SOCET GXP® and GXP InMotion™ Desktop v4.5.0.2 release enhancements

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BAE SYSTEMS

SOCET GXP® v4.5.0.2 release enhancements

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SOCET GXP v4.5.0 release enhancements

- This presentation contains the enhancements included in SOCET GXP **v4.5.0.2.**

  - Released January 27, 2022*

  - SOCET GXP v4.5.0.2 is patch 2 of the SOCET GXP v4.5.0.0.272 release build. Because all SOCET GXP patches are full installations, users have two options:

    - upgrade an existing SOCET GXP installation by installing this patch, or

    - for brand new installations, install this patch for a full installation that includes both the patch and the v4.5.0.272 base installation.

** Items in Teal Indicate new features included in the v4.5.0.2 patch update*

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Infrastructure updates

- New Sensors, Imagery, and other GEOINT data:

  - MSP v1.7.0

- Coordinate System Support:

  - Support CRS-1 (Open Geospatial Consortium Coordinate Reference System) for lossless image space streaming of raw image pixels.

  - Support for Web Mercator EPSG:3857 for Map streaming from sources such as Esri®.

  - Added GEOID18.

- Licensing:

  - New licenses are required with the release of SOCET GXP v4.5.0.x.

- Increase cache memory sizes for SOCET GXP and GXP InMotion™ to improve application performance.

- Third-party software updates:

  - GDAL v3.1.0

  - Libtiff v4.0.2

  - HDF5 1.12

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Improved Help

New Help documentation template for improved navigation of the online users manual layout and style.

- SOCET GXP, GXP InMotion, and the License Manager have all been updated to the new User Manual format with focus on improvements to the layout and style.

- Improved font and management of content including the table of contents based on Web-Page design practices.

- Expand all / collapse all within a help topic section.

- Highlight and print the document.

- Code snipits – copy and paste command line arguments into a CMD prompt.
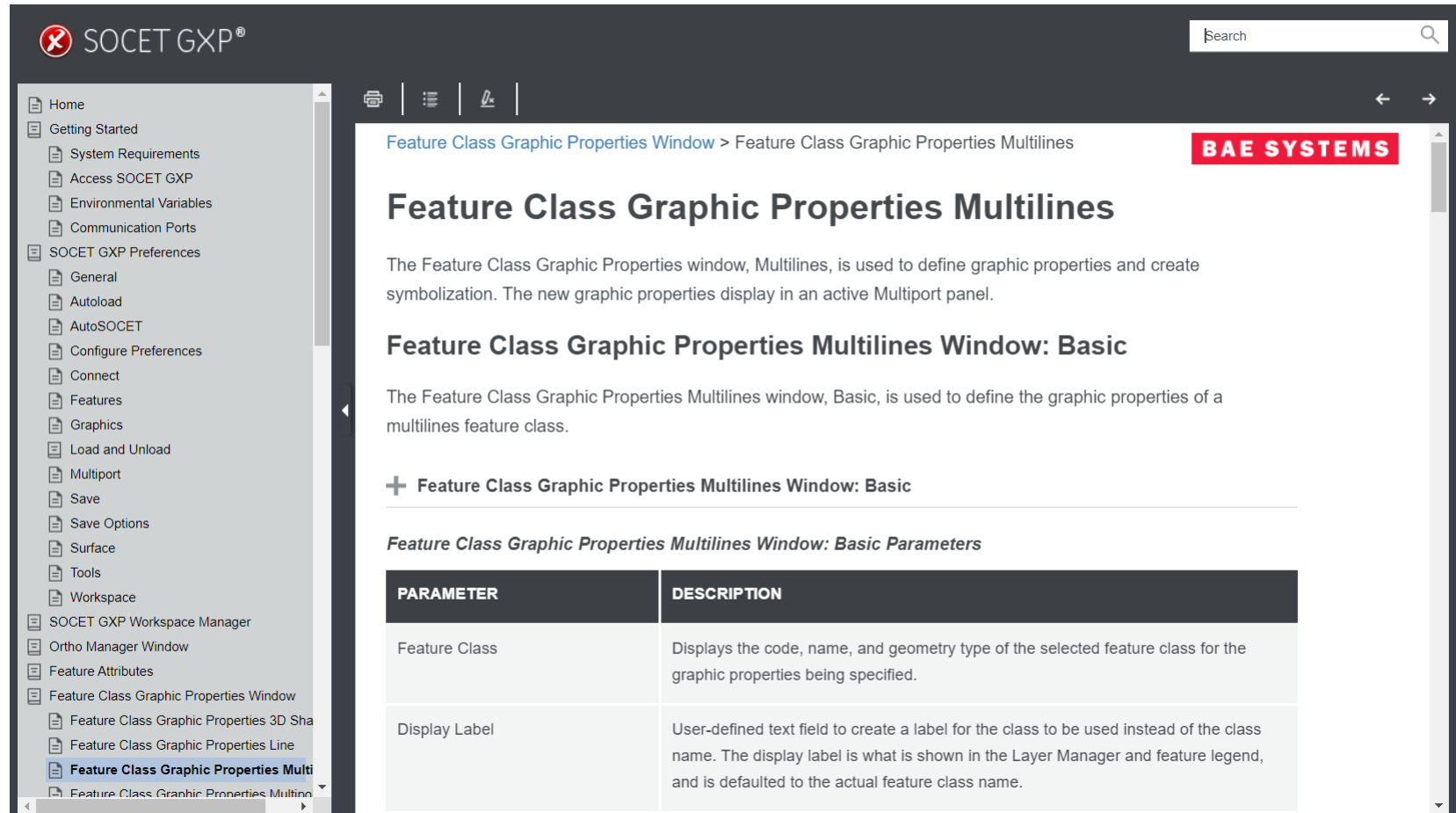
Task Manager Image List

- Update the Task Manager user interface.
  - View long image names in the Task Manager Image List simple operations including resizing Image list and/or Task Manager window.
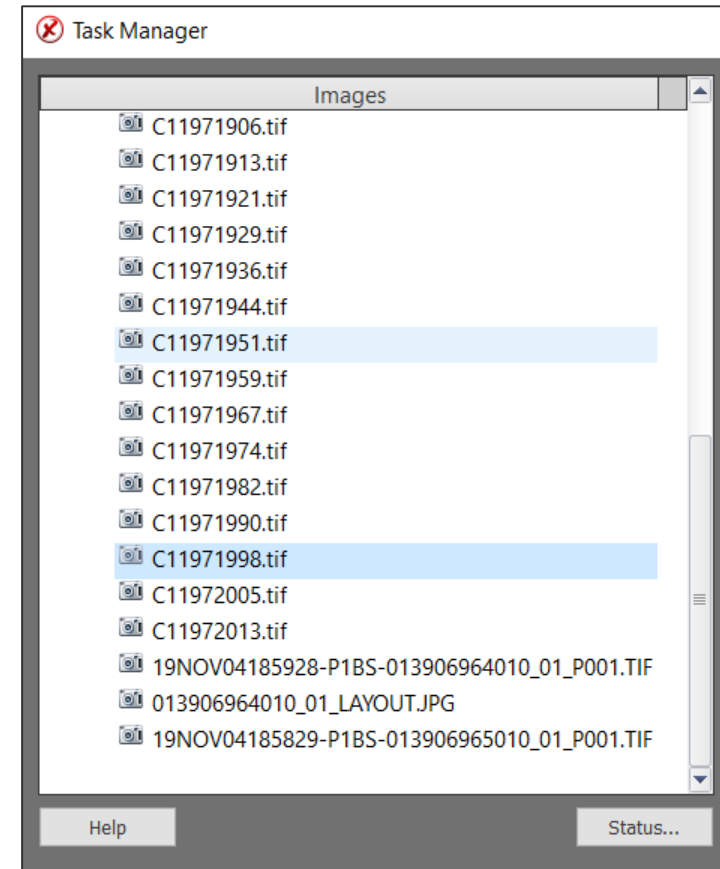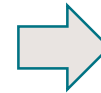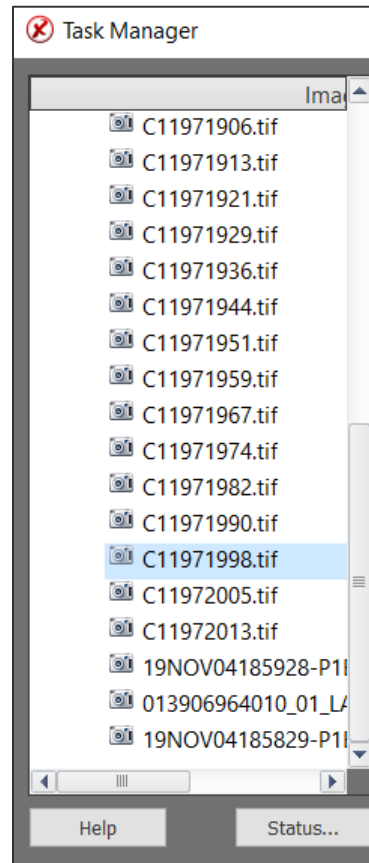
Integration of Esri Services cataloged in GXP Xplorer® Platform

- The Workflow Improvement Module (WIM) has been updated to search Esri Map Servers cataloged by GXP Xplorer.

- Updates include authentication for Esri hosted services.
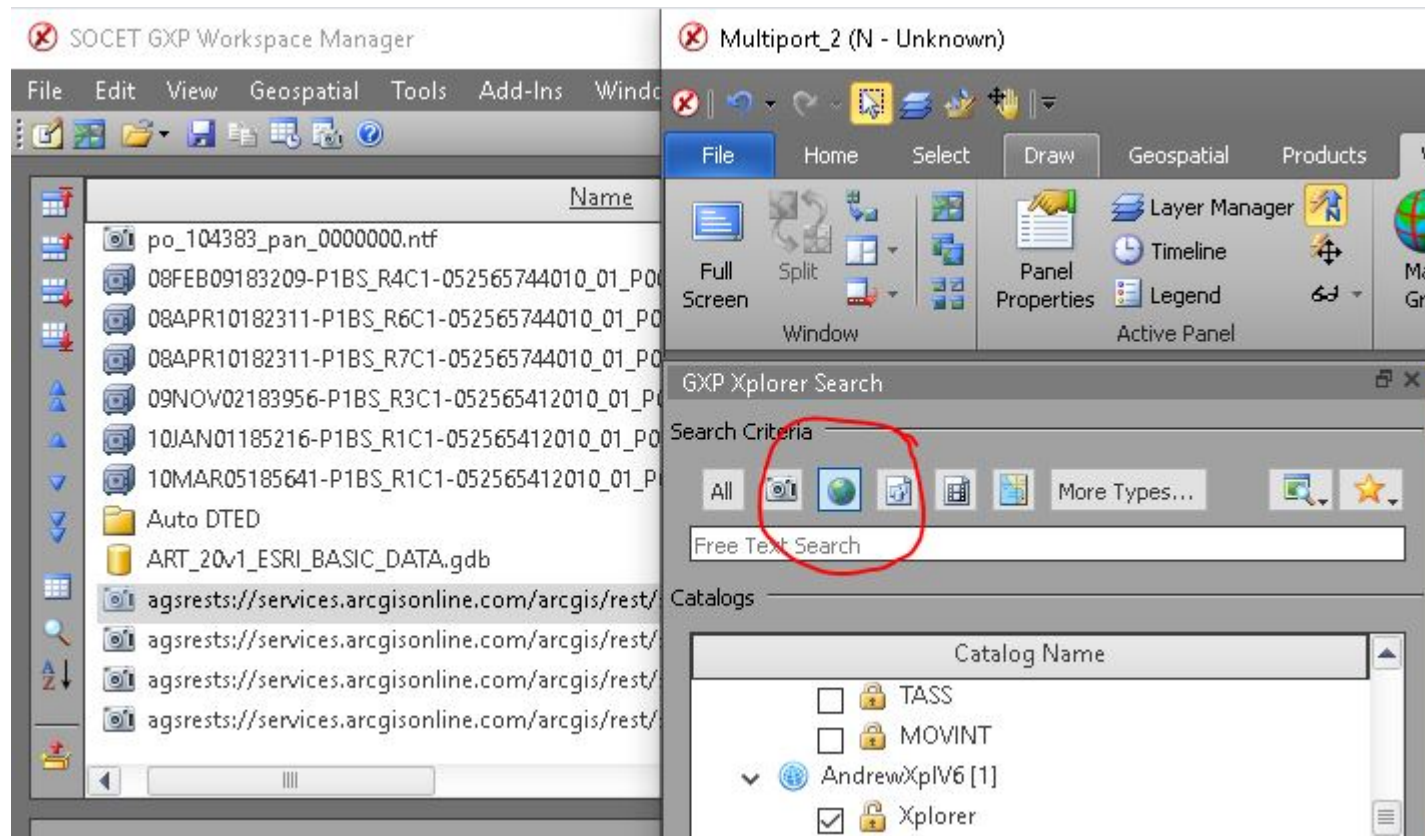
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Integration of SOCET GXP with Esri ArcGIS® Earth

- Interface with ArcGIS Earth using a simple button interface from the SOCET GXP Multiport™ Add-ons tab.

  - Add image overlay layer ArcGIS Earth.

  - Add image footprint(s) layer ArcGIS Earth.

  - Add selected graphics layer ArcGIS Earth.
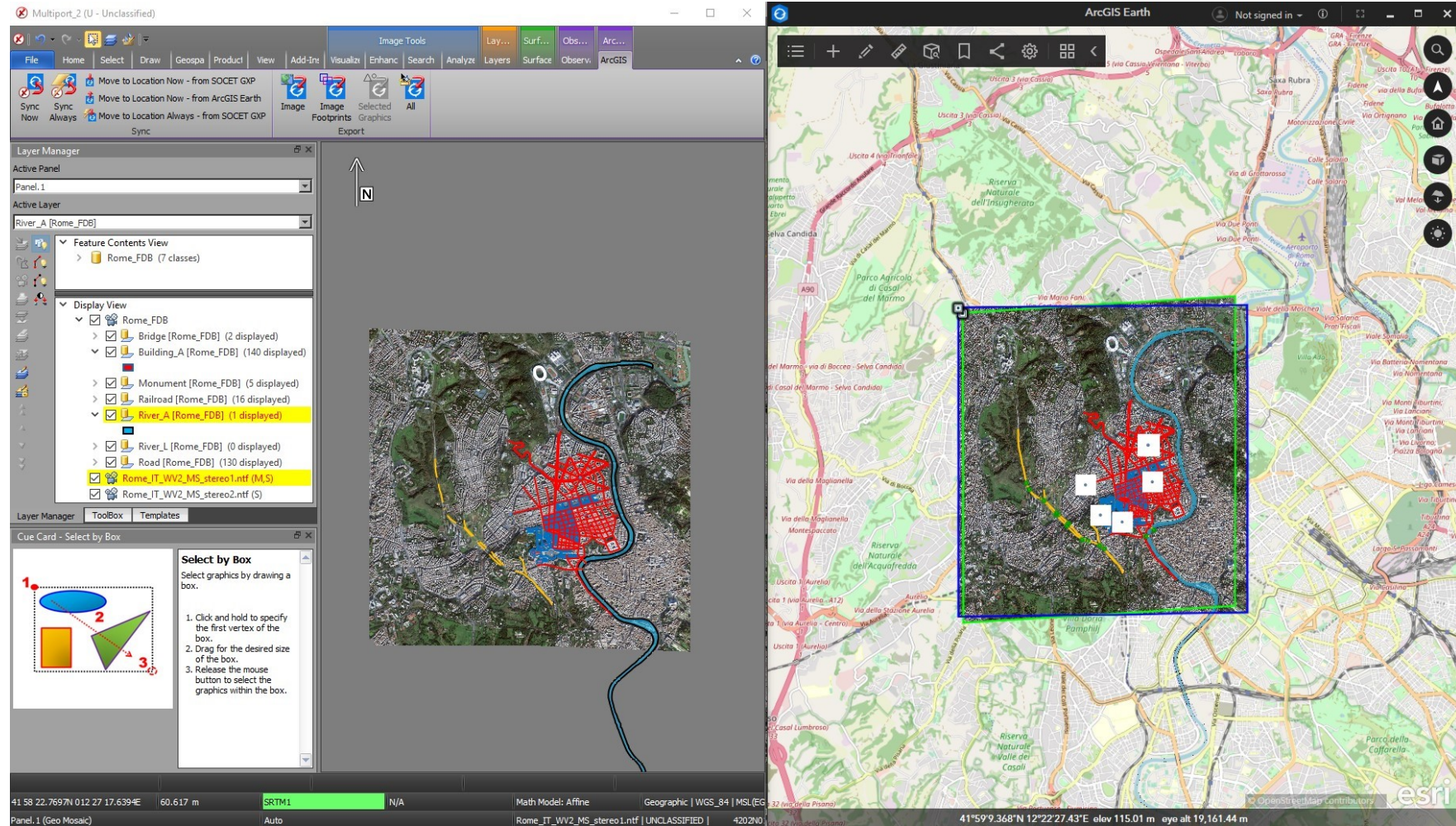
  - Add all visible scene layers ArcGIS Earth.

Image © 2022 Maxar Technologies.

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Integration of SOCET GXP with Esri ArcGIS Earth ...2

- Synchronize ArcGIS Earth with SOCET GXP.

  - Move SOCET GXP to ArcGIS Earth location.

  - Move ArcGIS Earth to SOCET GXP location.

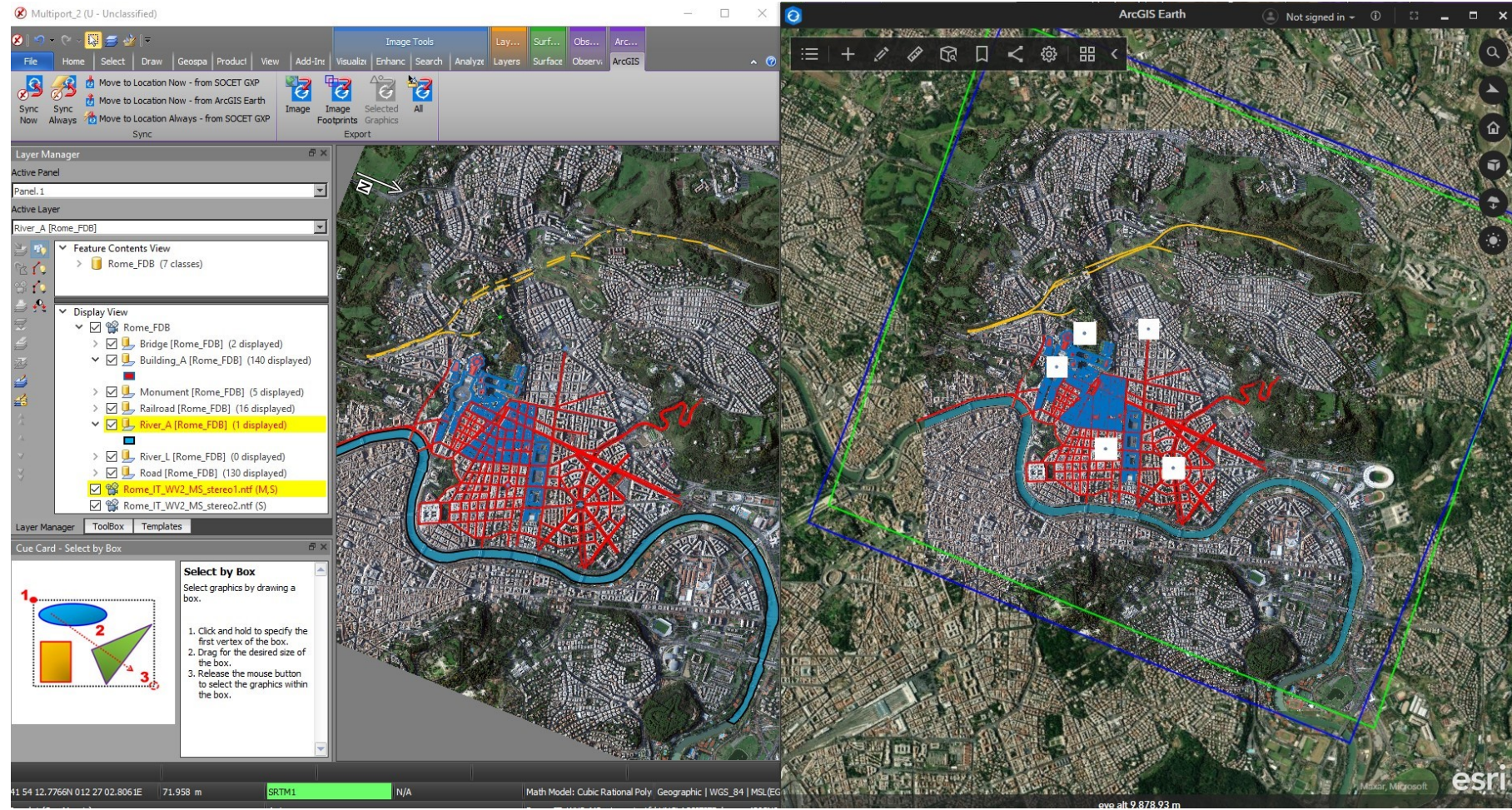 - Move ArcGIS Earth to SOCET GXP location always.
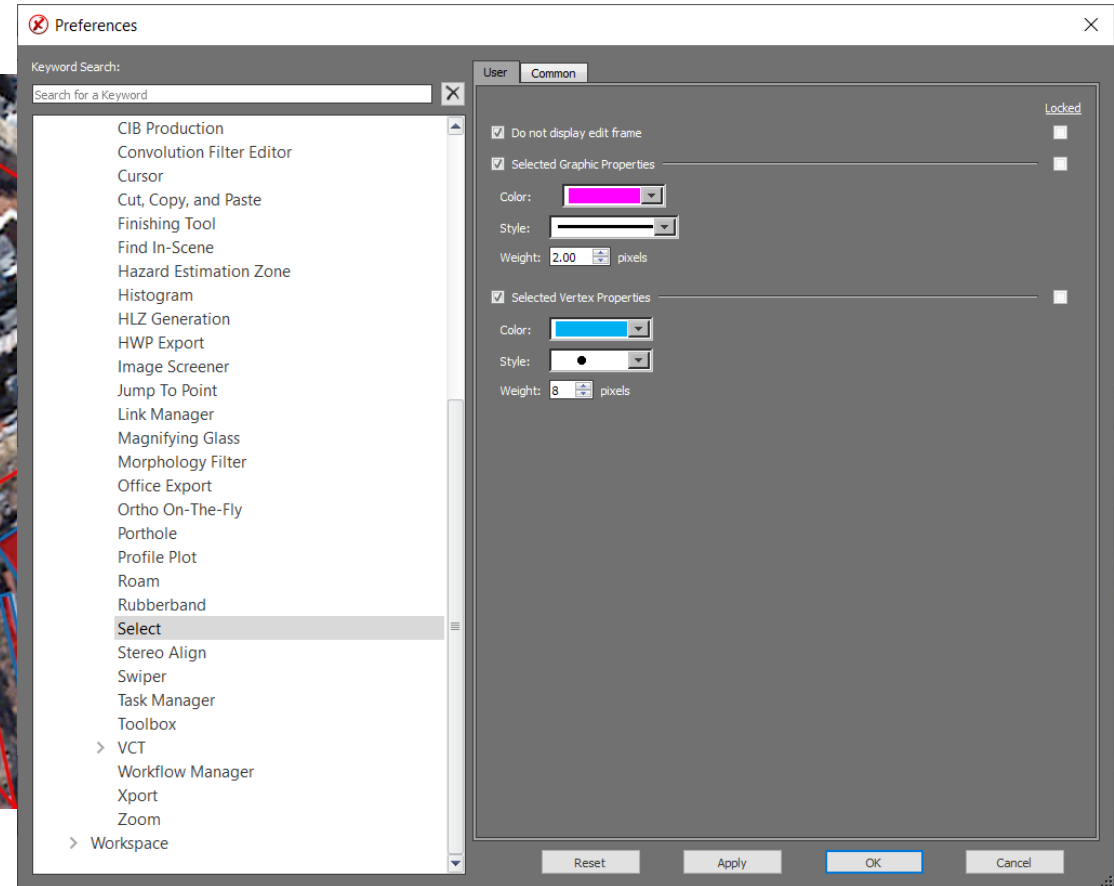

Image © 2022 Maxar Technologies.

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Ability to change color of feature when selecting the feature

New for
v4.5.0.2

- Changing color for selecting feature:
  - Choose a color, style and weight.
- Ability to display vertices:
  - Choose a color, style and weight.
- Moved the Edit Frame display from Configure -> Performance Preference location.

Image © 2022 Maxar Technologies.

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Ability to change vertex values with Edit Vertices Window

New for
v4.5.0.2

- Changing vertex values in Edit Vertices Window:
  - Ability to change coordinates and elevation values.
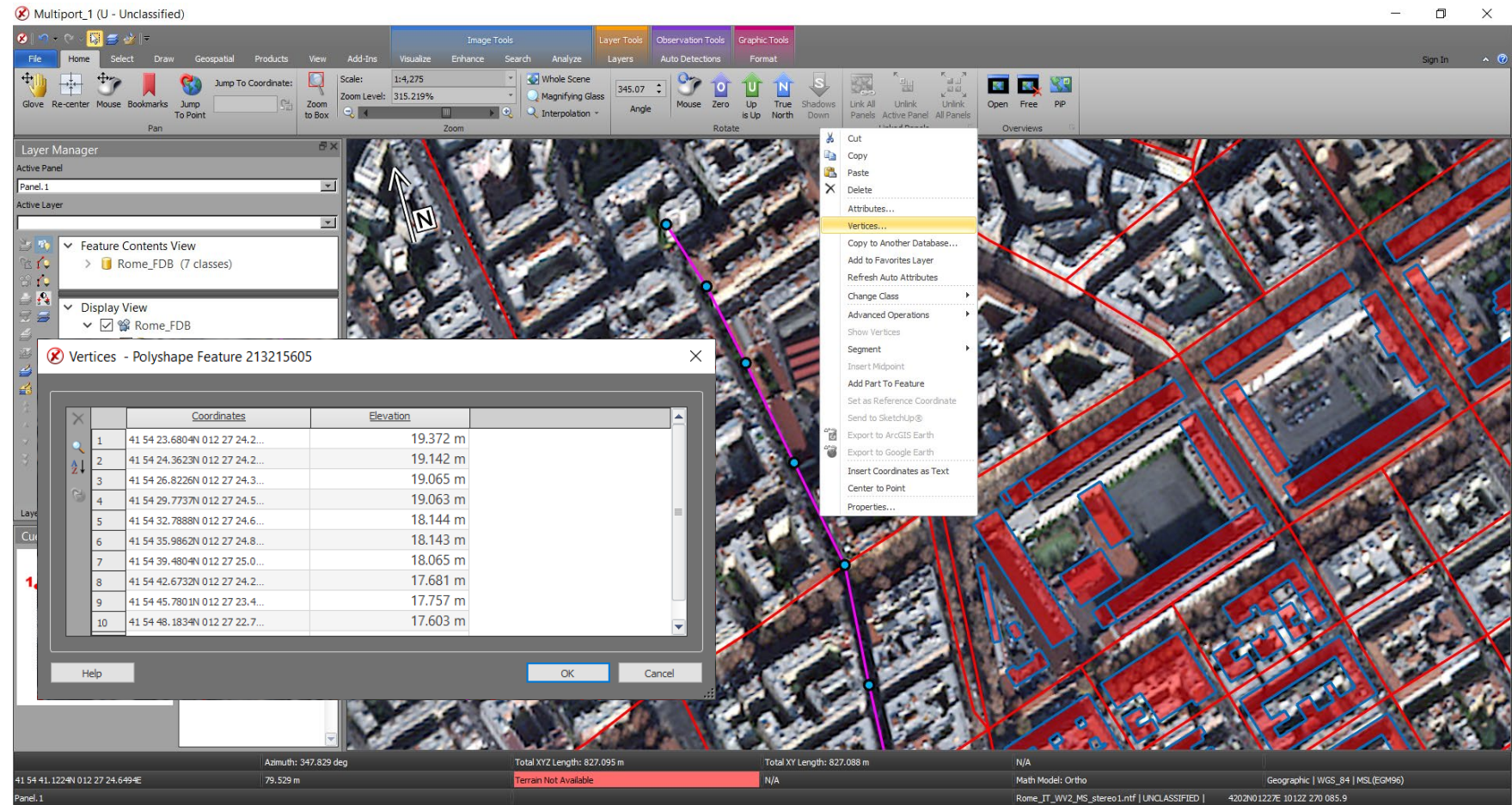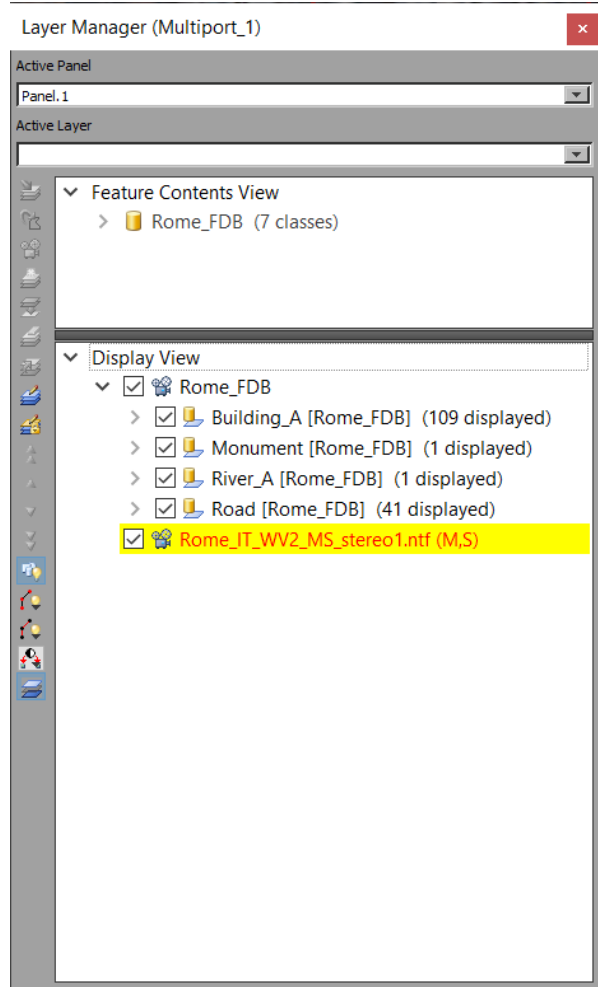 - Highlight a row and jump to vertex.

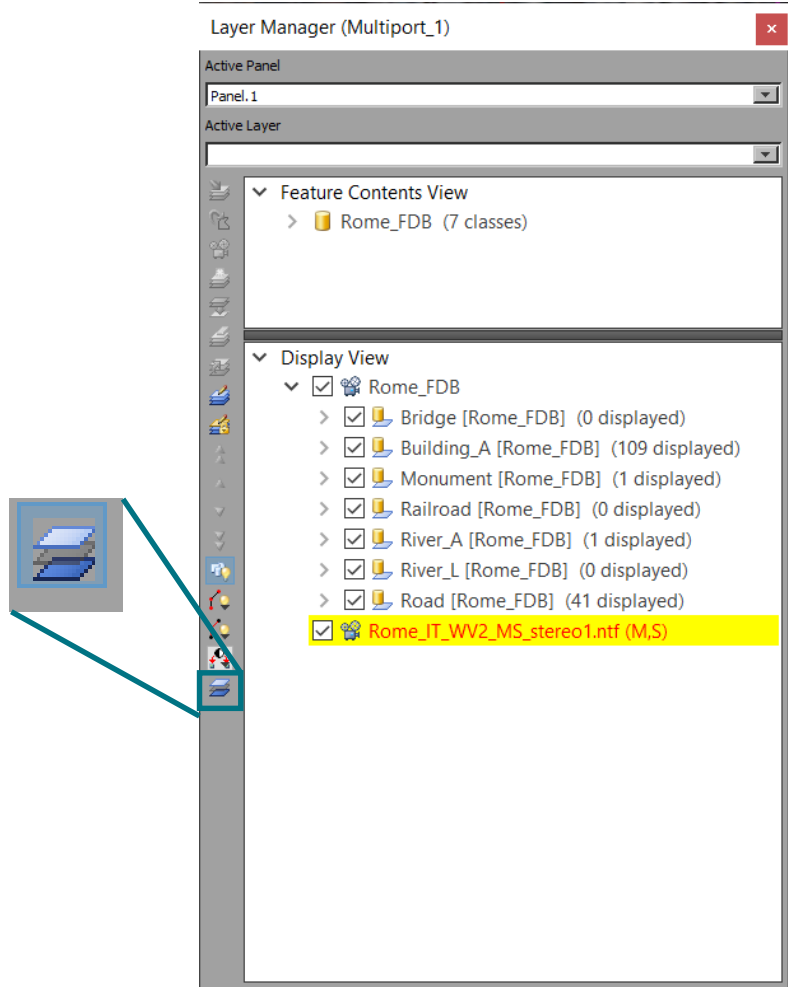
Image © 2022 Maxar Technologies.

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Hide Empty Layers in a database

New for v4.5.0.2

- Ability to hide layers in a database that do not have any features collected in them.
  - Toggle On/Off to hide or to show all available feature classes.

Layer Manager (Multiport_1)

Active Panel
Panel.1

Active Layer

- ∨ Feature Contents View
  - \> 🗄 Rome_FDB (7 classes)

- ∨ Display View
  - ∨ ☑ 🗃 Rome_FDB
    - \> ☑ Bridge [Rome_FDB] (0 displayed)
    - \> ☑ Building_A [Rome_FDB] (109 displayed)
    - \> ☑ Monument [Rome_FDB] (1 displayed)
    - \> ☑ Railroad [Rome_FDB] (0 displayed)
    - \> ☑ River_A [Rome_FDB] (1 displayed)
    - \> ☑ River_L [Rome_FDB] (0 displayed)
    - \> ☑ Road [Rome_FDB] (41 displayed)
    - ☑ 🎥 Rome_IT_WV2_MS_stereo1.ntf (M,S)

Layer Manager (Multiport_1)

Active Panel
Panel.1

Active Layer

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  - \> 🗄 Rome_FDB (7 classes)

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    - \> ☑ Road [Rome_FDB] (41 displayed)
    - ☑ 🎥 Rome_IT_WV2_MS_stereo1.ntf (M,S)

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Circle Tool update

New for
v4.5.0.2

- Ability to define the amount of vertices used to create circle.

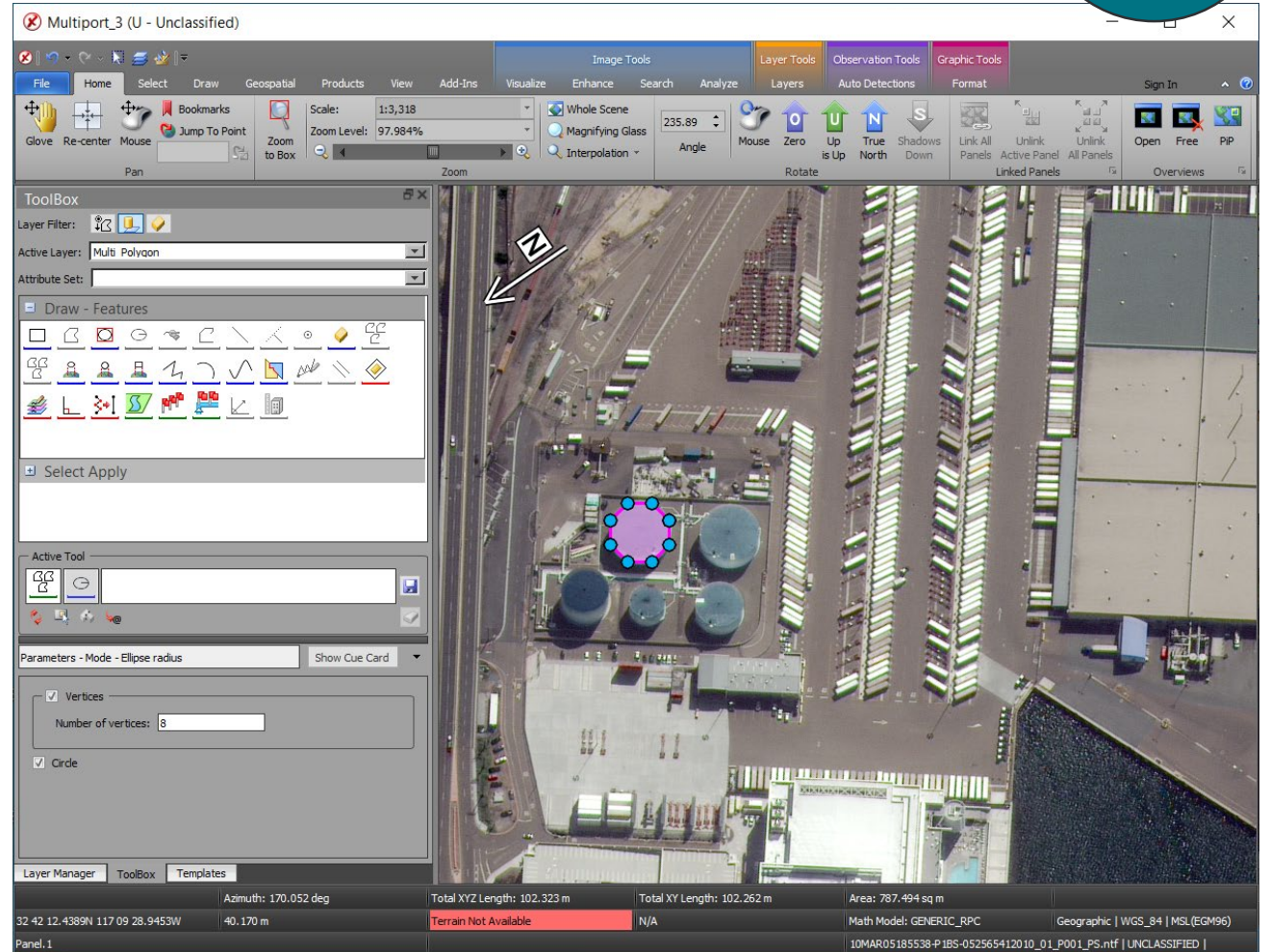 - Circle tool can create triangle, square, pentagon, hexagon based on the amount of vertices used.

Image © 2022 Maxar Technologies.

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New for
v4.5.0.2

Vertex Selection Priority

- Moving a vertex has been updated to allow only the vertex of the feature selected to move.

  - Very useful when two vertices from different features are sharing same location.

Image © 2022 Maxar Technologies.

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Feature Extraction and SOCET for ArcGIS (SFA)

New for v4.5.0.2

- Enable the view/edit attributes option when multiple features are selected from multiple classes.

- Enhance edit undo/redo capabilities to work with PostGIS and Geodatabase files.

- Graphics drawing performance improvements for SFA Pro when zooming.
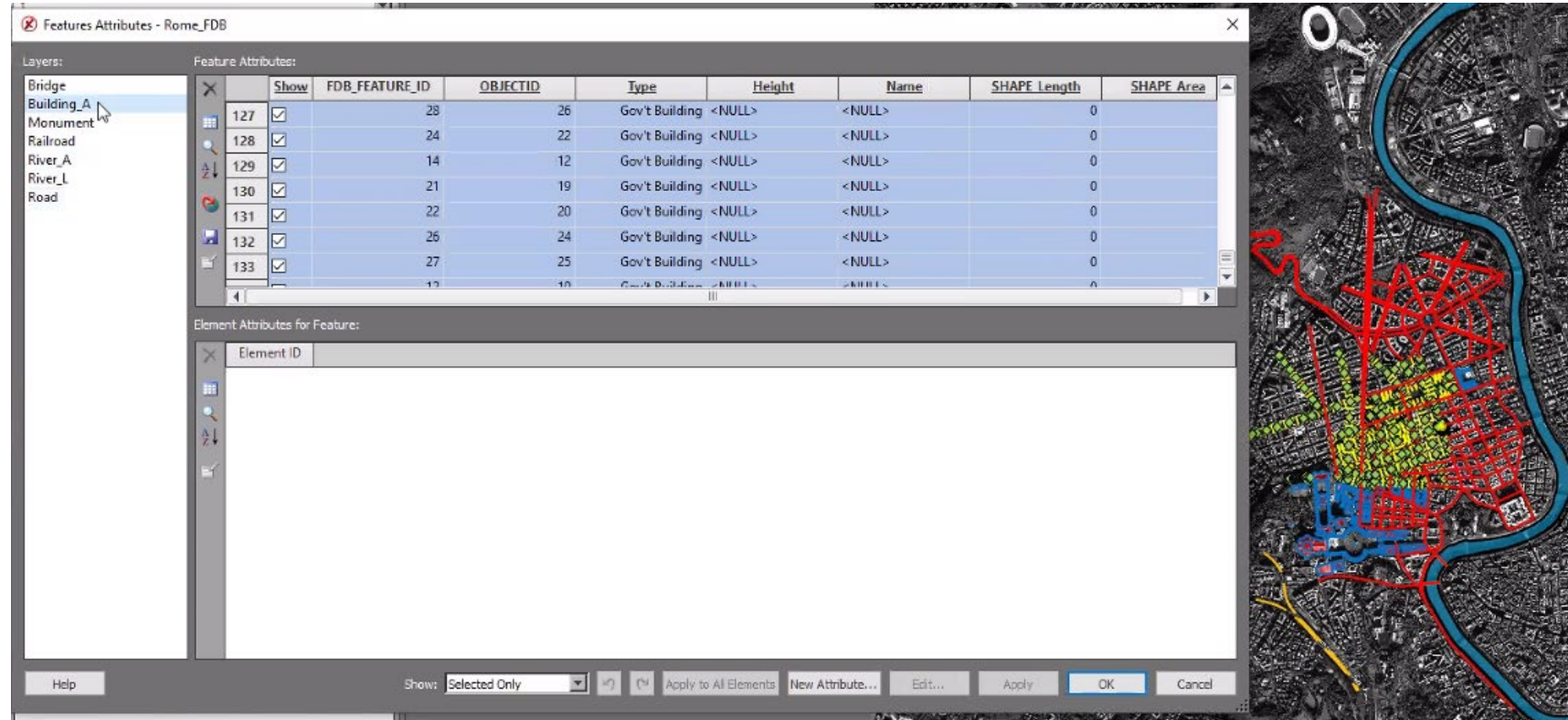
Image © 2022 Maxar Technologies.

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SOM Updates

- Provide image chips in JPG or NITF ICHIPB format with observations retaining metadata of the original image in the chip for NITF.

Image © 2022 Maxar Technologies.

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SOM Updates ...2

- Added the ability to view observations across multiple facilities.
- Allow observations to be collected with a single click.

Image © 2022 Maxar Technologies.

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Export to Microsoft® Word

Export products to Microsoft Word directly from SOCET GXP.

Image © 2022 Maxar Technologies.
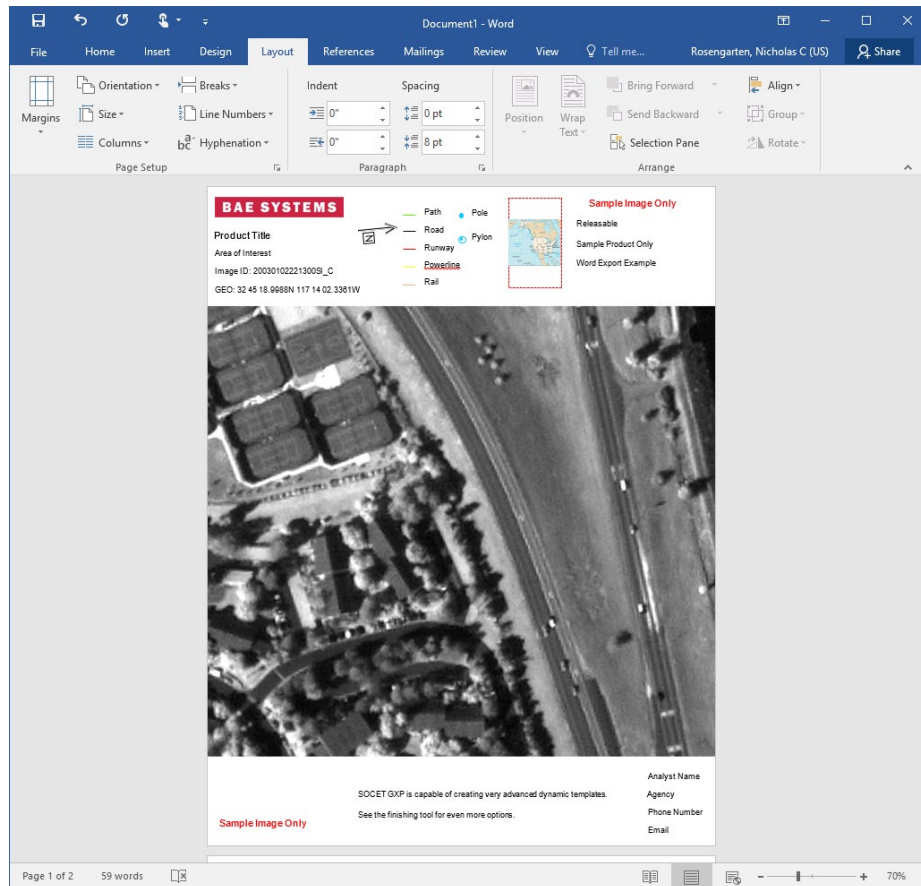
- Preference added to allow the format to be portrait or landscape.

- Users can also export to Hangul Word Processor.

- License product creation in Microsoft Word under the SOCET GXP GeoElement bundle and above.

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Updates for Cesium 3D Tiles® v1.0

- Cesium 3D Tiles v1.0 is a format for highly detailed geospatial models adapted by the OGC® Cesium® https://cesium.com/3d-tiling-pipeline/.

- SOCET GXP provides support for allowing visualization, roaming, fly-through in the SOCET GXP 3D Multiport.

- Drape Annotations and Features on 3D Tiles.

- Cursor linking available for 3D to 2D Multiports.
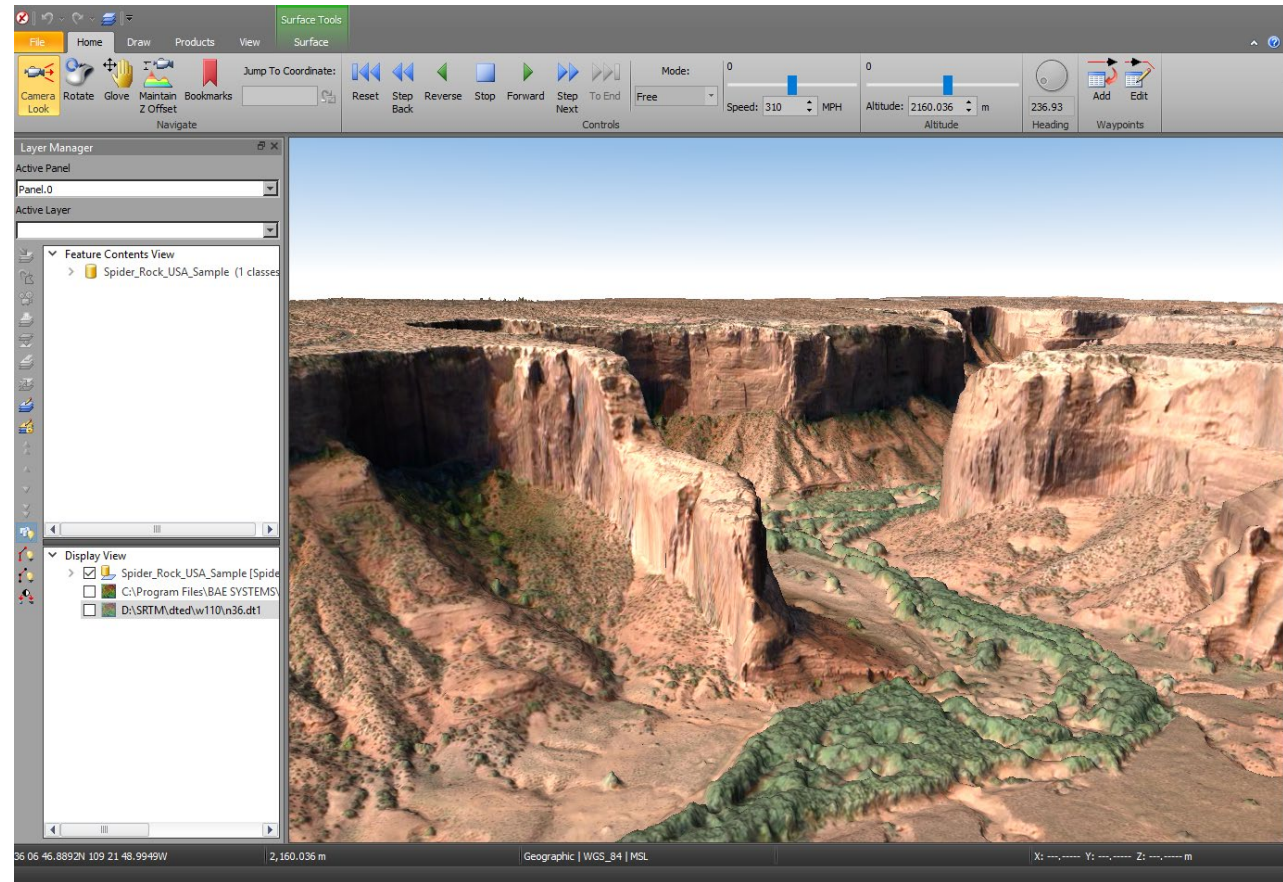
Imagery courtesy of Vricon.

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Updates for Cesium 3D Tiles® v1.0 …2

- Support streaming services for 3D Tiles from a URL.

- Option to record animation and fly-thru as MPEG.

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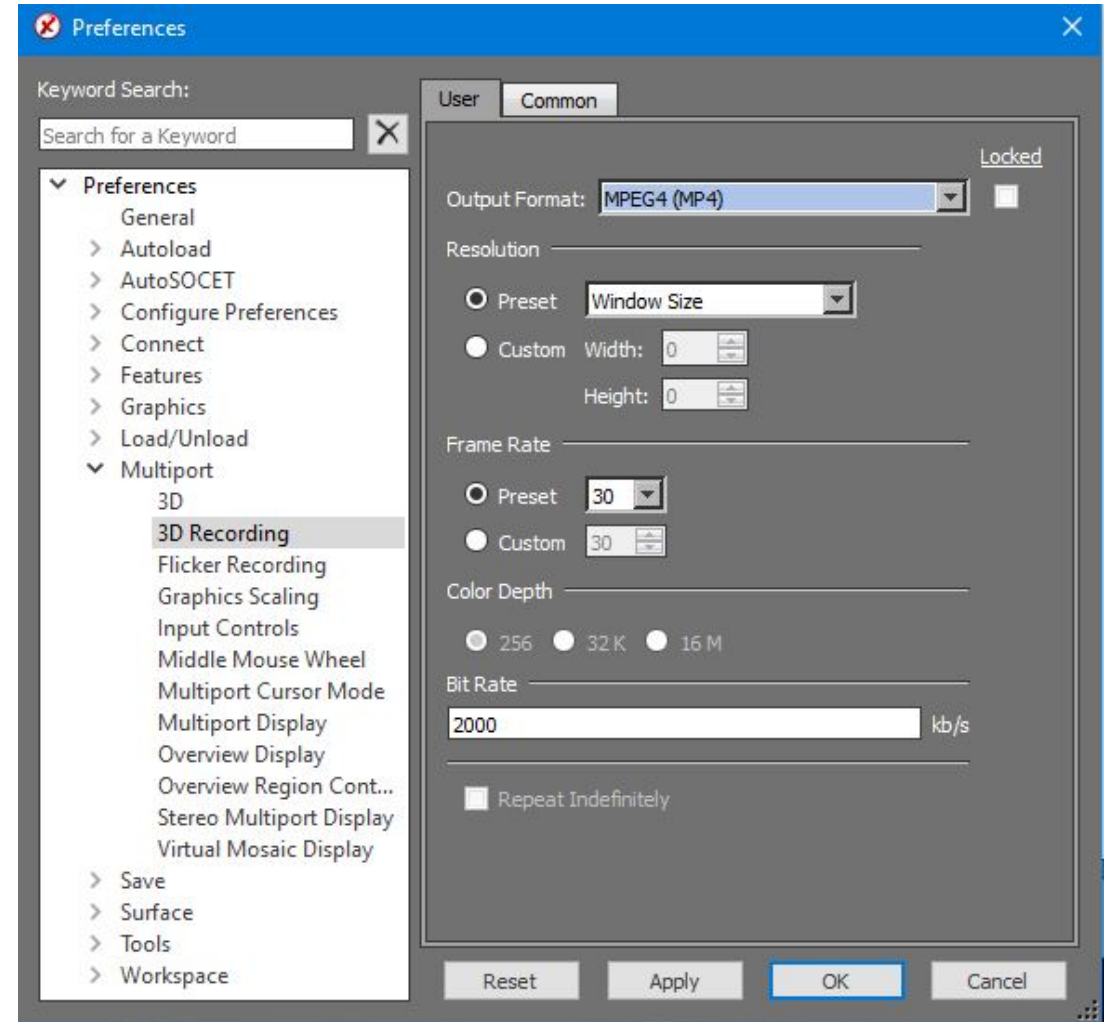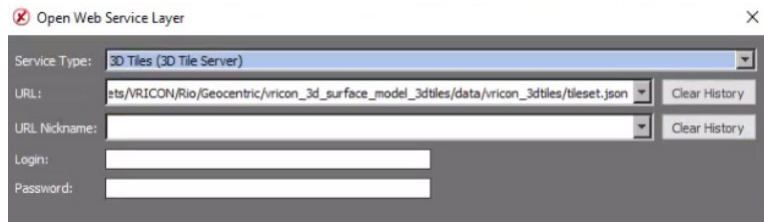
KML Updates

New for v4.5.0.2

- Added support for KML ScreenOverlays.

  - These are non-ground based features for overlays such as legends and icons, which are not fixed to a ground location.

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Multi-Polygon support for Interactive Terrain Editing (ITE)
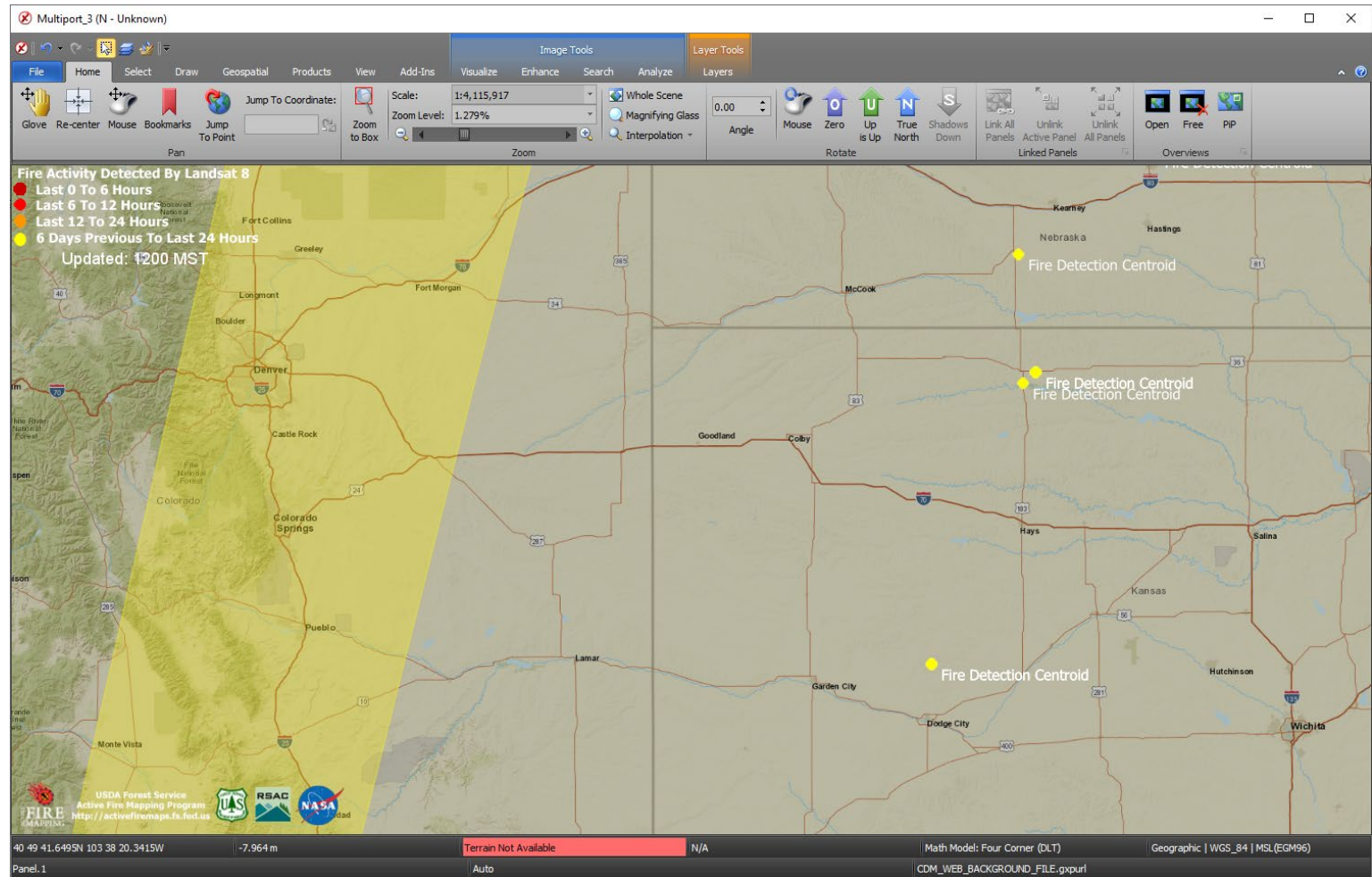
New for v4.5.0.2

- Multi-Polygons in ITE allow tools such as lake fill to flatten the lake surface while allowing islands within the lake to retain the original collected surface.
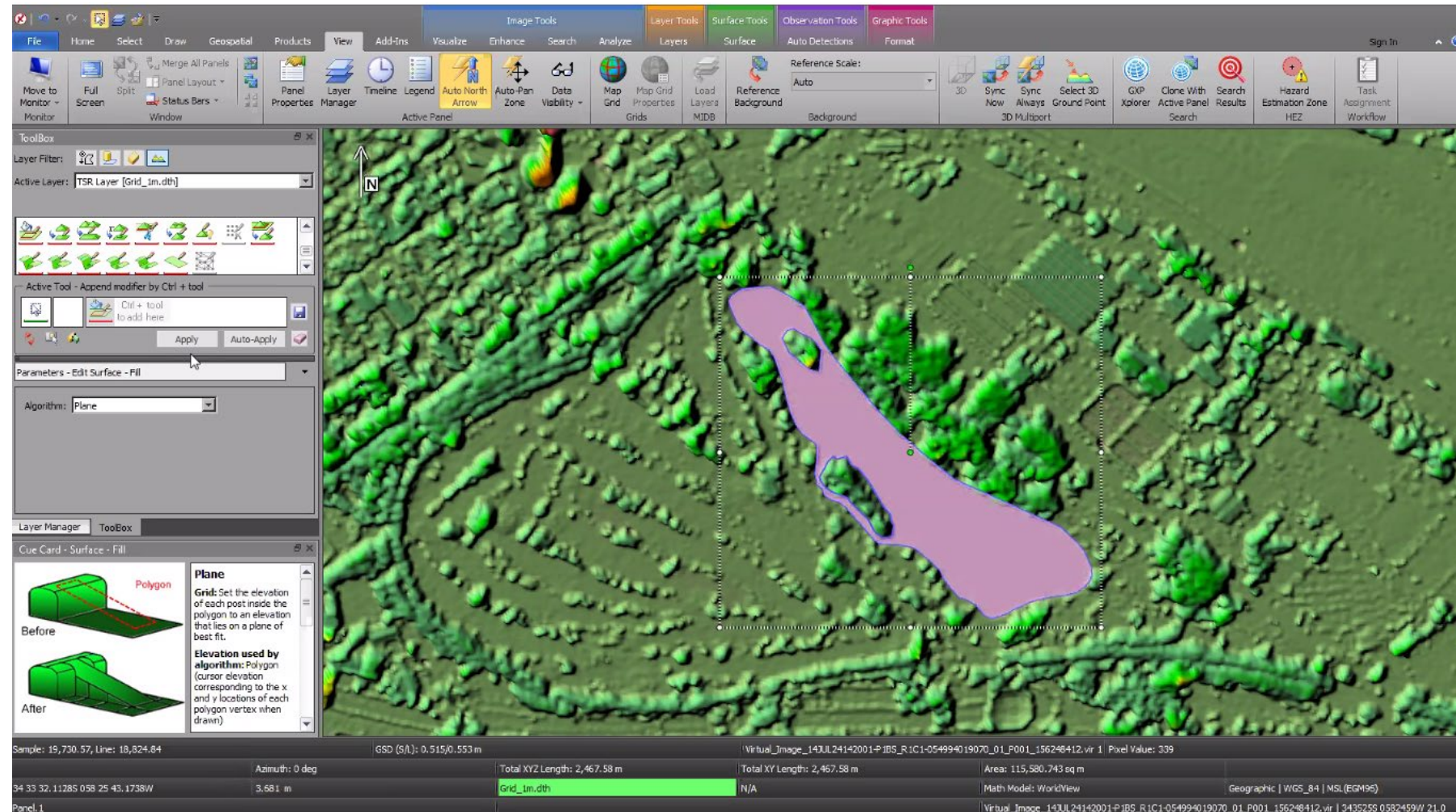
Link Stereo Multiports with 2D/3D Multiports

- Link Stereo, Mono, and 3D Multiports.

- Uses the SOCET GXP link manager for 2D and Stereo linking.

- Environment variable required for 3D Multiport linking.
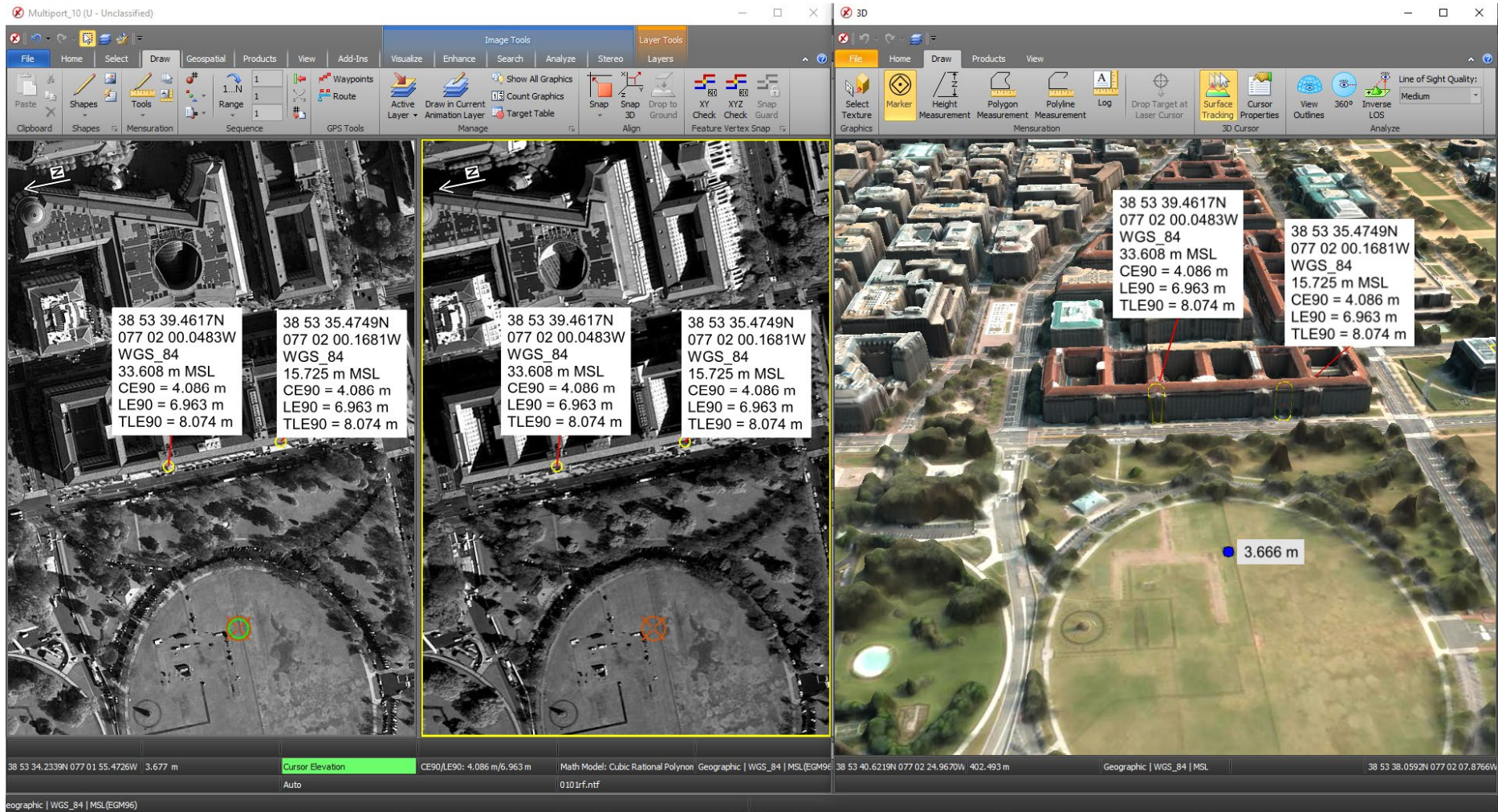
Images © 2022 Maxar Technologies.

3D Tile Mesh Images © 2022 Maxar Technologies.

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United States Message Text Format – USMTF Generation

- Create USMTF Messages using information derived from Imagery loaded into a Multiport.

- Transmit USMTF messages via interaction with the Common Message Processor (CMP) and the GTCS systems.

- The text message is created using image metadata and interactive graphics to auto-fill the USMTF with as many fields as possible.

- An XML schema template is provided, which can be customized for specific messaging requirements.

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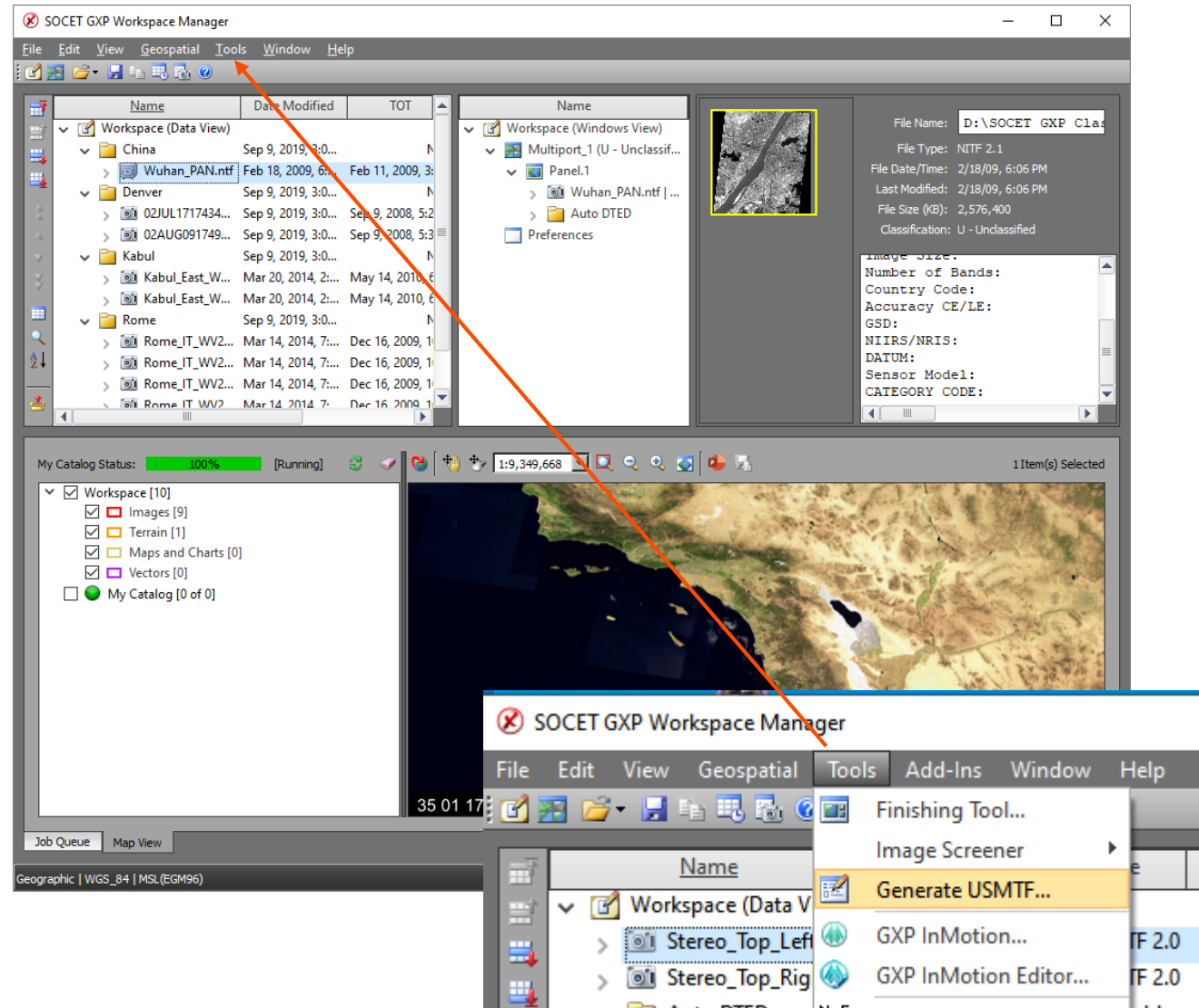
United States Message Text Format – USMTF Generation …2

- Create USMTF from a right-click of a point using information from the point and imagery to begin filling out the USMTF message structure.

- Add support for C281 new report type.

- Coordinates, CE, LE, and TLE values are set automatically for USMTF.
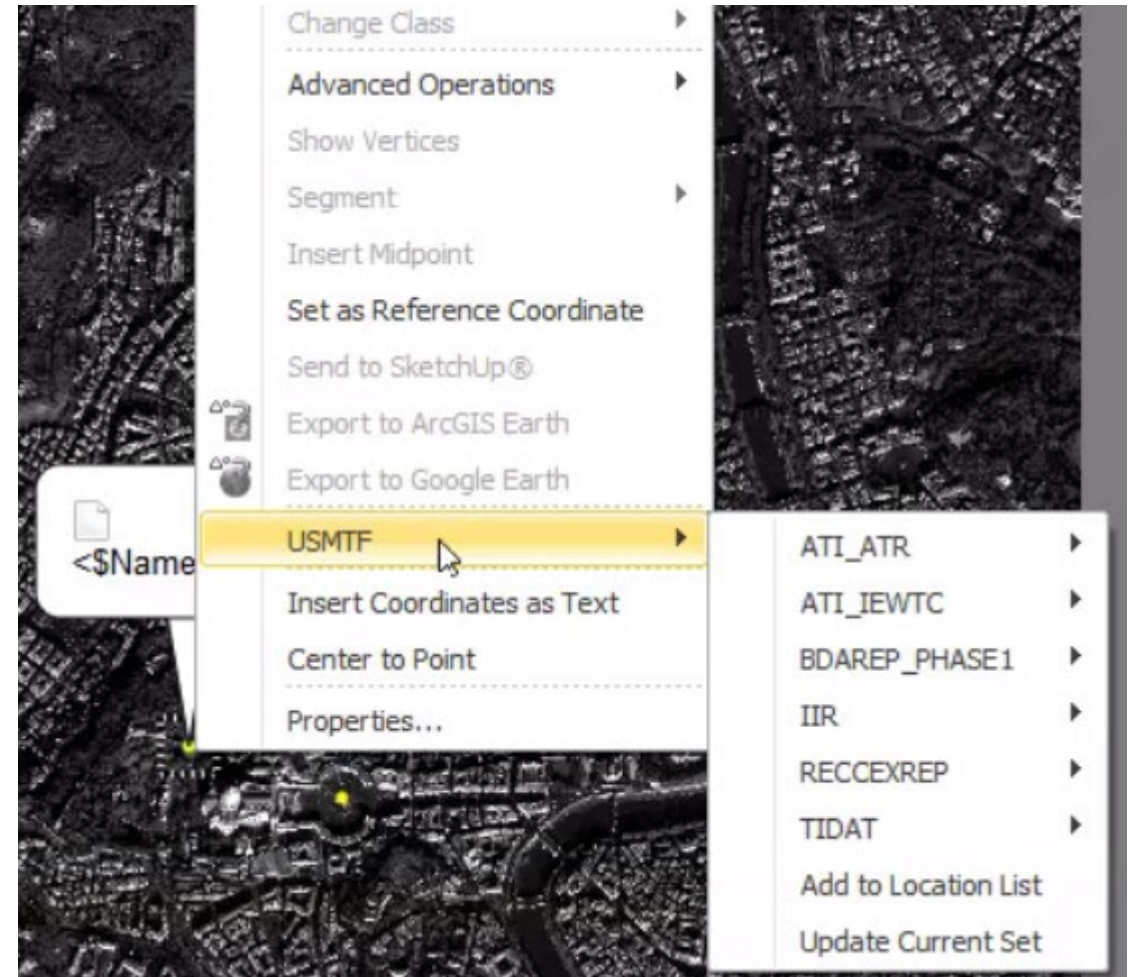
Image © 2022 Maxar Technologies.

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Modernized Intelligence Database (MIDB) Integration

- GXP Xplorer Platform Integration.

  - Data model updates including MIL-STD 2525B symbols.

  - New SOCET GXP Ribbon connection for MIDB.

- Updated layer manager to include content filters based on attribution.

- Switch between MIL-STD 2525B symbols and customer, or simple symbols.
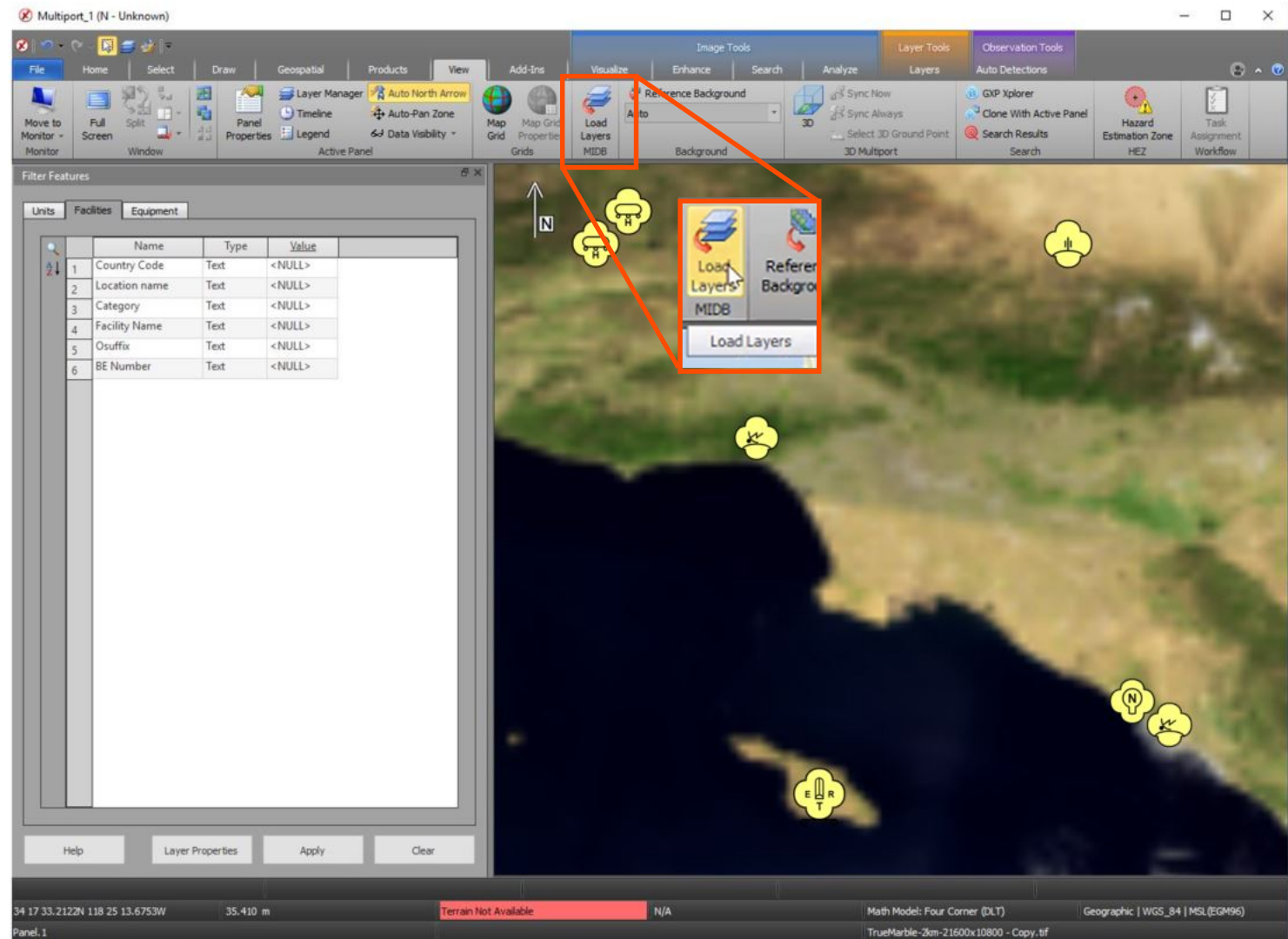
GXP Automated Tools for Object Recognition (GATOR)

- Software developed under a Research & Development (R&D) program.

- Productized as a SOCET GXP Job service.

- Identifies objects over a Region of Interest (ROI) based on the selection of a 3-D model.

- Interaction with models allows for translation and rotation of 3D models in 2D Multiports.

- Toggle the display between 2D and 3D models in the 2D Multiport.

- Orientation of the 3D model is an additional attribute for 3D observations.

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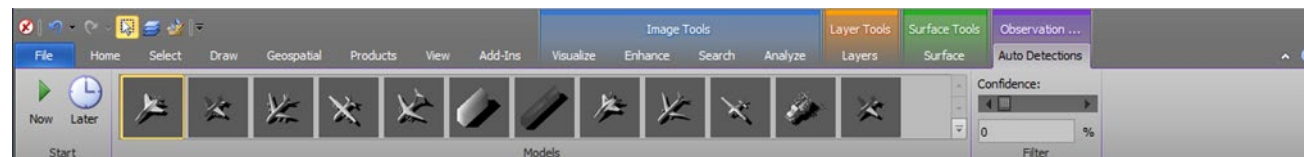
Other significant enhancements

- Include the ability to set default values for attributes in a GATR file.

- Enhanced Control Image Base (eCIB) production.
  - Code "M" and "X" used for 1m, 5m, 10m products.
  - Modify default eCIB configuration files for Control Handling in the case of unclassified products.
  - Removed the defaults for Control Handling in the $SOCETGXPDIR/Config/internal_dbs/CIB/ECIB_default_comp.mdt file.

- Add a check box column for the GXP Xplorer Servers Status window indicating the primary server.

- Update SIPS to the latest version.

- Updates for Multi-File STANAG 4674B.
  - When loading data, use the Product ID instead of the file system name allowing the name to be consistent across all data for the same collection (for same source).

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New Pixel Streaming option

- GXP Xplorer can now stream pixels to SOCET GXP using an OGC® Web Map Tile Services (WMTS) protocol with detailed metadata as opposed to the GXP™ Tile Streamer.
  - Benefits include:
    - SOCET GXP can continue to exploit scenes where communication is interrupted or restarted on the backend.
    - Allows for site caching of imagery tiles for multiple users.
    - Allows for pre-generated tile content with tile pyramid functionality.
      - Allows for streaming to be performed without a running pixel service as tiles are created at ingest as opposed to on user demand.
    - Decreased bandwidth requirements with JPEG 2000 Numerically Lossless compression for WMTS.
  - This can be set in Administration Settings … GXP Xplorer Application Settings … Discovery Agent … Detailed Metadata Processor.
    - This setting only applies to SOCET GXP v4.5.0.1 or later.
    - GXP WebView® will still exclusively use the GXP Tile Streamer.

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New Pixel Streaming option …2

- A new set of options has been added to the Administration Settings to allow for pre-generating tiles to be used for the new WMTS protocol.

  - If this data is generated, no active pixel streaming needs to occur at demand time.

  - Administration Settings … GXP Xplorer Application Settings … Discovery Agent … Tile Pyramid Ingest Processor

  - Requires On File Discovery RSet mode.

  - Open in SOCET GXP requires CRS-1 (image space) coordinate system.

Tile Pyramid Ingest Processor

Tile Pyramid Ingest Processor	Disabled
Tile Matrix Sets	CRS:1
CRS-1 Format	NITF2.1
Geo Format	PNG
Full Capabilities	Enabled
Tile Pyramid Generation Concurrent Jobs	
Tile Pyramid Generation Threads	
Direct to Managed	Disabled

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GXP InMotion v4.5.0.2 release details

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GXP InMotion v4.5.0 release enhancements

- This presentation contains the enhancements included in GXP InMotion **v4.5.0.2.**

  - GXP InMotion v4.5.0.2 is patch 2 of the GXP InMotion v4.5.0.0.272 release build. Because all GXP InMotion patches are full installations, users have two options:

    - upgrade an existing GXP InMotion installation by installing this patch, or

    - for brand new installations, install this patch for a full installation that includes both the patch and the v4.5.0.272 base installation.

* Items in Teal Indicate new features included in the v4.5.0.2 patch update

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Live Rewind in one panel

- When Live Rewind was introduced, it was developed with a specific customer in mind; The initial implementation focused on that customers CONOP of having a real time instance of the video next to a forensic instance of the same mission.

- In v4.4.1.2 we've expanded Live Rewind's flexibility to allow for side by side panels of 'Live' and 'Rewind'.

- In v4.5.0.0, Live Rewind is able to function all within one panel of one GXP InMotion instance.
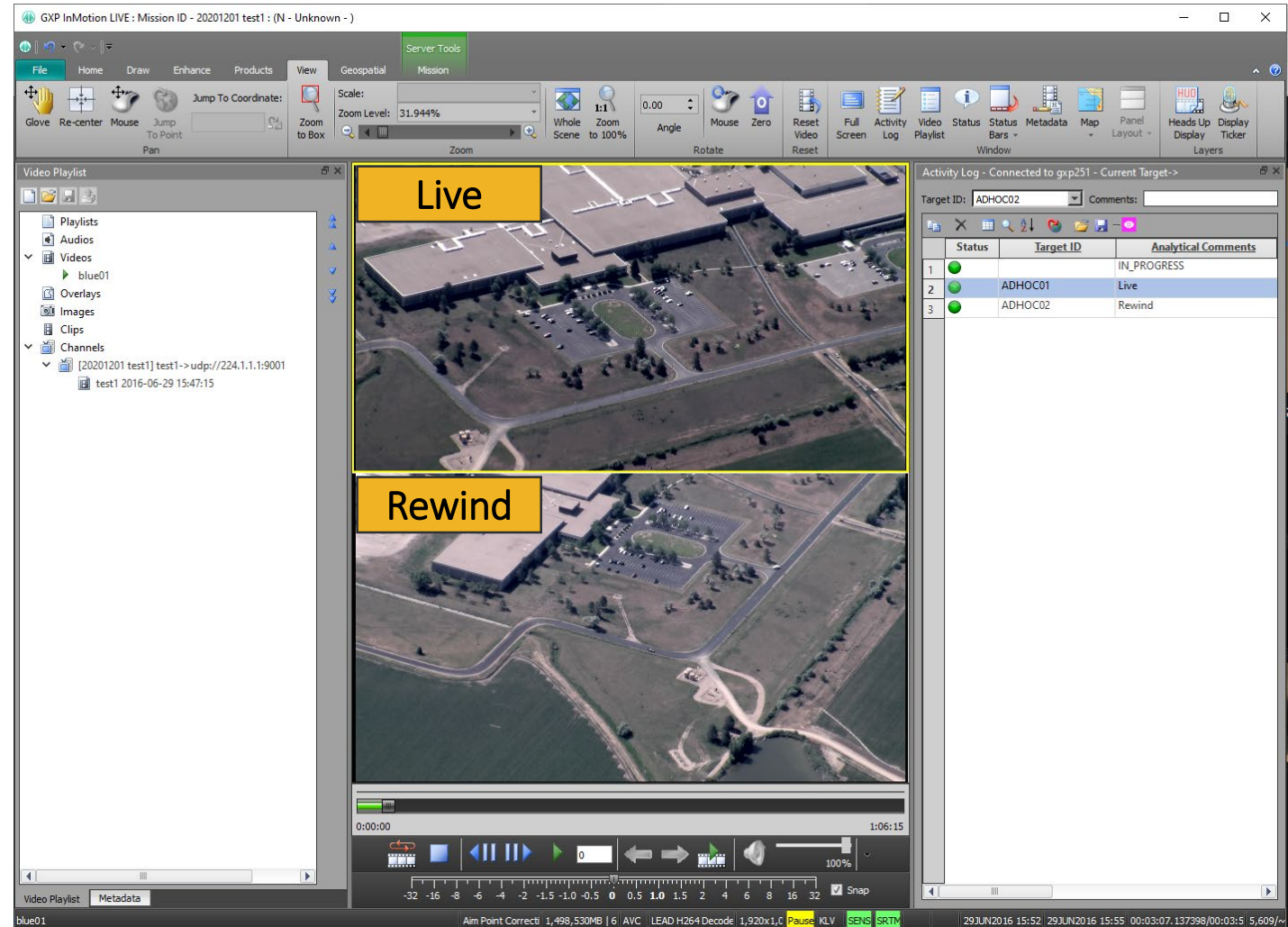
Imagery of MX-15 videos over Ft. Collins, CO; Courtesy of L-3 Communications, EO/IR Inc.

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Esri AGS Map/Imagery/Feature Support

- Added the ability to display any layer of an Esri MapServer, ImageryServer, and FeatureServer in the GXP InMotion Map Window.

- Added the ability to display multiple OGC layers in Map Window.

  - For example, the image to the right is displaying a MapServer layer as the base image, and on top of the imagery are two feature server layers (Overlays).

- https://services.arcgisonline.com/arcgis/rest/services/World_Imagery/MapServer

- https://sampleserver6.arcgisonline.com/arcgis/rest/services/Military/FeatureServer

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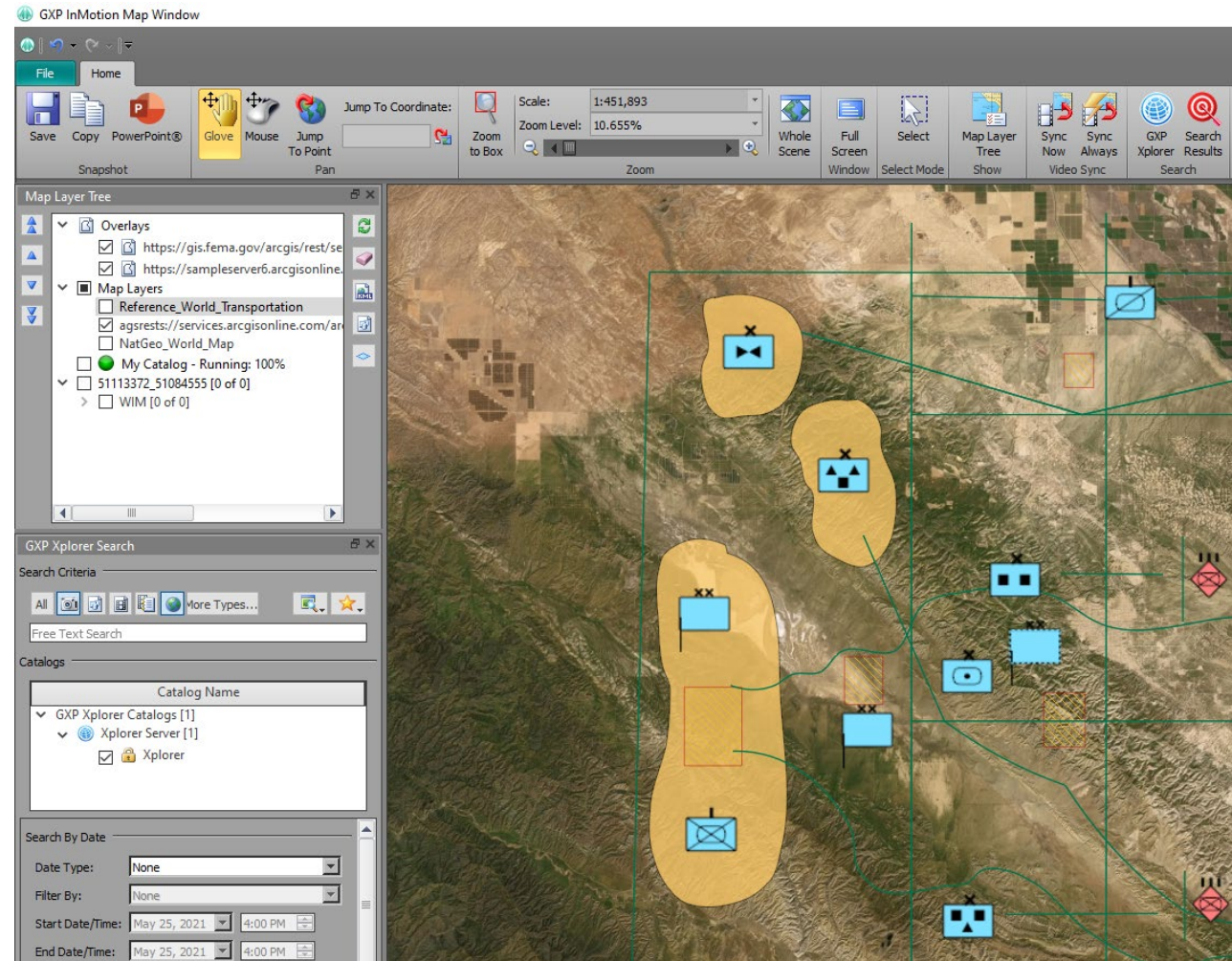
New Heads Up Display (HUD) editing capabilities

- Ability to reposition and edit HUD elements while video is playing.

- Ability to edit the HUD across all six multi-panels.
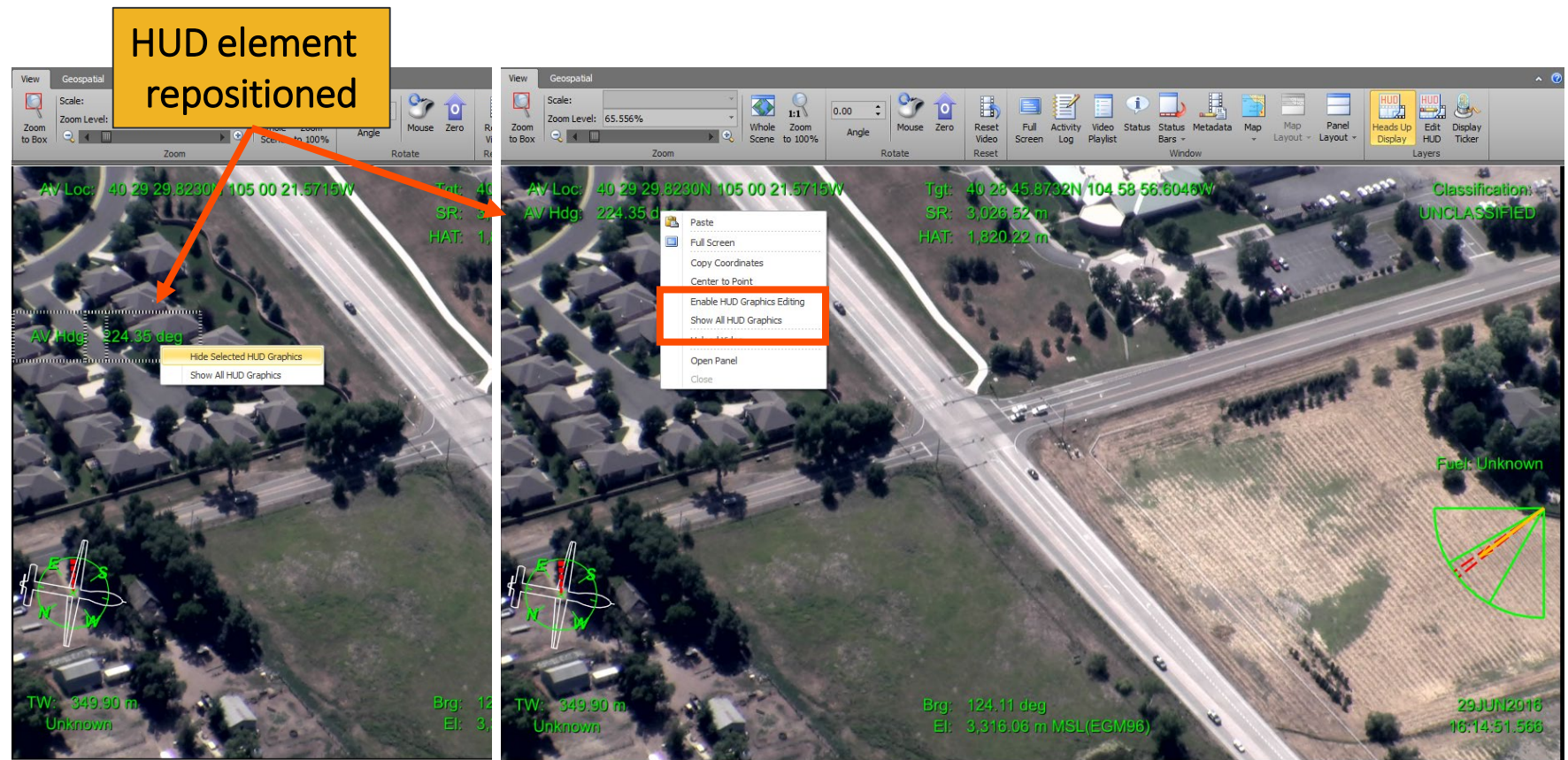
Imagery of MX-15 videos over Ft. Collins, CO; Courtesy of L-3 Communications, EO/IR Inc.

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New for
v4.5.0.2

Integration of GXP InMotion with Esri ArcGIS Earth

- Interface with ArcGIS Earth using a simple button interface from the GXP InMotion Home tab.

  - Center Map in ArcGIS Earth.

  - Draw Footprint in ArcGIS Earth.

  - Draw Air Vehicle in ArcGIS Earth.
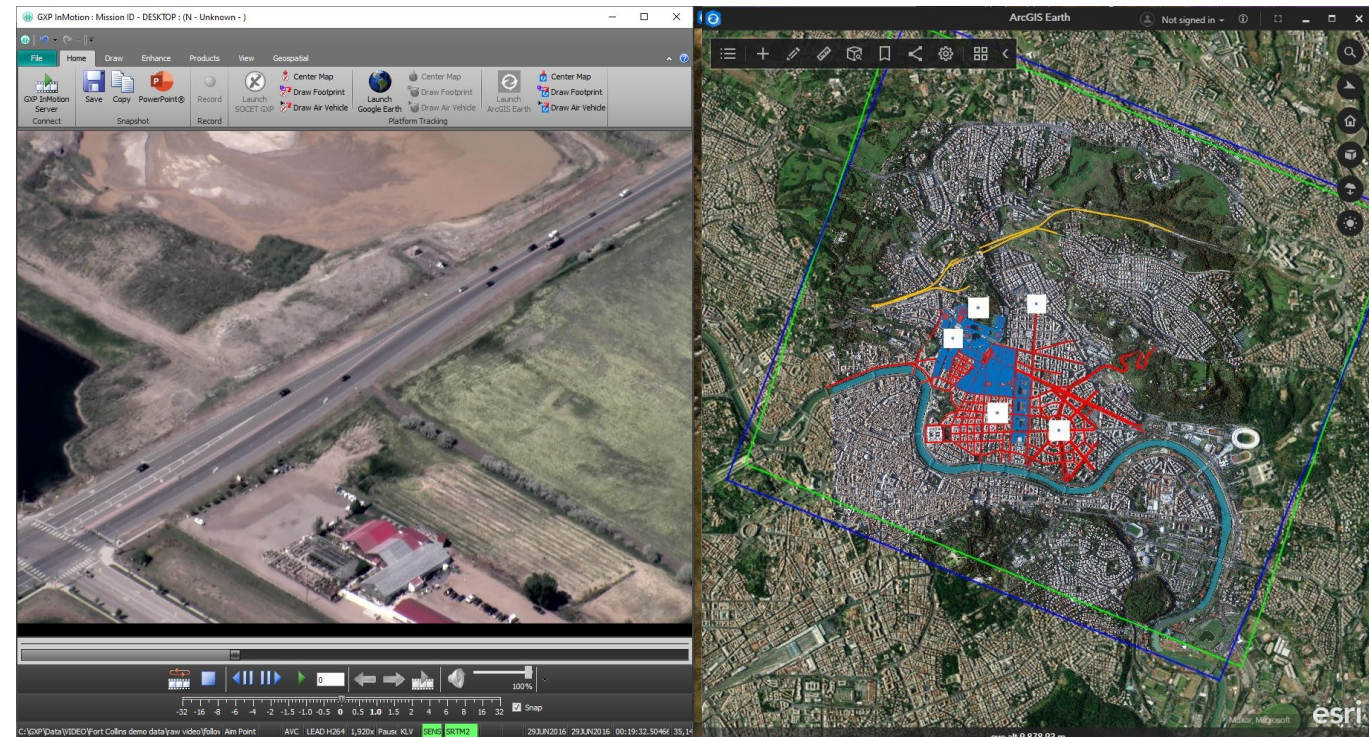
Imagery of MX-15 videos over Ft. Collins, CO; Courtesy of L-3 Communications, EO/IR Inc.

Image © 2022 Maxar Technologies.

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New supported vector formats

- New feature and graphics performance constraints were added to GXP InMotion to better manage feature rendering during video exploitation.

- The GXP InMotion video scene now supports the following vector formats:
  - MIE4NITF embedded Shapefiles.
  - GeoJSON files.
  - 4676B (XML) files.

- Added support for live (or network or dynamic) KML overlays.

- Added support for displaying the embedded icons in a KML/KMZ.

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New for
v4.5.0.2

Live KML support for all geometries

- GXP InMotion now supports all geometries contained within KML vector files.

- Typical geometries includes points, polylines, and polygons.

- GXP InMotion now is able to present graphics that are display oriented; for example, embedded map legends.
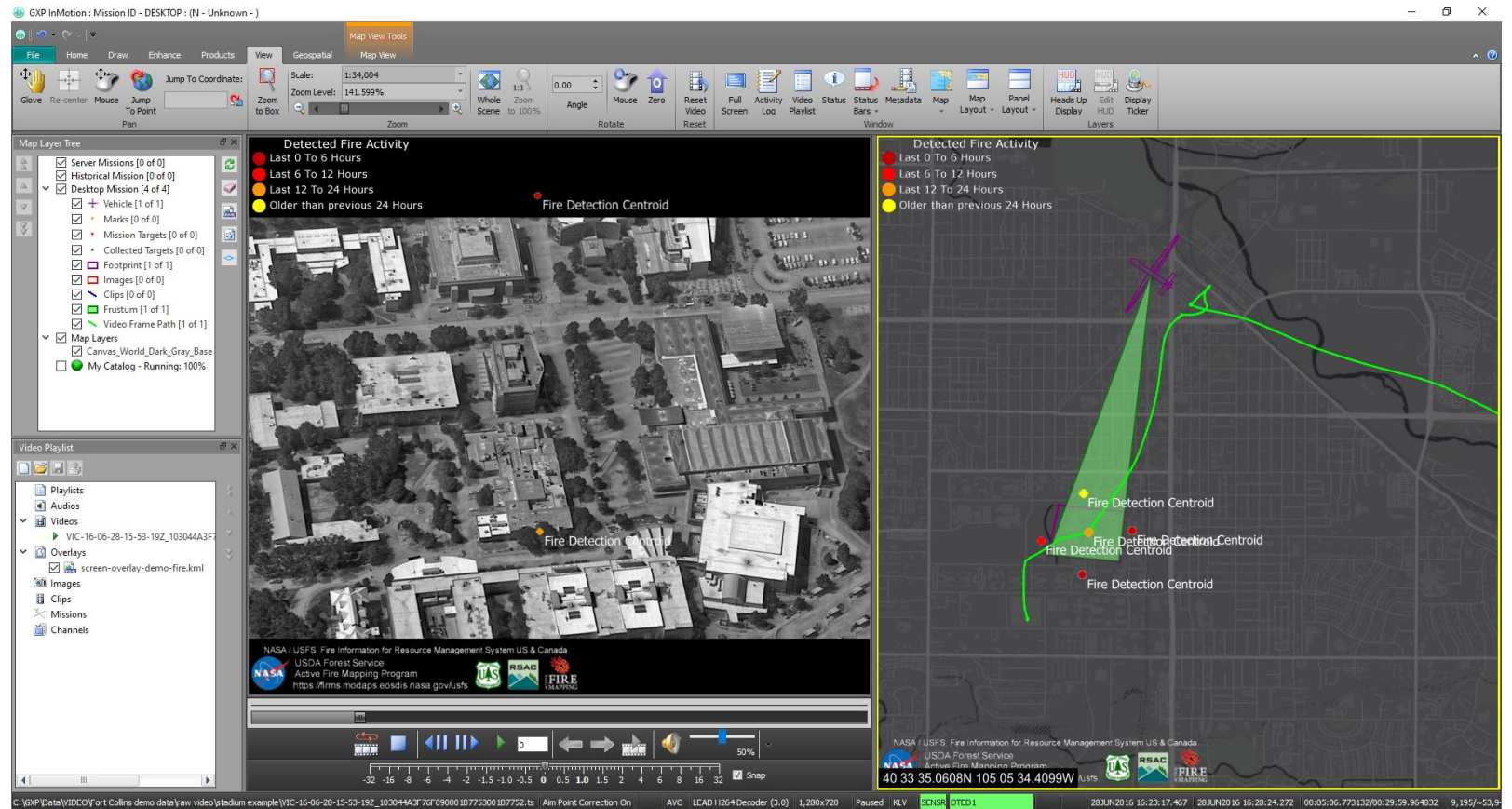
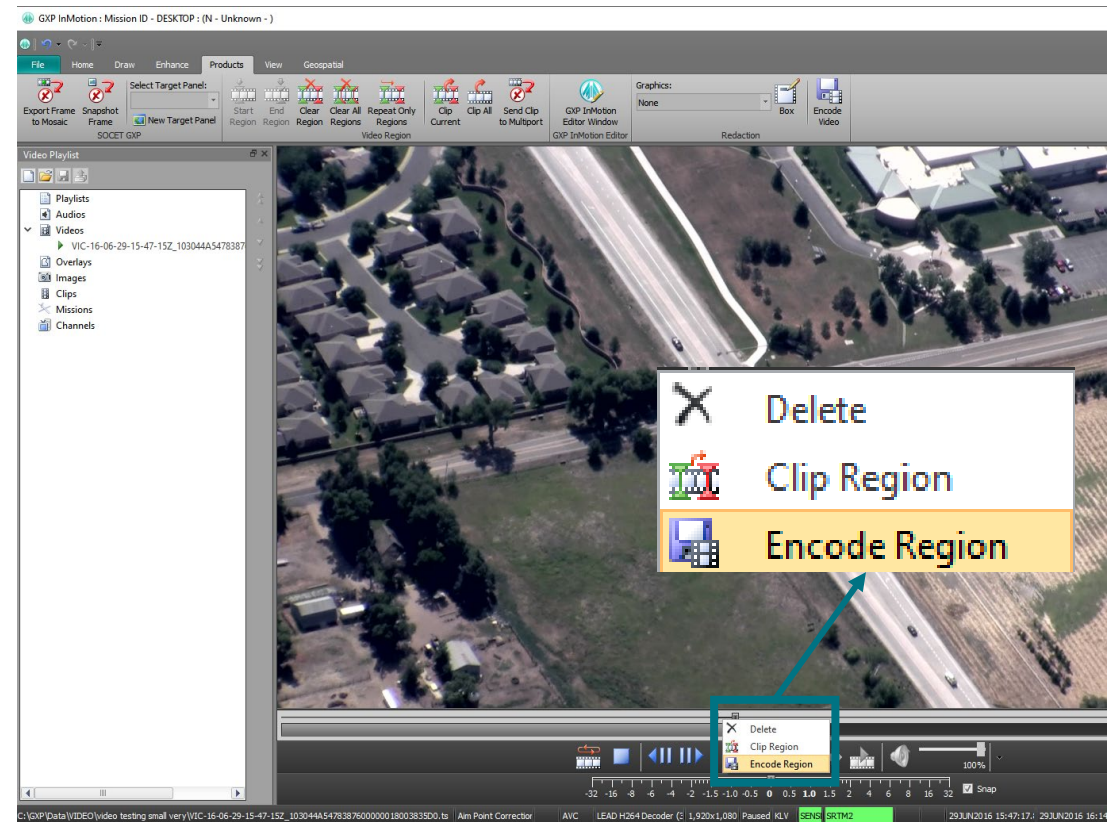Imagery of MX-15 videos over Ft. Collins, CO; Courtesy of L-3 Communications, EO/IR Inc.

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New supported encoding features

- *"Video encoding converts a given video input into a digital format that is compatible with most types of Web players and mobile devices. In the most basic sense of the term, video encoding is compressing video files so that they are not saved as individual images but as fluid video."*

- GXP InMotion supports converting H264 (TS) video data with metadata out to MP4, WMV, and AVI files. Previously this process only converted the original video and did not include any graphics overlays a user might have overlain during exploitation. <u>GXP InMotion v4.5.0.0 added support for embedding (or burning in) both KML and Shapefile vector formats into the resultant video product</u>.

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# GXP InMotion v4.5.0.1 – Video Encoder Performance update

- In GXP InMotion v4.5.0.0, support was added to embed vector graphics into encoded videos.

- Vector graphic files are rather small in nature, but the graphical display and encoding of these files require the right amount of efficient resources.

- In GXP InMotion v4.5.0.1, the performance of the Video Encoder was improved to help support this new feature

Imagery of MX-15 videos over Ft. Collins, CO; Courtesy of L-3 Communications, EO/IR Inc.

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Embed Video into PowerPoint® from GXP InMotion

- Currently, after video clips are created, a user can send clips:
  - to a new GXP InMotion instance,
  - the GXP InMotion Editor,
  - or upload to GXP Xplorer.

- Users now have the ability to send a video clip from the Video Playlist directly to a PowerPoint slide.
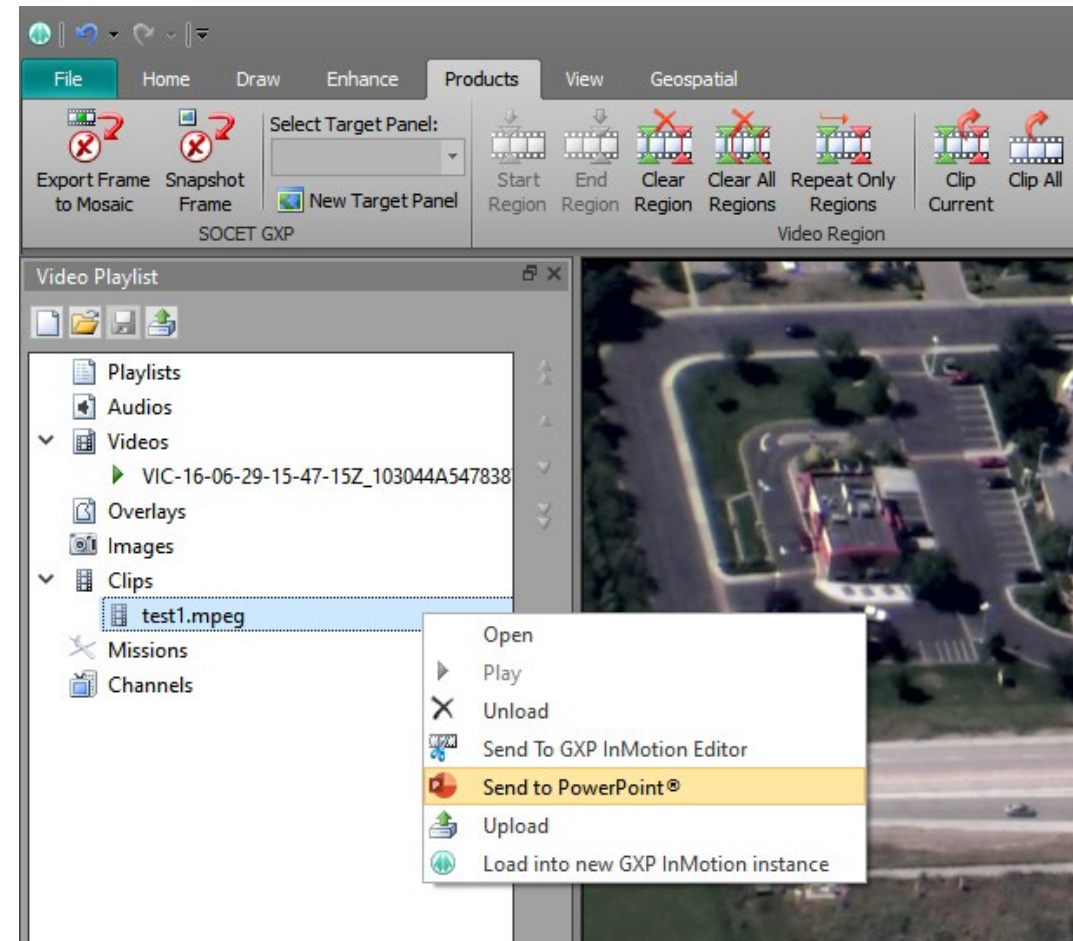
Imagery of MX-15 videos over Ft. Collins, CO; Courtesy of L-3 Communications, EO/IR Inc.

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# Allow vectors to be loaded onto Map Window or another Panel

- Vector data support has been updated to allow a user to 'push' a previously loaded vector file on the video scene into either another video panel or into the Map Window.

- This enhancement eliminates multiple steps to reload common vector data into multiple locations.

- Vectors supported includes Shapefiles, KML/KMZ, and GXP Graphics files.
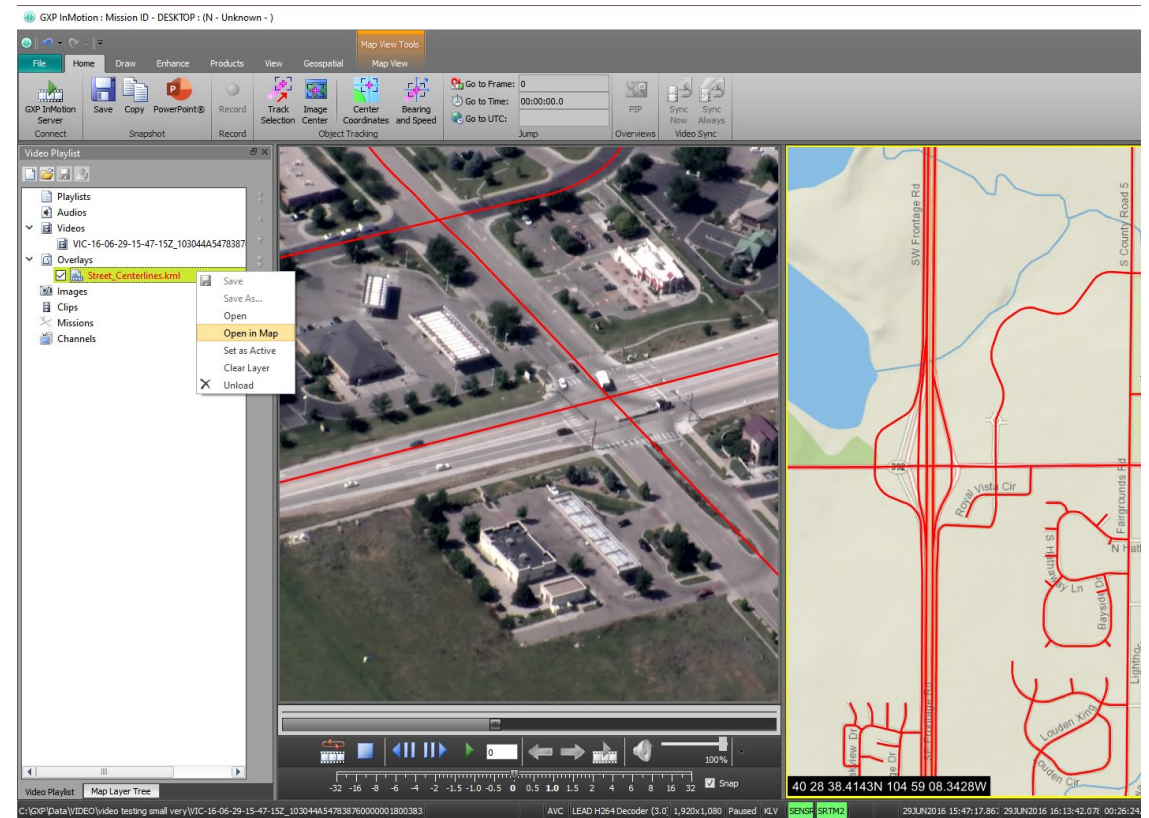
Imagery of MX-15 videos over Ft. Collins, CO; Courtesy of L-3 Communications, EO/IR Inc.

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Performance improvements for the Map Window

- The ability to display any layer of an Esri MapServer, ImageryServer, and FeatureServer in the GXP InMotion Map Window was added in version 4.5.0.0.

- In GXP InMotion 4.5.0.1, performance improvements were realized for the Map Window that focused on the efficient handling of graphics vector data from both KMLs and shapefiles.
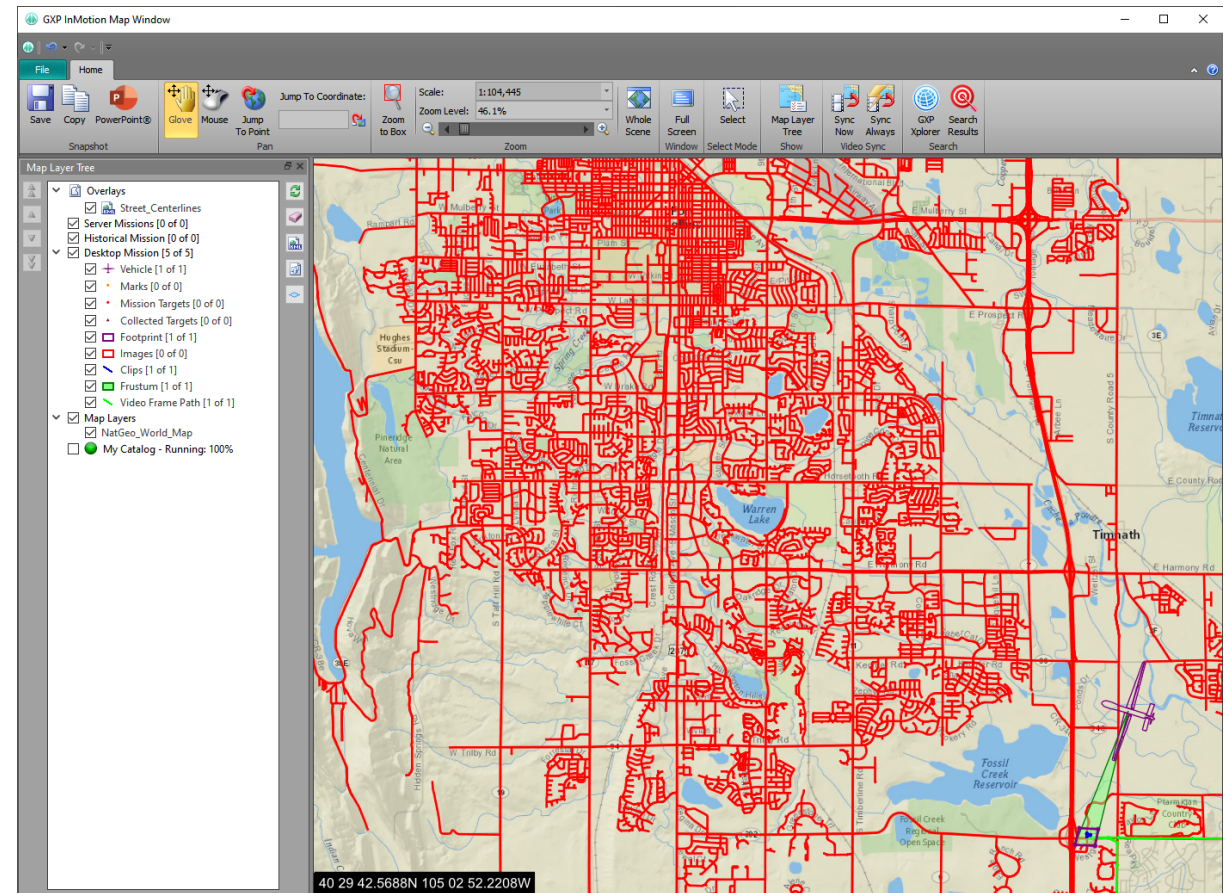
Imagery of MX-15 videos over Ft. Collins, CO; Courtesy of L-3 Communications, EO/IR Inc.

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Added the GXP Xplorer Terrain Service to GXP InMotion

- Use the new GXP Xplorer Terrain Service in GXP InMotion preferences to stream terrain from the GXP Xplorer Platform ecosystem into GXP InMotion.
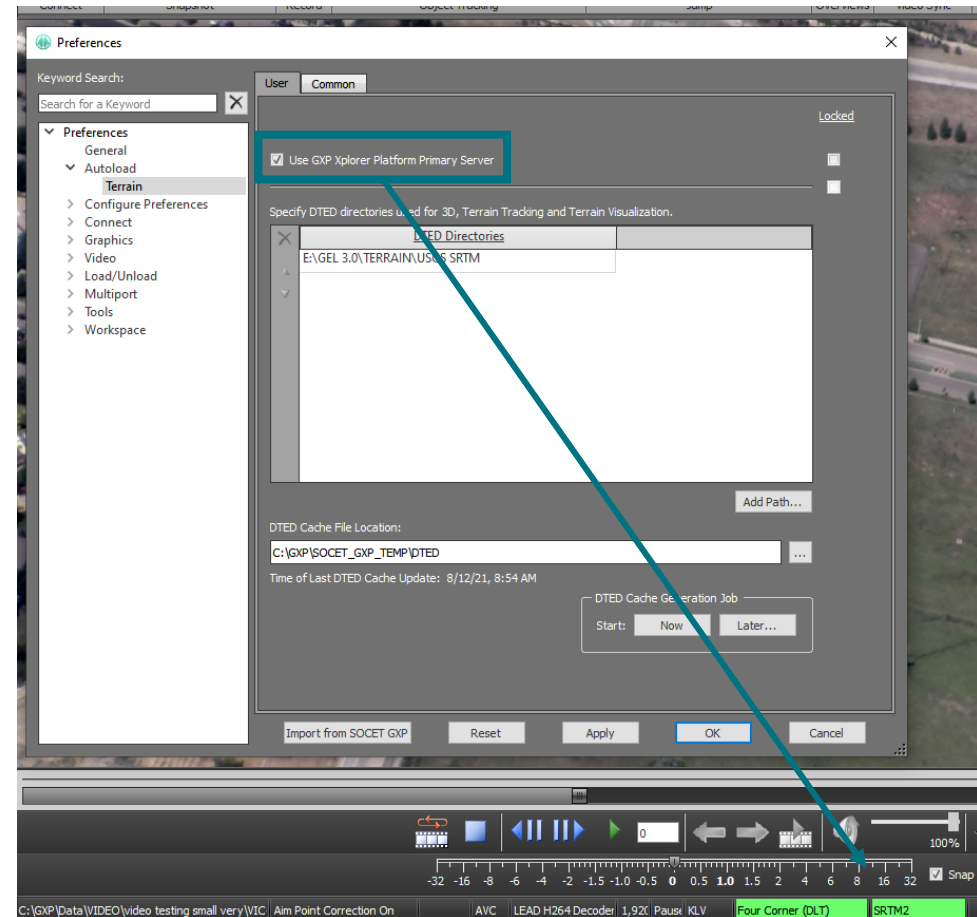

Imagery of MX-15 videos over Ft. Collins, CO; Courtesy of L-3 Communications, EO/IR Inc.

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New for v4.5.0.2

Customize Ribbon

- Streamline access to commonly used tools by adding up to three user Ribbons that contain the functionality from other Ribbons relevant to your workflows.

- Simplify the GXP InMotion user interface by hiding groups of buttons or entire tabs of rarely used functionality.

- Create custom tabs with mix and match functionality from other tabs

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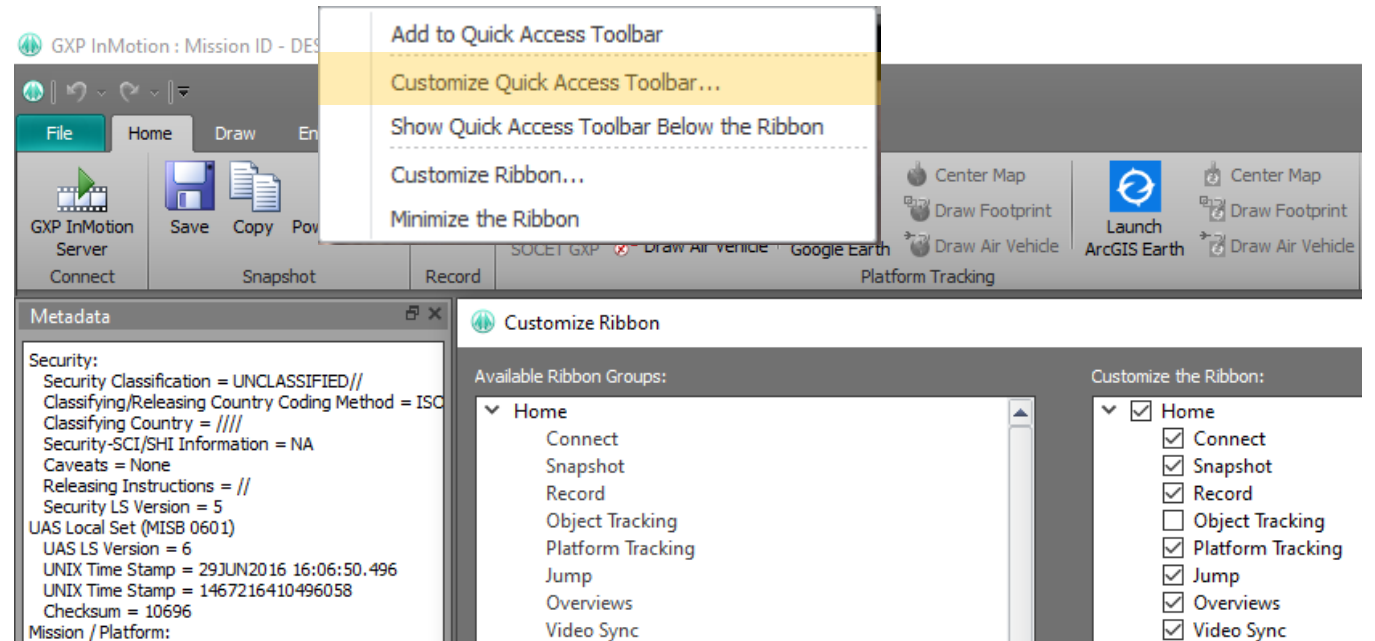
GXP InMotion v4.5.0.1 – MIE4NITF updates

- Available in v4.4.1.3
  - Integrate MSP sensor models for MIE4NITF imagery.
  - MIE4NITF metadata to Snapshot/chip NITF Output Files.
  - Load into GXP InMotion to provide:
    - basic visualization and play motion imagery like video.
    - roam, zoom, pan over imagery and exploit frames in SOCET GXP.
    - support FDR Visualization of Defined Dynamic Range Products.

- Available in v4.5.0.0
  - Add support for MIE4NITF Derived Shapefile Overlays and 4676/XML.

- Now available in v4.5.0.1
  - Display MIE4NITF footprint in the Map Window.
 - Jump To Point/Coordinate available for MIE4NITF.

Imagery provided by the MISB (Motion Imagery Standards Board).

New for v4.5.0.2
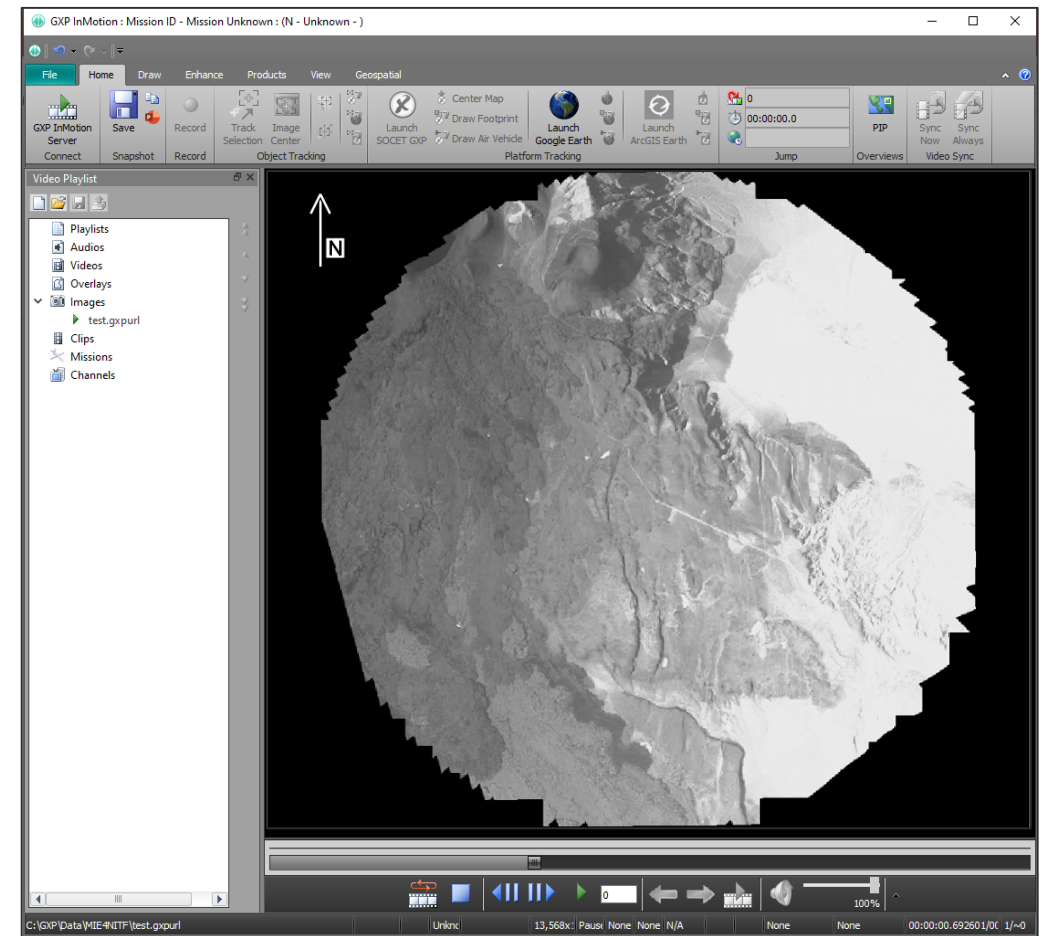
GXP InMotion v4.5.0.2 – MIE4NITF updates

- Now available in v4.5.0.2
  - MIE4NITF derived shapefile overlays in video scene.
  - WYSIWYG (What You See Is What You Get) clipping/encoding of MIE4NITF out to standard video formats.
  - Open OGC (Open Geospatial Consortium) based MIE4NITF data streams.
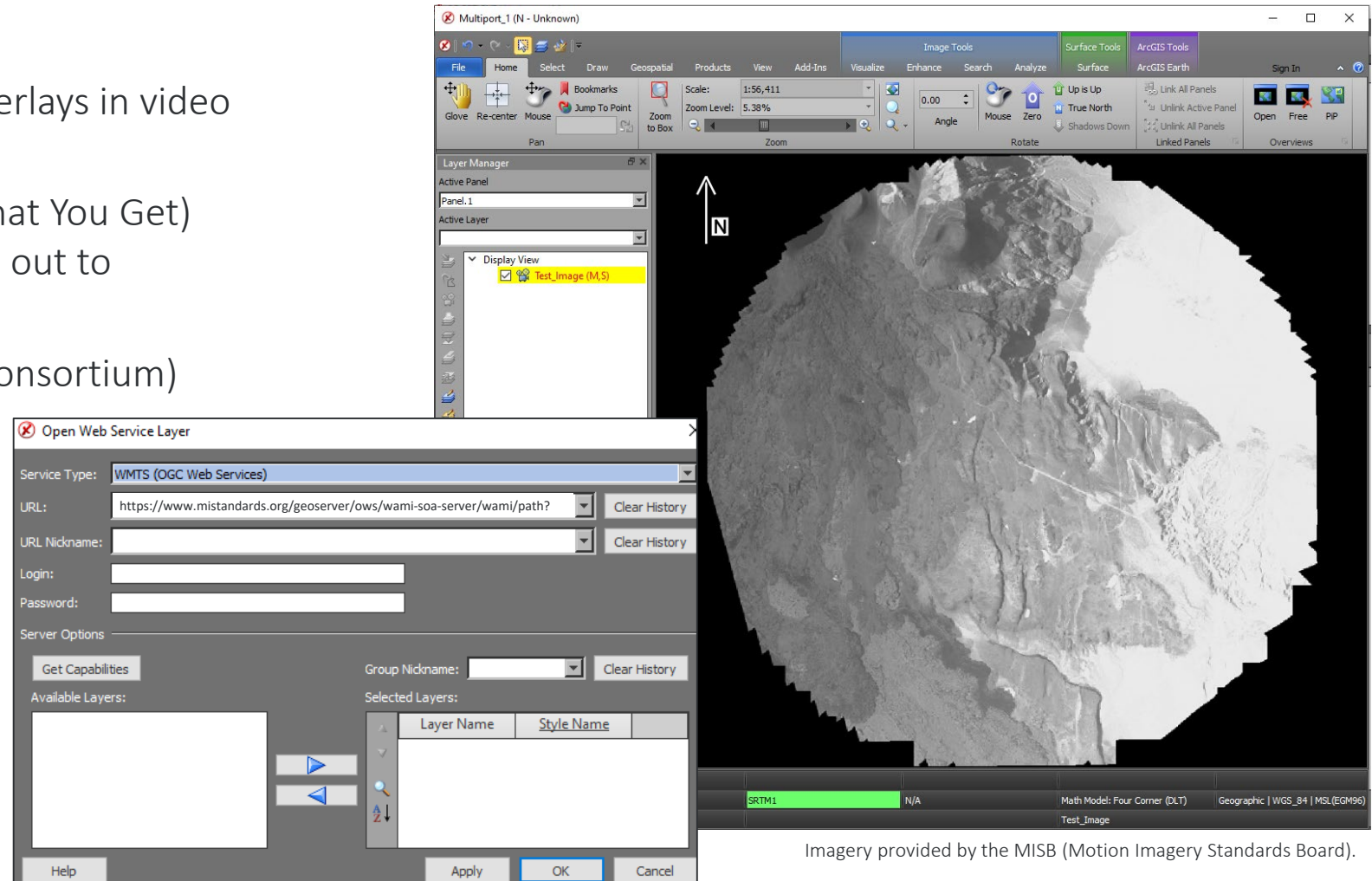
Imagery provided by the MISB (Motion Imagery Standards Board).

Other significant enhancements

- Added support for CSM (Community Sensor Model) to GXP InMotion.

- Added support for Amended FMV/KLV Metadata for Registered Products.

- Hide the FFDshow Message Popup.

- New for 4.5.0.2
    - Python wrapper for video API.
    - Logging Performance.

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Thank you

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