

# R2D2<sup>®</sup>

## RECORDING & REPLAY OF DIGITAL DATA

In response to the increasing demand of ATM environments for integrated high-performance recording and replay systems, COMSOFT presents the R2D2<sup>®</sup> high-end solution. The modular architecture, high scalability and outstanding reliability make the R2D2<sup>®</sup> suitable for ATC facilities of all types and sizes.

R2D2<sup>®</sup> is COMSOFT's answer to the need for recording and replay of any data, particularly surveillance and audio data.

R2D2<sup>®</sup> is an innovative solution, based on commercial off-the-shelf components and the latest software developments. R2D2<sup>®</sup> features a modular and open architecture and offers outstanding scalability.

Well-proven technologies paired with the ATC-specific expertise of a supplier active in this field for many years, make the R2D2<sup>®</sup> solution the best choice to guarantee utmost reliability, investment security and value for money.

### HIGHLIGHTS

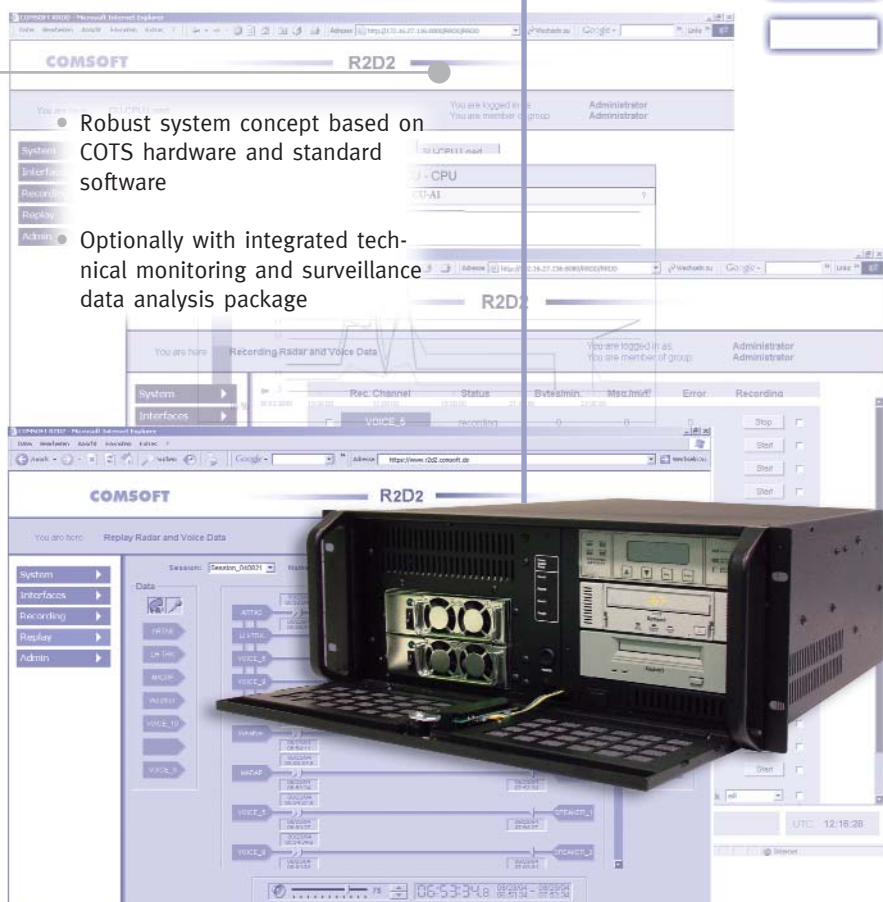
- Fully synchronized recording and replay of data and audio streams
- Concurrent replays on multiple workstations
- Wide range of surveillance protocols, data formats and all common telecommunication interfaces
- Long-term storage combined with export/import to DVD for offline archive
- Fast online and random access to recorded data
- User-friendly, easy-to-use graphical user interface, available in different languages
- Multi-level and customisable alarm management including SNMP support

Whether in the form of compact tower solutions or large-scale centre installations, the R2D2<sup>®</sup> provides the ideal solution, tailored to the customer's requirements. The extremely high flexibility in the system design allows easy adaptation to individual needs in terms of storage capacity, number of channels, or workstations.

The Java-based user interface can be started via any common Internet browser and operated concurrently on an arbitrary number of PCs of any type. The high security requirements within an ATM environment are fulfilled by user-specific authorisation concepts applied to all system functions, implementing encrypted data and secured transmission (SSL).

# COMSOFT

# PRODUCT INFORMATION



The screenshot displays the COMSOFT R2D2 web interface, which is a Java-based user interface accessible via a web browser. The interface is divided into several sections:

- System Monitoring:** A top section showing system status, including CPU usage and system health.
- Recording and Replay Controls:** A central section with buttons for 'Recording', 'Replay', and 'Admin'. It also displays a table of recording channels with columns for 'Rec. Channel', 'Status', 'Bytes/min', 'Max/min', and 'Error'.
- Data Management:** A bottom section with a 'Data' tab and a list of recording channels (VOICE\_1 to VOICE\_5) with corresponding 'Start' and 'Stop' buttons.

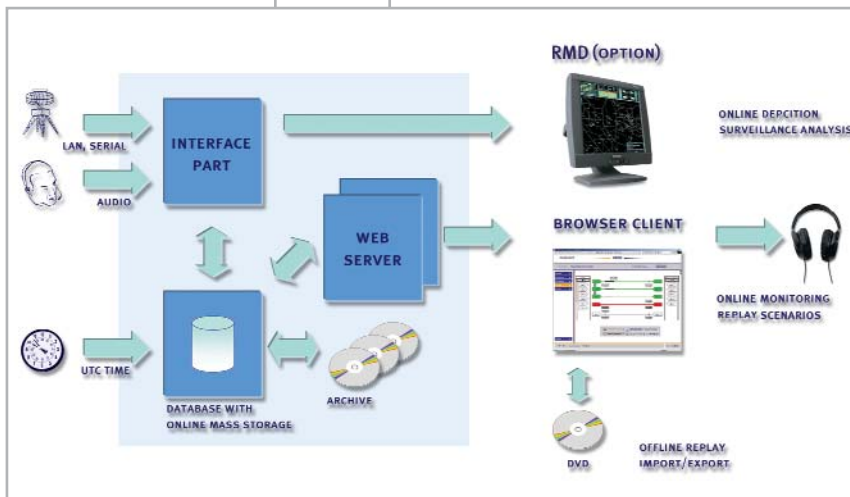
Overlaid on the screenshot is a photograph of the R2D2 hardware, which is a compact tower server with a keyboard in front of it. The hardware is black and features a front panel with a display screen and various ports.

- Robust system concept based on COTS hardware and standard software
- Optionally with integrated technical monitoring and surveillance data analysis package

# TECHNICAL DATA

Platform	Intel server-based off-the-shelf technology Storage: RAID, DVD, DVD Jukebox (option)
System Software	Operating System: Linux Database: MySQL or Oracle
Time Synchronisation	GPS, DCF77, NTP
Surveillance Data	Communication Interfaces: V.24/RS232, V.11/RS422, FSK, Ethernet, FDDI All combinations of different interface types can be supported in one single server. Protocols: X.25, HDLC LAPB, HDLC Frame Level, CD1, CD2, AIRCAT, EUROCONTROL, LLC1, UDP/IP, DP/Multicast, UDP Broadcast, TCP/IP; others on request Recording is performed in a fully transparent and format-independent manner.
Audio Data	Communication Interfaces: Analogue radio/telephone inputs (4/2 wire) ISDN, E1 Digital G 703, T1 Digital Different types of input interfaces can be combined in one single server. Voice Processing: CCITT G 711 & G 712 PCM, G 726 32/16 ADPCM, GSM 6.0

The user terminals, on which the Java-based R2D2<sup>®</sup> client software is run, are typical PCs with Internet browser and multimedia extension.



System Architecture

## APPLICATIONS

R2D2<sup>®</sup> has all properties needed for legal recording in ATC environments. It is also ideally suited for online and offline technical analysis, for incident investigation, for search and rescue, as well as for training and simulation.

## REPLAY ENVIRONMENT

R2D2<sup>®</sup> is configurable for playback into the original environment or works as a stand-alone analysis solution. For the latter, it can be combined with COMSOFT's Radar Monitoring Display (RMD) and various COMSOFT analysis tools, together providing a self-contained workplace.

## ADDITIONAL TOOLS

R2D2<sup>®</sup> provides extensive import and export features. Recorded data can be exported to external media for offline backup. Or it can be transferred to radar quality assessment tools, such as the SASS-C or RMD, for further detailed analysis. The system can be controlled remotely and integrated in an SNMP-based supervision concept.

## CONFORMITY

R2D2<sup>®</sup> has been developed under full consideration of the recommendations given by the relevant documentation NATS CAP 670, ICAO Regulations Annex 10, Volume 2, Paragraph 3.5 and EUROCAE ED-111.

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