


EUROPEAN COMMUNICATIONS GATEWAY



THE AERONAUTICAL
MESSAGE SWITCH
FOR EUROPE AND THE WORLD






With the expertise and experience of European Air Traffic Service Providers and European industry, the European EATMP Communications Gateway (ECG) was developed as a forefront system to cater for a wide range of requirements in international message switching.

ECG is based on a comprehensive and consolidated set of specifications developed by EUROCONTROL and the European member states. It was designed to implement all applicable interoperability standards, in particular the ICAO standards for ATN and AMHS. In a European-wide selection process in 2000, COMSOFT was chosen as ECG supplier and in due time designed and implemented this new system for the EUROCONTROL member states. COMSOFT used its knowledge and experience of many years when developing ECG, which, by now, has become part of COMSOFT's AIDA product line and has proven successful in Europe and throughout the world.

Representing a pre-funded system with a high multiplier effect for the intended global usage, ECG provides an unmatched cost/performance ratio for both European and non-European customers.



ECG - CONTRIBUTION TO A SEAMLESS SKY



ECG stands for the future in the field of message handling and by now has become the reference standard of this domain. With its vast interoperability properties, ECG boosts the harmonisation on national and international level. The close cooperation of industry and administrations in the specification, development, and validation of the system guarantees an outstanding degree of user acceptance in Europe and world-wide.

EXTENSIVE GATEWAY FUNCTIONALITY & INTEROPERABILITY

ECG acts as a gateway between various WANs, LANs, and ATM systems using these networks. Since networks and the attached systems are currently subject to major structural changes, ECG will, within the next years, gain more and more significance as regards the migration of existing tasks into future networks, such as ATN (Aeronautical Telecommunications Network) and AMHS (Aeronautical Message Handling System).

ECG can easily adapt this role as it is capable of coping with a wide range of requirements concerning the extension of hardware, software functionality, and adaptation capabilities of its configuration.



INVESTMENT SECURITY

Modularity, scalability, and standard conformance were major requirements of the European states and hence incorporated into the design of the ECG. Consequently, the system was implemented with an extremely high degree of flexibility and extensibility. This permits easy adaptation to a wide range of

national environments and thus guarantees investment security, also in the context of future changes on technical and organisational level. ANSPs not only save investment costs, but also significantly reduce cost of ownership, to which also the COTS properties of the product contribute.





THE APPROACH

The development of the ECG was a pan-European effort, guided by the EUROCONTROL agency. European member states – together with their operational staff – set up a list of consolidated user requirements, which ensured that real user demands were met.

The development was carried out by COMSOFT in close cooperation with an ANSP in the course of an ongoing replacement project. The German DFS acted as sponsoring and controlling instance for EUROCONTROL.

After an extensive validation process of the ECG system, again guided by EUROCONTROL on behalf of the member states, COMSOFT has now made the system available for national administrations with its product AIDA-NG and ensures a support and maintenance infrastructure for the ECG user community.

THE ARCHITECTURE

The system consists of three major subcomponents: a Core Subsystem (CSS) for message processing and communication, a Recording Subsystem (RSS) for message storage and associated functions, and an Operator Working Position (OWP) to configure, monitor, and control the system.

ECG is modular and independently scalable in all of these components. These subsystems can be hosted – even co-hosted – on servers and workstations.

Modularity is enhanced by the possibility to flexibly assemble the subsystems into a final configuration to fit user demands. For redundancy reasons, all components can be configured in multiple instances, with all required synchronisation being handled by the system, i.e. transparently to the user.

The modular design guarantees easy adaptation of the system to a wide range of operational environments and simplifies training, maintenance, and support.



OVERALL

SYSTEM CHARACTERISTICS

HIGH CONNECTIVITY

The ECG system provides a multitude of physical interfaces and protocols, comprising, among others, the currently most employed X.25, TCP/IP, CIDIN, and AFTN series of protocols and formats.

The main focus, however, was laid on the system's ability to support more recent communication networks, in particular AMHS/ATN, and on a standard-conformant gateway between AMHS and AFTN.



SOFTWARE PORTABILITY

One major requirement of ECG was the portability to different hardware platforms in order to avoid from the start the dependency on a single hardware vendor and the potential of legacy issues within the lifetime of the software. Consequently, the ECG software is structured in a strictly layered design, and data exchange

between the different layers is implemented using industrial standard interfaces as far as possible. This allows ECG users to decide on the platform of their choice following their preferred procurement, support, and maintenance line of business.

- X.25
- TCP/IP
- ISO TP4
- CIDIN
- AFTN
- SMTP
- X.400
- AMHS
- ATN

SOFTWARE EXTENSIBILITY

The ECG software stands out by its strictly object-oriented design, which offers extraordinary extension possibilities. The system provides external programming interfaces (APIs) that can be used to flexibly implement new functions and to adapt the system effectively to special requirements of the respective environment. The layered software architecture further facilitates horizontal and vertical extensions of various kinds. In particular, the system is open to be complemented with new protocols, new system features, and new or extended application functions.





WORLD-WIDE REFERENCES

The first ATC service provider to receive an ECG system from COMSOFT was the German DFS, which uses the equipment as national and international message switch of Germany. The DFS system is a four-fold redundant system with two centres in the Frankfurt vicinity backing up each other.

A further COMSOFT system is operational as the national and international message switch of the United Kingdom. It is operational since 2001 and will soon be upgraded with ECG-based software. It serves, together with the oceanic traffic, one of the most voluminous airspaces in Europe.

With the Netherlands COMSOFT equips the third of the major traffic areas in Europe with its Aeronautical Message Switch.

In 2002, EUROCONTROL commissioned COMSOFT to provide the

CFMU with the four central Message Handling Systems ANg1. Within this project, ECG could be easily extended to act as a universal CIDIN, SITA, and AMHS message handling front-end processor with advanced routing and queue handling facilities.

With its AIDA product family, COMSOFT provides solutions for any site, not only for international switching centres. Thus, an increasing number of ANSPs all over the world, such as in the United Arabian Emirates, Zimbabwe, Zambia, Bosnia and Herzegovina, Libya, and Macedonia, take advantage of the well-engineered and fitted AIDA solutions.

Due to its excellent AMHS and ATN support, more and more ANSPs in the Asia-Pacific region have also shown strong interest in the advanced AIDA technology to push the replacement of AFTN in this region.

THE ECG COMPLEMENT: CADAS

A SMOOTH TRANSITION TO AMHS

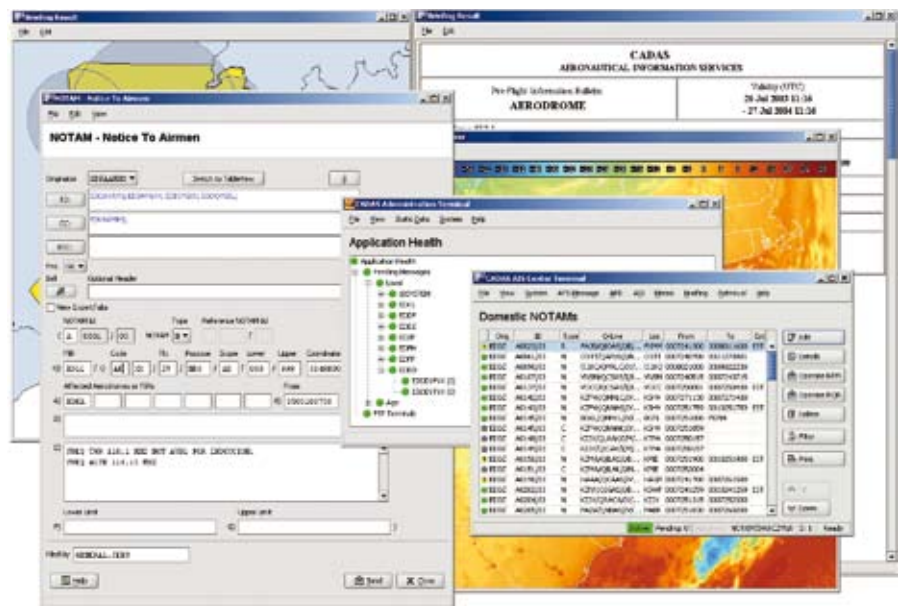
CADAS allows the exchange, processing, and visualisation of ATS messages with an easy-to-use AMHS User Agent. The underlying client/server architecture offers many configuration possibilities, ranging from single stand-alone terminals to centralised high-volume clustered ATS Message Stores with VPN-secured client remote access.

The CADAS AMHS User Agent was carefully designed in a way that experienced AFTN users immediately get familiar with it, not only because it resembles a state-of-the-art ATS terminal at a first glance, but also because all COMSOFT's sound ATS knowledge has been put into this software. For instance, users need not care about AMHS specifics; this

is automatically done by the system. Even the addressing can be carried out using familiar AFTN addresses, thanks to the integrated elaborate Directory User Agent and local Address Book.

Experienced AMHS users can, of course, take full advantage of AMHS-specific basic and extended service attributes defined within the AMH21 profile.

CADAS offers far more services than conventional AMHS User Agents or standard X.400 Message Stores do. CADAS supplies the world of AMHS with ATS work flows and convenience that facilitate the user's daily tasks considerably.



HIGHLIGHTS

- Full range of message forms: FPL and associated messages, OPMET, NOTAM, SNOW/ASH/BIRDTAM, ATFM
- Free text mode
- Innovative automatic message checking, both on syntax and semantics assuring origination of valid messages only
- Sophisticated and flexible mailbox handling
- Powerful semantic message retrieval, e.g. "retrieve all NOTAMs that affect FIR XXXX"
- Full support of basic and extended services in compliance with AMHS SARPs
- X.400 P3 and P7 connectivity
- X.500 Directory Address lookup and local Address Book
- Compliant to the relevant ICAO recommendations and EUROCONTROL standards

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