

RDD

RADAR DATA DISPLAY

COMSOFT

PRODUCT INFORMATION

RDD is COMSOFT's cost-efficient operational radar data display system. The latest engineering methods contribute to its open architecture and high scalability, which allow RDD's adaptation to a wide range of operational and technical environments.

The powerful RDD system displays an extreme flexibility, both with respect to an easy technical integration into a large variety of customer environments, as well as to the large number of supported application scenarios.

Based on its broad scalability, ranging from stand-alone to networked solutions, the system can be ideally profiled as operational working position for tower, approach and en-route applications.

RDD can also be supplied together with COMSOFT's high quality mono- and multi-radar tracking package (RPX). This elevates RDD to a powerful all-in-one solution for airports and airfields.

RMD (Radar Monitoring Display) is the real-time technical monitoring version of the RDD product family. It comprises low level analysis functions, a raw plot display, as well as logging features and a multi-channel correlation display.

HIGHLIGHTS

- Powerful operational controller working position
- Utmost connectivity with regard to radars, networks, other systems
- Cost-efficiency by use of COTS hardware and software
- User interface adaptable to customer requirements
- Mono- and multi-radar tracking extension package
- Dedicated system for technical monitoring available



FUNCTIONAL FEATURES

GENERAL DISPLAY FACILITIES

- Target type selection
- Lower and upper height band filtering
- On-line source selection
- Flightplan and code-callsign correlation
- MADAP and ARTAS support
- Display of weather and meteo information
- Dynamic zooming and off-centering
- On-line selection of trail history, speed vector, label information and size
- All standard features for display of label information
- On-line selection of map information
- Multiple colored map layers (runways, approach lines, TMA, CTR, nav aids, restricted zones, geographical information)
- Interactive color adjustment
- On-line channel selection
- QNH correction
- Compass rose, range rings, Halo (Zone of Protection)
- Support of direction finders
- Optional electronic flight strip support

CONNECTIVITY

- Support of a wide variety of interfaces, protocols and data formats
- Possibility of various input and/or output combinations between the above
- All types of LAN and serial line connections
- All standard protocols
- Full ASTERIX support, as well as support of many other data formats
- On request, adaptation to further customer interfaces, protocols and radar data formats
- Support of ISDN, PSDN, PSTN and Dial-Up lines

MULTI-CHANNEL PROCESSING

- Display of plot and track pictures
- Simultaneous processing and display of different data sources
- Independent online selection of radar data sources
- Support for immediate channel switch to a fall-back chain

SCALEABILITY

- Scalable from low-cost single PC-based solution
- to high-end workstation cluster solution, with independent client services for air situation pictures (see right-hand page)
- Portable solution available

PLATFORM

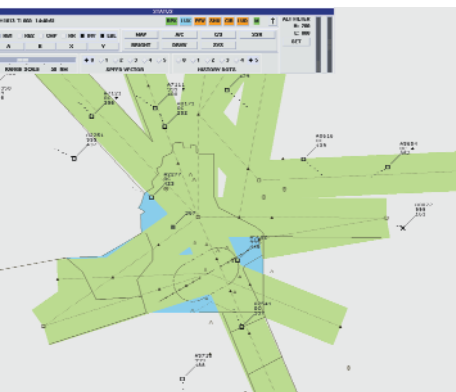
- Industrial PC technology: main stream, continuously improved standard environment
- UNIX operating system: outstanding performance, connectivity and reliability
- X Windows/Motif: highly flexible and scaleable graphical user interface; high performance engine available

CUSTOMIZATION

- Flexible system design with regards to modification and extension of user requirements
- Maintenance and adaptation to new system environments can be performed by the customer (e.g. additional radar channels, new maps, modification of configurations)

OPTIONAL TRACKING PACKAGE (RPX)

- Real-time software package for mono- and multi-radar tracking
- Available as integral part of RDD or as stand-alone solution
- High-precision local and system tracking for up to 16 radar sources
- 400 local tracks per radar and up to 1200 system tracks
- Kalman filters
- Optimized plot-track association
- Permanent use of all available radars (exceeds mosaic-based approach)
- Interface to flight plan data processing
- Highly adaptable to a variety of formats and protocols (support of all RDD formats)



SYSTEM CONFIGURATIONS

Based on RDD's versatile architecture a large number of application scenarios and areas of use are possible. Below, some of the more common system configurations, ranging from stand-alone solutions to integrated RDP systems, are shown. These configurations can be tailored in a very flexible way to the customer's environment and requirements at the time of installation.

STAND-ALONE TRACKING & DISPLAY SOLUTION

As input for a stand-alone solution RDD requires a single radar, which may be either local, or remotely linked, e.g. via a dial-up line. Optionally, FDP or direction finder information is included. RDD performs high quality tracking and provides a supreme display picture. This solution may be most suitable for small airports and airfields.

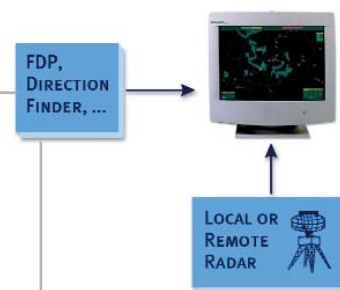
REMOTE TRACK SERVER DISPLAY

RDD can directly be connected to large track servers, like MADAP or ARTAS. Thus, it is very cost-efficient, as it can take advantage of the

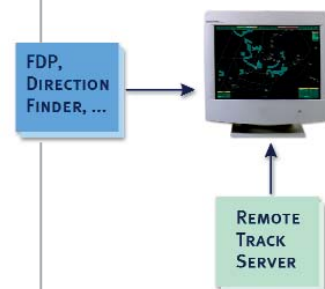
powerful RDP infrastructure available in Europe. At the same time, it allows an air situation picture based on a large radar coverage to be obtained. All standard ASTERIX track formats are supported.

CLIENT-SERVER RDP CLUSTER SOLUTION

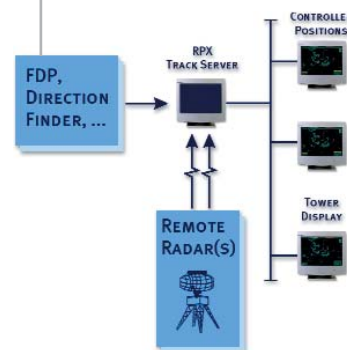
The RDD LAN solution provides the utmost degree of scalability in terms of the number of working positions and performance. Tracking is performed on a redundant central RPX track server running on a PC or workstation platform. Displays are connected via Ethernet or FDDI and may be tailored in a very flexible manner to their use in a tower, approach or for en-route control.



Stand-alone Solution



Remote Track Server



Cluster Solution

RMD (RADAR MONITORING DISPLAY)

COMSOFT's RMD is a specialized RDD version for real-time technical monitoring. RMD's main function is the native processing and depiction of the different radar channels received via serial or LAN links. Its fields of application include center-based or on-site surveillance and radar analysis, as well as system monitoring and supervision. The following is an exemplary list of RMD features and tools:

MULTI CHANNEL DISPLAY
with display overlay and automatic correlation of different radar sources for both plot and track data.

NATIVE DATA PROCESSING
for many radar types, including ASTERIX. Allows analysis and back-tracing of data down to binary level.

BROAD CONNECTIVITY
Allows integration into almost all existing ATC environments. RMD can act as SNMP manager.

RADAR DATA BASE MANAGER
Basis for Automatic Radar Recognition. Defines coordinates

and other characteristics of managed radars.

RECORDING & REPLAY TOOL
Allows interactive recording and replay with dynamic speed (ranging from 0,5 to 4 times speed).

FILTERING TOOL
Flexible user-defined radar data filtering.

TRANSITION & DELAY TIME ANALYSIS
applies to recorded or live data.

ACOUSTICAL & VISUAL ALERTS
for monitored systems, e.g. radar status, test transponder.



LOGGING FUNCTION
Recording of interactively selected data (selected flights, special target types, geographical areas). Analysis, replay and export of logged data.

TEXTUAL & SPREAD-SHEET ANALYSIS
Analysis, viewing and export of recorded radar data in various pre-processed formats.

EXTENDED TRAIL HISTORY
for selected flights up to 100 updates.

TECHNICAL DATA

Platform	- Intel Pentium - DEC Alpha, HP or Sun workstation
Display	- Standard color display 17" - 21" - 1280 x 1024 pixel resolution - Optionally with up to 29" - 2048 x 2048 pixel resolution
Operating System	- POSIX compliant UNIX - UNIX SVR 4.2, Solaris, HP UNIX, DEC OSF/1, Linux
GUI	- X Window System with OSF/Motif extension
Interfaces	- LAN environment: FDDI/Ethernet - Serial line connections: V.11 (RS 232), V.24 (RS 422)
Formats	- ASTERIX local plot and track picture (Cat. 1, 2, 16, 34, 48), local weather (Cat. 8), MADAP system picture (Cat. 0, 3, 9), ARTAS (Cat. 30, 62, 252) - RDIF, CAA, CD2, EUROCONTROL, AIRCAT
Protocols	- TCP/IP, ISO TP4/CLNP, LLC 2a, HDLC X.25, HDLC LAPB, HDLC Frame Level, Byte Sync



NiceSoft

APPLICATIONS & REFERENCES

RDD FOR LVNL AT IMPORTANT REGIONAL AIRPORTS

- COMSOFT's tower application is operational at Maastricht-Aachen and Rotterdam airport. RDD is the first operational display system supporting the ARTAS V.4 format.

RDD FOR SLOVENIAN CAA

- Several RDD tower displays are operational throughout the country, depicting the air situation processed by the integrated RPX.

RMD FOR UK NATS AT GATWICK

- COMSOFT's RMD systems are responsible for technical monitoring of all UK radars.

RMD FOR LVNL AT AMSTERDAM SCHIPHOL

- At Amsterdam ATCC an RMD monitors all available radar streams. In this configuration the system connects to an immense range of external interfaces.

RMD FOR AUSTROCONTROL AT VIENNA

- RMD permanently supervises all radar data feeds, as well as the front-end communication in the fallback and the main system.

RMD FOR ANS OF CZECH REPUBLIC AT PRAGUE

- The ANS RMD was designed to interface with a large scale radar data recorder. Aside from live depiction, RMD also provides direct access to the recorder's archives.

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RELATED PRODUCTS

RDD can be ideally extended by NiceSoft, an integrated radar/voice recording and replay system. NiceSoft is based on a scaleable COTS hardware and supports a

multitude of interface alternatives in terms of radars and voice connections. Its scope of application ranges from small tower-based applications to large center-based solutions.