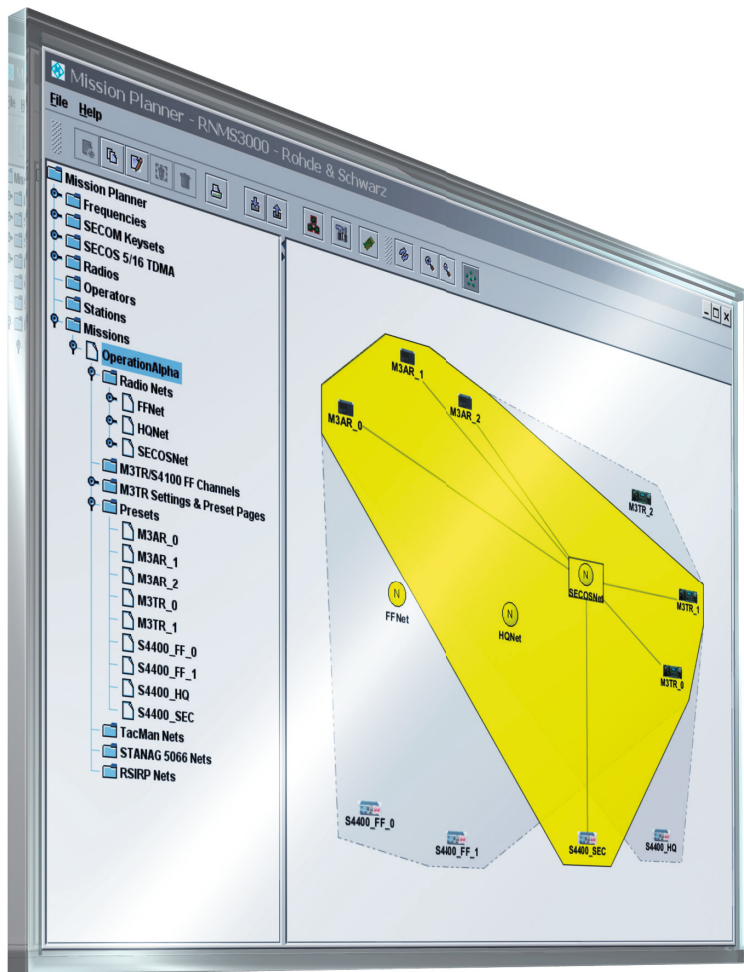


R&S® RNMS3000

Radio Network Management System

Utilization planning, radio network
configuration and data distribution



R&S®RNMS3000

Radio Network Management System

At a glance

The convenient way to empower the capabilities of Rohde & Schwarz radios in networks.

Increased significance for a radio network management system

In today's world, information exchange via voice and data is indispensable for military forces to fulfil their increasing mission requirements. Handling all these communications demands with their complex waveforms requires an extended network management system. By offering R&S®RNMS3000, Rohde & Schwarz provides such a radio network management system. It enables military leaders to turn their Rohde & Schwarz combat radio equipment into a robustly networked communications system based on mission demand and on complex hierarchical structures, especially in joint or combined missions. In the past, many parameters had to be adjusted on the radios, which required highly skilled users. In future, the configuration complexity will be done during the preparative configuration of a management system.

R&S®RNMS3000 radio network management system

The R&S®RNMS3000 software supports the centralized network management, where one central organizational unit performs the complete mission planning, as well as the decentralized management, where the various configuration steps are accomplished on different military hierarchical levels. The R&S®RNMS3000 software suite, consisting of the mission planner, the remote device loader and the remote distributor, offers the following functions:

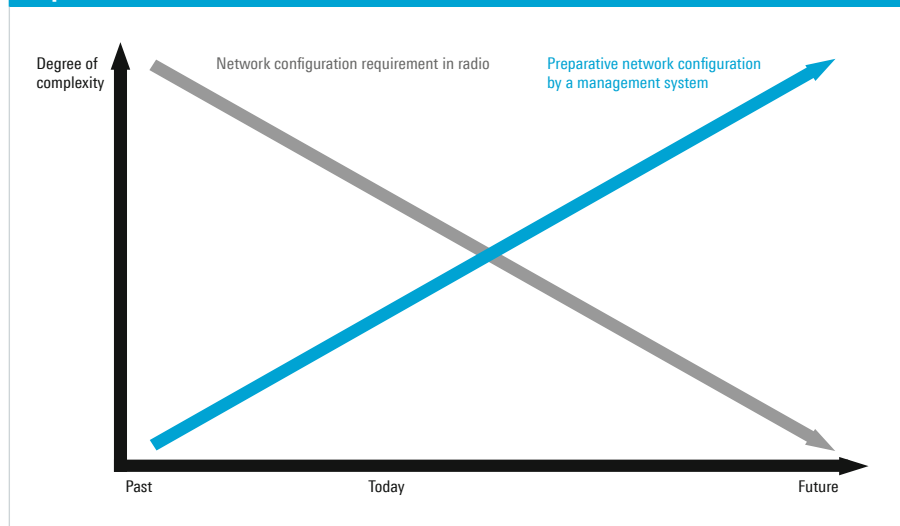
- Management of security keys
- Frequency assignments
- Establishment of logical nets
- Distribution of mission files

The objective is to provide mission-tailored and secured radiocommunications networks. Especially the R&S®RNMS3000 capability to manage NATO-specific waveforms, as well as general HF House waveforms and Rohde & Schwarz proprietary waveforms, underlines its broad range of applications.

Key facts

- Support of all Rohde & Schwarz radios and all frequencies
- Support of voice and data services
- Network planning, mission file generation and distribution with one software suite
- Target-oriented software guidance with wizards

Ease of radio use versus preparative network configuration requirement



R&S®RNMS3000

Radio Network Management System

Benefits and key features

Mission planner

Mission-tailored network planning

- ▮ Frequency assignment
- ▮ Hop set generation and management
- ▮ Security key management
- ▮ Effective mission planning

▷ [page 4](#)

Comprehensive waveform support

- ▮ NATO waveforms
- ▮ HF House waveforms
- ▮ R&S®SECOM waveform
- ▮ R&S®SECOS waveform

▷ [page 6](#)

Remote device loader

Mission-optimized radiocommunications plan transfer

- ▮ Secure file transfer
- ▮ Effective hardware programming

▷ [page 8](#)

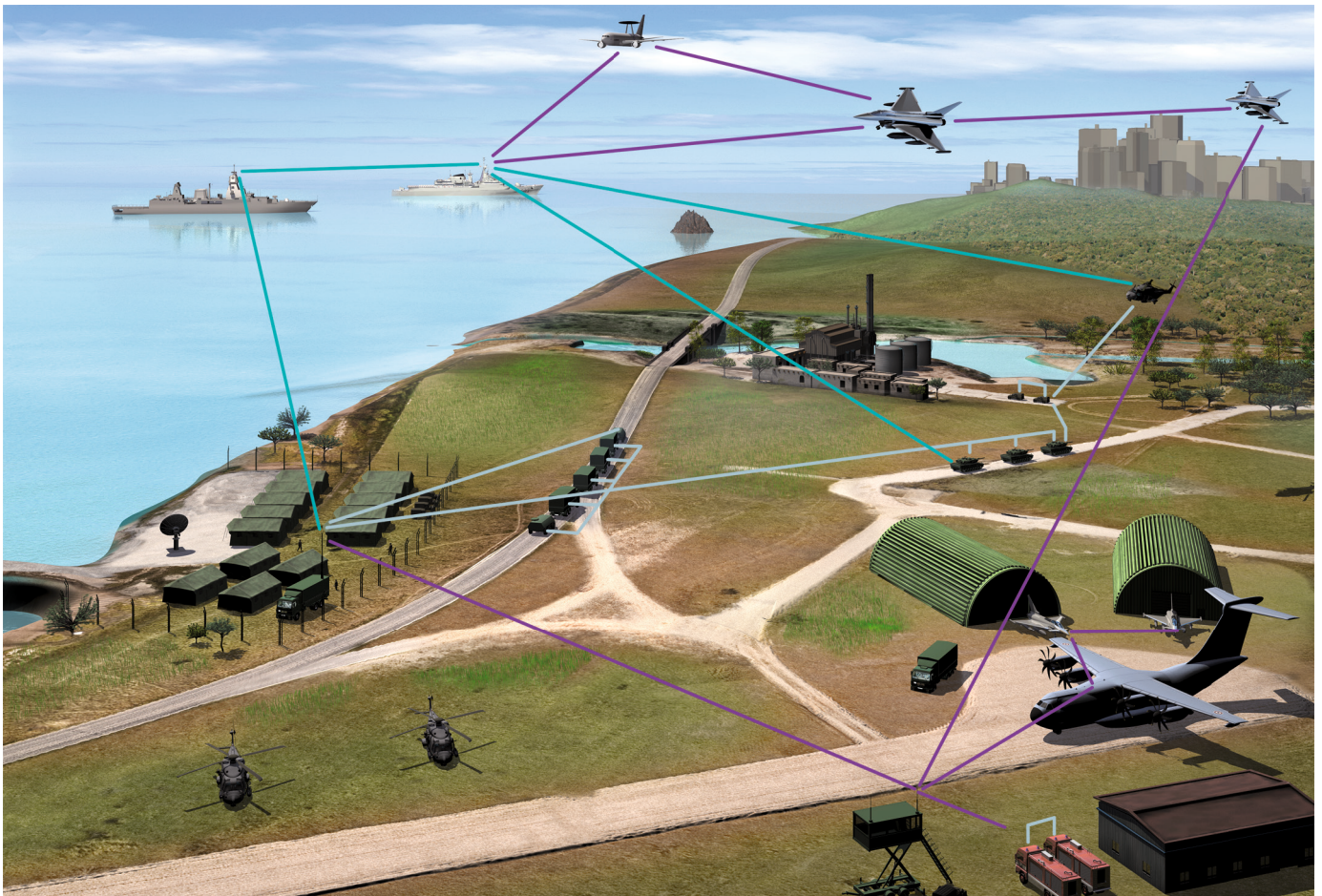
Remote distributor

Extended mission data distribution

- ▮ File distribution over existing IP networks
- ▮ Event log and status control

▷ [page 9](#)

Mission scenario.



Mission planner

Mission-tailored network planning

The mission planner software creates and configures radio-communications networks and generates the required radiocommunications plan in one file that includes all relevant parameters to use the radios immediately.

In order to plan radio nets based on operational demands, the mission planner software also allows network planning regarding logical, hierarchical and especially joint or combined mission-tailored structures.

Frequency assignment

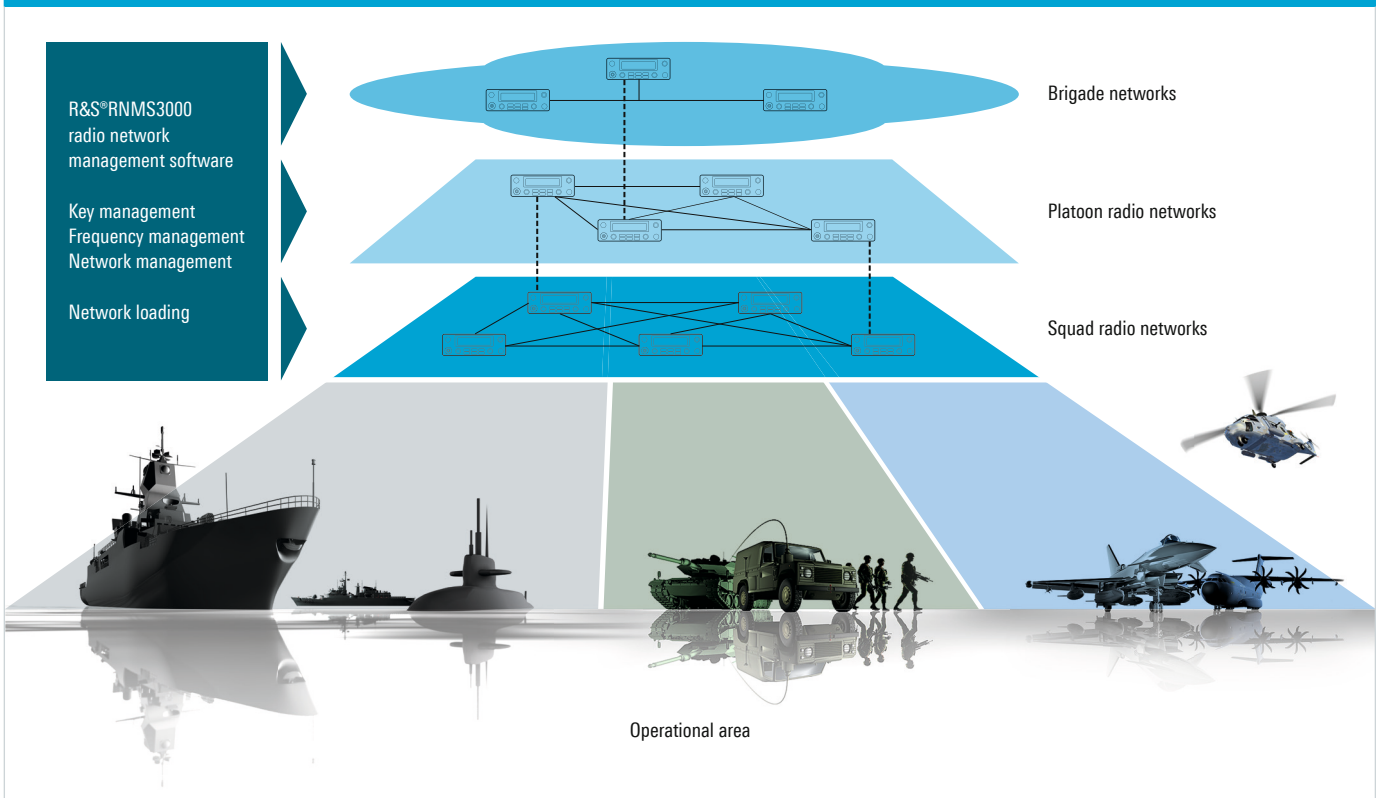
The mission planner software supports HF, VHF as well as UHF frequencies and allows the use of fixed frequency mode as well as frequency hopping mode. Especially the frequency hopping modes enable jam-proof and reliable radiocommunications.

Management of barred frequencies is provided additionally. According to frequency plans by the national frequency authority, single frequencies and frequency bands can be barred.

Hop set generation and management

The mission planner software allows individual, mission-specific, hop set generation via manual frequency entry as well as automatic hop set generation via an implemented algorithm.

Hierarchical radio communication structure



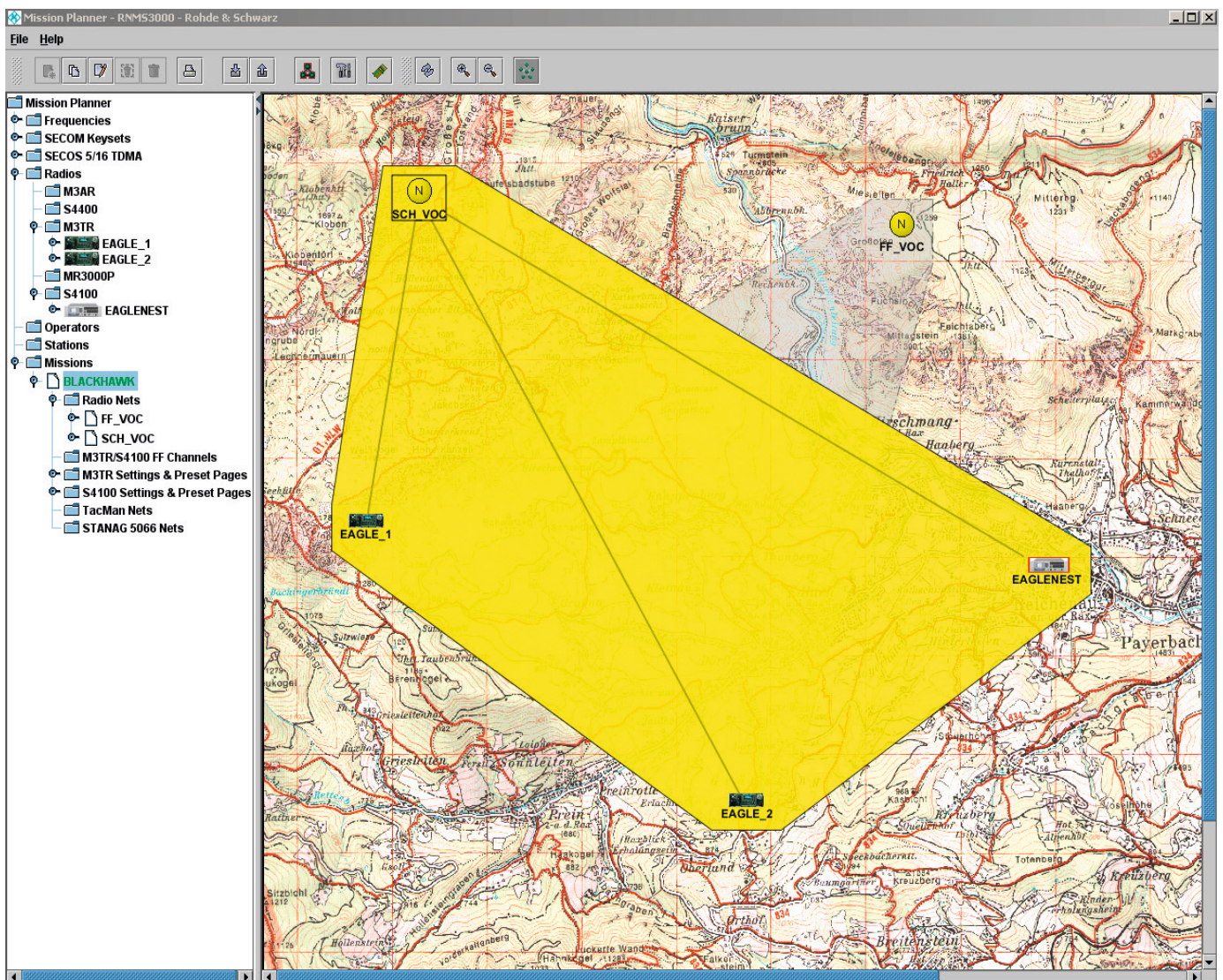
Security key management

To establish a secure radiocommunications network, encryption key management and data ciphering are essential. The Rohde&Schwarz mission planner software enables the import and the assignment of external and waveform-specific encryption keys in black form. They are generated by separate key generation tools. Rohde&Schwarz provides the suitable equipment for customer-specific key generation.

Effective mission planning

The mission planner software allows mission-optimized and time-critical software use. The program provides target-oriented software navigation via wizards to allow the operator mission planning with a focus on the essential parameters. In case of a configuration error R&S®RNMS3000 displays a fault message including advice to support the error search process. The created mission file and configuration progress are saved automatically in a database to avoid losing critical mission data due to a hardware failure.

Geographical display of a mission area.



Comprehensive waveform support

R&S®RNMS3000 allows users to apply and to configure several waveforms that meet the corresponding mission requirements.

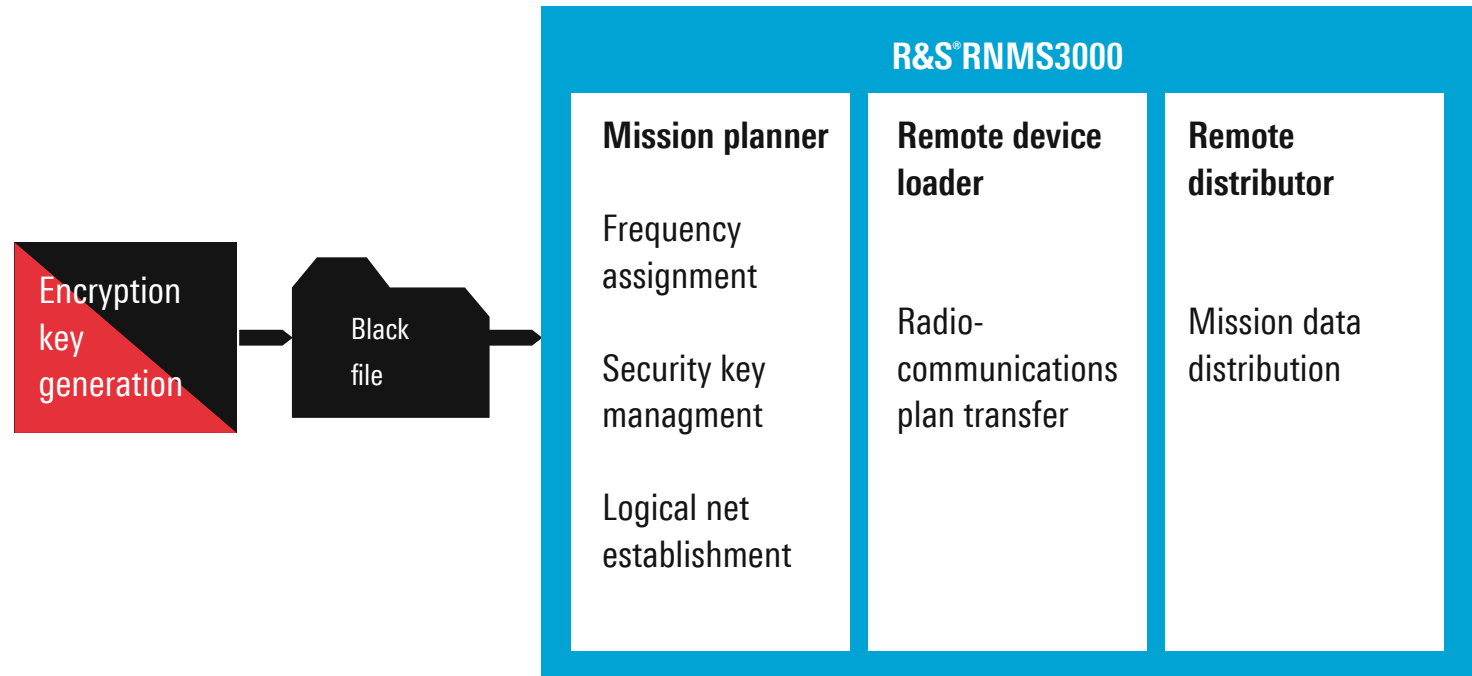
NATO waveforms

R&S®RNMS3000 supports preset parameter configuration for NATO waveforms. All further waveform-specific parameters are managed via NATO tools.

HF House waveforms

R&S®RNMS3000 allows the planning of ALE scan groups and networks for the HF House waveform. The configuration of several data modems is supported as well as IP configuration according to STANAG 4538.

Process sequence



R&S®SECOM waveform

R&S®SECOM is a proprietary HF, VHF and UHF waveform optimized for tactical use. It provides powerful communications security (COMSEC) via data encryption and also transmission security (TRANSEC) via frequency hopping to prevent electronic attacks like detection, tapping or jamming. R&S®SECOM is compatible with R&S®M3TR, R&S®M3SR Series4100 and R&S®MR3000P.

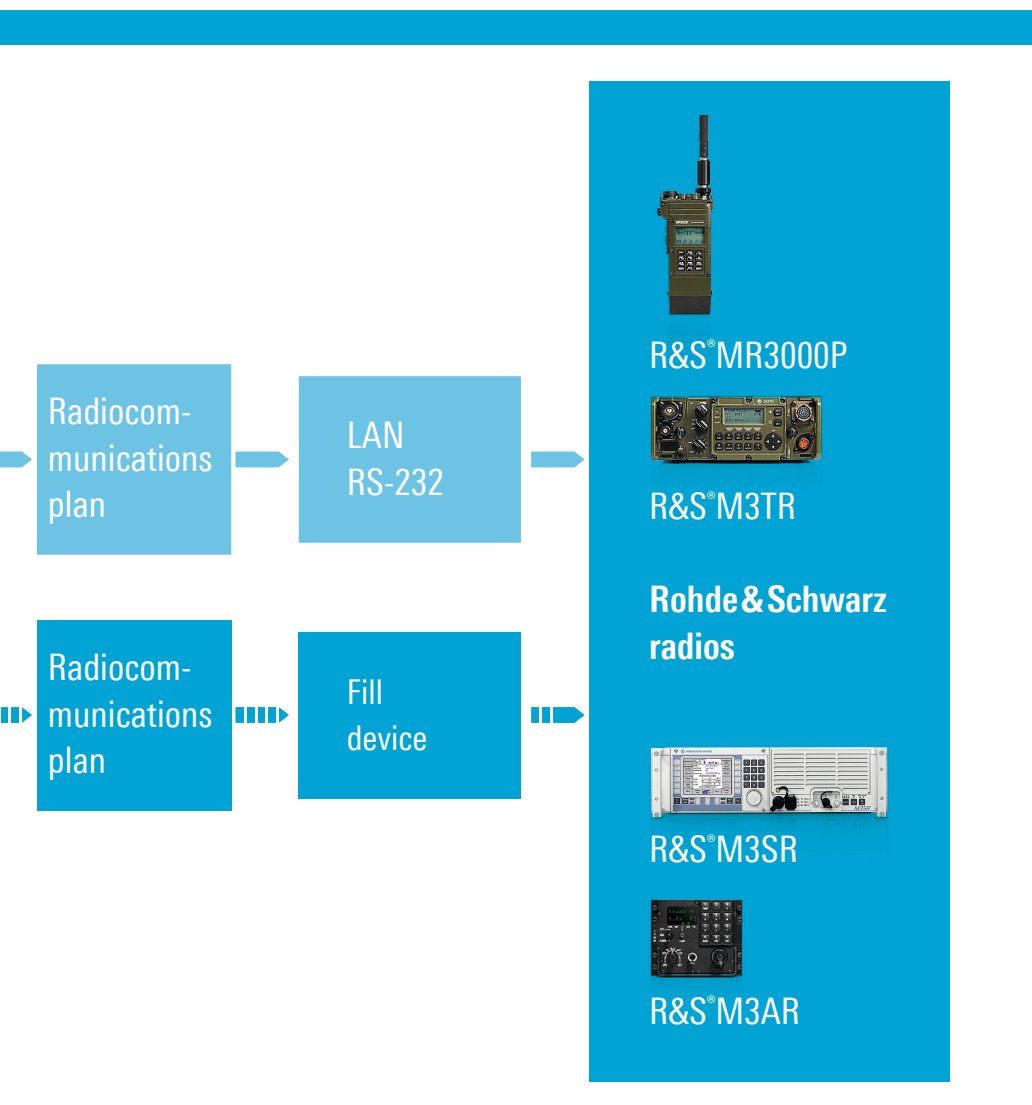
The key generation device R&S®CP3000 generates the waveform-specific encryption keys which are required in order to achieve a maximum security level for the proprietary R&S®SECOM waveform.

R&S®SECOS waveform

R&S®SECOS is a proprietary waveform optimized for fast moving objects such as aircraft. It provides high resistance to physical effects e.g. the Doppler effect or reflections as well as to electronic attacks such as jamming or eavesdropping.

R&S®SECOS enables secure and reliable UHF communications providing embedded crypto functionality (COMSEC) and transmission security via frequency hopping (TRANSEC). The waveform is compatible with the R&S®M3AR, R&S®M3SR Series4400 and R&S®M3TR to ensure interoperability between several military units.

The key generation device R&S®KMC3750 generates the waveform-specific encryption keys which are required in order to achieve a maximum security level for the Rohde & Schwarz proprietary R&S®SECOS waveform.



Remote device loader

Mission-optimized radiocommunications plan transfer

The remote device loader (RDL) is integrated in the R&S®RNMS3000 software suite and represents the interface between the mission planner software and the Rohde&Schwarz radios or fill devices. The RDL also runs as a standalone software tool to enable detached mission planning and equipment programming.

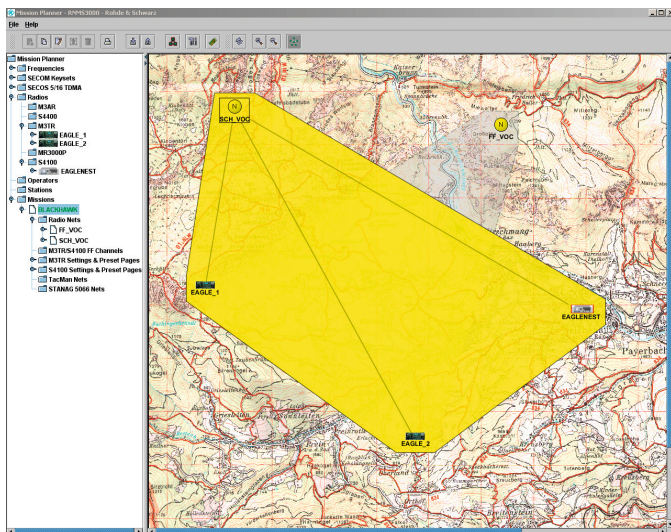
Secure file transfer

- The RDL exports the key files only in black form to meet the military security requirements
- Using R&S®RNMS3000, the mission data set can be transmitted to Rohde&Schwarz fill devices to get a portable and mission-tailored programming tool
- A further capability of the RDL is to transfer the mission data via LAN or via a serial RS-232 interface to the Rohde&Schwarz radios

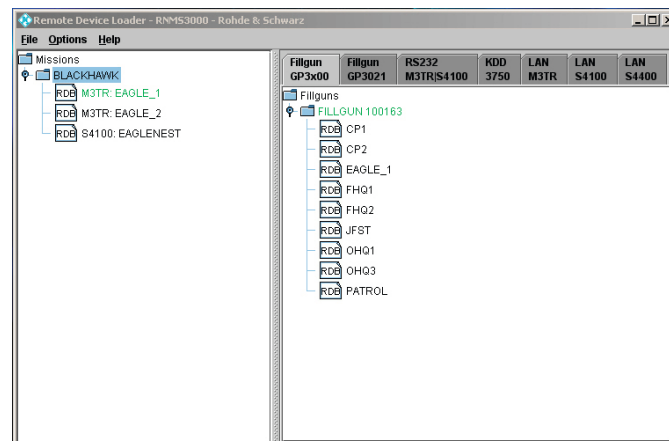
Effective hardware programming

The RDL software automatically displays all connected and available radios or fill devices and allows the user to transfer the mission files usually via a drag&drop operation to enable an effective and time-critical mission file transfer.

Bring radio network missions...



...onto the radios.



Remote distributor

Extended mission data distribution and status control

The remote distributor (RD) extends the capabilities of the R&S®RNMS3000 software suite and enables radiocommunication plan components to be exchanged over long distances. The RD represents an integrated interface in the mission planner for seamless distribution of radiocommunication plans.

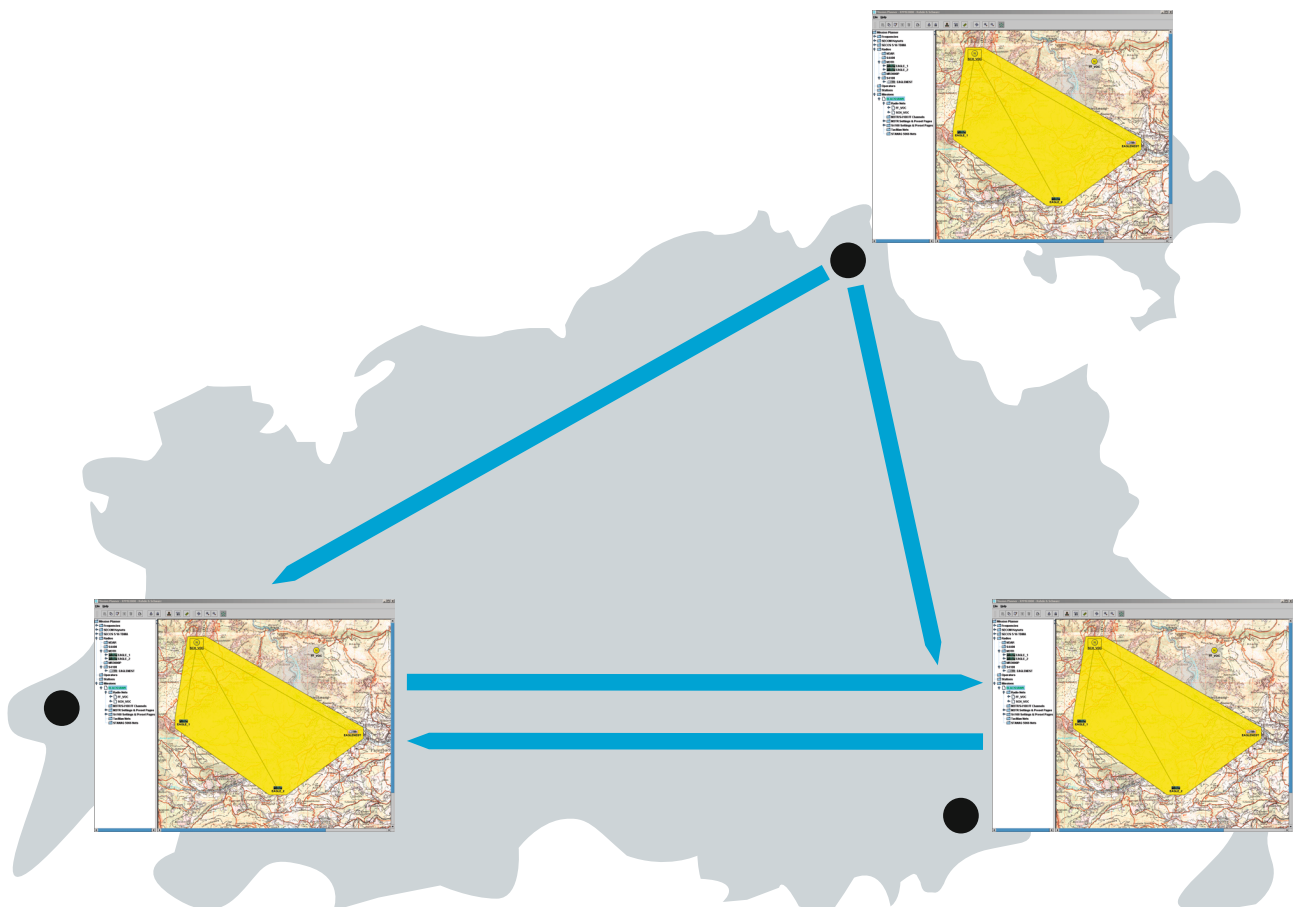
File distribution

The RD allows mission data or encryption keys to be exchanged with other locations or authorities to provide decentralized and hierarchical mission planning. For this purpose the RD provides data exchange via LAN or WAN networks.

Event log

The Rohde & Schwarz remote distributor enables the logging of distribution events. This software feature displays all received data sets in the inbox window and all outgoing data sets in the outbox window. The current distribution data status is also displayed and shows if the data was successfully sent, received or even transferred via LAN to the radios.

Geographical dispersed radio network planning



System requirements

The computer used for R&S® RNMS3000 must meet the following system requirements:

- Standard PC
- Minimum 1 Gbyte RAM (2 Gbyte recommended)
- Processor clock > 1 GHz
- Windows XP or Windows 7 Professional operating system
- 2 × USB port

Ordering information

Designation	Type
Mission planner	
R&S®RNMS3000 Mission Planner (software package)	R&S®DS3100M
Basic mission planner options	
License for TacMan	R&S®DS3103
Mission planner waveform licenses	
Activation of NATO Waveform ¹⁾	R&S®DS3110
License for NATO Waveform ²⁾	R&S®DS3111
Activation of HF House Waveform ¹⁾	R&S®DS3120
License for HF House Waveform ²⁾	R&S®DS3121
Activation of R&S®SECOS 5/16 Waveform ¹⁾	R&S®DS3130
License for R&S®SECOS 5/16 Waveform ²⁾	R&S®DS3131
Activation of R&S®SECOM Waveform ¹⁾	R&S®DS3140
License for R&S®SECOM Waveform ²⁾	R&S®DS3141
Activation of R&S®SECOS 2/12 TDMA Waveform ¹⁾	R&S®DS3160
License for R&S®SECOS 2/12 TDMA Waveform ²⁾	R&S®DS3161
Remote device loader	
R&S®RNMS3000 Remote Device Loader (software package)	R&S®DS3300D
Remote distributor	
R&S®RNMS3000 Remote Distributor (software package)	R&S®DS3321D
Service for installation	
Installation of R&S®RNMS3000 on PC	

¹⁾ One per RNMS instance.

²⁾ One per radio.

Your local Rohde&Schwarz expert will help you determine the optimum solution for your requirements. To find your nearest Rohde&Schwarz representative, visit www.sales.rohde-schwarz.com

Service that adds value

- Worldwide
- Local and personalized
- Customized and flexible
- Uncompromising quality
- Long-term dependability

About Rohde & Schwarz

The Rohde & Schwarz electronics group offers innovative solutions in the following business fields: test and measurement, broadcast and media, secure communications, cybersecurity, radiomonitoring and radiolocation. Founded more than 80 years ago, this independent company has an extensive sales and service network and is present in more than 70 countries. The electronics group is among the world market leaders in its established business fields. The company is headquartered in Munich, Germany. It also has regional headquarters in Singapore and Columbia, Maryland, USA, to manage its operations in these regions.

Sustainable product design

- Environmental compatibility and eco-footprint
- Energy efficiency and low emissions
- Longevity and optimized total cost of ownership

Certified Quality Management

ISO 9001

Certified Environmental Management

ISO 14001

Certified Quality Management

AQAP-2110

Rohde & Schwarz GmbH & Co. KG

www.rohde-schwarz.com

Regional contact

- Europe, Africa, Middle East | +49 89 4129 12345
customersupport@rohde-schwarz.com
- North America | 1 888 TEST RSA (1 888 837 87 72)
customer.support@rsa.rohde-schwarz.com
- Latin America | +1 410 910 79 88
customersupport.la@rohde-schwarz.com
- Asia Pacific | +65 65 13 04 88
customersupport.asia@rohde-schwarz.com
- China | +86 800 810 82 28 | +86 400 650 58 96
customersupport.china@rohde-schwarz.com

R&S® is a registered trademark of Rohde & Schwarz GmbH & Co. KG

Trade names are trademarks of the owners

PD 5213.9640.12 | Version 02.00 | May 2016 (sk)

R&S®RNMS3000 Radio Network Management System

Data without tolerance limits is not binding | Subject to change

© 2010 - 2016 Rohde & Schwarz GmbH & Co. KG | 81671 Munich, Germany



5213964012