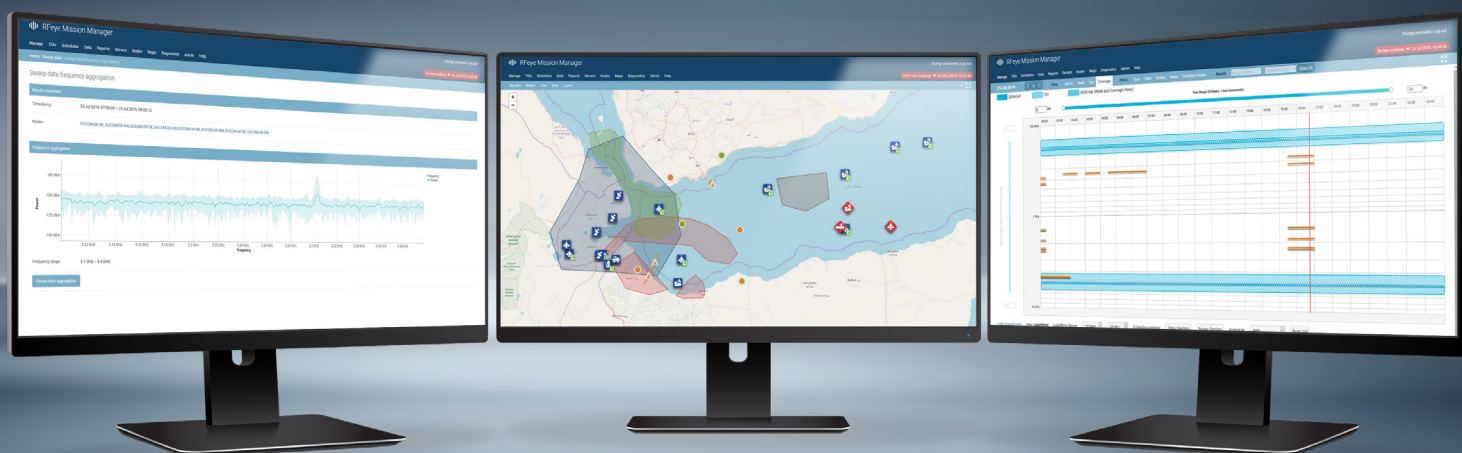# CRFS

RFeye Mission

Automated spectrum monitoring

RFeye Mission

Actionable intelligence from the RF spectrum

RFeye Mission

Automated spectrum monitoring

RFeye Mission is the CRFS flagship solution for automated spectrum operations. It enables spectrum stakeholders to derive useful and actionable intelligence from their deployed RFeye receivers without the need for teams of RF experts. It has been designed for use with RFeye assets deployed over wide areas such as ranges, test sites, borders and cities and also for small networks such as in-building TSCM monitoring.

RFeye Mission is controlled via a web browser interface. It enables spectrum monitoring tasks to be performed without the need for the user to view a "wall of spectrum data." Sweeps, scans and surveys can be quickly set up, and authorized transmitters, operating zones and geolocations are clearly displayed alongside real-time incidents and alarms.

Geolocation

Automatically geolocate signals of interest based on frequency, bandwidth, signal location, time and power. These geolocations can either be generated directly within RFeye Mission or fed in from RFeye Site. Each geolocation is displayed on the map view with information on longitude, latitude, altitude (when using 3DTDOA), frequency and bandwidth.
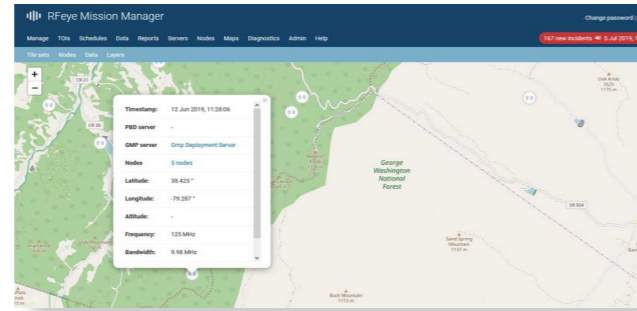

Automation

Spectrum tasks

Set up spectrum tasks in advance such as occupancy, time and geolocation scans as well as sweeps and signal surveys. These tasks can be scheduled to run and then monitored via the calendar interface, providing you with a clear overview of what is happening and when.
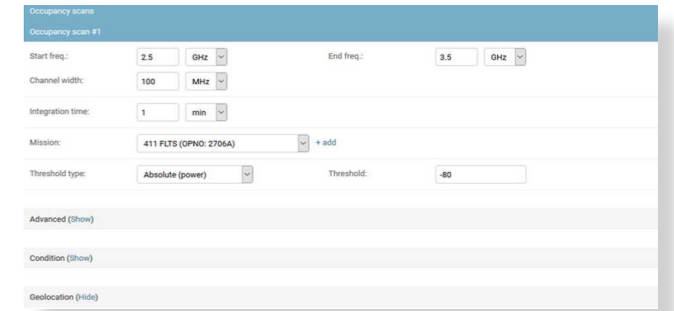

Incidents and notifications

If a breach of conditions occurs (e.g. an unauthorized transmission, signals in the wrong area or at the wrong time), alerts are automatically raised. They can be displayed on the map, if there is a geolocation, or sent via email for action. You can choose to receive emails based on the severity of the incident – "Information Only," "Warning," "Error" or "Critical."
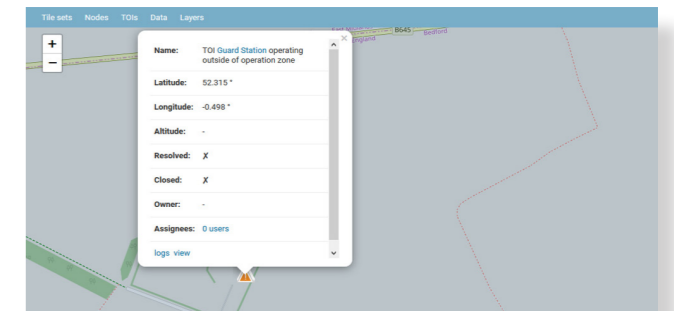

Third party scheduling imports

If you use scheduling system such as IFDS or TRMS to manage your range exercises, you'll know how long it can take to manually enter this data in order to generate monitoring activities and create reports. With RFeye Mission, you can load the data in seconds and automatically create a mission plan that will go on to monitor the RF spectrum and generate reports on range activity.
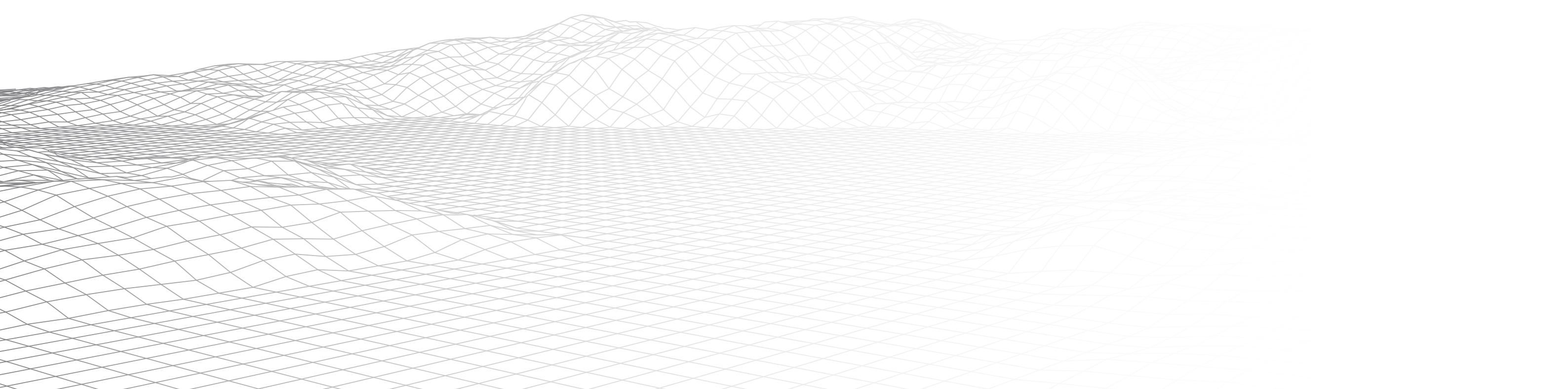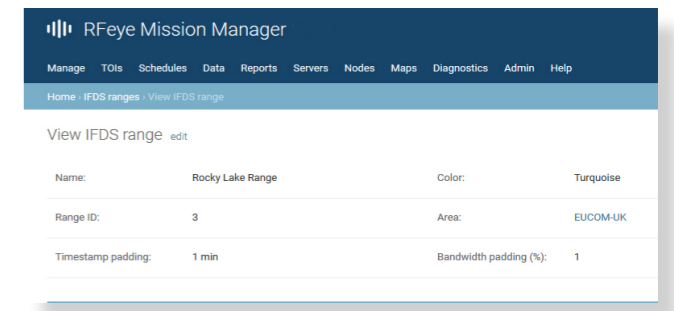
Visualization

Simple visualization tools

Not everyone wants to view (or understands) spectrum data. RFeye Mission uses a standard web browser interface to provide clear, simple views of the RF environment. The map view clearly displays authorized transmitters and operating zones and shows geolocations, incidents and alarms as they happen.
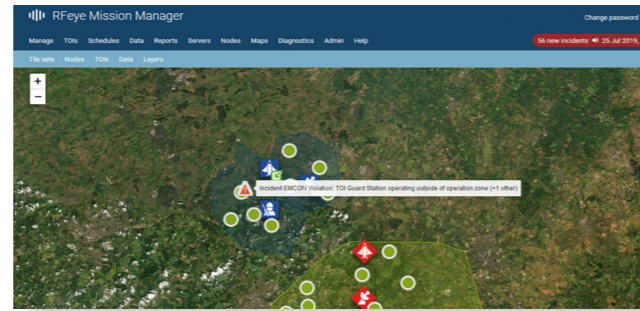

Zones of interest/geofences

As well as monitoring signals of interest, you can also set up specific geographic zones. RFeye Mission can trigger alerts and activities if a signal moves into or out of these zones. For example, if a signal moves into Zone 1, a schedule can be automatically triggered to record the signal data and geolocate its source. If the signal moves into Zone 2, however, an alert can be raised and passed to the relevant individuals.
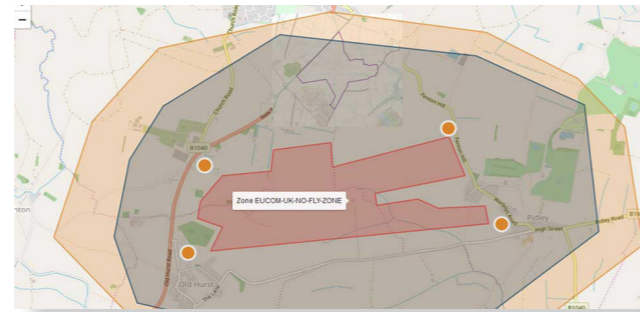

Map overlays

You can easily augment the standard street and satellite view of the map screen by adding your own map overlays. These could be up-to-date satellite images, technical schematics or even hand-drawn annotations.
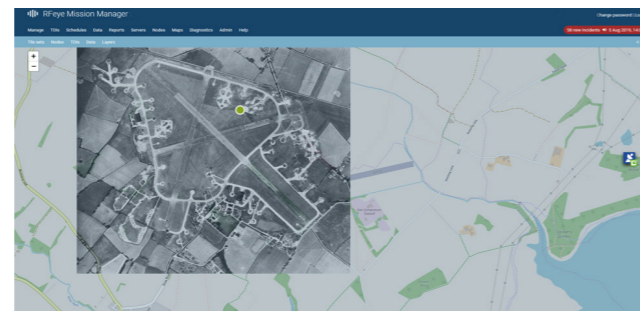

Transmitter of Interest (TOI)

If you have a known transmitter that you want to monitor, you can assign it as a Transmitter of Interest (TOI) and use your own custom icon. RFeye Mission will automatically track the TOI's movements, signal occupancy and modulation while monitoring it against a geofence for authorized or unauthorized activity.
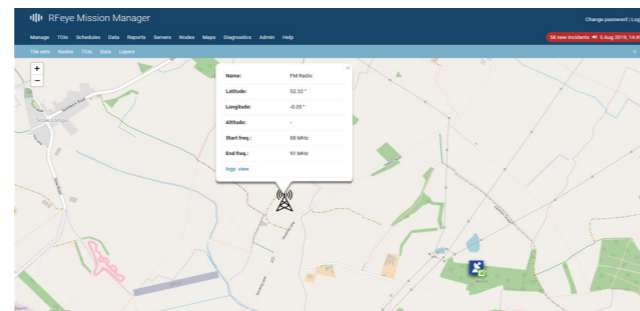

Spectrum view

There are occasions when you may want to view live spectrum, for example to verify that a signal is currently being broadcast. RFeye Mission lets you view live spectrum data at the touch of a button.
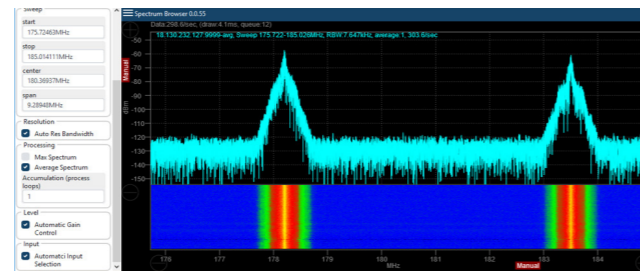

Schedule management

Schedule calendar

RFeye Mission clearly shows you the scheduled spectrum tasks that are due to be carried out by month, week and day. You can zoom in to view individual schedules and the associated tasks.
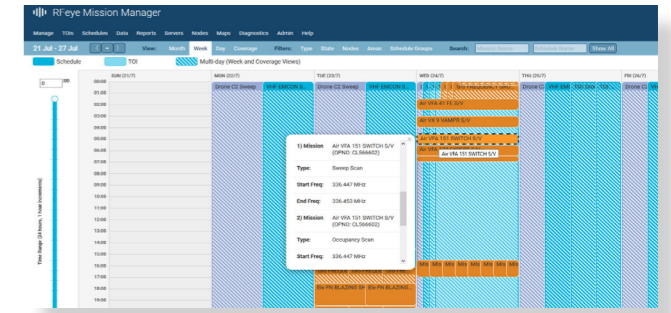
Spectrum coverage

Spectrum coverage allows you to see the schedules and tasks in time over frequency. This makes it simple to see if any schedules are due to take place at the same time or frequency. This could indicate that two or more missions might cause co-channel interference.
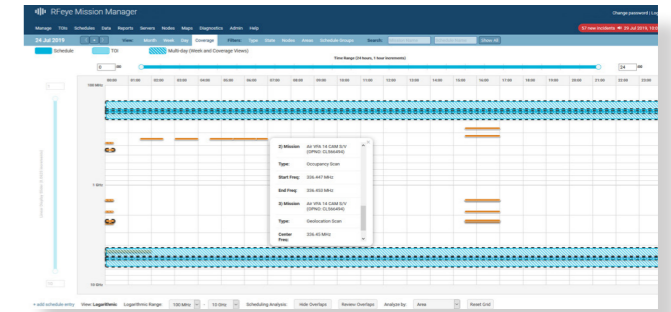
Reports

Spectrum reports

RFeye Mission can automatically generate a number of reports and data captures, including:

- Signal power reports - Looks at changes in transmitter power
- Signal occupancy reports - Looks at percentage occupancy of a portion of spectrum
- Sweep data - Shows if signals are being transmitted within a spectrum range

These reports can be distributed to other interested parties automatically or on request.
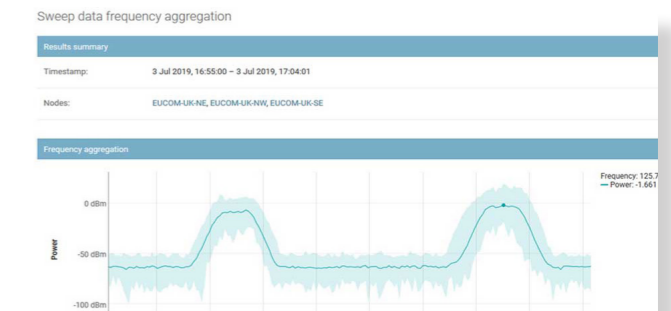
Management

Central receiver management

Maintaining and updating firmware and software on remote RF receivers can be challenging, but with RFeye Mission it can all be done centrally. If you have 10 receivers that all need the latest software patch, you can automatically update them all at the same time, and at a time that suits you.

System status

RFeye Mission gives you instant access to the status of your assets including the Nodes, server, GPS and RF activity status. Any errors or warnings can be automatically sent to your email or phone.

User management

RFeye Mission gives you complete flexibility over user permissions. You can assign personalized user permissions or manage user groups to limit access to certain parts of the system.
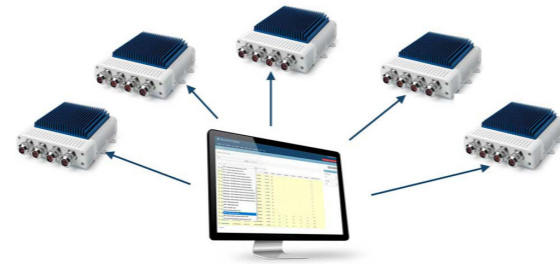
Extras

Air Defense Package (3D TDOA and ballistics)

With the optional Air Defense Package, airborne targets can be individually identified, and flight characteristics determined (including heading, speed, flight path, and altitude). This data can further be used to establish flight envelope characteristics such as climb and turn rates, acceleration rates, etc.
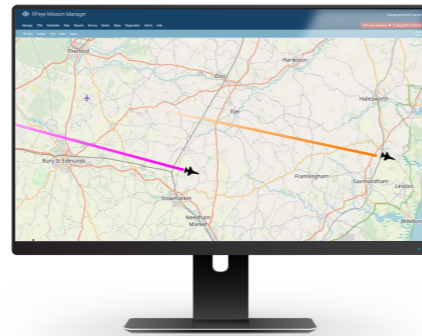
Signal of interest (SOI) Detector Package

With this optional detector package, you can target single channel or multichannel signals, including pulsed signals such as ADS-B or Air-to-Air (A2A) and Air-to-Ground (A2G) tactical data links. Geolocations derived from this data can then be displayed in RFeye Mission.
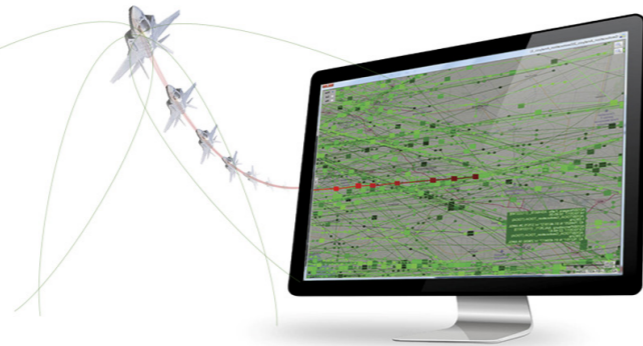
RFeye Mission architecture

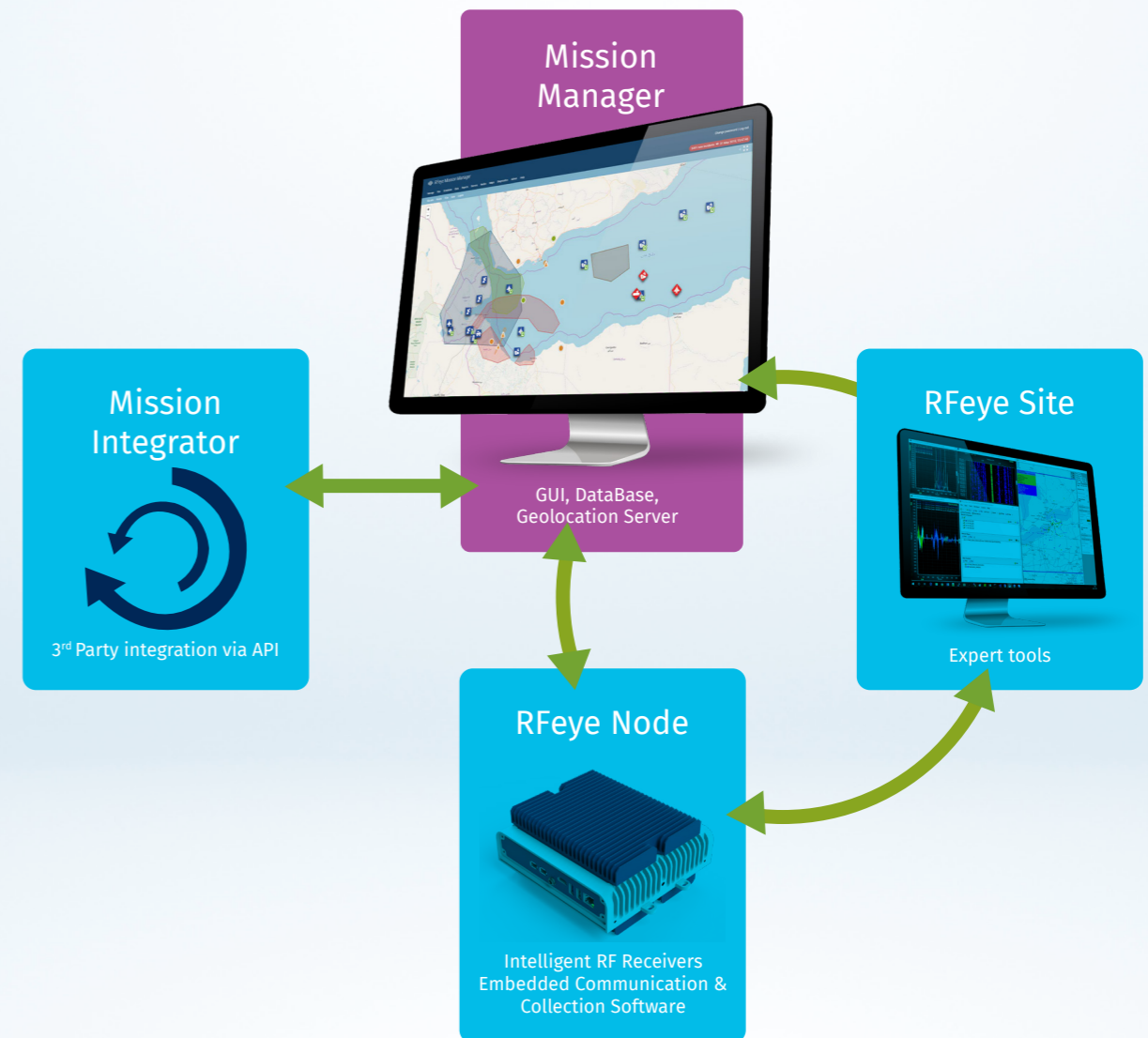Mission consists of a family of integrated technologies:

Mission Manager – The core user interface software. It also enables network and database management and automatic geolocation (via GMP - Group Mission Processor).

RFeye Nodes and Arrays – High-performing rugged RF receivers.

Node software – Enabling autonomous communication and advanced signal collection (EMP – Embedded Mission Processor, NCP – Node Control Protocol, PHD – Phone Home Daemon).

RFeye Site – Manual real-time spectrum monitoring and geolocation software that can feed optimized geolocation data directly into Mission Manager.

**Mission Integrator** – Connects via REST API (using JSON-formatted data) to allow 3rd party applications to feed other data sets and geolocation sources directly into and out of RFeye Mission.

Mission Manager

Mission Integrator
3rd Party integration via API

GUI, DataBase, Geolocation Server

RFeye Site
Expert tools

RFeye Node
Intelligent RF Receivers
Embedded Communication & Collection Software

About CRFS

At CRFS, we design, build, program and deploy systems and solutions for RF spectrum monitoring, management and geolocation. We serve both defense and homeland security customers as well as the civilian regulatory market.

Our sensors are high performing, compact, rugged and modular. Coupled with intuitive RFeye software, you can turn RF data into reliable actionable intelligence.

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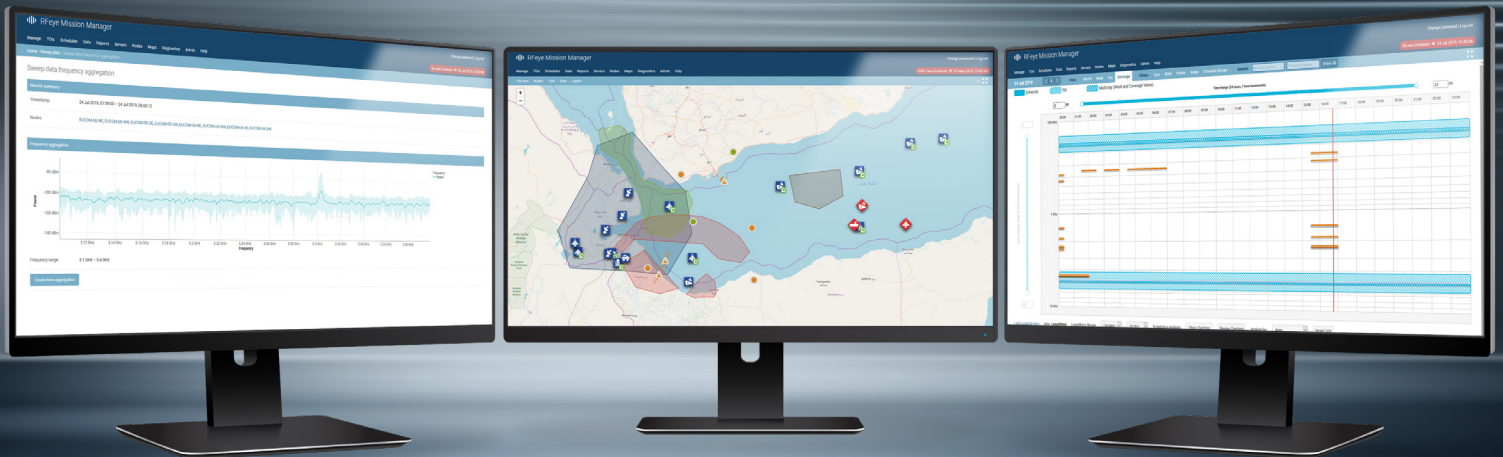
For further information or to schedule a demonstration visit:

crfs.com

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