

**DESIGNER, INTEGRATOR, OPERATOR,
OF MISSION CRITICAL SYSTEMS**



**VROIP
ED 137B VOICE AND EVENTS ATC RECORDER**



The power of Innovation

CS has built on its longstanding experience with Air Traffic Control centres stakeholders to design VRoIP product (Voice Recorder over IP), an ATC recording and replay solution in line with the state-of-the-art EUROCAE ED-137B standard.

VRoIP is a reliable product fully adapted to operations in civil and military air navigation centres requiring extensive, specific and secured recording and replay capabilities. VRoIP product stems from CS commitment to deliver complementary set of ATC products engineered to cater for the ATC community needs.



SECURE, MODULAR AND FLEXIBLE IP BASED RECORDING SOLUTION

VRoIP is an IP-based open recording and replay solution engineered for civil and military ATC operations. VRoIP complies with the ED-137B standard while ensuring full compatibility with legacy interfaces by means of IP gateway product designed by CS referred to as VGoIP (Voice Gateway over IP). VRoIP is based on a modular and flexible architecture enabling easy and cost-effective recording operations.

Moreover, VRoIP meets operational, security and environmental requirements applicable in aviation industry. Thanks to its modular, scalable and flexible internal structure, VRoIP fits any type of ATC control facility ranging from low traffic volumes airports to the largest ACC centres.



RECORDING AND REPLAY

In addition to recording audio communication streams generated by telephone, radio and intercom activities, VRoIP system also captures comprehensive set of data tied to the audio files (frequency, phone ID, role...). This advantage brought together with high-level processing performances offers ATC operators and investigators the possibility to accurately recreate the full operational configuration of a given event.

- Commercial Off-The-Self Linux based servers,
- High availability software and hardware infrastructure
- Normalized ED-137/4B interfaces,
- Standard IP protocols: SIP, RTSP, RTP,
- Adaptable recording channels capacity,
- Integration of gateway modules VGoIP to seamlessly support analogue and digital interfaces,
- Flexible graphical interfaces



VRoIP has been selected by the DGA to be installed, deployed and put into service in French Air Force bases as part of a large-scale Project. The DGA is the Government Defence procurement agency in charge of the purchasing of systems and equipment used for military purposes.





CONFIDENTIALITY, FIDELITY AND INTEGRITY

VRoIP has been designed to offer the availability, the fidelity and the integrity in order to guaranty the reliability and the protection of the data. This is why VRoIP features an highly secured and available architecture inherited from CS developments designed for defence systems which require a very high degree of security insurance level.

Moreover, the integrity and confidentiality of recorded data is improved through the use of inbuilt security certificates allowing recordings authentication and safe export.

Powerful data protection mechanisms have been developed to efficiently prevent any type of tampering. Easy and secured capture, retrieval and playback of ATC related recorded files usable in total confidence by operators and investigators is the foremost requirement that VRoIP perfectly covers.



INNOVATIVE RECORDINGS SEARCH ENGINE

In order to easily and rapidly retrieve audio/data files in case of instant replay session or as a result of any investigator request, a smart search engine tool with efficient contextual research abilities is natively embedded into VRoIP product.

Whatever the type of data ATC operators desire to base their research on, VRoIP leverages it outstanding computing power to almost instantaneously retrieve, shape and submit to ATC operators the required information along with the full environment.

This search engine stands out as one of the main VRoIP solution assets, its allows dramatic improvement of ATC operators and supervisors efficiency.



EXTENSIVE FUNCTIONALITIES

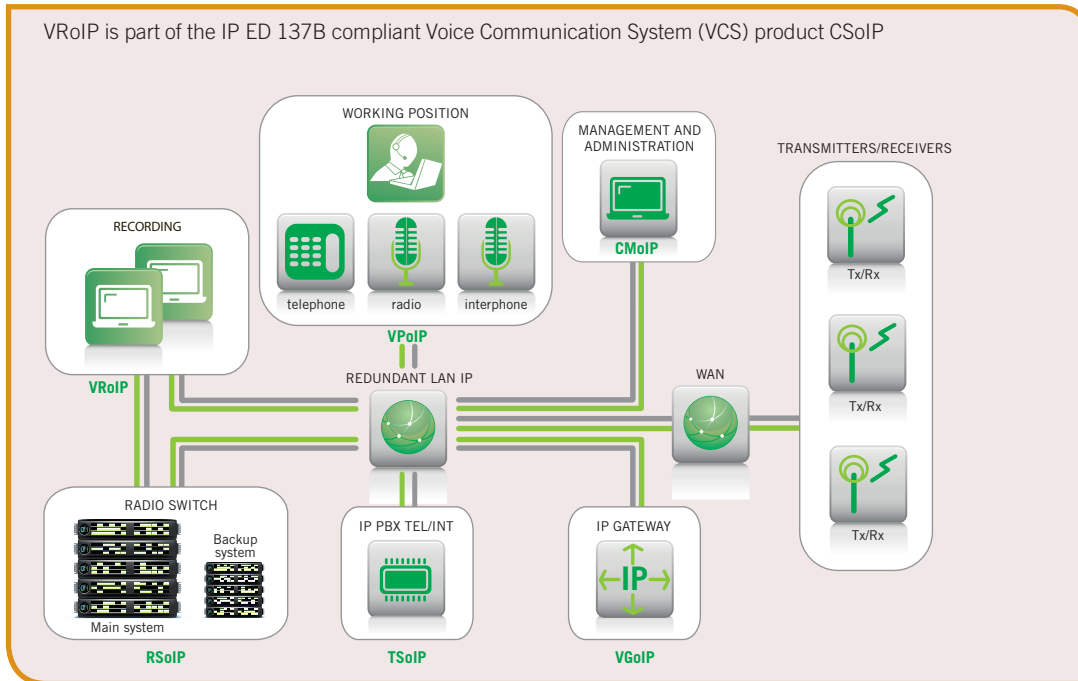
VRoIP has been designed to meet current operators functional and technical needs, it delivers fully operation-oriented services and the appropriate scope of functionalities to ease and improve the day to-day recording and replay operations. Besides, thanks to its large degree of flexibility, the solution benefits from the ability to integrate the evolutions stemming from operational and regulatory changes.

- Extended recording and replay functionalities,
- Smooth integration into administration, supervision and configuration environment,
- Data exchanges based on MIB,
- Web hosted solution enabling on line availability of data over regulatory storage period,
- High protection against tampering,
- Easy and quick secured data export process for investigation purposes,
- Scalable solution enabling cost effective extension capabilities,
- Specific ATIS related graphical interface facilitating management,
- Data storage on hard drive, DVD-ROM or optical disk,
- Customizable back-up periodicity,
- Integration of Reporting/Statistics tool,
- Enhanced user experience.





VRoIP: KEY COMPONENT OF THE GLOBAL VCS SOLUTION CSoIP



TECHNICAL SPECIFICATIONS

Main features	<ul style="list-style-type: none"> > ED-137/4B compliant Ethernet interfaces > Ethernet TCP/IP, Internet Protocol version 4 (IPv4) > IP standard protocols (SIP, RPSP, RTP) > Instant replay in ED-137/1B and ED-137/4B > ATIS - RAI support > Network capture possibilities to directly record VoIP generated through NON ED-137 compliant devices
Analogue interfaces	> Use of VGoIP (Voice Gateway over IP) module
Storage	<ul style="list-style-type: none"> > RAID, DVD Ram > Storage period in line with regulatory requirements > Extract on Hard Drive (Raid 1 or Raid 5) or DVD-rom support
Platform	<ul style="list-style-type: none"> > Operating System: Linux optimised to cover very high security level requirements > Management software JAVA powered that can be run on any hardware
Time references	> NTP, IRIG-B, GPS
Audio Codecs supported	> ITU G711, G728, G729
Number of channels	> Scalable
Characteristics	<ul style="list-style-type: none"> > Hardware based on Commercial-On-The-Shelf products > High availability architecture > 6x Ethernet interfaces for redundancy purposes > Recorded audio files in standard PCM format > ED-137 standard requires initiation of record session upon voice detection, VGoIP gives the possibility to continuously record control centre activity > Recording in the upstream format > Compliance with EUROCAE ED153 SWAL 3

Specifications subject to modification without notice



www.c-s.fr

EXECUTIVE MANAGEMENT
 22, avenue Galilée - 92350 Le Plessis Robinson - France
 Tel.: +33 (0)1 41 28 40 00 - Fax: +33 (0)1 41 28 40 40

