ensures that NEC CCIS can quickly respond to changing operational requirements.

The SSC incorporates agile principles for its software development and takes advantage of the in-house developed high-level Santos toolkit, to maintain and develop metadata in an Integrated System Dictionary (ISD). These principles and the ISD allow for quick changes to the system, as well as for development of new functionality.

The change management system allows for any software related issue to be reported by any user in the NEC CCIS community through the NEC CCIS web portal on NS WAN. All issues are frequently evaluated, and the software problems and minor software changes are implemented, tested, and released on a priority basis. The typical lead time for a software fix is 3-5 months from the moment a problem is identified until it is corrected in the software and released. Critical fixes can be implemented in the ISD and distributed to sites within hours.

Support

The SSC's primary task is to support the use of NEC CCIS. This includes both operational support and technical support. The SSC operates a helpdesk where all support requests are recorded and subsequently handled by SSC staff.

Operational support is provided by assisting the operational users in their daily work in times of peace, crisis, exercise, and conflict. This can be done via the helpdesk, via screen sharing or phone, or via on-site support, for example during exercises. The SSC has staff members with extensive operational background and deep domain knowledge, who can assist the operational users in using NEC CCIS to obtain their operational goals. Operational support also includes training, SSC staff members can provide operational training as required.

Technical support is also provided to the sites, through a distributed model with primary system support from the local system administrators. Issues that cannot be resolved locally can be elevated to SSC, which then provides third level support for such problems. This support includes generic platform support as required (VMware, networking, Microsoft Windows, Oracle Solaris, Oracle Linux), and support specific for the administration of the NEC CCIS server and clients. The SSC also

provides NEC CCIS system administrator training through a one-week course that normally runs twice a year.

How to acquire NEC CCIS?

Who can use NEC CCIS?

NEC CCIS is property of NATO, thus making it NATO off-the-shelf (NOTS) software available to all NATO units and NATO member nations.

How to request access to the NEC CCIS software?

For NATO units, submit an official request to SHAPE. For Nations interested in using NEC CCIS, submit an official request to the NEC CCIS Board Chairman (board@ssc.nato.int).

Who can request support from NEC CCIS SSC?

Existing members of the NEC CCIS MOU who are contributing to the NEC CCIS O&M budget, and entities covered by SHAPE are eligible to receive support from the NEC CCIS SSC.

How to become a member of the NEC CCIS MOU?

Your NATO unit/nation must submit a written request to the NEC CCIS Board chairman (board@ssc.nato.int). That request is presented to the Board for approval of membership. If approved, an MOU negotiation process, to agree terms and SSC O&M budget cost share, is performed.

Contact Info – NEC CCIS SSC

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List of acronyms

- A/C: Aircraft
- A2SL: Agency Approved Software List
- ACCS: Air Command and Control System
- ACO: Airspace Control/Coordination Order

- AD: Active Directory
- ADEXP: ATS Data Exchange Presentation
- AEW: Airborne Early Warning
- AGS: Alliance Ground Surveillance
- AIMS: Aircraft Information Management System
- AIRCOM: Air Command
- AOC: Air Operations Centre
- AOR: Area of Responsibility
- ARW: Air Raid Warning
- ASACS: Air Surveillance and Control System
- ATO: Air Tasking Order
- ATS: Air Traffic Services
- CAOC: Combined Air Operations Centre
- CBRN: Chemical, Biological, Radiological, Nuclear
- COP: Common Operational Picture
- COTS: Commercial Off The Shelf
- CRC: Control and Reporting Centre
- CSI: CRC SAM Interface
- DAFIF: Digital Aeronautical Flight Information File
- DEU: Germany
- EMCON: Emission Control
- GBAD: Ground Based Air Defence
- GIS: Geographical Information System
- HQ: Headquarters
- HTML: Hypertext Markup Language
- ICC: Integrated Command and Control
- IFF: Identification Friend or Foe
- IMAP: Internet Messaging Access Protocol
- ISD: Integrated System Dictionary
- ISP: Integrated Simulation Package
- ISR: Intelligence, Surveillance and Reconnaissance
- IST: Integrated Scheduling Tool
- ITA: Italy
- ITC: Integrated Training Capability
- JISR: Joint Intelligence, Surveillance and Reconnaissance
- JMPS: Joint Mission Planning System
- JRE: Joint-Range Extension
- JTLS: Joint Theatre-Level Simulation
- JTS: Joint Targeting System
- MAOP: Master Air Operations Plan
- MASE: Multi-site AEGIS Site Emulator
- MCCIS: Maritime Command and Control Information System

- MDO: Multi Domain Operations
- MDR: Master Data Repository
- METEO: Meteorological Office
- MMHS: Military Message Handling System
- MOU: Memorandum of Understanding
- MSN: Mission
- MSS: Mission Support System
- NAB: NEC CCIS Security Accreditation Board
- NAEW&CF: NATO Airborne Early Warning & Control Force
- NAF: NATO Architecture Framework
- NISRF: NATO Intelligence, Surveillance, and Reconnaissance Force (NISRF), formerly known as NATO Alliance Ground Surveillance Force (NAGSF)
- NAOC: National Air Operations Centre
- NATINAMDS: NATO Integrated Air and Missile Defence System
- NATO: North Atlantic Treaty Organization
- NCN: NATO Core Network
- NCRS: NATO Crisis Response System
- NCS: NATO Command Structure
- NEC CCIS: Northern European Command – Command and Control Information System.
- NIRIS: Networked Interoperable Real-time Information Services
- NISI: NEC CCIS ICC System Interface
- NOR: Norway
- NOTS: NATO Off The Shelf
- NS: NATO Secret
- NUG: NEC CCIS User Group
- O&M: Operations and Maintenance
- OS: Operating System
- OTH: Over the Horizon
- PC: Personal Computer
- PDF: Portable Document Format
- POP: Post Office Protocol
- POW: Programme of Work
- PTL: Prioritized Target List
- RAP: Recognized Air Picture
- RDBMS: Relational Database Management System
- RIA: Rich Internet Application
- RMP: Recognized Maritime Picture
- ROE: Rules of Engagement
- SAM: Surface to Air Missile
- SBAD: Surface Based Air Defence
- SEW: Shared Early Warning
- SHAPE: Supreme Headquarters Allied Powers Europe

- SMTP: Simplified Mail Transfer Protocol
- SOP: Standard Operating Procedure
- SQOC: Squadron Operations Centre
- SSC: System Support Centre
- TBMF: Tactical Battle Management Functions
- TDL: Tactical Data Links
- TIC: Troops in Contact
- USMTF: United States Message Text Format
- WAN: Wide Area Network
- WOC: Wing Operations Centre
- XMPP: Extensible Messaging and Presence Protocol