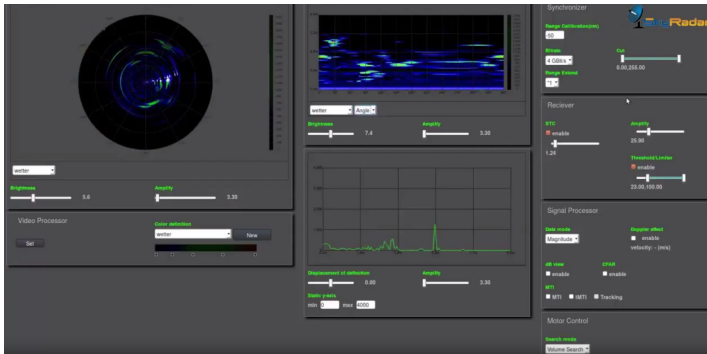


# SkyRadar FreeScopes

*SkyRadar FreeScopes* is the comfortable and powerful graphical user interface and control center for SkyRadar's hardware radars, simulators and applications. It includes scopes like A-Scopes, B-Scopes, PPI-Scopes, SAR and ILS screens, the complete eFreight process and many more stunning applications for air traffic control and airport security.



## Description

The SkyRadar FreeScopes provide a comfortable control center to visualize, manipulate and store data for all primary and secondary radars

(Pulse, FMCW, SAR, MLAT, ADS-B etc), the simulators (PSR, SSR, ADS-B, ILS, VOR, DME, etc), and the Airport security solutions such as the eFreight or baggage handling lab. FreeScopes allows simple plug-and-play access to all SkyRadar modules. The number of concurrent users who operate the software independently is unlimited.

## Features

The FreeScopes graphical user interface has hundreds of features. Here just a selection

- A-Scopes, B-Scopes, Plan-Position-Indicator for PSR and SSR, Synthetic Aperture Radar Screen (SAR), inverse SAR (iSAR), ADS-B
- Instrument Landing System (ILS), Traffic Collision Avoidance System (TCAS), Distance Measuring Equipment (DME), VHF omnidirectional range (VOR)
- e-Airway Bill (eAWB), e-Shipper's Declaration of Dangerous Goods (eSDG), e-Advanced Cargo Information (eACI), e-Consignment Security Declaration (eCSD), Flight Data Information System (FDI)
- Cargo Scanner (for simulator), Cargo Handling System (CHS), Baggage Handling System (BHS), Surveillance Control Data Acquisition (SCADA)

## Topics

FreeScopes is available for the following subjects:

- Primary Surveillance Radars (Pulse, CW, FMCW, FSK, Doppler, SAR, iSAR)
- Secondary Surveillance Radars (SSR, ADS-B, TCAS)
- eFreight compliant to IATA eCargo XML (eAWB, eACI, eSDG, eCSG)
- Cyber-security in Airports

- Cargo Scan Simulation
- Baggage Handling Systems, Cargo Handling Systems, SCADA

## Parts

---

*FreeScopes consist of:*

- FreeScopes software for unlimited use within the premises or intranet of the customer (access given through the corresponding component or SkyRadar CloudServer)
- One (1) license for SkyRadar Scopes software utilization
- One (1) Operating manual in English language freely downloadable.

## Prerequisites

---

- Computers with latest HTML5 enabled browser. Current versions of Chrome, Firefox, MS Internet explorer, Opera and Safari are able to read HTML5.

## Extensions

---

- *SkyRadar Cloud Server*
- *All applications of the SkyRadar Modular Radar Training System Family*

*SkyRadar's FreeScopes software* is the only radar training software available in the market, which is

accessible by an unlimited amount of concurrent users, . Also the broad coverage of solutions required for

ICAO and EuroControl ATCO and ATSEP training programs as well as IATA qualifications makes SkyRadar the preferred choice of many aviation academies and IATA TrainAir Plus accredited institutions. Also, many universities and military academies use FreeScopes within their qualification, education, training or research programs.

## Detailed Description

FreeScopes is a standardized browser-based graphical user interface for all SkyRadar applications.

It allows for

- plug-and-play availability of all SkyRadar products
- no installation or maintenance of the software on the student computers (apart from exceptional cases, e.g. in the context of ILS, when voice communication is required)
- 100s of concurrent users, working simultaneously on the same applications and radars (enabled through a private cloud server, located at the customer site).
- drastically reduces system costs per user and makes SkyRadar the most economical training system (using real radars!) in the world
- allows for easy and effortless expansion of the system (e.g., when adding additional primary or secondary radars)
- accelerates the learning curve of students, as they are accustomed to the comfortable SkyRadar learning environment

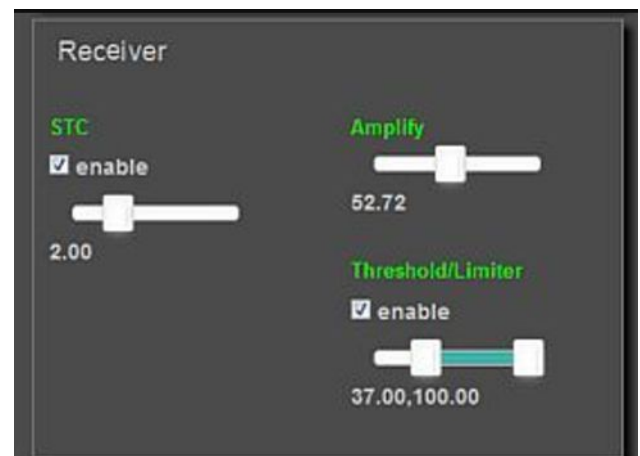
The FreeScopes graphical user interface is currently available for the subject areas, described hereafter.

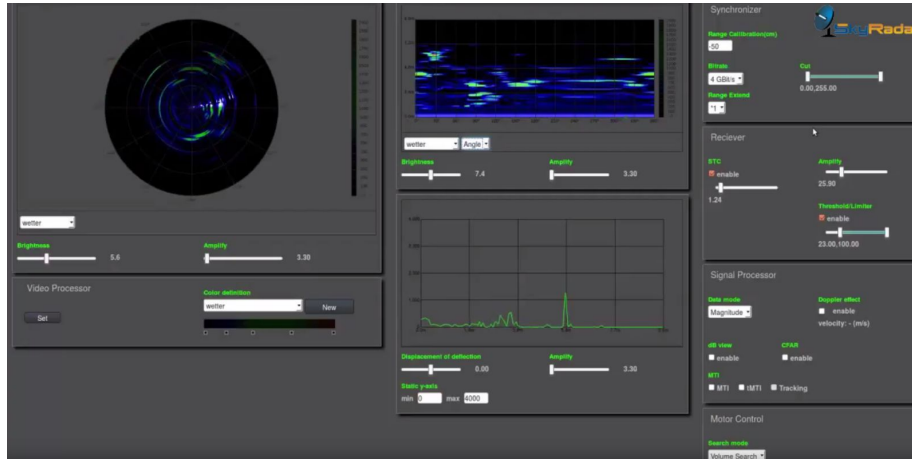
## Subjects

### Primary Surveillance Radars

Used as a standardized user interface for Pulse, Doppler, FMCW and SAR / iSAR radars, it provides all important scopes and control elements for the application.

- Scopes: A-Scopes, B-Scopes, Plan-Position-Indicator for PSR and SSR, Synthetic Aperture Radar Screen (SAR), inverse SAR (iSAR), Oscilloscope to visualize Frequency Shift Keying,
- Control Elements: Amplifiers and controls for synchronizer, receiver, signal processor (filters and amplifiers), motor control, as well as controls for the scopes (amplification, color setting, etc)

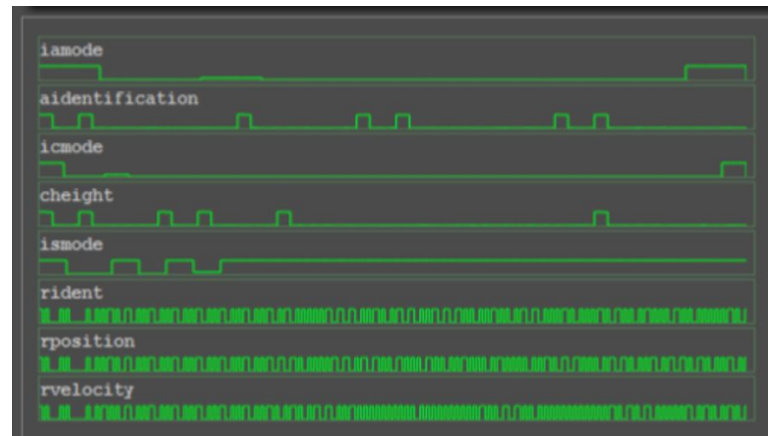
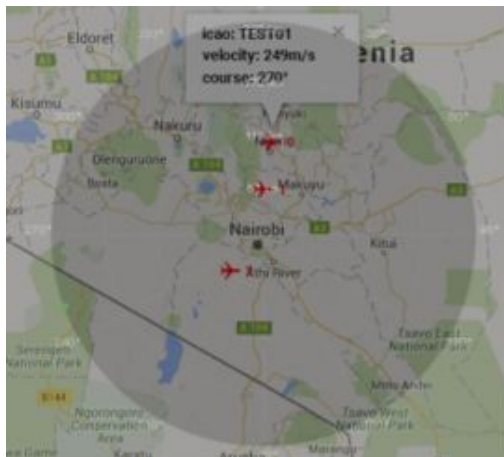




## Secondary Surveillance Radars

FreeScopes also serves as GUI for the ADS-B radar. It provides the following user interfaces:

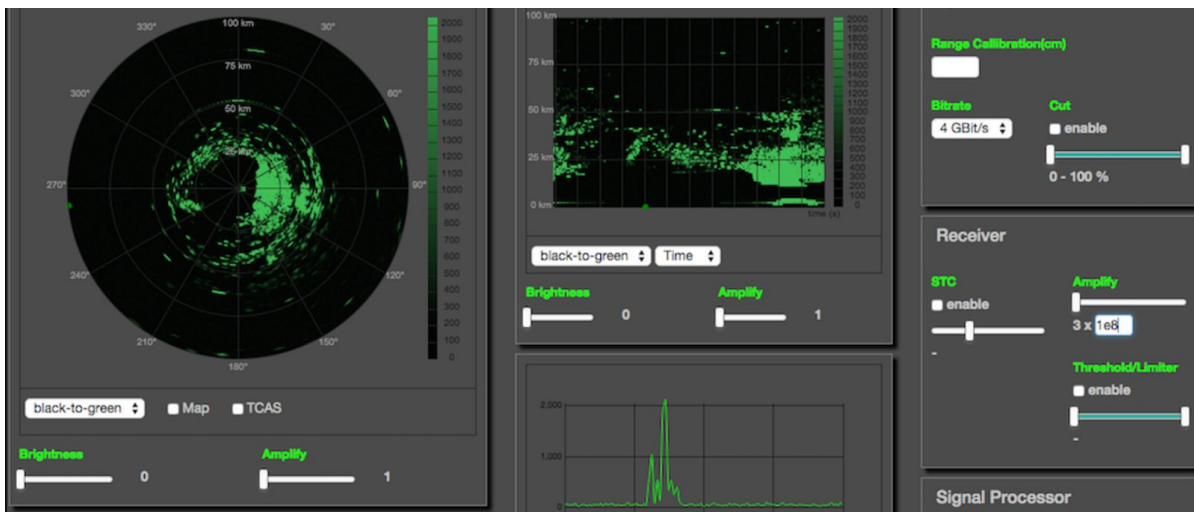
- PPI Scope with information of key aircraft data as 3rd dimension (Visualization of DF17 Squitter Signal)
- Visualization of interrogation and downlinks as pulse diagrams as well as in a table



# Primary and Secondary Surveillance Radar Simulators

Used as a standardized user interface for Pulse, Doppler, CW, FMCW and SAR / iSAR simulators, it provides all important scopes and control elements for the application.

- Scopes: A-Scopes, B-Scopes, Plan-Position-Indicator for PSR, Synthetic Aperture Radar Screen (SAR), inverse SAR (iSAR)
- PPIs: SSR Mode A/C and Mode S, ADS-B
- Pulse Diagrams and table Sidelobe Suppression, uplink format (UF), downlink format (DF), DBS registers
- Pseudo-Pilot Screens
- Control Elements: Amplifiers and controls for synchronizer, receiver, signal processor (filters and amplifiers), motor control, as well as controls for the scopes (amplification, color setting, etc)



## NAVAIDS Training Simulators

Used as a standardized user interface for Instrument Landing Systems (ILS), Traffic Collision Avoidance Systems (TCAS), Distance Measuring Equipments (DME), VHF Omnidirectional Ranges (VOR).



## E-CARGO Operations and Cybersecurity Training Laboratory

*FreeScopes* provides all major GUIs required for eCARGO handling in compliance to IATA eCARGO XML including a CARGO-Scan simulator and cybersecurity screens for European Union ACC3 oriented Cybersecurity training

- e-Airway Bill (eAWB), e-Shipper's Declaration of Dangerous Goods (eSDG), e-Advanced Cargo Information (eACI), e-Consignment Security Declaration (eCSD), Flight Data Information System (FDI)
- Cybersecurity UI
- Cargo Scanner (for simulator)

Operations

<b>SSL/TLS</b> Enable SSL/TLS	<b>Network Devices</b> Setup Network Devices	<b>Remote Computing</b> Remote Computing via VPN, RDP, and VNC	<b>Configuration</b> Configure Web Server
<b>Anti-Virus</b> Install Anti-Virus	<b>Gateway Security</b> Gateway Virus Scanning	<b>Firewall</b> Install Firewall	<b>User Management</b> Manage User Policy
<b>Events and Logs</b> Log and Event Management	<b>Authentication</b> Multi-Factor Authentication	<b>Load Balancer</b> Install Load Balancer	

