

# REMOTEVIEW™

TEXTRON Systems





## REMOTEVIEW IS THE #1 GEOSPATIAL ANALYSIS TOOL USED BY THE DoD & U.S. INTELLIGENCE COMMUNITY

### A Trusted Name

Over the past 15 years, RemoteView has evolved from an imagery analysis product into a complete solution for national, command, and tactical analysts. RemoteView Professional is the preferred solution, used by over 12,000 imagery and GEOINT analysts for the import, viewing, analysis, and reporting of national and commercial remote sensing data.

### We Listen to You

Overwatch employs former analysts and maintains a close relationship with all the intelligence offices. We have adapted as changes in the national security landscape have broadened the scope of analytical requirements to include new and more complex applications of geospatial analysis.

### An Efficient Workflow

RemoteView combines high-speed processing chain technology with a carefully refined user interface to enhance mission workflow and boost productivity on the largest images, videos, and data sets. The intuitive interface is easy to control across all capability levels, minimizing both procurement costs and training requirements as functional needs change.

### The Standard for Accuracy

RemoteView obtains advanced geopositioning accuracy through rigorous sensor models such as the Community Sensor Model (CSM). The software supports CGS for precision positioning and highly accurate mensuration tools such as MSP and Ruler. An automatic terrain elevation capability ensures that all data is referenced "to the ground" and warning indicators inform analysts on the quality of the positioning data.

### Continual Innovation

Overwatch has been leading the industry's evolution with advanced solutions. RemoteView is unique in its ability to process extremely large images and data sets. This enables analysts to create real-time, multi-terabyte mosaics and perform complex geospatial processing such as orthorectification, multispectral classification, epipolar resampling, and pan sharpening "on the fly".

### Version 3.2 Highlights

- Geo Confidence and Elevation Coverage indicators warn users about the quality of positioning data
- Visualize LIDAR point cloud data and use it as an elevation source
- Conduct mobility analysis for motor convoys by visualizing the slope severity
- Create detailed 3D scenes through the enhanced 3D Pro extension
- Magnify a Region of Interest (ROI) without obscuring the original target image
- Sort folder contents via search criteria such as time, angles, and image metadata
- Mask unnecessary regions, such as cloud coverage, using pixel threshold values
- Identify potential aerial vehicle landing sites using the Landing Zone Tool
- Publish georeferenced imagery to Google Earth or PDF; publish image as a PowerPoint slide
- Bookmark a snapshot of the current view for opening the same configuration at a later time
- Other Features: RRDS location configuration, WCS support, enhanced point labeling, orientation aids, save to AVI

# COMPREHENSIVE IMAGERY ANALYSIS & GEOSPATIAL EXPLOITATION CAPABILITIES FOR THE MERGING ANALYST COMMUNITY

## Imagery Analysis

Processes all National & Most Commercial Imagery

Over 30 Image formats including TFRD

Complete Work Folder Architecture

Image Quality and Enhancement

- Contrast, Brightness, ICA Sharpening, and Haze controls
- Magnify region of interest w/o obscuring original image
- Dynamic Range Adjustment
- ICA Tonal Transfer Curves
- Bicubic & Lagrange Resampling
- Dual head support
- Mask creation using pixel threshold values

Image Mosaic and Search

- Automatic Mosaic Creation using up to four images
- Virtual Mosaics
- Map Projected, processed Mosaics
- Virtual Mosaic Editor
- Broad Area Searching
- Directed Area Searching
- Geo-Jump location finding
- Overview window

Change Detection

- Side-by-side comparison
- Geographic and feature based alignment of images
- Color multiview
- Flicker
- Colorized difference
- Blend

Photogrammetry

- Geo data confidence indicator
- Elevation coverage warning and display
- Precision Positioning – CGS, RvPinPoint, and iGeoPos
- Mensuration - MSP and Ruler
- Orthorectification and Orthocalibration
- Block Adjustment (Triangulation)
- Rigorous Orbview and QuickBird sensor models
- Community Sensor Model (CSM) interface
- Image-to-Image and Image-to-Reference calibration
- Stereo Viewing
- On-the-fly epipolar resampling
- Complete end-to-end processing and production tools
- Mensuration ToolKit
- Position Quality Assessment (PQA) tool

Stereo Viewing

- Stereo pair shutter mode display
- Synthesize and view anaglyph/pseudo stereo pair

Multi-Band Analysis Display (MAD)

- Simultaneous display of up to sixteen band combinations
- Synchronized/individual panning and histogram adjustment
- Configurable band combinations, band formula, and layout
- Templates for quick generation of MAD compositions
- Image histogram manipulation

## Geospatial Analysis

3D Terrain Visualization

- View large LIDAR point cloud data sets
- Use LIDAR data as an elevation source
- View terrain draped over elevation data in 3D
- Elevation and volume calculation
- Real-time, interactive 3D navigation
- Ground path and flight path creation
- Capture flight path as AVI video file
- Stereo support
- 2D Slope visualization tool
- 2D Colorized elevation
- 2D Field of View
- 2D Landing Zone Tool for aerial vehicle landing sites

GIS & Vector Integration

- Vector Import, Display, Creation and Editing
- Display, edit, and create in Shapefile format
- Vector query capabilities – spatial and attribute based
- Vector cleaning tool – snap/clip to specified tolerance
- Attribute table auto-populate tool
- Polygon joining/splitting tools
- Union, Intersect, XOR, Subtraction, Partition, Convex Hull

Multi-Spectral Analysis

- Multispectral Classification Wizard
- Supervised classification
- Import training sets from vector files
- Unsupervised classification
- Thresholding, Multiple-rules
- Signature Editor
- Statistics, Histograms
- Image Calculator NDVI, TSI, Tasseled Cap
- Edge Detection, Filtering, Sharpening, Smoothing
- Pan-sharpening with auto-registration
- Compose individual images into multispectral images

Mapping, Charting, Geodesy

- OGC Support
- Web Map Service (WMS)
- Web Coverage Service (WCS)
- Georeferencing
- Scale bar and grid lines
- Orientation aids
- Robust symbology pallet
- Graphics and text annotation
- North Arrow Design Tool
- Datum conversions
- Full set of USGS Map projections

Map Composer

- Save and reload map compositions
- Save and reuse standardized map layouts
- Orthorectify to precise map scales
- Precise placement of composition elements
- Automatic map elements: scale bars, scale text, etc.
- Advanced graphical alignment
- Precise element placing
- Large and small hardcopy output
- Multi-Page Output
- Save as Image: TIFF, JPEG, NITF, BMP, PNG
- Multiple geo-locked images

## Enhanced Functionality

Common Geo-Positioning Services

- Supports version 2.1 (validated) and 2.3
- DPPDB Stand Alone (DSA) monoscopic targeting
- NTM, Panchromatic and SAR, registered to DPPDB (NRD)
- Two-to-four ray Multi-Image Geopositioning (MIG)
- DPPDB for height reference in Single Image Geopositioning
- Height offset tools for measuring targets not on the ground
- Automatic image location based on target requirements
- User customizable output integrated into same workflow
- Automatic determination of missed point picks

RVPinPoint

- Rigorous error propagation
- Works with DPPDB stereo and multiple NTM images
- Wizard-based source image collection
- Works with unclassified commercial imagery

Video Analysis (V-TRAC Basic Extension)

- Play video files leveraging intuitive player
- Tag video files for marking areas of interest
- Adjust video brightness and contrast in real-time
- Ability to zoom, adjust rotation, and pan through videos
- Track video flight path over a 2D or 3D map or image
- Apply annotations to video frames within RemoteView
- Organize mission sets

MASINT

- AGITK
- AGP “Smart Loading”

Production & Productivity Support

- Templates for report generation
- Custom sorting of folder contents
- Bookmark display configuration for images
- Hyperlinks to images, maps, and websites
- Softcopy georeferencing support
- Comprehensive graphics support
- Diagnostic Tools
- Geographical graphics layers
- SPIA Tag support and editor
- Individual and batch R-set generation
- Image chipping
- Chip to Google Earth, PDF, or PowerPoint
- Counting tool
- Dimensioned graphics
- Capture user activity to a WMV or AVI movie file

GeoCatalog

- Rapid access to and management of geospatial data
- SQL Server and Oracle support
- Federated access to additional external data sources
- Rapid video segmenting, cataloging, and retrieval
- Single query access to diverse collections of geospatial data
- Highly configurable and flexible
- Customized query templates
- Dynamic database modification

Google Earth Collaboration

Javascript API Integration

## Power Extensions

Virtual Mosaic

- Supports unlimited images and 100+ GB mosaics
- Wizard-based mosaic creation
- Virtual, ortho-mosaic, and map projection options
- Drag-and-Drop mosaic building from RemoteView folder
- Dynamic Range Control (e.g., Sharpen, Brightness, Contrast)
- Auto or manual image alignment options
- Rapid virtual mosaic creation
- Rapid mosaic navigation
- Create search patterns in Overview or Main Viewer windows
- Apply pre-defined search patterns as Shapefiles
- Overlay image data on mosaic option
- Hide individual images or outlines
- Create broad or directed area search patterns

RVConnect

- Real-time RemoteView/ArcGIS interoperability
- Sharing of vector layers and raster images
- Synchronized viewers and navigation
- Common enterprise geospatial databases
- Sharing of feature attribute modifications and changes
- Automated orthorectification of images to ArcGIS

3D Pro

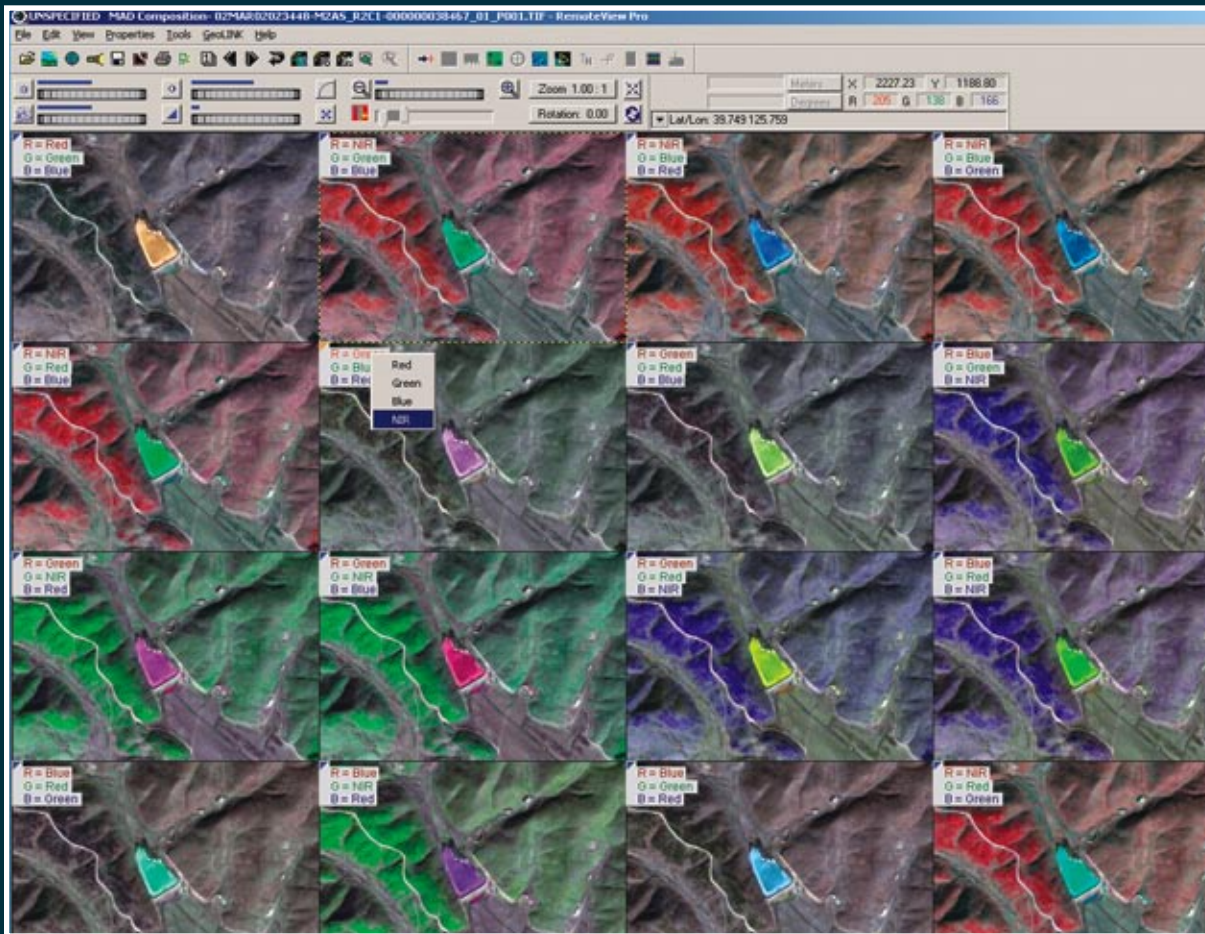
- Night vision scene simulation
- Filter and adjust LIDAR point cloud attributes
- Flight simulation with Heads-Up-Display
- Building Extrusions from Shapefiles
- 3D Threat Domes and Buffer Zones
- 3D View Shed/Line-of-Sight (LOS) Analysis
- 3D Text Annotations
- Supports industry standard 3D formats
- Displays 3D Geo-specific models
- Edit and import 3D models in Google SketchUp
- Create 3D walls
- Extended 3D model library with auto population tool
- 3D Interactive Measuring Tools
- 2525 Symbology Support
- 3D Interactive Landing Zone Tool
- Google Earth Support
- Save specific viewpoints for later review
- Capture the image to publish in reports and presentations
- Export image with all 3D data to 3D-enabled PDF

RemoteView Professional is available on Windows XP and Windows 7 platforms, as well as in a UNIX® edition, and can work with 32-bit and 64-bit systems.

# IMAGERY ANALYSIS

**Our reputation is based upon maintaining the highest image quality standards and ensuring pixels are in the right place. RemoteView's comprehensive imagery tools enable analysts to quickly find, interpret, and annotate items of interest.**

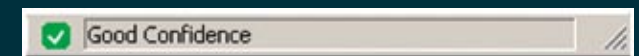
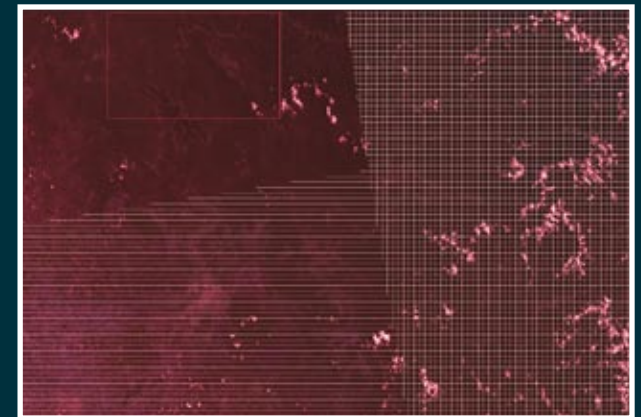
## Multi-Band Analysis Display (MAD)



An analyst can use the Multi-Band Analysis Display (MAD) to view up to sixteen different color band combinations simultaneously. By viewing the different spectral bands, different types of spectral information can be distinguished, such as crops, vegetation, and soil types. MAD is easily configurable so the analyst can control the layout of the "grid" of images and the color band combinations used in each "mini-viewer". Specific band formula can also be quickly applied to generate several MAD compositions. To increase viewing efficiency, the "mini-viewers" can be linked for synchronous panning, zooming, and rotating.

## Accurate Analysis and Processing

RemoteView's powerful image management environment is ideal for applications that demand accuracy. The Geo Confidence Indicator displays the accuracy of reported geographic coordinates and the Elevation Coverage Indicator shows if elevation data properly covers the image, helping prevent analysts from making incorrect assumptions. Throughout the processing of single band or multispectral imagery, RemoteView maintains the full dynamic range of the data source, ensuring that analysts gain the best results from RemoteView's sharpening filters, resampling algorithms, tonal transfer curves, dynamic range adjustments (DRA), and haze removal.



## Threshold Mask Creation

An analyst is able to select a threshold pixel value for an existing image and then use that value to create a new binary mask that can be overlaid as a new layer. Thresholding masks out areas that may not be of interest to an analyst, such as cloud coverage or ocean, allowing the analyst to quickly identify those features clearly in comparison or mosaic view.

## Enhanced Magnifier



The magnification tool is now able to magnify a Region of Interest (ROI) without obscuring the original target image. This two-part magnifier includes the original ROI Box and a Magnifier View Box. Each box can be independently dragged and positioned so that they do not overlap, offering the analyst better context on the area being magnified.

## Pan Sharpening



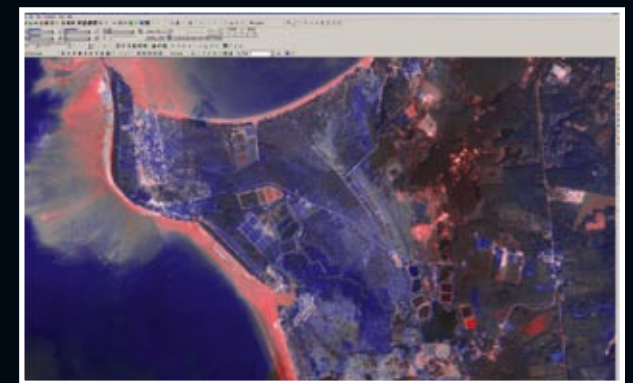
Pan Sharpening allows analysts to select one of several algorithms to add natural appearing color to high-resolution panchromatic images. RemoteView's selection of available algorithms includes Projective Pan-sharpening.

## Advanced AutoReview and Search



Analysts can search imagery by following geospatial references, not just graphical drawings. The analyst can search along features such as roads, power lines, waterways, pipelines, and automatically jump from one point feature to another; or automatically limit the search by an aerial feature boundary.

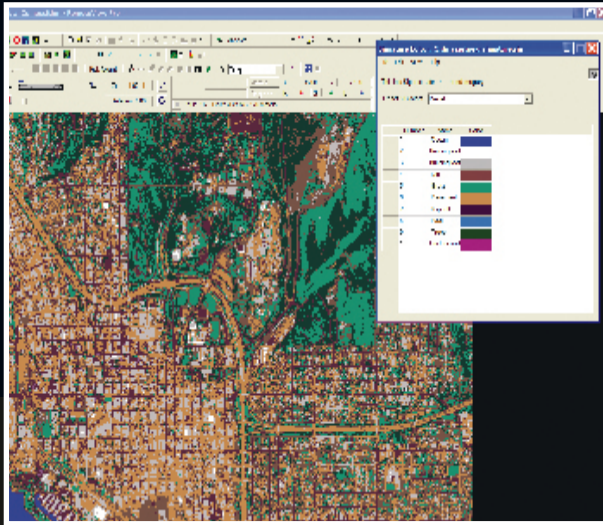
## Automated Change Detection



RemoteView contains a powerful tool for automated change detection. A pair of time-sequenced images is aligned using either georegistration information or corresponding features. Differences are then color coded, providing the analyst with quick visual cues to aid in the decision making process.

# GEOSPATIAL ANALYSIS

## Multi and Hyperspectral Processing



RemoteView enables analysts to enhance their imagery to gain perspective through a wide variety of geospatial tools such as vectorized layers, 3D visualization, and high resolution LIDAR point clouds. These capabilities are essential for enhanced mission planning support.

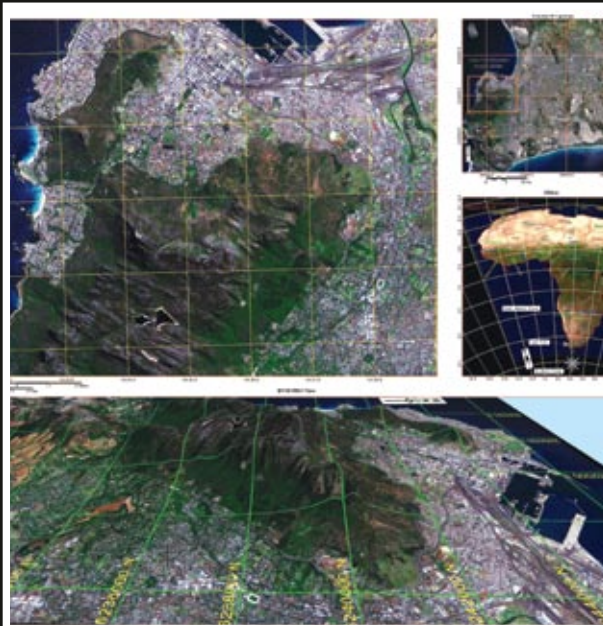
Modern sensors collect data from wide ranging spectra, including panchromatic, color, infrared, multispectral, hyperspectral, and radar. Analysts need tools to fully process this data, not just display a few bands on the screen. RemoteView fills the need with both supervised and unsupervised image classification wizards. This allows analysts to find certain signatures in an image based on an object's reflectance without undergoing months of training. RemoteView also uses classic algorithms for vegetation analysis and delineation of land and water boundaries.

## 3D Terrain Visualization

An analyst desiring a better understanding of the landscape is able to drape an image over elevation data and create a 3D perspective view. The analyst can interactively navigate in real-time over the land, pre-program flight paths, and capture flight paths as AVI video files.

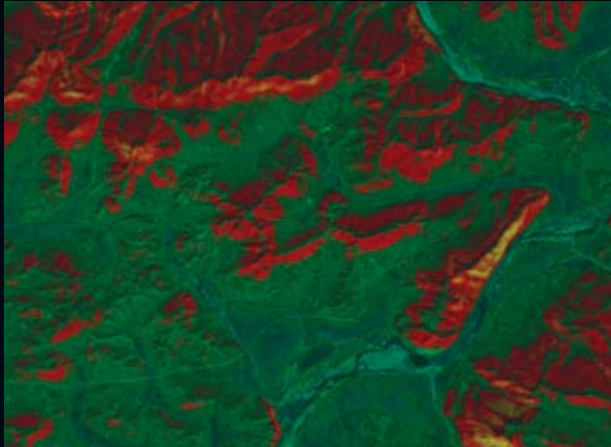


## Map Composer Tool



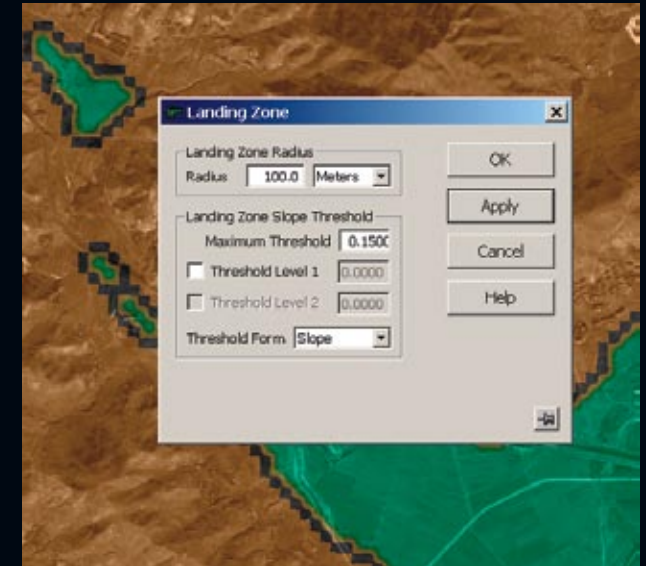
Users can generate hardcopy image-based map products directly from annotated imagery using the Map Composer. It offers composition tools such as map grids, scale bars, north arrows, and map projection. The analyst can create custom templates saving hours of effort when new imagery becomes available. These professional and accurate map products are useful for displaying, training, briefings, situational awareness, and mission planning.

## Slope Tool

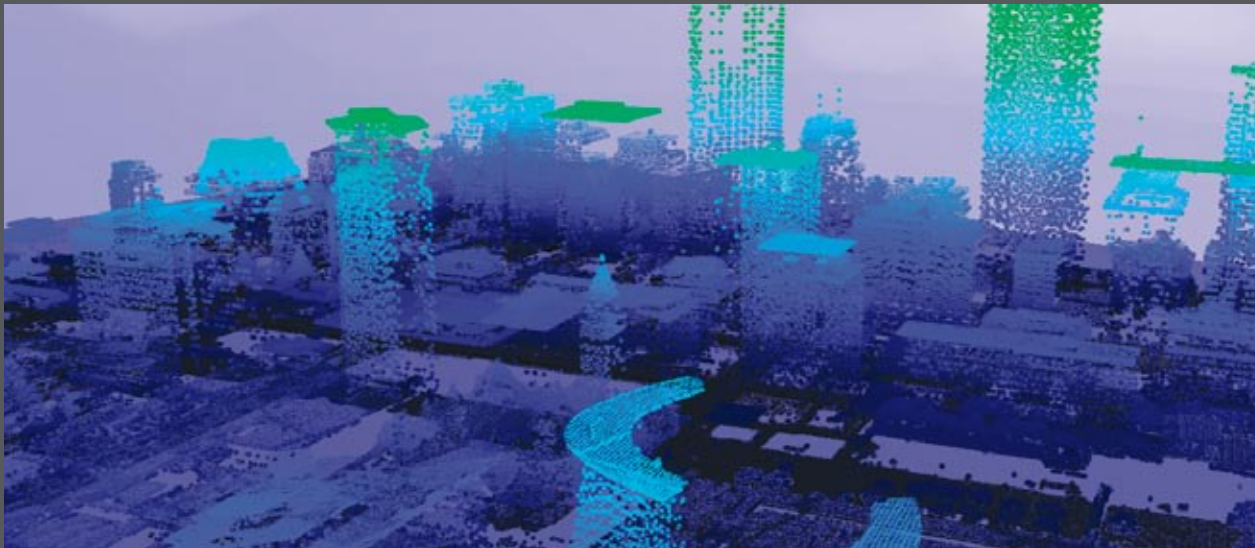


Use the Slope Tool to conduct mobility analysis and determine which routes allow passage by motorized convoys. The Slope Tool creates a slope field image computed from the loaded elevation data, displaying gradual, medium, and extreme slopes based upon the user selected color palette. The analyst is able to visualize and mark areas where slope is a factor.

## Landing Zone Tool



## LIDAR with Point Cloud Visualization



LIDAR produces the highest resolution and most accurate elevation data, far exceeding standard elevation sources such as DTED. Analysts are now able to easily access and implement LIDAR point clouds using the Point Cloud Management System (PCMS). The PCMS provides the automatic level-of-detailing necessary to load point clouds and exploit LIDAR as imagery or an elevation source, and interactively navigate through the LIDAR point clouds in real-time.

The Landing Zone tool allows analysis to quickly identify potential areas that might be adequate for landing aerial vehicles such as helicopters. The tool inputs the elevation data, an object radius, and a slope threshold and outputs an image which shows all points that meet the input criteria. The resulting landing zone is draped over the corresponding image as a 2D zone in RemoteView and an interactive 3D zone in 3D Pro.

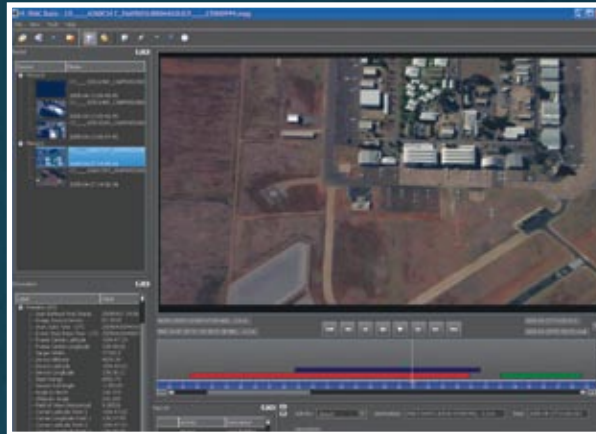
## GIS Integration

RemoteView allows analysts to plot and manage multiple GIS layers, create and export new vectors, and set colors, graphics, and attributes. Vector layer attributes can be customized with pull-down menus and scripts. Drop-down lists aid in assigning attributes to vector records.

# ENHANCED FUNCTIONALITY

In order to support front-line operations, analysts must provide accurate information in a timely manner. RemoteView includes tools that speed productivity, broaden the type of images and data that can be analyzed, and ensure highly accurate targeting.

## V-TRAC Basic



V-TRAC Basic is a complimentary extension to RemoteView for exploiting video collections in support of improved full motion video analysis workflow. The fully integrated extension allows video viewing while simultaneously tracking the flight paths over a RemoteView map or image. Analysts are able to adjust video display settings (such as brightness or zoom), tag video frames, and perform mensuration activities (such as location and distance).

When combined with RemoteView's GeoCatalog, analysts can easily accomplish federated discovery of motion video, still imagery, and other GEOINT sources. GeoCatalog also allows V-TRAC Basic analysts to locate video data files in a specific geographic area or timeframe, and then correlate the video with existing still imagery.

## Common Geopositioning Service



Ensure precision targeting through the use of Common Geopositioning Services (CGS). The NGA has validated RemoteView for CGS 2.1 point mensuration monoscopic targeting and RemoteView is undergoing validation for CGS 2.3, so analysts are assured that RemoteView users have the most precise coordinates available from imagery. CGS was designed by the US Government to be the approved method for geosition targeting.

CGS can be installed on any workstation running RemoteView Pro for Windows. A simple configuration file is used to set any site-specific options such as Digital Point Positioning Data Base (DPPDB) or Digital Terrain Elevation Data (DTED). A convenient wizard interface guides the user through all of the steps required to utilize CGS, making the RemoteView implementation of this capability easy compared to other exploitation software.

## GeoCatalog

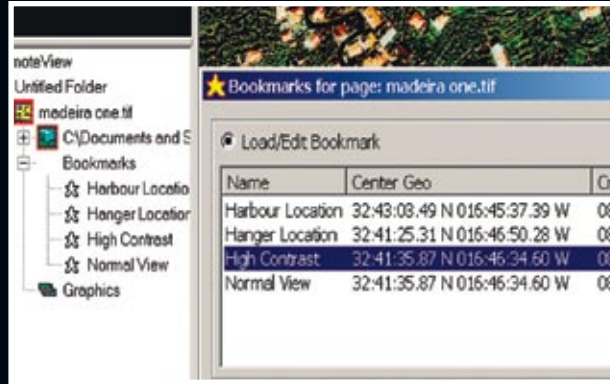


GeoCatalog enables analysts to easily create searchable database libraries for the organization and management of geospatial data. GeoCatalog streamlines workflow by helping analysts to quickly locate relevant geospatial data.

Key features include:

- Rapid access to and management of geospatial data
- SQL Server and Oracle support
- Federated access to additional external data sources
- Rapid video segmenting, cataloging, and retrieval
- Single query access to diverse collections of geospatial data
- Highly configurable and flexible
- Customized query templates
- Dynamic database modification

## Bookmarking Views



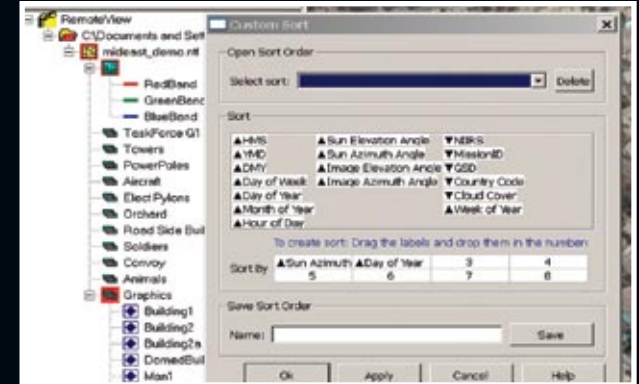
Bookmark a current image view complete with all the image settings. Return anytime and load the bookmark to restore the exact view, dramatically saving time reconfiguring display settings for different views of the same image. Parameters stored include coordinates, zoom, rotation, brightness, contrast, haze, sharpness, and dynamic range.

## GeoLINK



RemoteView GeoLINK is a revolutionary new way to connect directly to the internet and external databases using automated metadata driven search functions. GeoLINK rapidly acquires relevant data, and automatically displays geocoded information from these web pages and databases directly to the RemoteView viewer. These data sources can include place name databases, traffic incident reports, spreadsheets, weather tracking information, address location services, or any other site or service with geocoded data. Links to external sources are maintained and can be updated dynamically to maintain information currency. GeoLINK also generates web documents directly from image metadata. This allows analysts, with a single click of the mouse, to further investigate topics related to the imagery.

## Custom Folder Sorting

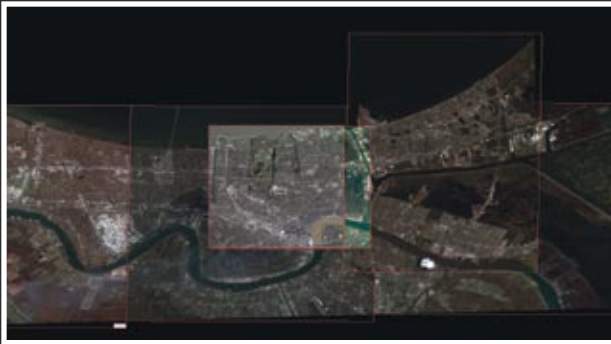


As the number of image pages within a folder grows, finding a particular image can become cumbersome. An analyst now has the capability to sort the list based on predefined criteria, such as time, angels, image elevation, etc.

# POWER EXTENSIONS

Our optional extensions expand the power of RemoteView, allowing analysts to choose from a selection of enhanced tools to augment their analytical capability.

## VIRTUAL MOSAIC



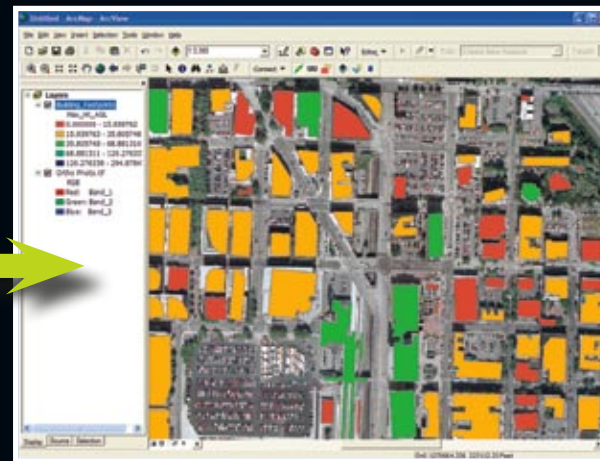
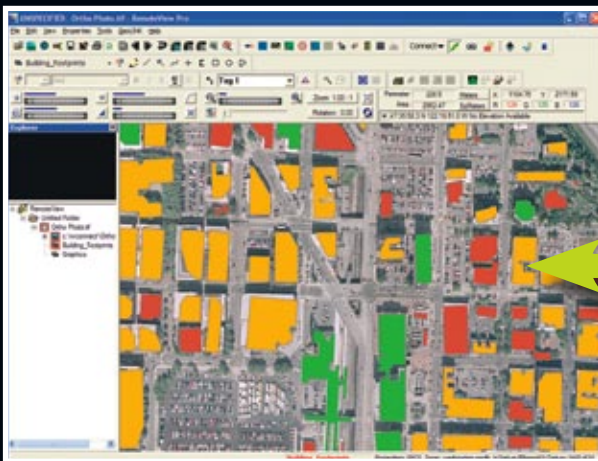
### Assembling the World's Largest Puzzles

The Virtual Mosaic extension streamlines the process of building extremely large-scale virtual mosaics from individual high-resolution images. Virtual Mosaic is ideal for broad area search applications or anytime a large area context is required for imagery analysis. Finished mosaics make an ideal backdrop for larger Shapefiles.

Key features include:

- Supports unlimited images and mosaics up to hundreds of gigabytes in size
- Interfaces with RemoteView's GeoCatalog for desktop to search and filter relevant imagery
- Does not require image pre-processing or conversion into proprietary formats
- Allows creation of processed products, which are finished orthorectified mosaics that can be saved and printed

## RVCONNECT



### Speeding Efficiency and Collaboration

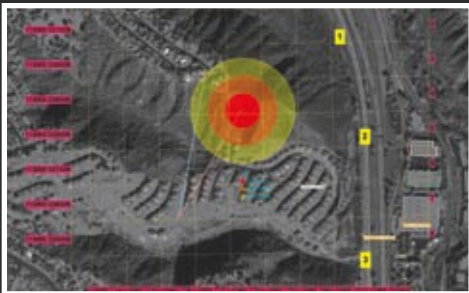
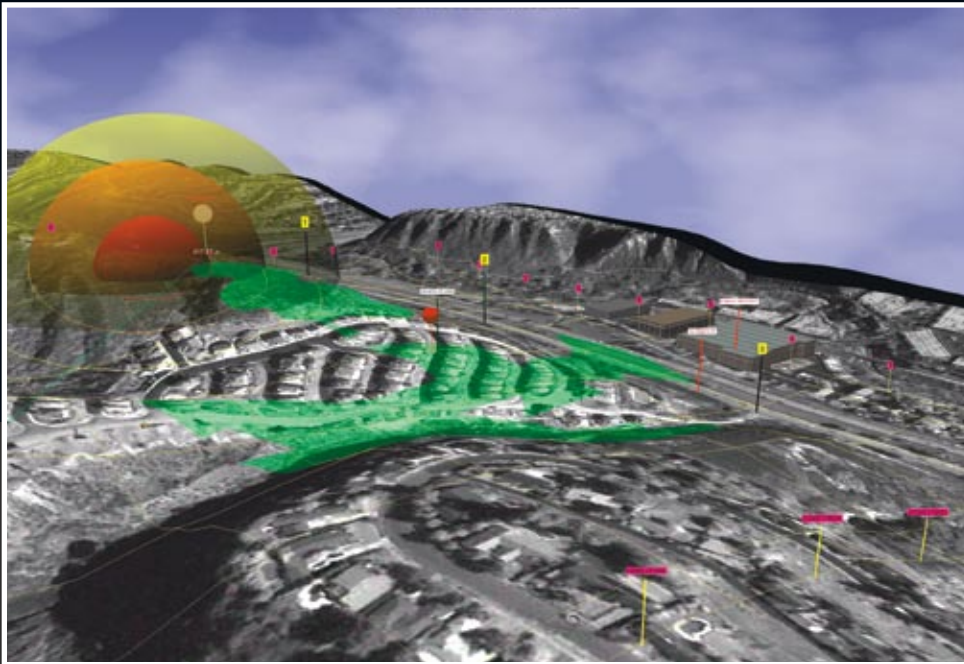
The RVConnect extension offers geospatial intelligence analysts real-time interoperability between RemoteView and the industry leading GIS application, Esri's ArcGIS. RVConnect links the two applications together so data and workflow is shared across both applications. By synchronizing image and feature data, analysts can leverage the strength of each tool and become much more efficient.

Key features include:

- Load ortho-rectified imagery into ArcGIS on-the-fly via the Image Service
- Simultaneous sharing and synchronized modification of vector layers and raster images
- Synchronized navigation between RemoteView and ArcGIS
- Automated sharing of layer symbology and visibility
- Load ESRI Geodatabase feature classes into RemoteView

# EXTENSIONS

## 3D PRO



### Visualizing Missions in the Next Dimension

The 3D Pro extension dramatically expands RemoteView's 3D visualization and analytical tools. 3D Pro allows analysts to quickly generate detailed 3D terrain and urban models that help decision makers and front-line teams.

Key features include:

- Rapidly construct 3D scenes using the Populate Tool and extensive 3D Model Library
- Create 3D buildings with customizable wall and roof textures
- Import or edit highly detailed and realistic 3D models using Google SketchUp
- Export rich 3D scenes to a variety of formats including Google Earth, PowerPoint, and 3D PDF
- Perform real-time 3D analysis using the line-of-sight, buffer zone, and interactive landing zone tools
- Simulate missions through a series of pre-programmed viewpoints
- Set environmental conditions such as cloud cover, fog, and night vision model

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