Release Guide

M.App Enterprise 2019

Version 16.6
27 September 2019

Contents

About This Release

This document describes the enhancements for M.App Enterprise. The information in this document is current as of the product release. For the most current version, visit the Hexagon Geospatial Support Portal.

This release includes fixes and enhancements to M.App Enterprise. For information on product fixes, please review the Issues Resolved section. For information on enhancements, read the New Technology section.

This document is only an overview and does not provide all details about M.App Enterprise's capabilities. For additional information about M.App Enterprise, please read our online help and other product documentation.

M.App Enterprise Product

M.App Enterprise is an on-premises platform for creating geospatial apps for your organization. M.App Enterprise stores your imagery, vector and point clouds, workflows, analytics, and queries, which are all accessible in one place from an easy-to-use interface. With the M.App Enterprise platform, you can build and deploy your own geospatial applications (called Hexagon Smart M.Apps) to solve your organization's business problems. Hexagon Smart M.Apps are cloud-based, targeted, lightweight, and dynamic apps that provide answers and present information in a visual and compelling way.

M.App Enterprise delivers a privately-hosted solution for organizations that want to realize the value of a Smart M.App deployment but stay within the confines of their enterprise network.

With M.App Enterprise, you can access Smart M.Apps anywhere within your organization's network for real-time answers.

In the 2019 release, Luciad's server component LuciadFusion and Luciad's browser component LuciadRIA have been added to the M.App Enterprise product bundle.

M.App Enterprise 2019 Licensing

With the M.App Enterprise 2019 release, the licensing schema has been split into two tiers: Essential and Professional. All existing M.App Enterprise licenses will be automatically converted into Essential licenses. Aside from the known functionality of previous releases, all existing customers will benefit from additional features provided by the integration of LuciadFusion and LuciadRIA (e.g., native support for file-based vector and raster formats).

Professional Tier customers will also benefit from the full 3D visualization and analytics provided by the Luciad Portfolio. Details can be found on the following pages.

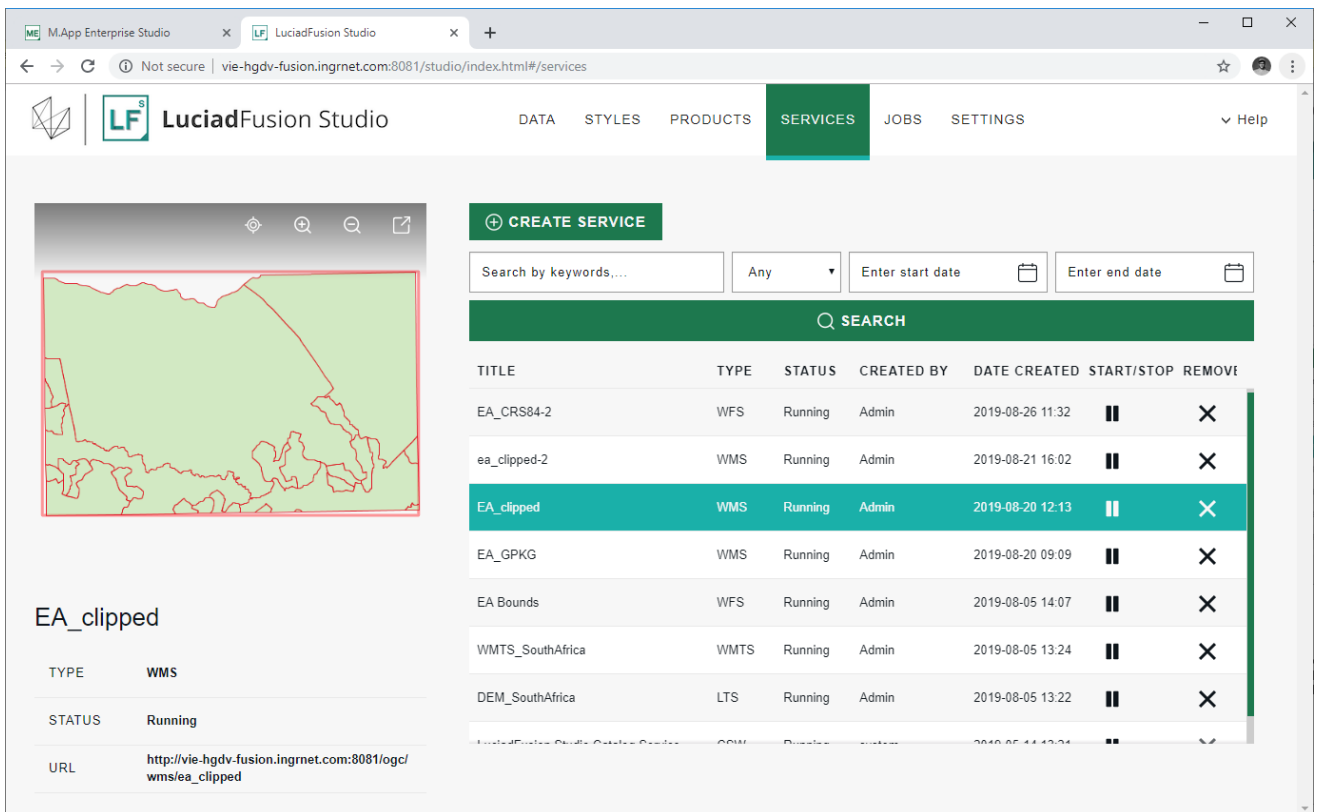|	M.App Enterprise Essential	M.App Enterprise Professional
Run Spatial Models (incl. AI)	✓	✓
Create and Edit Spatial Models	✓	✓
Run Workflows	✓	✓
Create and Edit Workflows	✓	✓
Access Catalogue	✓	✓
View	2D	2D + 3D + Time
Analyse	2D	2D + 3D + Time
Measure	2D	2D + 3D + Time
Powered by LuciadFusion Pro	✓	✓
Powered by LuciadRIA Pro	✓	✓

LuciadFusion

Setting Up LuciadFusion

The M.App Enterprise 2019 release comes with the latest version of LuciadFusion. During setup of M.App Enterprise 2019, the user has the option to install LuciadFusion. This can be done on the same machine or, for better performance, on a dedicated server instance.

LuciadFusion is an all-in-one server solution for data publication workflows and geospatial data management. It supports a variety of data formats (OGC CSW, GeoPackage, GML, KML, WCS, WFS-T, etc.,) out of the box, which increases the number of M.App Enterprise processable data formats by a considerable amount. For further information on the LuciadFusion, see the LuciadFusion product page.

Once LuciadFusion has been installed, it can easily be launched from the Tools section of M.App Enterprise.

Importing Data from LuciadFusion

In M.App Enterprise 2019, a new content type has been added. Under "3D data", users can import elevation data as well as OGC 3D tiles from LuciadFusion. Just like any other asset, the imported data can be added to a legend and displayed in M.App Enterprise. Additionally, WMS, WMTS and WFS services can be easily imported from LuciadFusion. To import the data, a new button "Fusion GeoServices" has been added to the GeoServices page, allowing users to browse and import services running on the LuciadFusion platform.

LuciadRIA

Delivering 3D Data to the Browser

The M.App Enterprise 2019 release comes with the latest version of LuciadRIA. LuciadRIA is a hardware-accelerated, WebGL based map viewer in the browser that can deliver desktop-like performance of web applications. For more detailed information on LuciadRIA, please visit the LuciadRIA product page.


In M.App Enterprise 2019, LuciadRIA serves as the default browser application for applications with 3D content. With this extension, users receive a powerful tool to seamlessly combine 3D rendering technology and traditional M.App Enterprise features.

Setting Up a 3D Application

The M.App Editor has been extended by an additional application type: 3D map. Users can now select a map configuration from M.App Enterprise with a legend containing 3D data such as elevation data or OGC 3D tiles, display buildings, or landmarks.
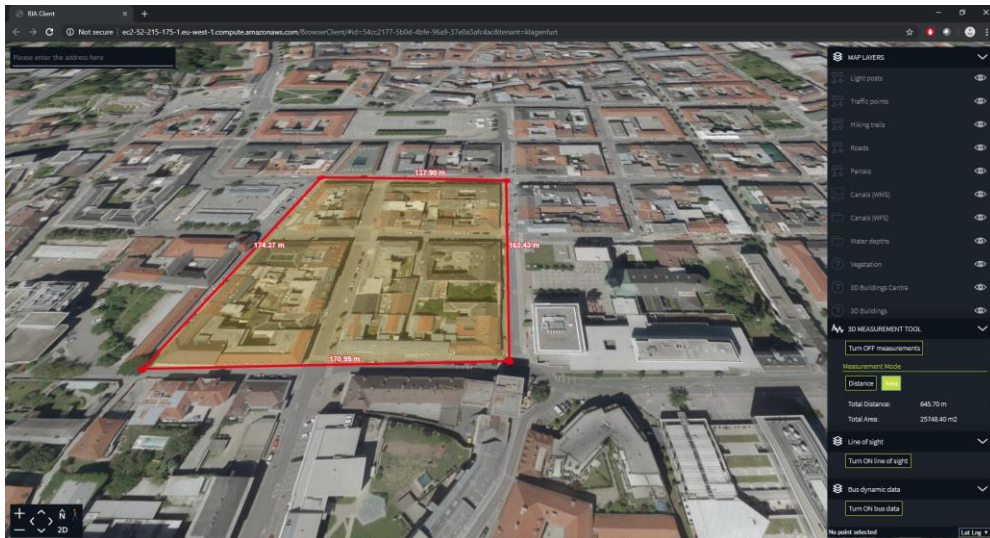
Selection of Use Cases

Displaying M.App Enterprise Vector Data in LuciadRIA
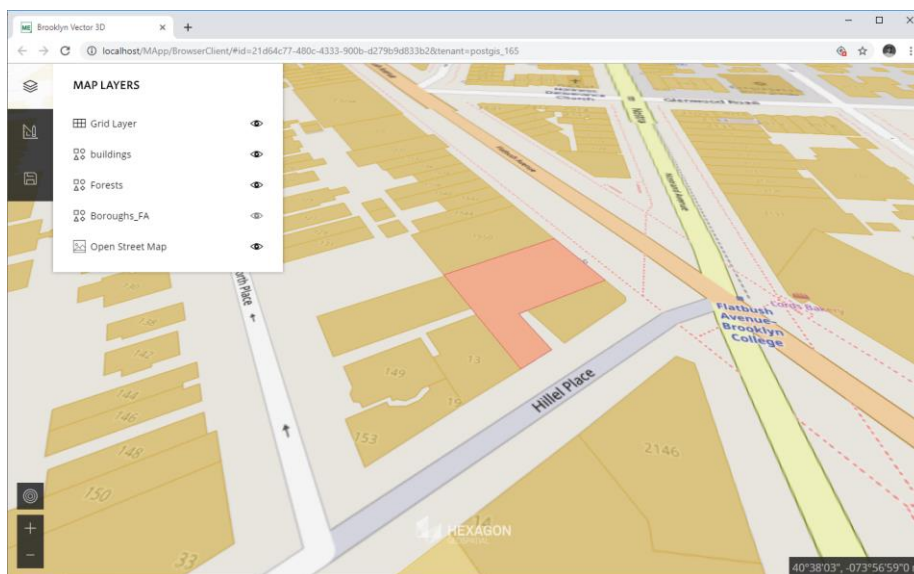
Displaying 3D Models

Measuring Distances and Areas

Machine Learning in Geoprocessing

With this release of M.App Enterprise, you will have all the Machine Learning capabilities that are available in Spatial Modeler.

Machine learning is the science of getting computers to act without being explicitly programmed. Stated in another way, it is a way of programming where computers are programmed to learn from data.

Machine learning algorithms are great for:

- Problems for which existing solutions require a lot of hand-tuning or long lists of rules: one Machine Learning algorithm can often simplify code and perform better.

- Complex problems for which there is no good solution at all using a traditional approach: the best Machine Learning techniques can find a solution.

- Fluctuating environments: A Machine Learning system can adapt to new data.

- Data mining: Getting insights about complex problems and large amounts of data

Geospatial phenomena are non-linear, spatially and temporally variable and have multi-scale variability which creates challenges in geospatial analysis. With the proliferation of sensors around us, from micro satellites to UAVs, the volume of data has greatly increased. The complexity of geospatial phenomena and the deluge of data has made geospatial analysis using machine learning methods a natural fit.

We have introduced several machine learning algorithms-based classification operators in Spatial Modeler that can be used to perform supervised and unsupervised raster and vector classification. The supervised classification operators need training data and attributes of the training data to be used in performing the classification, while the unsupervised classification operators only need attribute of the data to be used to separate the data into clusters.

Another set of classification operates based on deep learning algorithms are also introduced. These are a class of Machine learning algorithm that use deep neural networks to decide the attributes of the data that need to be used to perform classification. A classification operator based on Inception, an award-winning deep learning classification algorithm introduced by Google, is also introduced. The operator can be retrained using user's data to perform classification.
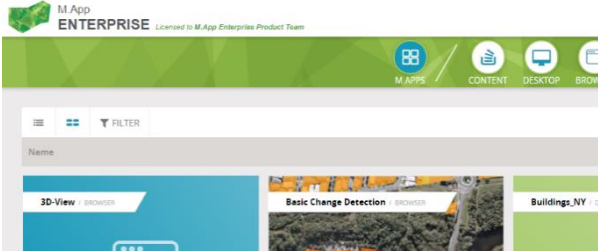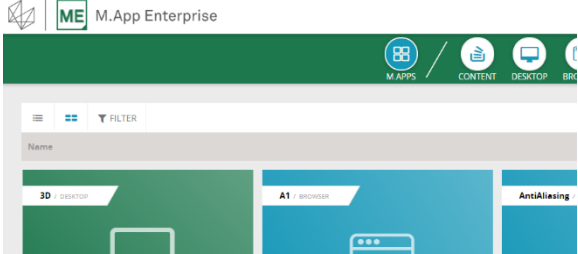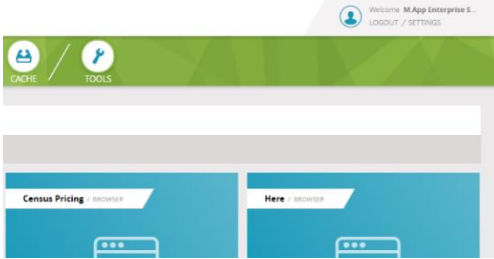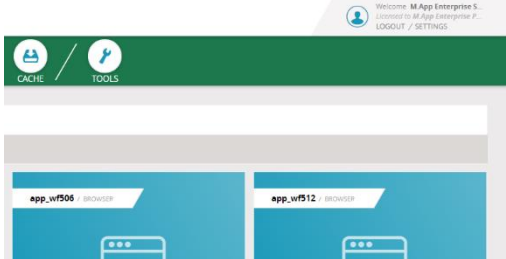
M.App Enterprise Enhancements and New Features

Java Plugin API for Desktop Client

With the release of M.App Enterprise 2019 and the offering of the Java API for the Desktop Client, you can now develop your own plugins. The only prerequisite you need is a valid HGDN subscription. Read these tutorials to learn how to access the Java API for the Desktop Client as well as how to deploy your own Java plugins.

New User Interface Design

M.App Enterprise 2019 offers new design and layout changes to the software.

Old Design	New design
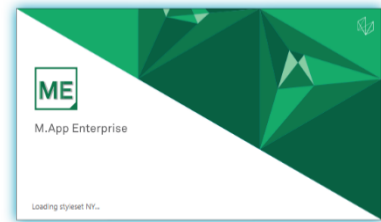
# Feature Analyzer Enhancements

Tooltip Toggle Enhancement

You can now toggle Tooltips per layer in the Layers menu. When the tooltip icon 🗨 is activated for a given layer, tooltips will appear when you move over the layer feature in the map window. When the tooltip icon is disabled (darker color), clicking on a layer feature will filter the dataset. Because the tooltip options have been relocated, tooltip options have been removed from the Preferences menu.

To activate/deactivate tooltips for a specific layer, click the tooltip icon 🗨 to the right of the layer name.
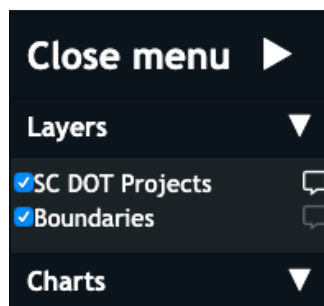
Processing Date Data

Records with invalid or unparsable date data will no longer be removed from the dataset. However, records with missing or unparsable date data will be excluded from the Temporal Widget display (Temporal Heatmap, Day of Week, Time of Day, and Date charts).
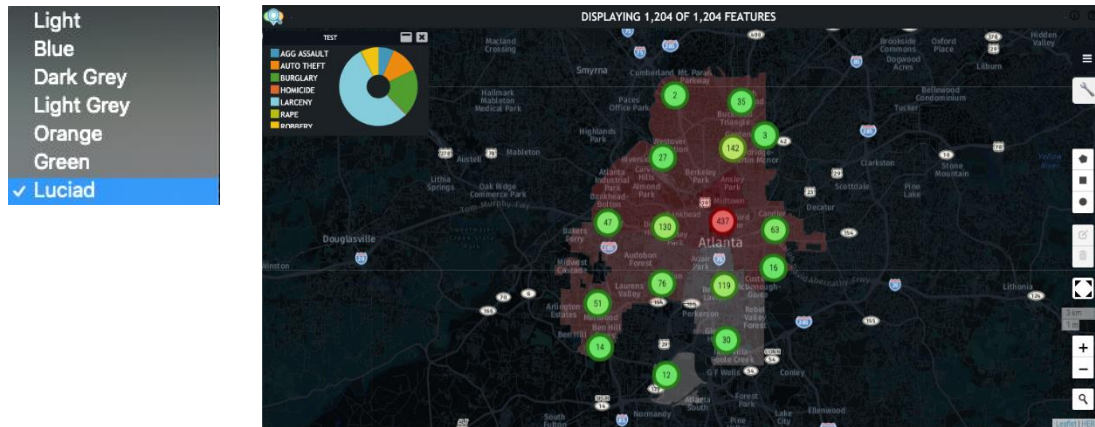
Compound Chart Enhancement

In addition to being able to dock **Line Charts** in a **Compound Chart,** you can now dock **Bar Charts** in a **Compound Chart**.

COMPOUND

Bar Line
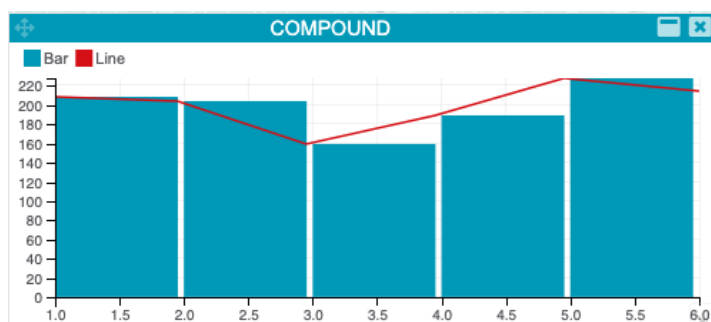
Luciad Motif

A Luciad Motif has been added as a pre-set motif style. You can access this feature in the Motif tab of the Configuration Window.

Support for New File Formats

Two new formats are now natively supported: TSV (tab) and DSV (|).

Advanced Mode

This release delivers a powerful tool to give you more control over your Smart M.App Dashboard. Once Advanced Mode is enabled, a view cannot be changed back to a non-advanced state. The following functionality becomes available when the advanced mode is enabled:
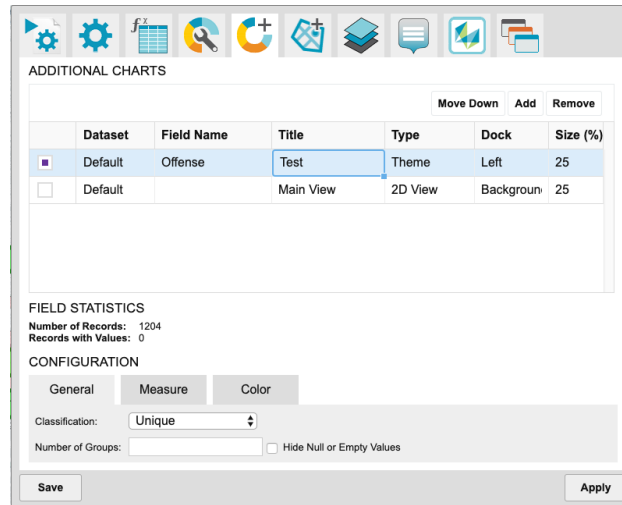
1. **Feature Configuration** tab becomes available

2. Geometry definition configuration has been moved from the **Field Setup** tab to the **Additional Features** tab. To configure X/Y field names or a projection, click on a Feature in the **Additional Features** tab and then click the **Geometry** tab.

3. Theme configuration has been moved from the **Field Setup** & **Color Configuration** tabs and consolidated to a Theme entry in the **Additional Charts** tab. You can configure Theme classification, Groups, Measure and Color from the **Additional Charts** tab.
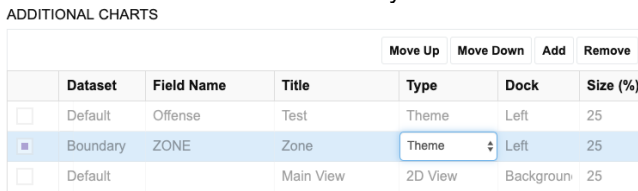
4. Customization will automatically be enabled for Date/Time data configured in the **Field Setup** tab. This migrates automatically configured Date/Time charts to the **Additional Charts** tab.
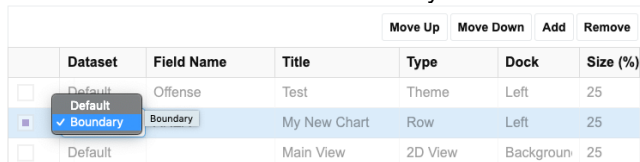
5. If you have defined **Boundary Data**, it will be migrated to a new dataset in Analyzer. This allows you to:

   a. Create Charts linked to the boundary dataset
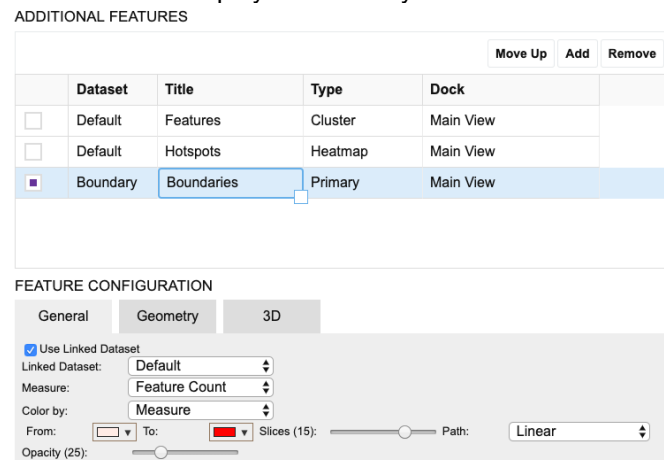
   b. Create a **Theme** for the boundary dataset

   c. Customize the display of boundary data in the **Additional Features** tab

6. The background map docking position is now configurable via the **Additional Charts** tab. You can now dock the main map view on the left, bottom, secondary window, float, or in the background. You can also remove the map or add additional map views.

Additional Features Tab (Advanced)

A new configuration tab, **Additional Features,** is now available in **Advanced Mode**. This tab allows you to add, configure, and remove features in any defined Map Views. Three feature types are available in this release:

1. **Cluster** (2D Only). Displays feature data as Cluster Markers. Color & Style properties that were once in the **Color Configuration** tab are now defined per Cluster layer in the **General** tab. Cluster layers will be automatically displayed as **Primary** layer type if the layer is assigned to a 3D View.

2. **Heatmap** (2D Only). Displays feature data as a Hotspot map. Hotspot distance is configurable via the **General** tab.
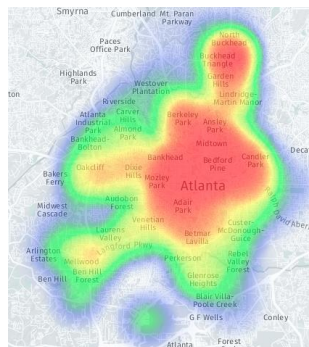
3. **Primary** (2D and 3D). Uses GPU accelerated graphics to display Point, Line, Polygon, MultiPoint, MultiLine, MultiPolygon, Geometry Collection, Circular Strings, Compound Curve, Curve Polygon, Multi Curve, Multi Surface, Curve, Surface data in a 2D or 3D Map View. New options are available to control the display of this data:

FEATURE CONFIGURATION

a. **Linked Datasets**. Using a linked dataset allows you to control two aspects of feature display. If an underlying dataset for the feature is linked to another dataset, you can specify a link and a measure for the link. This measure can optionally drive feature color and 3D feature extrusion.

b. **Color**. You can color feature layer data in three ways:
   i. **None:** None applies a uniform blue color across the dataset.
   ii. **Theme:** If a theme chart is defined for the underlying dataset, you can use this option to color your features by Theme.
   iii. **Measure:** If a linking dataset is defined (see above), you can specify a color sequence. Features will be colored from the minimum value to the maximum value in the measure defined via the linking dataset.
c. **Geometry.** If your dataset doesn't have a built-in geometry or a custom projection, you can use this tab to specify an X/Y and an EPSG code.
d. **3D (Analyzer 3D Only).** Contains extrusion options for features displayed in a 3D Map View. You can set the extrusion relative to the surface or ellipsoid. Three extrusion options are available:
   i. **None.** Displays flat features draped to the surface.
   ii. **Attribute.** Gives you the ability to specify an attribute in the dataset and will use this attribute per feature to drive extrusion. You can specify a manual value by selecting Custom from the field dropdown. A multiplier option is available to exaggerate or diminish the amount of extrusion for the Upper Height option.
   iii. **Measure**. Measure uses the linked dataset and measure defined in the **General** tab to drive extrusion. Extrusion will be updated when the linking dataset is filtered. A multiplier option is available to exaggerate or diminish the amount of extrusion.

Issues Resolved

Issue #	Summary	Description / How to Reproduce
00034299, 00031667	Browser M.App is ignoring expert point placement: label rotation	I defined a style set with a style for my label points. With expert point placement I want to use a manually typed value or one from database for my rotation angle. This works fine in desktop, but in browser same feature class with same settings are displayed standard, without rotation.
00037325, 00031659	Browser M.App does not honor layer rename in Legend	In M.App Enterprise Studio I defined a legend for a simple browser application. There I defined layer rename (label) in the Browser legend for my feature classes, e.g. instead of "crimes_pgis" --> "PGIS". This label should appear in place of the feature class name in the Browser legend, but it does not.
	Desktop - Redline plugin issues	- Vertices of a Curve are partly hidden by its outline and fill - CopyTo overrides existing redline/copied geometries - Arc by tangents creates useless lines - dashed and dash-dotted values are too small - RPPopupButtonGroup - Submenu Look&Feel isn't correct
	MapSelectionTool Point - Selects the wrong geometry	Select a line of overlapping lines. All lines are selected.
	Desktop - Dimensioning plugin issues	Text rotation will be lost after App reload. Orthogonal, Free, Orthogonal Chain, Chain absolute and Chain difference cause an invalid VectorTile. Dimensioning - Layer is inactive after "Edit Text" position.
	If features intersect with the current map selection, GeoMedia Smart Client delivers different results	If features intersect with the current map selection, GeoMedia Smart Client delivers different results, in this manner: If objects are not fully visible (completely inside) in the map, then the selection and the number of objects is limited to the visibility of features inside the map. This behavior leads to faulty analysis.
00043087	Mobile - Linearize arcs	M.App Enterprise Mobile App based on an existing GeoMedia polygon feature class. Feature class: Microsoft SQL Server database. The problem manifests after defining the Geometry column in the Shell.xaml and loading the m.app. The app then raises a "Specified method is not supported" error, which is tied to curves in the geometry.
00040736	Connection details and 'Save' button are missing from Workflow details	Edit existing Workflow: 1. Content>Workflows>'YourWorkflowName' and choose 'Edit' 2. Observe that Name and Connection are not populated. As well the 'Save' button is missing. The label of 'Editor' and 'Save' are also not present. 3. Refresh the browser page and notice that Name and Connection populate from the Tenant database. The 'Save' button is still missing. As a result, any edits made here cannot be saved by the user. 4. Logout and log back into the Tenant 5. Observe that issue of missing Name and Connection of the workflow happens again with each log out/log in requiring refresh of browser to populate.

00043102	Desktop - NPE at WorkflowPersitenceProvider.java:82 if no follow Node is defined	An error occurred ("AM SEVERE: Error during save! --> [AWT-EventQueue-0] com.intergraph.web.plugin.edit.EditPlugin.save java.lang.NullPointerException") when trying to save a geometry in the M. App Enterprise Rich Client.
00041117	(BI) GeoJSON not being generated for specific dataset (CurvePolygon?)	We have experienced problems in M.App Enterprise of geometries that contain 'curvedPolygons'. Within the Studio the dataset can be registered and cached as usual. Within the Feature Analyzer, the extent of the corresponding data is recognized, however no objects are displayed.
	Desktop - The package org.w3c.dom is accessible from more than one module: <unnamed>, java.xml	The package org.w3c.dom is accessible from more than one module: <unnamed>, java.xml
00041513	CRS not listed in Studio for some WMS services	Create a new Geoservice: Studio -> CONTENT -> GEOSERVICES -> New -> WMS or WMTS. After entering data, the CRS for the WMS was not listed.
00041206	Multi-polygon inconsistent behaviour in FA	With data from PostgreSQL or Oracle as VectorSet, the feature cannot be retrieved on Analyzer as a boundary data. If the same data is in a shape file, the boundary data can be retrieved.
00041087	M.App Enterprise: caching Error	We are experiencing some problems with caching and visualizing tables within Feature Analyzer. Either M.App Enterprise throws an error while caching the vector set or the caching is working, although no geometries are visualized in the feature analyzer. It seems like tables where all objects contain a geometry are all working fine. However, some tables contain objects of geometry 'NULL' .
	PORT - Dimensioning reversed in print layout landscape	Printing a dimensioning in landscape reverses the order of the letters and numbers in the PDF. The issue affects small dimensions - those which are rendered outside of the measured segment. See attached screenshots. Reproducible on the demo server.
	Renderer crashes when highlighting features	When no fill or stroke symbolizers are defined for a layer, the renderer crashed when trying to create highlighted styles.
00051544	Cannot import areas on Oracle	M.App Enterprise 16.5.959.3 on Windows Server 2016 standard, Tile server on same machine Oracle Database 18c Enterprise Edition Release 18.0.0.0.0 , Oracle client 18c 18.0.0.0.0 When refreshing geometry information on vector data : " AN ERROR OCCURRED WHILE TRYING TO REFRESH THE META INFORMATION" Specified cast is not valid.
00048564	WMTS error for saving "Object reference not set to an instance of an object."	Workflow to replicate: 1. Using the WMTS above create New Geoservice 2. After hitting 'refresh' to get list of layers from WMTS choose any layer and set parameters. 3. When attempting to save there is Error 500 shown to user 4. Accessing the log shows the object reference error (attached) This WMTS has no issue in GeoMedia Desktop or even Geospatial Portal.
00044445	Workflow - custom port not set in endpoint URL when saving geometry	M.App Enterprise system is configured to use http protocol with port 804 defined. Until now, we encounter problems for: - Save geometry capture from a simple workflow. There is no port defined in the URL where it is needed in our configuration - Opening a file using the JavaScript function

		SC.Media.downloadAndOpen(). The same workflow can open the file when launching GMSC directly from inside the M.App Enterprise server.
	Layer order and getcapabilities cache issues while adding a WMS on the fly in Desktop App	Using M.AppEnterprise.Extensions\SpatialModeler extension: New layers in the legend are always on background beside theme hierarchy and "set to foreground" tool usage getcapabilities is cached in Java app, so if it changes before adding a new layer from the same service it will give "WMS service does not know the requested layer".
	Desktop: Measurement is wrong. Arrows and Texts are rotated.	The reason was the coordinate system which uses Northing-Easting-Axis instead of Easting-Northing-Axis.

	WMTS publish error "smallint out of range"	smallint out of range
		Npgsql.PostgresException: 22003: smallint out of range
		  [Details]
		  Severity: ERROR
		  SqlState: 22003
		  Code: 22003
		  MessageText: smallint out of range

	Browser App: Other predefined point symbols except circle not working in Browser Apps	Browser App: Other predefined point symbols except circle not working in Browser Apps
	Studio: Adding a theme to the Legend, deleting it and adding vector data results in an error	Steps to reproduce: 1.) Make sure there are existing themes 2.) Click Add Theme and don't name it 3.) Add vector data to the theme 4.) Delete the theme 5.) Add vector data to an existing theme
	Yes/No dialog buttons are not localized	Using GeoMedia Smart Client German Language Pack we found Dialogs with Yes / No instead of Ja / Nein.
	Mobile - GPS Track View doesn't work with PostgreSQL	Geometry column is defined with SRID 4326, but track is saved without an SRID.

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