



HEXAGON

Product Description

M.App X

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About M.App X

M.App X provides tools to exploit imagery and create imagery-derived information products and reports, deployed in an enterprise platform for System Integrators. All users can create and share information across the enterprise using the rich web-based client application. Built on decades of experience in providing image analysis capabilities, M.App X contains industry-specific tools and workflows for the GEOINT community and security organizations.

- Includes the top features that users of geospatial data require to view, analyze, and report geospatial information
- Simplified data access and defense workflows
- Can be hosted on-premises (private cloud) or on a public cloud
- Centralized storage and computation
- All software managed in one place, greatly simplifying version management
- Includes a rich web-based client application for all users
- Supports modern browsers
- Works on desktops and laptops

Key Client-Side Features



Smart Bar

Basic control of the view

- About
- Preferences (for personalization)
- Help (complete online reference)

- View Mode (Image, Map or 3D)
- Location Menu (control of coordinate format and Drive to Coordinate)
- Scale Menu (control pixel zoom, map scale, display of zoom and scale)
- Orientation Menu (rotate to fixed angles, user specified angles, computed angles such as Up Is Up and interactively)
- Terrain Menu (control elevation display units and elevation source)
- Pointer Tool
- Auto Pan Tool
- Zoom to Area Tool
- Feature Attributes Tool
- Metadata Explorer
- Auto-roam Toolbar
- Transitions Toolbar
- Report Layout
- Auto-roam
- Overview
- Snail Trail Menu (Show/Hide Coverage Track, Clear Coverage Track, Save and Load Coverage Track)
- Screen Refresh
- Screen Clear
- Split Screen
- Dual Screen
- Link Screens
- Log Out

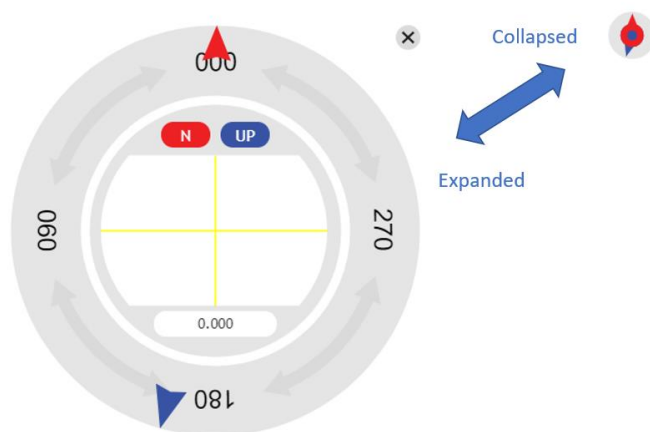
Zoom Palette

- Floating in the corner
- Four most common zoom controls (Zoom In, Zoom Out, 1 to 1, and Fit to Frame)
- Can be turned on or off and configured in preferences



Rotation Tool

- Collapsed
 - Indicates direction to north and direction of sensor look angle (Up Is Up)
- Expanded
 - Grab to rotate image around center point
 - Enter precise angle of rotation



Automatic Pattern Roaming Tool



- Automatic roam over the entire image
- Selectable roaming direction
- Adjustable speed

Transitions Tool



- Quick image compare
- Up/Down or right/left swipe
- Blending
- Flickering of top image

Fast Image Display

- Display images in image space
- Display images in map space
- Display images in anaglyph stereo
- Display images in 3D (optionally use LuciadFusion as the terrain server)
- Geometric and radiometric image adjustments are applied on the fly, preserving image integrity

Overview Window

- Shows full extent and orientation of image
- Current area of view in red indicator box
- Indicator box can be moved for quick access to area of the image

Split Screen, Dual Screen, and Link



- Multiple views within the same tab, or in different tabs
- Use multiple screens to see more
- Link views to facilitate image-to-image comparison

Image Information and Status Information

- Image information displays in a label when metadata is available
- Coordinates, scale, geometric model, elevation source, elevation, and orientation also display



Panels

Panels provide focused sets of tools

- Can be collapsed to provide maximum image viewing space
- Functional areas include:
 - Data management (Shoebox)
 - Map management (Contents)
 - Image display quality (Image Adjustment)
 - Precise measurements (Measure)
 - Flexible markup (Annotation)
 - Feature collection and editing
 - Extensible geoprocessing



Contents – Manage Map Layers

Manage the order of map layers

- Turn layers on and off
- Remove layers
- Adjust the transparency of a layer to see the layer beneath
- Control styling of vectors
- Swipe, blend, or flicker layers for interactive change detection
 - Swipe moves a split right/left or up/down
 - Blend fades between the top layer and those below
 - Flicker turns the top layer off and on



Smart Data Management

A Shoebox is a list of all the working data associated with your open project or projects. The data can be organized by specific groups or images and can be focused on accomplishing a task. Shoeboxes contain references (or links) to data. They do not contain the actual data.

- Manages and organizes the data per user
- Each user can create one or more Shoeboxes
- Shoeboxes can be shared for collaboration
- Shoeboxes manage:
 - Images
 - Feature sets and collections
 - Terrains
 - Annotations
 - Stereo pairs
 - Other documents



Dynamically Adjust Imagery

Each image is adjusted using a variety of image processing algorithms, collectively referred to as image chains. Depending upon the type of image there can be more than one image chain that could be applicable.

- Applied on the fly to images by the server
- Typical image processing chains are offered -- TrueColor, Panchromatic, Shaded Relief, Thematic, and Pseudocolor
- Processing chains compliant with NGA SIPS standards are offered – SIPS Single Band, SIPS Multiple Band. SIPS is the Softcopy Image Processing Standard of the United States National Geospatial- Intelligence Agency (NGA).
- Based on image statistics
- Interactive histogram adjustments
- Five image resampling methods supported, including LaGrange



Precise Mensuration

Measurements are made by collecting points in image space and use precise elevation and sensor position information to compute the actual ground locations from which the measurements are derived.

Measure:

- Point
- Azimuth
- Angle
- Height from displacement
- Length
- Polygon area and perimeter
- Rectangle from three points
- Circle from center and edge
- Circle from three points on the edge
- Ellipse from center and three points on edge
- Ellipse from four points on the edge

A Annotation

Create geospatially anchored annotation elements to a map with rich styling using symbols, lines, brushes, polygons, and text.

- Rich styling for lines and fills including color picker
- Extensible symbol sets (PNG files)
- Annotation coordinates are reported and stored in map space to facilitate overlay on other imagery
- Text can have callout box
- Text can create sequences and coordinate information macros
- Annotation files can be named and saved in current Shoebox



Reports

Reports are generated from the current view using selectable templates.

- Templates are HTML with replaceable tags for the various map elements
- Metadata fields are definable and editable in the right-hand panel
- Report is dynamic
- Map can be scaled, panned, and rotated within the report layout window
- Text fields can be edited and are updated immediately
- Scale bar and North Arrow update appropriately
- Print to PDF or save the map as a PowerPoint or Geospatial PDF file



Feature Collection

Display, query, update, extract, and delete features in a feature data set from a WFS-T service.

- Collect 2D or 3D coordinates using Coordinate Bar toolset
- Collect in image space and use the sensor model to extract precise ground coordinates
- Edit attributes on one or many features
- Create and manage multipart geometries



Stereo Display and Point Measurement

Create epipolar stereo pairs.

- Manage stereo pairs in the Shoebox
- Adjust stereo display
- Make stereo point measurements using the cursor



Coordinate System Selection

In various geoprocessing panels and elsewhere in the system, the user is required to enter a coordinate reference system (CRS) code.

- Type in the known EPSG code.
- Search for EPSG codes and supported coordinate systems using the Coordinate System Explorer.
- Browse through Geographic Coordinate System list (300+ entries) and Projected Coordinate System list (3400+ entries).
- 3D coordinate systems are supported.



Geoprocessing

Extensible set of geoprocessing tools, including:

- Adjust Georeferencing 2D and 3D
- Automatic Point Measurement
- Chart to Chart Change Detection
- Chip to NITF
- Chip to non-NITF
- Classify Point Cloud
- Contour Generation
- Create Aspect Map
- Create KML Track – 3D Google Earth KML file
- Create Slope Map
- Create Stereo Pair and Epipolar Stereo Pair
- Data Triangulation
- Detect Vertical Obstruction
- Distance from Signature
- Edge Matching
- Generate missing NITF reduced resolution data sets (RSETs)
- Geodetic Reproject Raster
- Helicopter Landing Zone
- Image to Image Change Detection
- Line of Sight
- Mosaic images
- Orthorectify imagery
- Radar Level Slice
- Raster Expurgation
- Remove Elevation Spikes
- Smooth Elevation Values
- Terrain Profile



Process Status Reporting

Check the status of processes running in the current session and the state of current and previous processes. Error messages are also reported. Cancel a process that is running.



Interactive Line of Sight

Create Line of Sight maps showing only those areas visible (or invisible) from a specified point.

- User-selectable terrain source
- User-defined observer and target heights
- Green indicates visible
- Red indicates not visible



2D and 3D Georeferencing

Assign map coordinates to image data and resample the pixels of the image to conform to the map projection grid.

- Collect points using one screen or two
- Use automated point matching to find tie points
- Use 2D models with least squares adjustment
- Use 3D models with bundle adjustment
- Match image to image
- Reference scanned map to image



Spatial Modeler SDK (SMSDK)

C/C++ toolkit for building, modifying, and running workflows on geospatial data.

- Extensible via a plugin mechanism
- Used to build add-ons for the Spatial Modeler/Recipe Engine

Server-Side Overview

M.App X is installed onto a server – no software is installed on the client systems. Instead, M.App X provides a lightweight client that runs in a modern HTML 5 browser.

For a Single Node Environment

For a Single Node Environment, a minimum configuration (6-8 users) would include:

Hardware

- Quad Core Xeon Processor 2.9 GHZ or better
- 16GB RAM or better
- 60GB System Disk or better
- 300GB Data Disk or better (depends on the amount of data)
- GB Network connectivity Software:
- Windows Server 2016 or 2019

For a Clustered Environment


The software can be configured and installed in a multi-node environment. The design of that environment depends upon factors such as number of users, type of processing to be done, amount and type of data to be served.

Integration, Configuration and Customization

- Report Templates – Defined using HTML 5 based templates
- Symbols – Add additional PNG symbols to the provided set, or plug in a custom symbol service
- Cursors – Add new cursor shapes
- CSM – Add and configure Community Sensor Models (CSM)
- Elevation Source – Define the elevation source to be used for measurements
- Geoprocessing – Add new geoprocessing panels
- Preferences – Configure Site Preferences for many different aspects of the system



Contact Us

 <https://go.hexagongeospatial.com/contact-us-today>

About Hexagon

Hexagon is a global leader in sensor, software and autonomous solutions. We are putting data to work to boost efficiency, productivity, and quality across industrial, manufacturing, infrastructure, safety, and mobility applications.

Our technologies are shaping urban and production ecosystems to become increasingly connected and autonomous — ensuring a scalable, sustainable future.

Hexagon's Geospatial division creates solutions that deliver a 5D smart digital reality with insight into what was, what is, what could be, what should be, and ultimately, what will be.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 21,000 employees in 50 countries and net sales of approximately 4.4bn USD. Learn more at hexagon.com and follow us @HexagonAB.

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