MODULAR RADAR SOLUTIONS

For developers, integrators and manufacturers

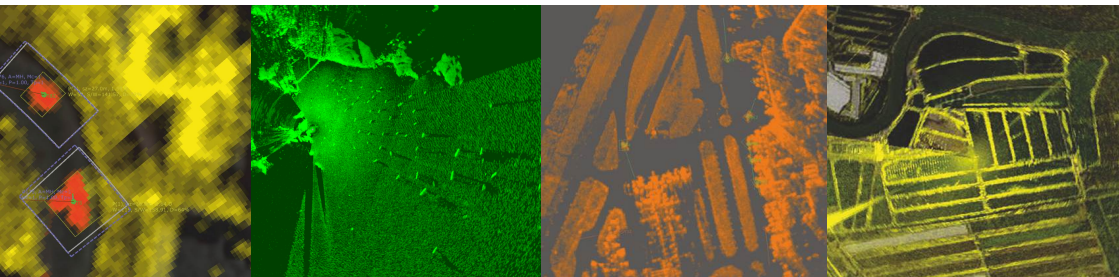CAMBRIDGE PIXEL
AN EMPLOYEE-OWNED COMPANY

The SPx Software Family

Cambridge Pixel's SPx software is a collection of applications and development libraries for radar capture, processing, simulation and display for every task.

Radar Visualisation

A Windows application for the visualisation of primary radar video, along with graphics and secondary data. **Page 3.**

Target Tracking

This is an application for Windows or Linux that provides the functions of radar acquisition and processing, network distribution of radar video, plot extraction and target tracking. **Page 4.**

Developer Toolkit

This is a package that supports the development of custom server and client radar applications. You can add radar processing capabilities into your existing software and build servers and clients. **Page 6.**

Radar Simulation

This is a Windows application for the simulation of primary radar video, along with secondary sources and navigation data. Simulated data can be output via the network or as analogue signals using the HPx-310 card. **Page 8.**

Data Fusion

This is an application for the fusion of primary and/or secondary (AIS, IFF, ADS-B) sources. It is available for Linux or Windows. **Page 9.**

Maritime Situational Awareness

A flexible situational awareness Windows-based display for maritime applications, including port and harbour control, coastal surveillance and simple vessel traffic monitoring. **Page 10.**

Air Situation Display

An integrated Windows display application for the acquisition, display and tracking of primary and IFF targets. **Page 11.**

Data Recording

A multi-channel, multi-format Windows record and replay application for primary radar video, tracks, AIS, ADS-B, video, navigation data, screen capture and other network data formats. **Page 12.**

Security Display Monitoring

A Windows-based application for the processing and display of radar and camera video, including camera control, slew-to-cue and integrated radar and video tracking. **Page 13.**

USV Management

A Windows application that provides radar visualisation from a remote uncrewed surface vessel (USV). **Page 14.**

More at: cambridgepixel.com/products/

RadarView for Radar Visualisation

RadarView is a ready-to-run Windows-based primary radar visualisation client, which supports the display of multiple radar videos in multiple windows with maps, overlays, targets and camera video.

Features and Benefits

- Two channels of radar video (network or HPx input)
- Up to 5 radar windows, each with up to two radar videos
- Radar processing
- Record and replay
- Underlay maps
- Radar analysis tools
- Track display including ASTERIX CAT-10, CAT-48 and CAT-62
- Radar input as ASTERIX CAT-240
- User-definable maps

- Overlay graphics (range rings, compass, targets)
- AIS and ADS-B display
- PPI, RHI, B-Scan and A-Scan displays
- Radar control
- True/relative motion support
- NMEA-0183 navigation input
- Heading-up and north-up options for moving platforms
- Camera video display and control
- MSSR data monitoring and display
- Runs on Windows

Learn more:

Request a manual: enquiries@cambridgepixel.com

# SPx Tracking Server for Target Tracking

SPx Tracking Server radar processor interfaces to a wide range of radars to provide radar processing, plot extraction and target tracking. Widely deployed in command and control, navigation, security and maritime applications, SPx Tracking Server provides a full set of advanced capabilities, for primary and secondary radar processing.
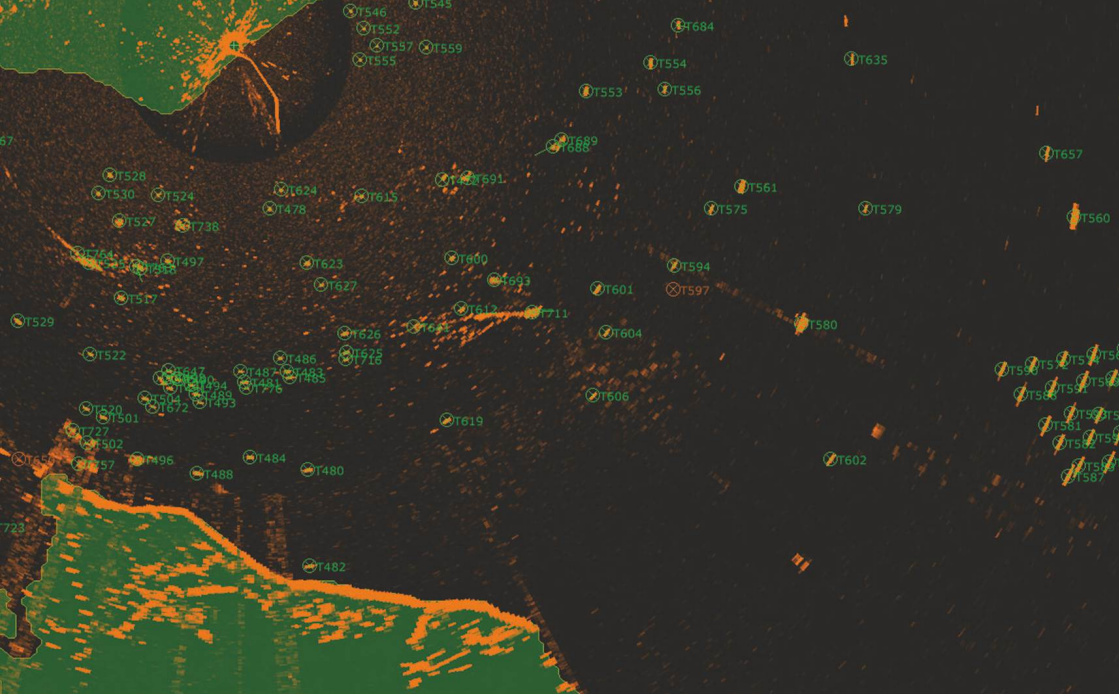
Capabilities

- Radar processing
- Plot Extraction
- Target Tracking
- Distribution Server
- Primary and IFF radar
- Recording

Learn more:
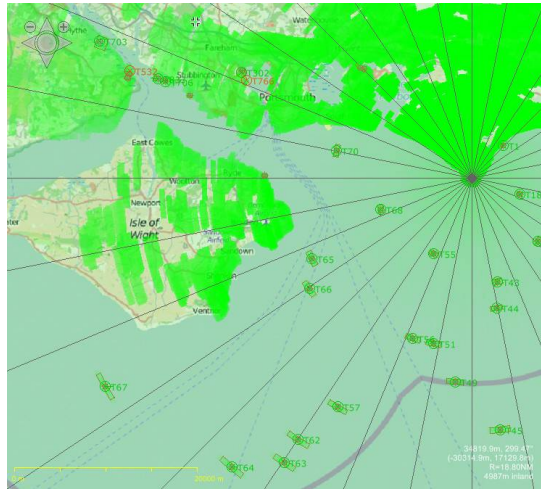
Features and Benefits

- Receipt of radar video from network (ASTERIX or proprietary interfaces) or radar signals (HPx series hardware)
- Processing (filtering, masking, clutter processing, interference suppression, thresholding)
- Plot extraction with plot merging
- IFF decoding and plot extraction
- Multi-hypothesis, multi-model target tracking
- Highly configurable tracking engine
- Area-dependent tracking parameters
- NMEA-0183 input for moving platforms
- Distribution of radar video as ASTERIX CAT-240
- Distribution of tracks as ASTERIX CAT-48 or CAT-10

- Record and replay
- Local display for set-up and maintenance
- Windows or Linux versions
- Remote control from host
- Supports redundant radar input with auto selection (with HPx-410 card)
- Widely deployed and field-tested

Developer Toolkit

The SPx Development package is a toolbox of libraries, utilities, sample applications and comprehensive documentation that supports the development of server or client applications using our radar processing software.

Learn more:

**Consult an Engineer, send an email today: enquiries@cambridgepixel.com
or call: +44 (0) 1763 852749**

What's included?

- Files and libraries for Windows or Linux
- Collection of examples and sample applications with source code
- Comprehensive documentation
- Technical support from radar and software experts
- Radar acquisition (signals, ASTERIX)
- Test patterns and scenarios
- PPI scan conversion (multi radars)
- B-Scan display
- A-Scan display
- Overlay/underlay display mixing
- Record/replay
- Compression/decompression
- Network streaming
- Clutter processing and clutter mapping

- Filtering, gain control, thresholding, scan integration
- Area-based processing
- Plot extraction
- Target display rendering (AIS, primary, secondary)
- Graphical widgets
- Range rings, EBL, VRM, parallel index lines
- Map display
- AIS receipt and decode
- NMEA-0183 receipt and decode
- Camera interfacing and control
- C++ software interface
- .NET and Java interface (restricted functionality)
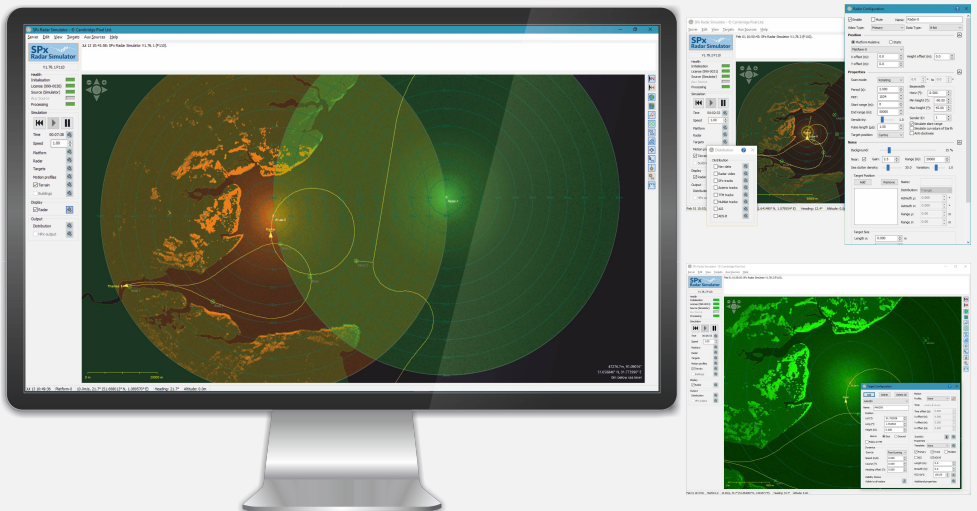- Visual Studio 2013, 2015, 2017, 2019 or 2022
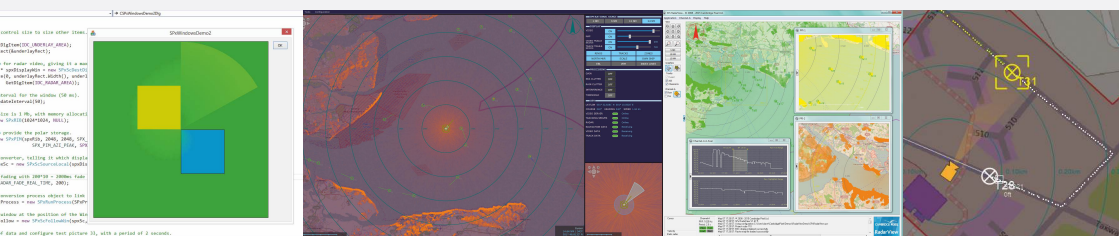
SPx Radar Simulator

Our Radar Simulator provides a capability to generate synthetic real-time radar video, along with tracks, secondary data and navigation data.

Features and Benefits

- Radar output in ASTERIX CAT-240 or signals with HPx-310 card

- Define complex scenarios with moving targets and moving radars

- Multiple radar support

- Terrain modelling and line-of-sight considerations

- Configurable radar characteristics

- Overlay synthetic targets on real radar

- AIS and ADS-B targets

- Racon and SART support

- Track simulation (ASTERIX CAT-10, CAT-48, CAT-62, TTM and multilateration)

- Generate primary, IFF, MTI and doppler video

- NMEA-0183 navigation data in and out

- Synchronise to external simulation generator if desired

- Generate video from external track inputs

- Full graphical editing of scenarios

- Runs on Windows

Learn more:

Request a manual and a free demo, email today: enquiries@cambridgepixel.com

SPx Fusion Server

This is a ready-to-run Windows or Linux application, used to combine primary tracks (e.g. from SPx Tracking Server) and secondary tracks in any combination.

Features and Benefits

- Receives ASTERIX (CAT-1, 10 or 48) tracks
- Support for AIS (NMEA-0183)
- Support for ADS-B (ASTERIX CAT-21)
- Combines tracks from overlapping radars
- Hands over tracks from adjacent radars
- Consistent track labelling
- Options for 2, 4, 8 or more sensor inputs
- Configurable weighting and priority
- Moving platform support
- Remote control over network interface
- Primary and IFF radars
- Windows and Linux versions
- Web control and monitoring interface
- Windows System Tray option for running in the background

Learn more:

Talk to one of our engineers: enquiries@cambridgepixel.com

RadarWatch for Maritime Situational Awareness

A flexible situational awareness application for maritime applications, including port security, harbour control, coastal surveillance and simple vessel traffic monitoring.

RadarWatch provides an integrated presentation of radar video, tracks, camera data, AIS, mapping and alarm processing, offering a powerful, flexible and cost-effective maritime information system. RadarWatch works with a wide range of radar sensors and cameras, allowing system integrators to specify the right sensor for each application.

RadarWatch Alarms

RadarWatch includes a comprehensive capability for defining alarms that occur on configurable events. Alarms can be triggered on targets entering user-defined areas, targets passing through a controlled gate, targets being in proximity to another target or to a reference point.

Video Management

Multiple daylight and thermal cameras can be incorporated into RadarWatch.

Multi-screen, Multi-window

RadarWatch supports multiple display screens, with windows for PPI display, camera, videos, track table and alarm controls. Windows can be resized and repositioned across one or several screens.

Augmented Vision

RadarWatch supports Augmented Vision, which is the overlay of target information onto live camera video to aid interpretation of the scene.

System Configuration

RadarWatch is designed to work with related software components from Cambridge Pixel, including the following:

- SPx Tracking Server for target tracking
- SPx Fusion Server for fusion of tracks and AIS
- RDR for data recording
- SPx Camera Manager to control multiple cameras

Learn more:

Speak to an engineer about configuration options: enquiries@cambridgepixel.com

ASD-100 for Air Situation Display

A software application that supports the receipt and display of primary and IFF radars for air situation awareness.

Features and Benefits

- Primary and secondary (IFF) radar input
- Primary and IFF radar video display
- IFF Decoding (Using SPx Tracking Server)
- Target tracking (Using SPx Tracking Server)
- ASTERIX CAT-48 (tracks) and CAT-240 (video) support
- ASTERIX CAT-8 weather display
- Primary + IFF fusion (Using SPx Fusion Server)
- Map display options
- Aeronautical chart support (such as SkyVector charts).
- History trails
- Target label display (configurable)
- Rulers and intercept calculations
- Flight plan handling

- ADS-B
- Track filtering by altitude/speed/area
- Status display
- Automatic range rings
- Software Defined Radio support
- Touchscreen optimised
- Safety alerts (ASTERIX CAT-4) using SPx SafetyNet
- Multi-operator support
- Runs on Windows
- Built-in screenshot saving
- Multiple radar support
- QNH information display
- Configurable button panels
- Selectable units and coordinate formats

Learn more:
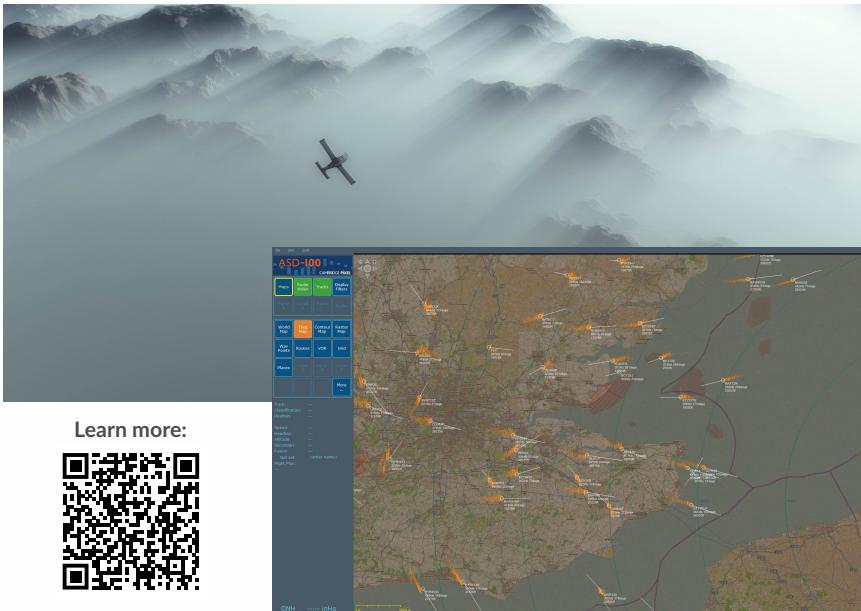

Request a manual: enquiries@cambridgepixel.com

RDR for Data Recording

RDR provides a multi-channel, multi-format record and replay application to support a wide range of recording requirements. Supported inputs include radar video, tracks, AIS, ADS-B, camera video, network packets, audio and computer screen recording.

Features and Benefits

- Record and replay of radar and related data
- Radar recording from signals (with HPx card) or ASTERIX CAT-240
- Track input (ASTERIX CAT-48 or CAT-10)
- Camera video (H.264)
- AIS input (serial or network)
- ADS-B input
- Recording of remote computer screens
- Navigation messages (NMEA-0183)
- General network packets (TCP or UDP)

- Audio recording
- On-request or scheduled recordings
- Timeline display supports quick-look of recording and replay
- Event recording (user-generated, network messages, automatic events including radar failure, mode changes etc.)
- Control via web interface, local GUI or remote API
- Database storage with SQL Search
- Runs on Windows

Have a question for one of our engineers? Get in touch: enquiries@cambridgepixel.com
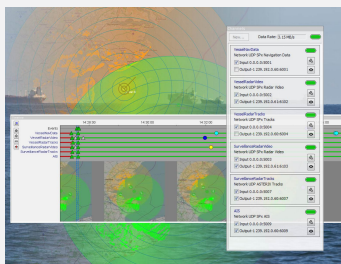
Learn more:

VSD for Security Display Monitoring

VSD provides an integrated display of radar and camera video for broad security applications, from threat analysis to small target tracking.

Features and Benefits

- Primary radar input from network or signals

- Multiple radar support

- Radar display

- Map underlay

- AIS or ADS-B input to screen friendly targets

- Automatic target tracking

- Receipt and display of multiple camera videos

- Logging of tracks, alarms and operator notes

- Comprehensive camera control (Pelco-D, Onvif, FLIR Nexus, Hensoldt ZEOSys) from on-screen or physical joystick

- Slew-to-cue of camera from radar tracks

- Video tracking (from thermal or daylight camera)

- Alarm generation on targets in areas, crossing gate or coastline approach

- Touch-screen optimised

- Runs on Windows

- Built-in Help

Request a manual and find out more:

USVx - Radar Display for Uncrewed Surface Vessels

A configurable software application to support the visualisation of radar data from a remote uncrewed surface vessel (USV). Radar and track data may be sent from the vessel to the USVx software, which shows an integrated picture comprising radar video, tracks, maps and overlays.

Features and Benefits

- Receives and displays radar video
- Receives track reports from tracker on USV
- Tiled map data
- Shows USV and own-ship positions
- Remote control of radar (selected radars)

- Alert generation (proximity of target to USV)
- Displays tracks and AIS targets
- Fusion of primary tracks and AIS (with SPx Fusion Server)

Scan to request a manual:
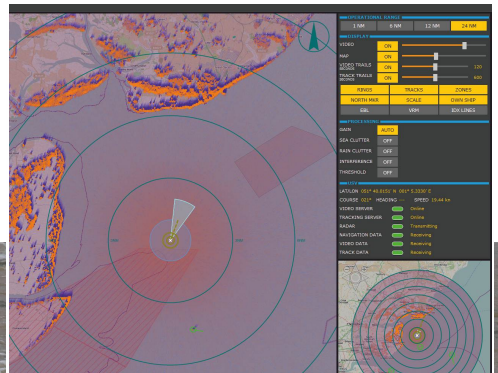
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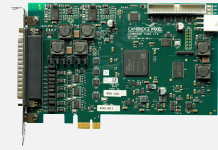
HPx Hardware

HPx-250 – Radar Input Card

- PMC bus
- 2 x analogue video in, 2 bits digital video in
- Trigger (RS422 or single ended)
- ACP/ARP (RS422 or single ended)
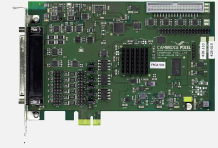- Parallel azimuth
- 50 MHz sampling

HPx-310 – Radar Output Card

- PCIe (x1) bus
- 2 x analogue video out, 8 bits digital video out
- Trigger (RS422 or single ended)
- ACP/ARP (RS422 or single ended)
- Parallel azimuth

HPx-410 – Radar Input Card

- PCIe (x1 or x4 bus options)
- Dual or single channel option
- 2 x analogue, 8 bits digital video in
- Trigger (RS422 or single ended)
- ACP/ARP (RS422 or single ended)
- Parallel azimuth
- 125 MHz sampling
- Supports redundant radar configurations

HPx-450 – Radar Input Card

- XMC bus
- 2 x analogue video in, 8 bits digital video in
- Trigger (RS422 or single ended)
- ACP/ARP (RS422 or single ended)
- Parallel azimuth
- 125 MHz sampling

HPx-346 – Radar to Network Cards and Enclosures

- Self-contained radar in, network out
- 1 x analogue video in
- Trigger (RS422 or single ended)
- ACP/ARP (RS422 or single ended)
- Compact, low power (DC input)
- ASTERIX CAT-240 output
- Card or boxed

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Chief Technical Authority, CMS Combat Management System, BAE Systems

> *"For new programmes, we wanted to work with a long term partner that is able to provide us with a cost-effective, flexible solution as well as the expertise, support and training required to enhance our naval combat management system."*

Naval Systems R&D Centre Leader, Samsung Thales Corporation

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CAMBRIDGE PIXEL
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New Cambridge House, Litlington
Royston, Hertfordshire, SG8 0SS UK

T: +44 (0) 1763 852749   W: cambridgepixel.com
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