PRODUCT CATALOGUE
2021-2022

For simplifying complex information

Collins Aerospace

WELCOME TO THE
PRODUCT CATALOGUE

Collins Aerospace is a leader in technologically advanced, intelligent solutions that help to redefine the aerospace and defense industry. We dedicate our capabilities, comprehensive portfolio and expertise to solving customers' toughest challenges and meeting the demands of the global market.

The SCi-Toolset is a software suite that provides information management, image processing, and intelligence exploitation capabilities that help extract critical intelligence, making it timely and usable. Our knowledge and solutions have been built on decades of experience working with our customers and providing direct support to peace keeping and defence missions.

We are following in those footsteps with the SCi-Toolset, providing a new way for customers to store, manage and exploit large amounts of data to change critical outcomes.

Transportable system complete with the SCi-Toolset

SCi-X

SCi-X is the fastest way of viewing and exploiting imagery. It provides advanced analysis so you can gain a deeper understanding of your intelligence.

Our insight into imagery processing has illustrated the time critical need to process large volumes of data. Developed to support tactical reconnaissance, SCi-X is capable of loading and rendering hundreds of high resolution image frames in seconds. It offers advanced analysis tools to extract meaningful intelligence and to output that intelligence to reports.

KEY FEATURES

- Large volume, real-time screening and exploitation of single or multi-band imagery

- Exploitation of multiple imagery types, including NITF 2.1, NSIF 1.0 (STANAG 4545), JPEG 2000, TIFF, GeoTIFF, PNG, and SCi-X generated IMG

- Exploitation of STANAG 4609 full motion video, including mensuration and extraction of annotated static images, and video clipping for generation of intelligence product

- Exporting snapshots to NITF, GeoTIFF, TIFF, PDF, PNG, JPEG, and IMG image file formats

- Report generation into Microsoft Office (Word and PowerPoint) templates

- Map generation into map product templates

- Full set of mensuration, geo-location, annotations and symbol tools, including multiple datums and coordinate types (Lat/Long, UTM, MGRS)

- Ingest, view and search of ESRi generated annotations, and visualise symbols (Shapefiles)

- Scroll, mosaic, flip book, editable, and panorama layouts

- Vertical and horizontal side-by-side display

- Anaglyph and active stereo

- Platform and sensor auxiliary data display (e.g. mission, target, location, altitude, target standoff, slant range)

- Tracking map view of mapping or satellite imagery, with the ability to terrain-drape imagery, with selectable overlays, sensor location, footprint and field of view
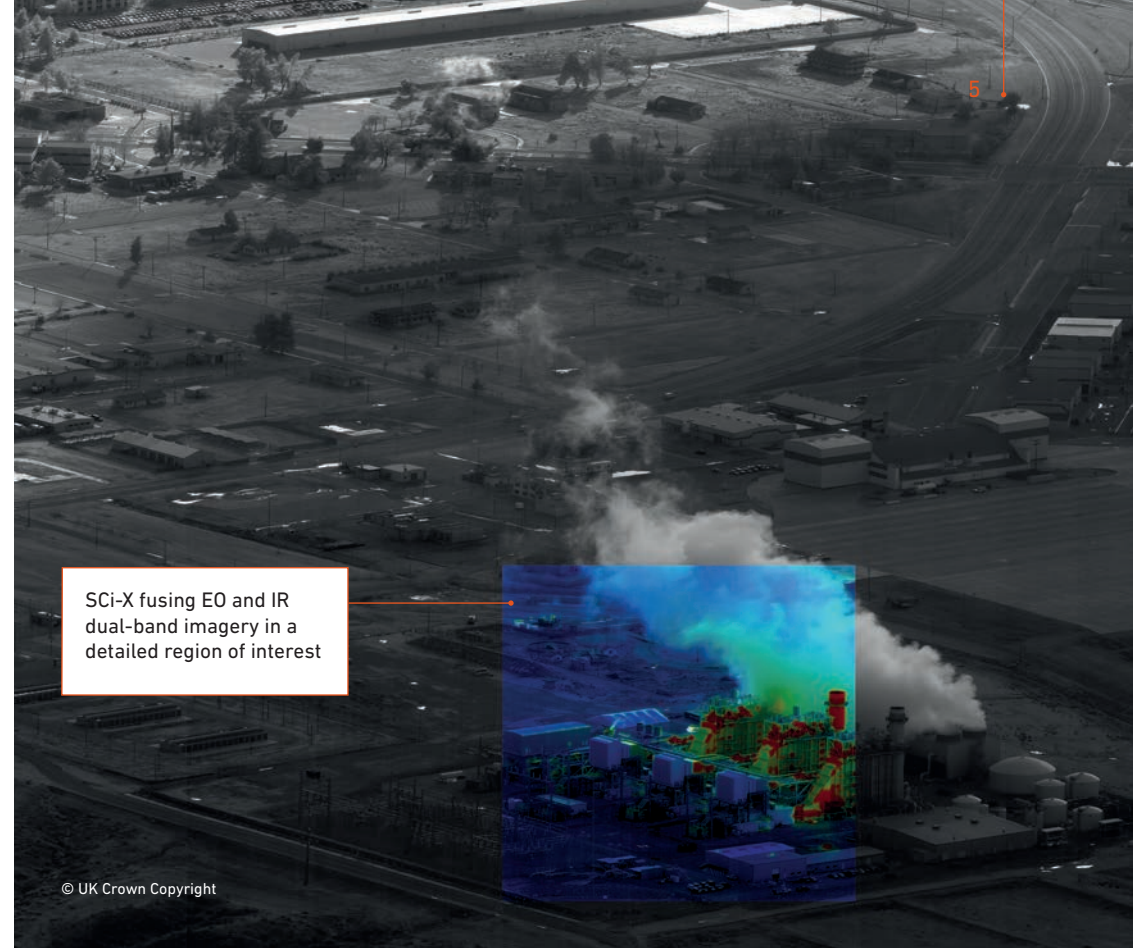
SCi-X fusing EO and IR dual-band imagery in a detailed region of interest

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SCI-TOOLSET INTEGRATION FEATURES

SCi-X has a secure login interface with the SCi-Toolset Server, offering extended functionality with other products and the following advanced image services:

- Panorama Service: Provides rapid panorama generation of an image scene from sweeping sensors

- Image Fix-Up Service: Removes artefacts and enhances imagery without distortion or content removal

- Image Tile Service: Streams large volumes of imagery from the SCi-Toolset server's database for rapid rendering
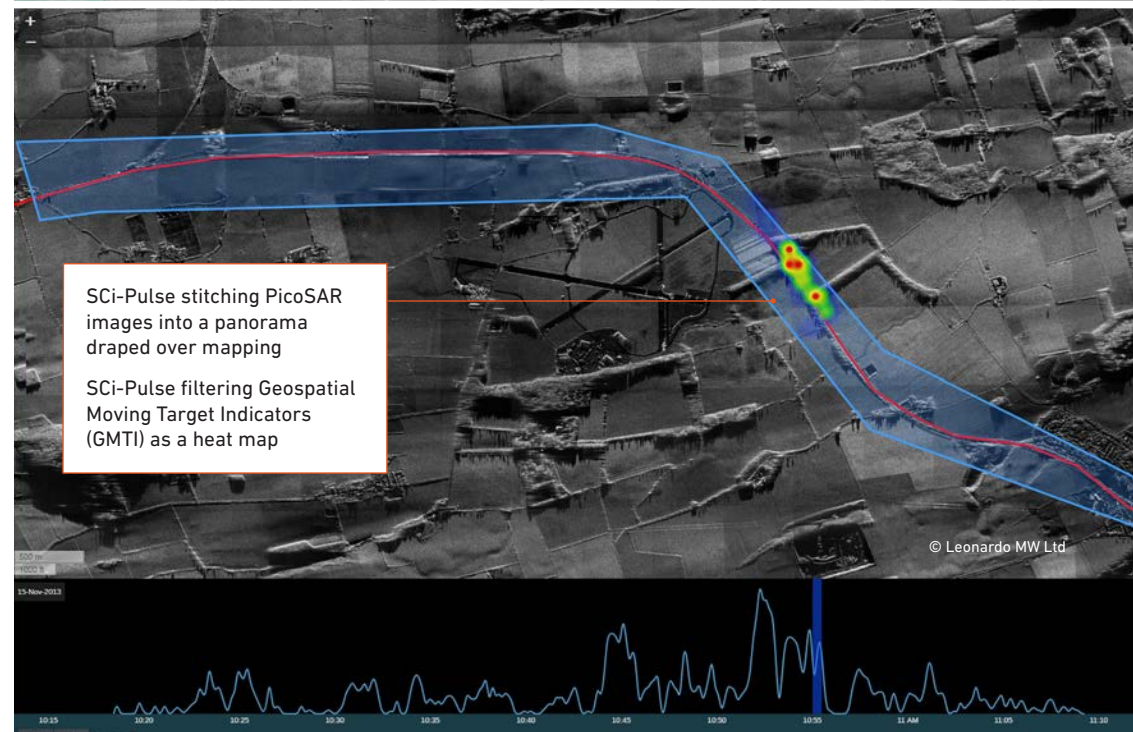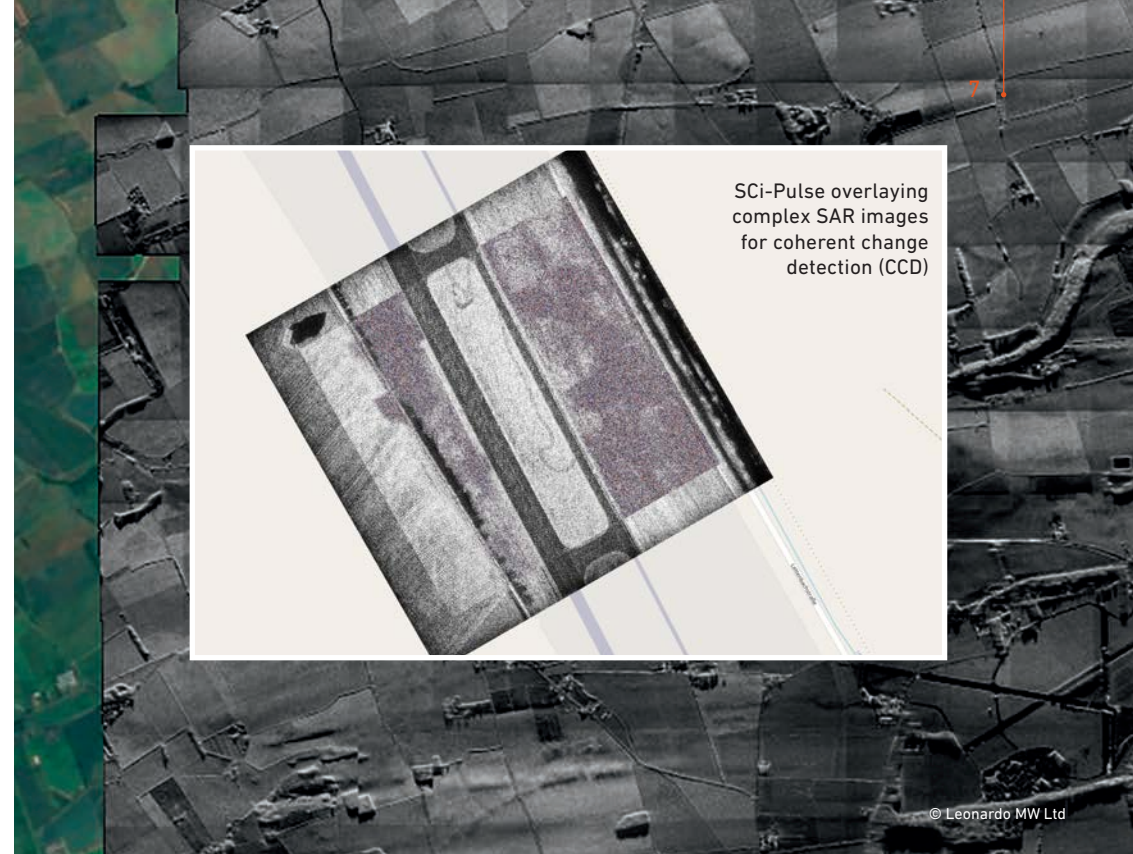
SCi-Pulse

SCi-Pulse enables fast and effective analysis of Synthetic Aperture RADAR (SAR) and ground moving target indicators in a geospatial context for a deeper understanding of your intelligence.

Tactical real-time intelligence creation calls for tools that support the timely analysis of sensor data. SCi-Pulse supports the exploitation of all-weather ISR. Designed to minimise workload and training burden, SCi-Pulse delivers a cost effective solution to meet the needs of analysts working in high-tempo environments.

KEY FEATURES

- Supports multiple data types including NITF 2.1, GMTI (STANAG 4607), ESRi Shapefiles, KML and KMZ

- Visualises SAR imagery for amplitude, complex layers, and ortho-mosiac display

- Coherent and amplitude change detection tools

- Visualises GMTI plots and heat maps, with filtering for time, geo-position and radial velocity

- Geospatial annotation, image snapshots, and export of KML/ KMZ layers

SCi-Pulse overlaying complex SAR images for coherent change detection (CCD)

© Leonardo MW Ltd

SCi-Pulse stitching PicoSAR images into a panorama draped over mapping

SCi-Pulse filtering Geospatial Moving Target Indicators (GMTI) as a heat map

© Leonardo MW Ltd

SCi-Discover

SCi-Discover facilitates the discovery, visualisation and dissemination of intelligence stored in the SCi-Toolset from a range of digital sources. This reduces decision making through advanced situational awareness

Digital data is being created at an ever increasing pace. SCi-Discover provides an enterprise solution to visualising and disseminating stored intelligence data. It provides near real-time meta-data synchronisation and product localisation over high and low-bandwidth networks, overcoming the key weaknesses of legacy federated-searching.

KEY FEATURES

- HTML5 Web Client with map, table, document content, and mission views

- Content filters for acquisition time, product type, geographic area, universal attributes, user defined tags and source catalogue

- Graphical search for geospatial content using line, polygon, point and radius tools

- Interactive content preview of products, including full resolution screening through in the web

- Security accredited for operation on NATO and government secure networks

- STANAG 4559 AEDP-17 Edition 4 compliant, backward compatible to Edition 3, and fully interoperable with extant NATO coalition shared database systems

- Database synchronisation and automatic scheduled services allow reach-back, data localisation, and data archiving

SCi-Discover illustrating mission tasks in the map view after using complex search filters
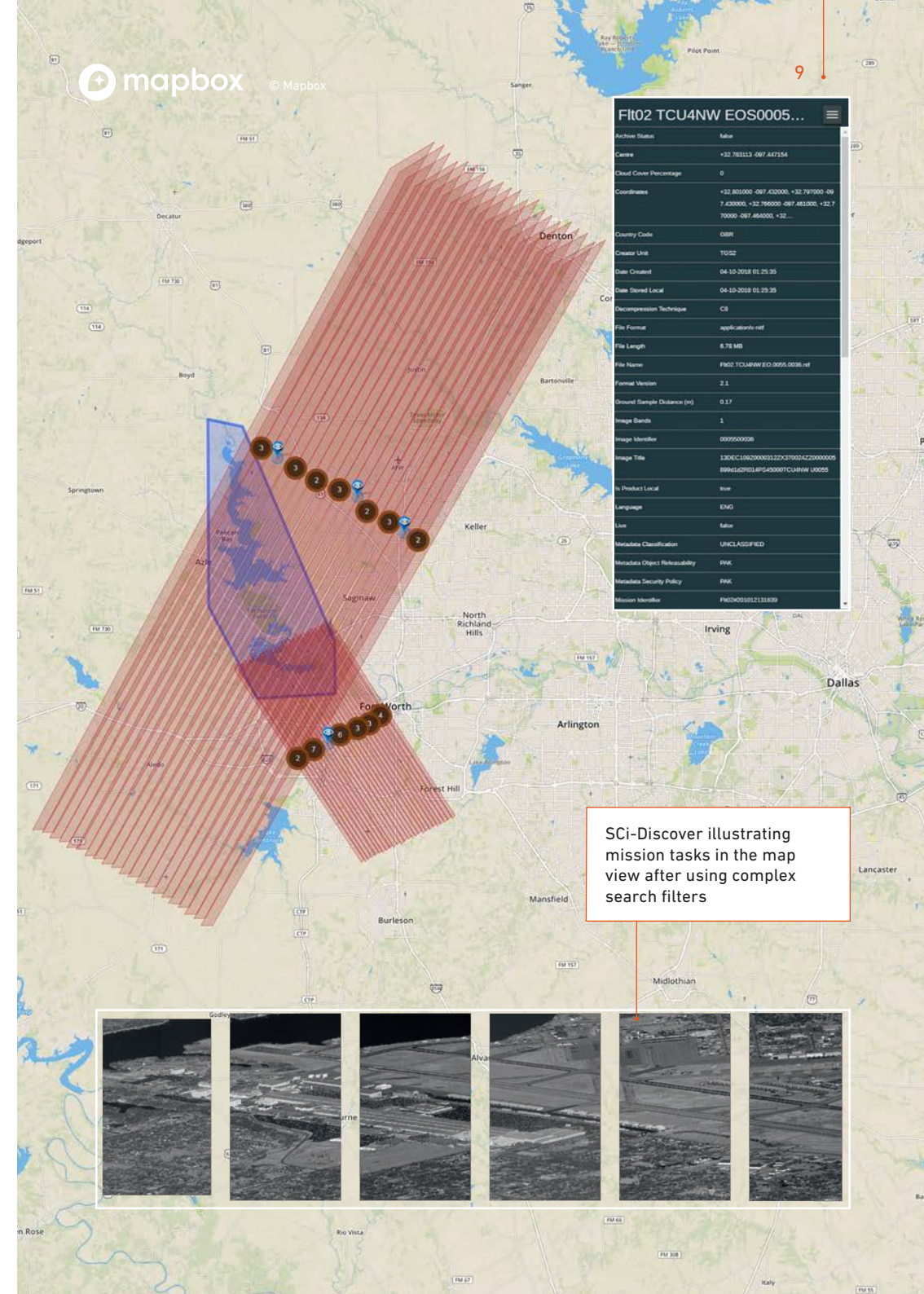
SCi-Contour

SCi-Contour facilitates the exploitation of geographically aligned imagery, including the creation of time sequenced layers of imagery to support pattern of life and change detection.

Sensors are often capable of generating high volume swathes of imagery. Inaccuracies in the geo-information provided by the airborne platform reduces the ability of the user to carry out change detection and create seamless large area mapping.

SCi-Contour provides the building blocks to produce geographically accurate map layer products from a series of images using the embedded Automatic Image Registration (AIR) technology. This offers an optimised dimension to existing sensor capabilities, enhancing the tools available to imagery and intelligence analysts.

KEY FEATURES

- Visualisation of single band or multi-spectral imagery from sweeping and grid sensor imagery scenes as seamless single image

- User triggered image correction

- Correction of hard-to-register imagery

- Image layer generation from multiple image scenes

- Time-line to visualise multiple capture scenes with the ability to screen through time to highlight change

- Display KML and KMZ layers over the top of the imagery

- Export of map layer tile sets in Web Map Tile Service (WMTS) format use in other geospatial applications

- Standalone desktop viewer to support the visualisation of exported image MBTiles.

Geo-accurate imagery stitched together and processed by SCi-Contour into a map layer product
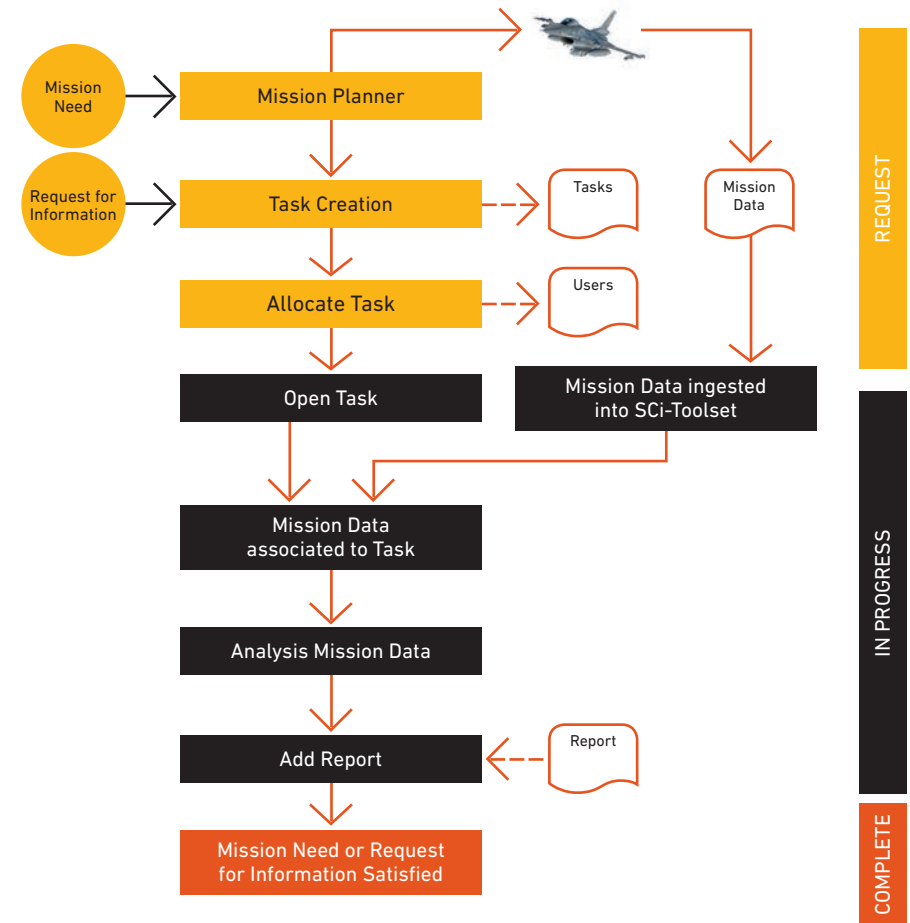
SCi-Progress

SCi-Progress simplifies and expedites geospatial analysis by seamlessly integrating tasking with the data stored in the SCi-Toolset.

Traditional tasking tools often focus on what needs to be done, who is tasked to do it, and tracks how far the work has progressed. SCi-Progress takes this further by providing analysts with a task relevant portal into the SCi-Toolset. This supplies them with a filtered view of stored information relevant to their task and a seamless mechanism to add new information and reports.

KEY FEATURES

- Historical collateral from the task's area of interest is automatically provided to the analyst

- Product data is automatically associated to the relevant task as soon as it becomes available

- Users can visualise product data before adding it to a managed "shoe box" of selected products required for the analysis

- Automatic task creation from mission plans

- Task assignment and reassignment to existing users or user groups.

- Overview of task allocation and the work flow status can be monitored and managed from start to completion

- Additional products such as images and reports added to the task are instantly discoverable and disseminated via SCi-Discover

SCi-Progress task management work flow.

SCi-Maps

SCi-Maps manages map layers from multiple sources and serves a specific suite of map data to support individual applications within the ISR processing exploitation and dissemination enterprise.

Map services are essential for today's geospatial tool-sets. Applications often vary in their map layer requirements or are dependent on other applications for layer manipulation. This often results in slow rendering and conflicting map layers.

SCi-Maps provides system administrators with the ability to ingest map layers, unify map service sources, and the flexibility to serve dedicated map portfolios for targeted applications or users. The flexibility and control offered by SCi-Maps provides map service conducive for analysts and operators.

KEY FEATURES

- Supports the ingest of universal map data formats: ASRP, CADRG, DTED, GeoTIF, NITF, TOC, VRT, and vector GIS formats

- Interfaces with external map services

- Allows the creation and management of specific map portfolios

- Provides a dedicated Web Map Tile Service (WMTS) suite of map layers targeted at individual applications
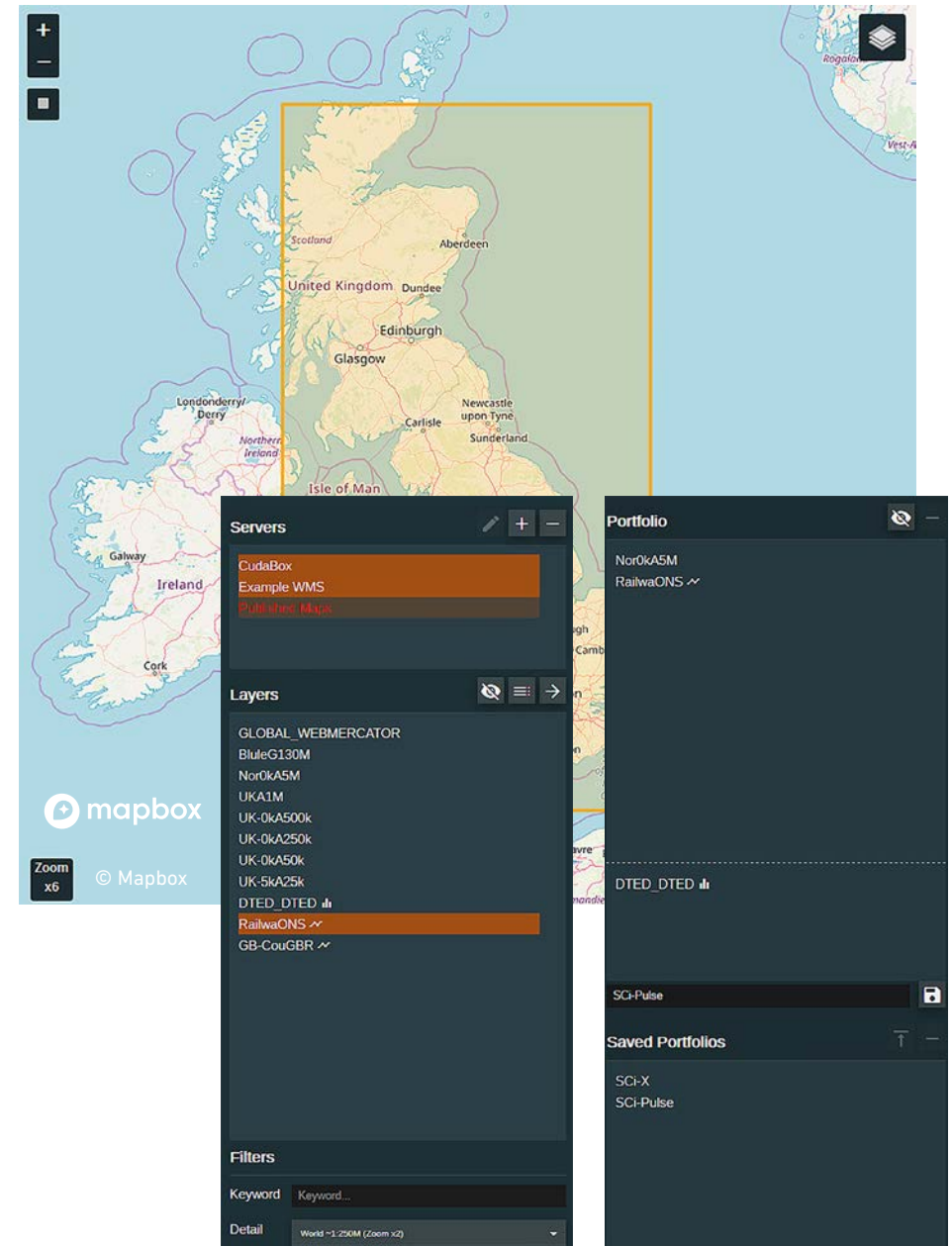
SCi-Maps layer acquisition from multiple map servers

SCi-Maps tailored portfolios for SCi-X and SCi-Pulse users

SCi-Gather

SCi-Gather automatically acquires data link transmissions from airborne platforms to facilitate real-time tactical exploitation and dissemination.

Command and control of data link antennas is key to data acquisition for tactical reconnaissance systems. SCi-Gather provides data link automation specifically designed for tethered data link execution.

SCi-Gather is available for CA-270, DB-110, and MS-110 imaging sensors. SCi-Gather supersedes the legacy first and second generation data link automation (DLA and DLA2) products.

KEY FEATURES

- Primary control interface for the MS-110 and CA-270 translators

- Monitors the live position of airborne sensors and activity of surface terminal equipment without the need for mission plans

- Coordinates the translation of data on demand from airborne pods, with the ability to select individual image frames or scenes

- Coordinates the translation of data from RMMs or RAW files

- Control of surface terminal equipment is automatically achieved without the need for the system or operator to steer or adjust the direction of the antennas

- Users can initiate connection change of surface terminal equipment from one airborne sensor to another

- Text messaging service between the user and the pilot to coordinate activity without the need for radio equipment

Supporting L3 Surface Terminal Equipment supplied with our DB-110 and MS-110 systems for tactical data link tasks.

Panorama Service

The Panorama Service offers advanced high performance panorama generation to support SCi-X, optimised for DB-110 and MS-110 mission data.

Modern airborne systems are capable of capturing coverage of large geographic areas in a single imaging pass. Screening individual image frames can often degrade the efficiency of analysis. To best visualise large areas, the SCi-X can display a seamless single image for the entire scene.
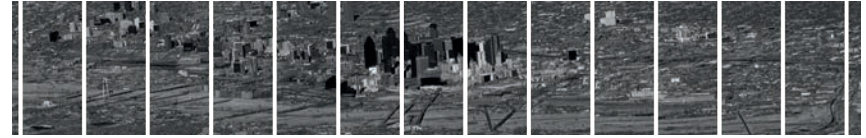
Section of 132 frames of dual band (EO/IR) mission task prior to panorama generation.
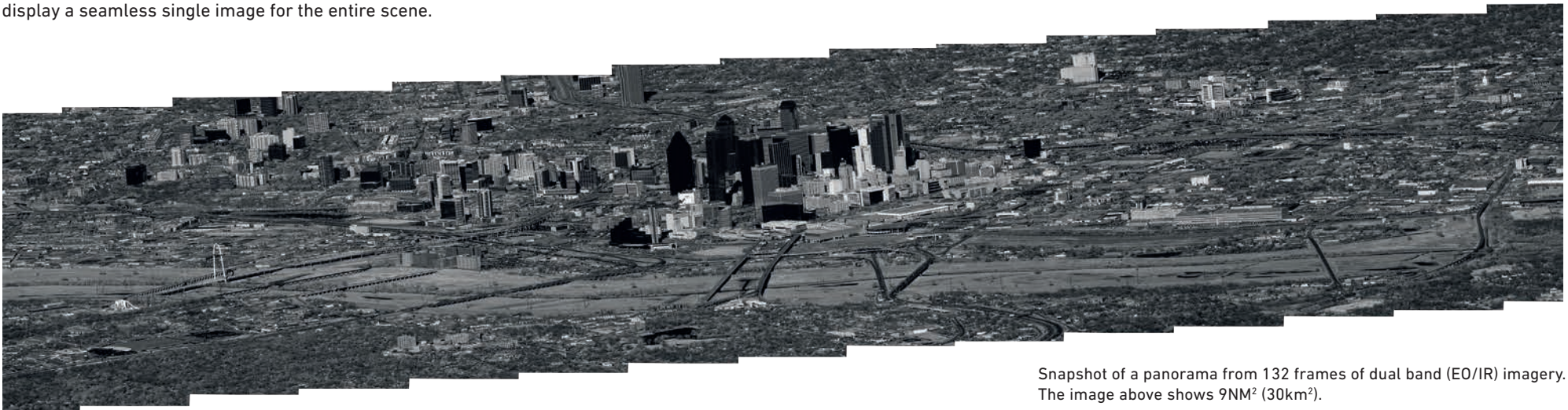
Snapshot of a panorama from 132 frames of dual band (EO/IR) imagery. The image above shows 9NM^2 (30km^2).

Panorama images can be generated from an imagery scene containing small numbers of frames to an imagery scene containing many hundreds of frames. A scalable clustered processing solution provides the capability of processing very long imaging runs in a very short amount of time. The imagery is corrected and the exposure and contrast levels are balanced across the entire image scene, whilst retaining the fidelity of the original input imagery..

The performance of the Panorama Service's processing engine can be optimised to meet customer throughput performance needs. SCi-X can display a single image within a few seconds, dependent on the hardware resources available for the Panorama Service.

Automatic Image Registration Service

The Automatic Image Registration (AIR) service improves the geographic accuracy of imagery, without pixel distortion or modification.

Measurement from imagery can often suffer from the inaccuracy of the sensor and aircraft position. The AIR Service is an entirely automated processing engine for matching sensor imagery (both nadir and oblique) to precision accurate reference imagery, using specifically designed computer vision techniques and advanced mathematical modelling.

Image tie points to reference imagery

© Mapbox
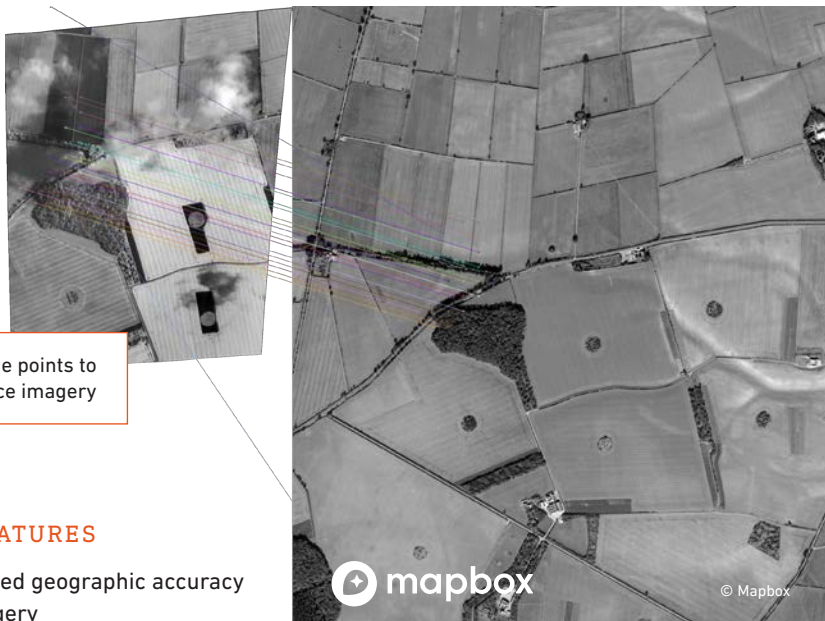
KEY FEATURES

- Improved geographic accuracy of imagery

- Facilitates temporal change detection

- Geographic improvements are encoded back into original NITF imagery

- Provides accurately registered imagery for map layer production

Image Fix-Up Service

The Image Fix-Up Service enhances the quality of the imagery by removing systemic artefacts, optimised for the DB-110 mission data.

Airborne sensor windows often accumulate dirt or deposits that reduce the image quality captured. Imagery can also suffer from near-to-far brightness gradients when long distance scans are performed. Imagery processed through the Image Fix-Up Service enables these undesirable consequences to be removed, creating a high quality end-product with minimal effort and impact on scene content.

KEY FEATURES

- Single-click feature in SCi-X to enhance both EO and IR images

- Server-side processing for the benefit of multiple users

- Corrected images seamlessly stitched by the Panorama Service

- Removes vertical striping and gradient artefacts

- Removes frame-to-frame (and framelet) repeated artefacts such as smudges and smearing

- Provides scene brightness averaging

Before

After

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Vertical striping is removed and the image is enhanced

Data translators & standards converters

High performance bulk acquisition, translation and standards conversion of imagery supports the cataloguing for immediate analysis and dissemination.

Mission data is often produced from high bandwidth air-to-ground data links, removable memory modules, network streams or computer files. Collins Aerospace has extensive experience of building data translators to convert still and motion imagery into common standard formats. Translators and standards converters can be automated to process data on-demand or manually controlled through web-based user interfaces.

TRANSLATORS

- High speed real-time translation of native or primary imagery (STANAG 7023) to produce NITF 2.1 imagery with airborne support data extensions, including validation, decompression, image formulation and JPEG2000 compression

- Compliant with common data links (STANAG 7085), NATO Advanced Data Storage modules (STANAG 4575), Ampex Tuffserve and Zodiac removable memory modules

- CANINE is Collins Aerospace's data translator for the CA-270 imaging sensor

- RABIT-N is Collins Aerospace's data translator for the DB-110 imaging sensor

VIDEO INPUT STANDARDS CONVERTER

- Video stream standards converter for dumb analogue and digital motion imagery

- Screen-scraping technology captures on screen metadata to produce a STANAG 4609 compliant H.264 transport stream video

- Supports Hermes 450, Watchkeeper, and MQ9 Reaper UAVs, along with the MX-15 and MX-16 motion imagery sensors

The DACAR Airborne Server incorporates the RABIT-N and SCi-Discover server technologies for in-flight data translation and data storage

Transportable system incorporating acquisition interfaces

Systems

Collins Aerospace provides intelligence systems in different form factors to suit a variety of operating environments. Our systems can be specialised to reflect their role within an organisation to meet our customers' data discovery and collaboration needs.

Whether standalone or part of a federated network, we design our systems to be robust, secure and supportable. Utilising commercial off the shelf hardware, we aim to keep our systems supportable, maintainable and flexible.

Our systems are network enabled, providing users with the capability to collaborate with other systems over local or wide area networks. These systems are especially designed to work over limited bandwidth networks, which makes them unique in today's marketplace.

SYSTEM ROLES

- Near real-time data acquisition
- Data ingest to storage for discovery and network dissemination
- Data analysis, exploitation, and reporting
- Data archiving

PORTABLE SYSTEMS

Portable systems are the smallest form factor systems available. Their very small footprint has been designed to be carried or worn by an individual. They can be integrated with third party sensor systems. Data can be ingested and categorised in such a way that it can be shared over any existing network.

MOBILE SYSTEMS

Mobile systems are designed and built into cabins that can be operated without the dependency of fixed infrastructure, on or off an all-terrain vehicle. With full environmental controls (temperature and humidity), the system comes with its own generator and communications link to an airborne platform if required.

A mobile system deployed on an all-terrain vehicle, equipped with trailer for a generator and data acquisition kit

TRANSPORTABLE SYSTEMS

Transportable systems are designed to be forward deployable to semi-static office based facilities. The hardware is integrated into transportable cases, providing the flexibility necessary for rapid deployment.

FIXED SYSTEMS

Fixed systems are intended for static office type facilities. The design allows for the servers to be easily located away from the main office environment, thereby reducing noise and heat generation from the areas where the work station and users will be operating. Fixed systems can be delivered as a complete system with associated server racks, or integrated into existing customer infrastructure.

ARCHIVE SYSTEMS

Archive systems can consist of multiple long term storage systems, mirrored for data security protection. They are simple to manage, provide automated backups, and are scalable. In combination with SCi-Toolset, the archive systems offer flexibility to support evolving user needs providing reliable storage that is resilient to failure and protects against isolated disasters.

VIRTUAL SYSTEMS

Using cloud-based servers, the virtual systems provide global access and scalable performance. This is supplied as a managed service, which can reduce capital expenditure.

An archive storage node installed into industry standard 19in racking

Systems Engineering

Our systems engineering teams are highly skilled and have a rich heritage in delivering effective solutions. We understand that optimal systems engineering is founded on trust; satisfying customers' needs to the highest standard; mindfulness of cost efficiencies and compliance throughout a system's entire life cycle.

Through established engineering practices and a wealth of experience, we have designed, developed and implemented highly sophisticated systems in a wide variety of environments.

Through stringent specification, assessment and verification processes our products adhere to all required certifications. Partnering with leading hardware manufacturers ensures that the highest standards are maintained.

Network and Infrastructure knowledge and experience are core competences within our team. This includes leading industry professionals. Delivering integrated and secure networks provides customers with a high degree of confidence in their network capability.

Our systems engineering experience has extended projected life cycles of systems beyond expectation, delivering long term capabilities and value to our customers.

Logistics & Support

Collins Aerospace offers a comprehensive product support package that provides facilities and services required to support customers in maintaining their products throughout the operational life of the customer's capability.

Our support approach is proactive rather than reactive, emphasising communication, planning and preventative maintenance. Incorporating standardisation and economies of scale, Collins Aerospace aims to deliver consistently high quality services, while reducing life-cycle costs for individual customers. A tailored support package is developed for each customer for the suite of products and systems owned by the customer and the customer's specific support strategy needs.

Through-life support of our systems is initiated at the design phase with full analysis and assessments via our integrated logistics support, tailored for the customers needs. This ensures our systems deliver optimal availability, reliability and maintainability.

KEY FEATURES

- Dedicated technical team available to support the customer and end-users in software and system operation, including on-site support visits

- Contracted engineering technical service that embeds a fully trained full-time Collins Engineer at the customer's site

- System hardware technical support and repair with original equipment manufacture

- Scheduled software updates and periodic refresh of system hardware

- Operator and maintainer technical manual updates

- Operator and maintainer training on software and systems

- Security patching and vulnerability remediation

- Obsolescence monitoring

- Annual price list updates for spares and return evaluations

- Return Material Authorisation (RMA) for repair and return

Collins Aerospace

THE BUSINESS AT A GLANCE

SALES PORTFOLIO

36% Military

40% After-market

64% Commercial

60% Original equipment Manufacturer
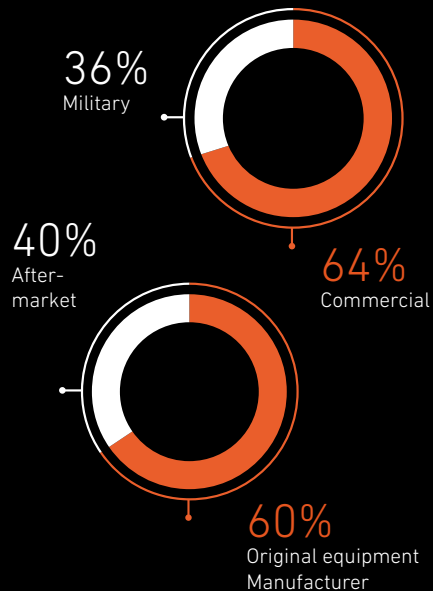
GLOBAL PRESENCE

60,000 employees

15,000 + engineers

300 sites globally

KEY FINANCIALS

$19 billion net sales

$3.7 billion research and development investment*

*2019, includes customer and company funded R&D

SCi-Toolset CORE COMPETENCIES

- Solving customers' problems
- Ingesting large volumes of data types
- Tools to aid visualisation and situational awareness
- Geo-accurate imagery
- Tailored solutions to meet customer needs
- Dedicated through-life support
- Biased for action

SCi-Toolset VALUE PROPOSITION

- Tactical real-time intelligence
- Cost effective and scalable solutions
- Minimise workload and training burden
- Secure data
- Time saved through rapid data delivery
- Automated analytics
- US ITAR free software and systems

Rosemount Aerospace Limited, a Collins Aerospace company, is Cyber Essentials Plus certified by the United Kingdom's National Cyber Security Centre.

Rosemount Aerospace Limited, a Collins Aerospace company, operates a Quality Management System which complies with the requirements of AS9100D (technically equivalent to EN9100:2018 and JISQ 9100:2016) and ISO 9001:2015 and is assessed in accordance with AS9104/1.

In addition, Collins Aerospace has considerable experience with operating to the requirements of AQAP 2110, AQAP 2210, and AQAP 2105.

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