



HEXAGON

Release Guide

Release Guide

M.App Enterprise 2021

Version 16.7

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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](#).

Important Note

This release of M.App Enterprise is a kind of "hybrid." Despite the introduction of new features (Style Editor, M.App Editor, Feature Analyzer), pre-M.App Enterprise 2021 configurations and components are still there and working.

Some components and frameworks will be deprecated and gone with M.App Enterprise 2022:

- Old Style Editor
- Old M.App Editor
- Browser Apps based on Leaflet
- Feature Analyzer based on Leaflet
- BI Map Wizard

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.

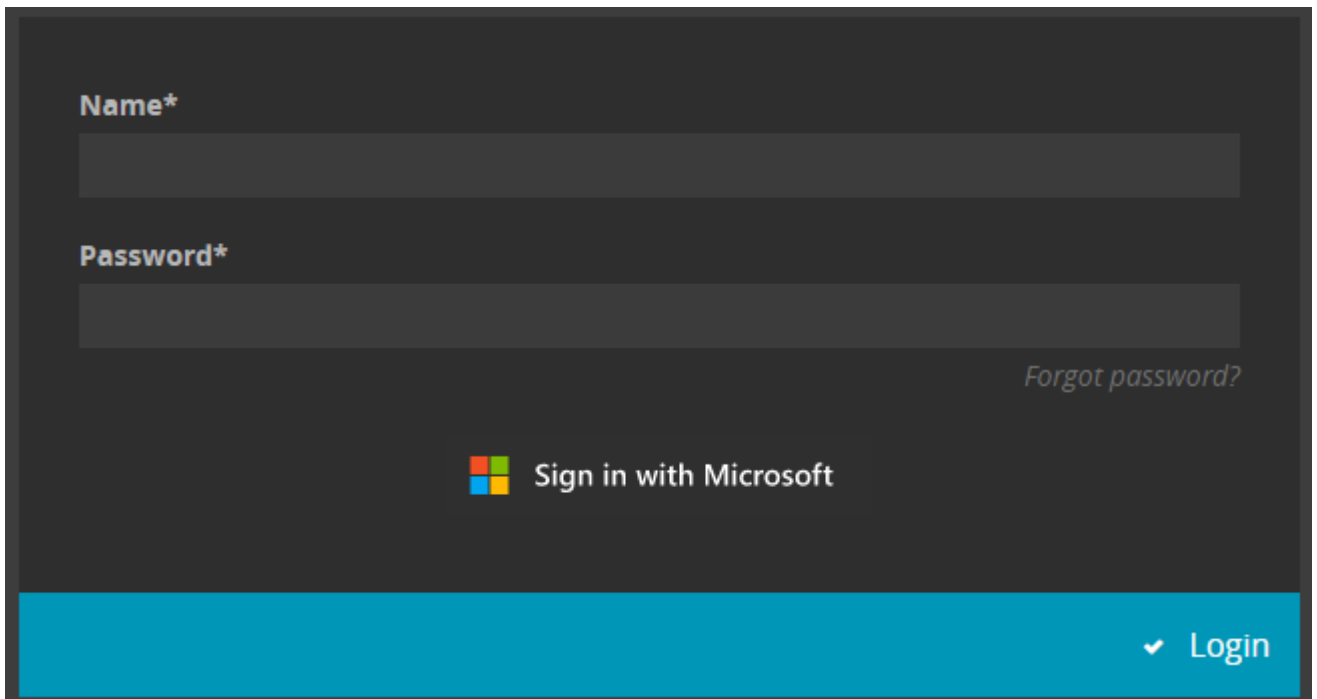
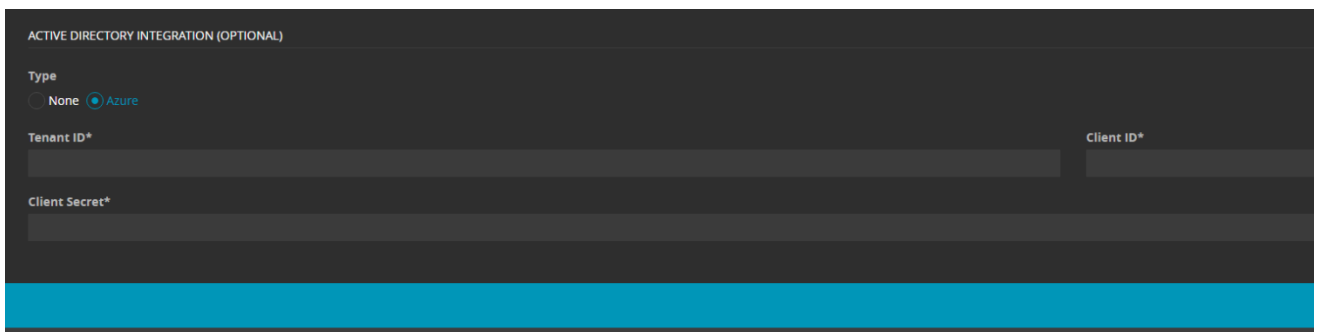
With M.App Enterprise, you can access Smart M.Apps anywhere within your organization's network for real-time answers.

M.App Enterprise Enhancements and New Features

Azure Active Directory

Azure Active Directory (Azure AD) is Microsoft's enterprise cloud-based identity and access management (IAM) solution. Azure AD is the backbone of the Office 365 system, and it can sync with on-premise Active Directory and provide authentication to other cloud-based systems via OAuth.

When creating a new tenant, you now have the possibility to use Azure AD for that specific tenant.



For a tutorial and video, visit: <https://community.hexagongeospatial.com/t5/M-App-Enterprise-Tutorials/How-to-use-Azure-Active-Directory/ta-p/41537>

Branding/Theming

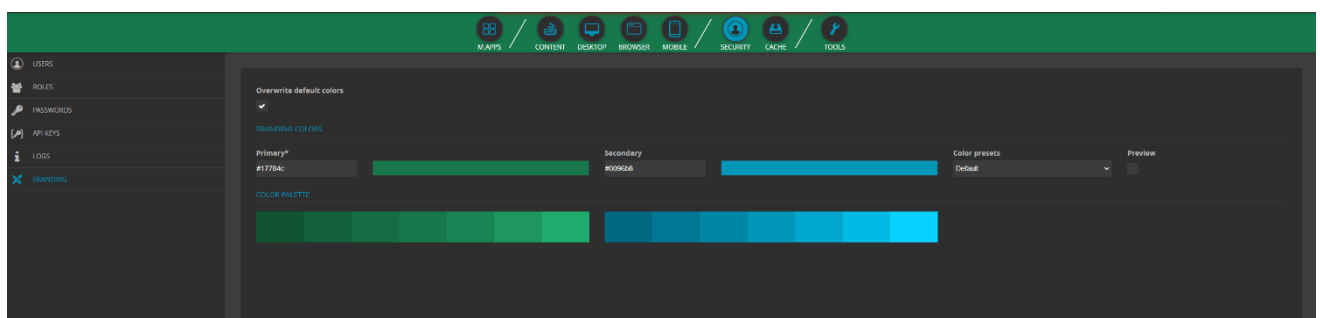
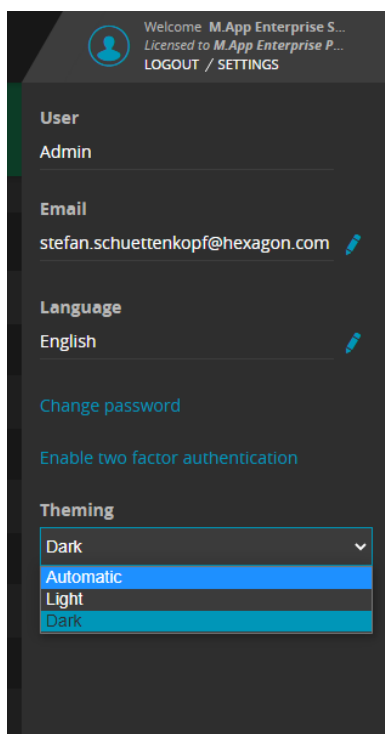
With the release of M.App Enterprise 2021, it is possible to change the theming within the platform and also change the header and icon colors to your liking.

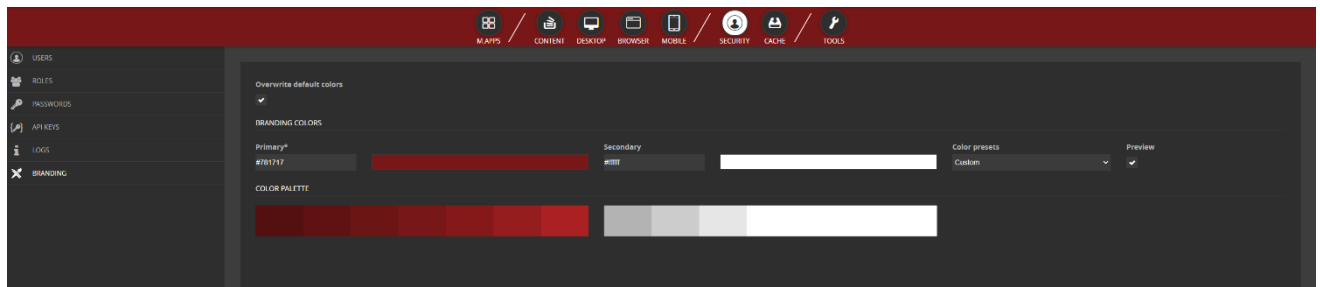
You can change the theme in the user settings (Management, Studio, Apps).

There are 3 possible options:

- Automatic - uses the same setting as your OS
- Dark - forces the dark theme
- Light - forces the light theme

In the desktop client there is a dedicated button , which allows you to overwrite the OS settings.

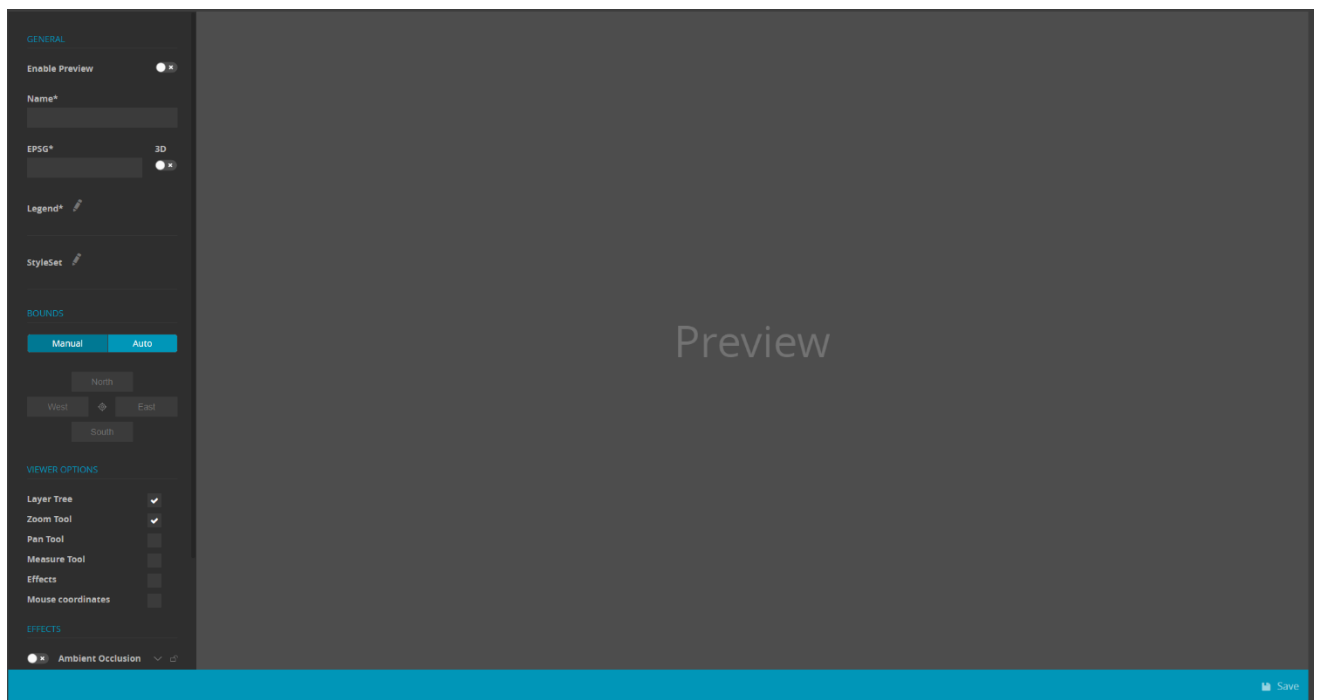




For more information, visit: <https://community.hexagongeospatial.com/t5/M-App-Enterprise-Tutorials/How-to-use-custom-branding-change-the-theme-for-MAE/ta-p/41539>

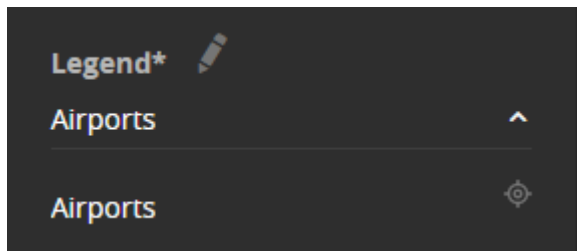
Browser Apps Creation

M.App Enterprise 2021 changes the browser app configuration. Beside of the live preview of your configuration (available only if **Enable Preview** is activated) the legend and EPSG are defined. In addition, standard configuration (Styleset, Bounds) and additional **Viewer Options** and **Effects** (which come in from LuciadRIA) are displayed.

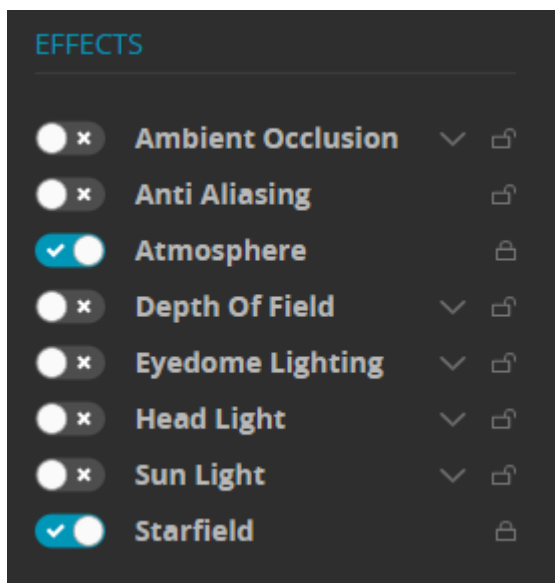


Note: Tilting is not possible when 3D is activated and manual bounds are chosen.

If you click on the icon beside of any of the available datasets within the legend, the map automatically zooms in to the bounds of the dataset.



With the new release it is possible to add effects to your browser application. This can be done by an administrator, or it can be made available to the end customer by clicking on the lock icon on the right side of the effects panel.



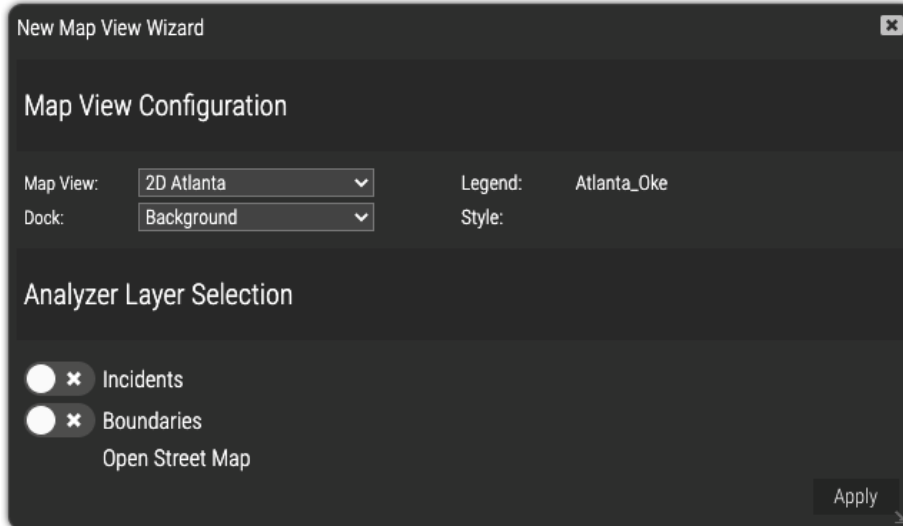
Here is a comparison of a browser app without and with effects:



For more information, visit: <https://community.hexagongeospatial.com/t5/M-App-Enterprise-Tutorials/How-to-setup-a-browser-app-with-MAE-16-7/ta-p/41540>

Feature Analyzer

New Map View Wizard



New Map View Wizard

Map View Configuration

Map View: 2D Atlanta Legend: Atlanta_Oke

Dock: Background Style:

Analyzer Layer Selection

☐ Incidents

☐ Boundaries


Open Street Map

Apply

The New Map View Wizard is the landing widget when first starting a new Analyzer view. A major change has been introduced in this release: a map view must be defined first in M.App Enterprise Studio before using a LuciadRIA widget or the New Map View Wizard. Once a map view is selected, the legend and style will be loaded. Analyzer will give you the option in the Analyzer Layer Selection section to pick datasets you want to use as Analyzer datasets. When clicking OK, Analyzer will:

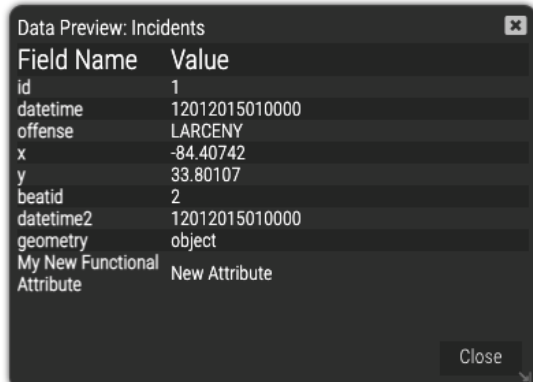
- Create a new Map View with the associated legend and styleset
- Automatically create dataset references to layers selected in the Analyzer Layer selection section
- Add anything not selected or not selectable as a background layer
- Automatically generate a theme widget if a classification is defined as part of a styleset
 - Any theme widget automatically generated will remain in sync with the styleset classification/categorization

You can run this wizard more than once if you want to use multiple Map Views in your Analyzer View. To

launch the New Map View Wizard, click the new Map View Wizard button, , in the Dataset Configuration tab.

Attribute Preview Enhancement

Attribute preview has moved. To activate attribute preview, click the i icon on the dataset header.

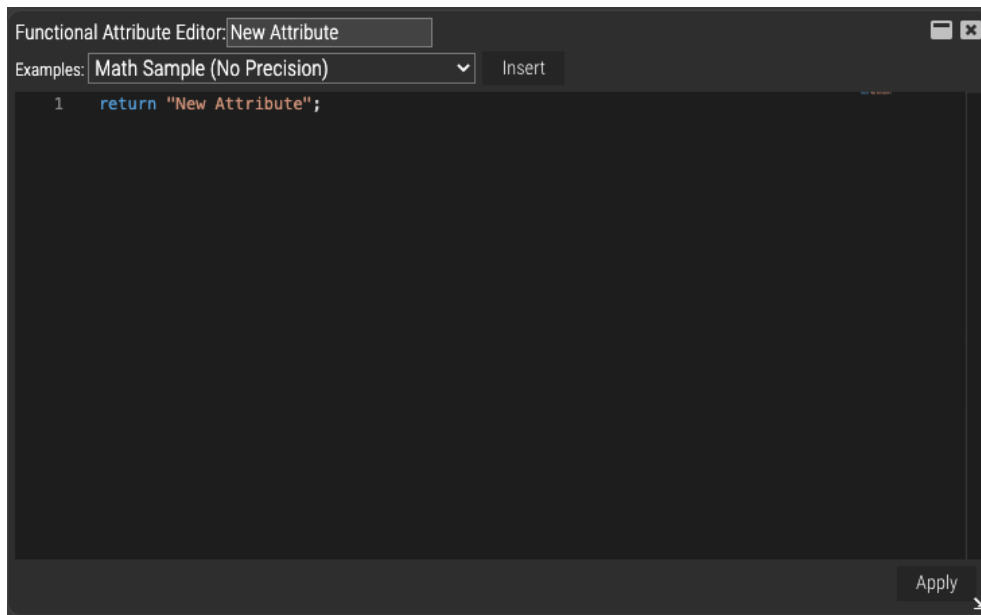


Data Preview: Incidents

Field Name	Value
id	1
datetime	12012015010000
offense	LARCENY
x	-84.40742
y	33.80107
beatid	2
datetime2	12012015010000
geometry	object
My New Functional Attribute	New Attribute

Close

Functional Attribute Enhancement



Functional Attributes have been moved in this release. You can now create/edit functional attributes from the Dataset Configuration screen. To create a new functional attribute, click the + icon on the dataset header. To delete a functional attribute, click the x beside the functional attribute you want to delete. To modify an existing functional attribute, click the pen icon to the right of the functional attribute name.

Note that the new Attribute Preview Widget allows you to see results of your functional attribute immediately if the preview window is open for the dataset that contains the functional attribute.



M.App Enterprise Map View Support (LuciadRIA Map Views)

M.App Enterprise Map Views are now completely supported in Feature Analyzer. M.App Enterprise Map Views allow you to define complex styles, legends, map view projections, tools, and options.

Setting a Map View configuration is mandatory in this release of Feature Analyzer. A Map View configuration can be set in the General Tab of a LuciadRIA widget.

CONFIGURATION

General

Style

Map View Configuration:

Oil Tank Filling Level

Once a Map View configuration is set, an additional **Style Set** color option will be available for each feature docked in the LuciadRIA Map View widget.

FEATURE CONFIGURATION

General

Geometry

3D

Color by:

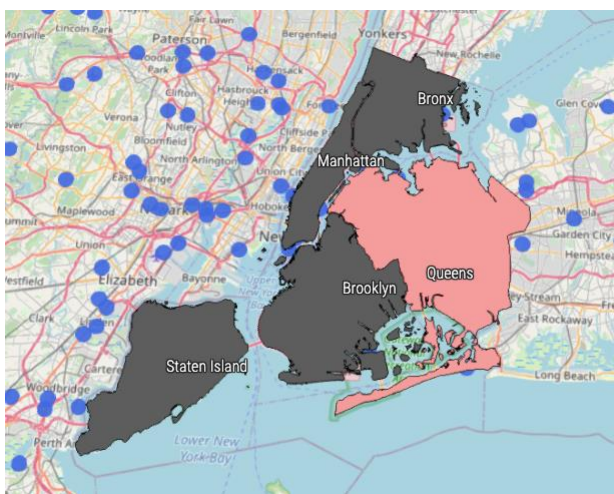
Style Set

Note that when Color by: Style Set is selected, line, point styles from within Analyzer are now unavailable as this is completely driven by the M.App Enterprise Style Set.

Style Properties

Feature Analyzer adds two dynamic properties to a feature dataset to allow for dynamic styling. These two properties are `fa_disabled`, and `fa_measureValue`. They can be used from within the M.App Enterprise Style Editor.

fa_disabled (optional): indicates that a feature in the dataset is not part of a selection. This is used when defining a filter for a styleset. For example, in the image below, Queens is selected (`fa_disabled = false`). Staten Island, Brooklyn, Manhattan, and Bronx are not selected (`fa_disabled = true`). If a filter using `fa_disabled` is not used, a default disabled style will be automatically applied by Analyzer.



Sample filters for selected items:

RULE

Name

Filter ☒

RULE

Name

Filter ☒

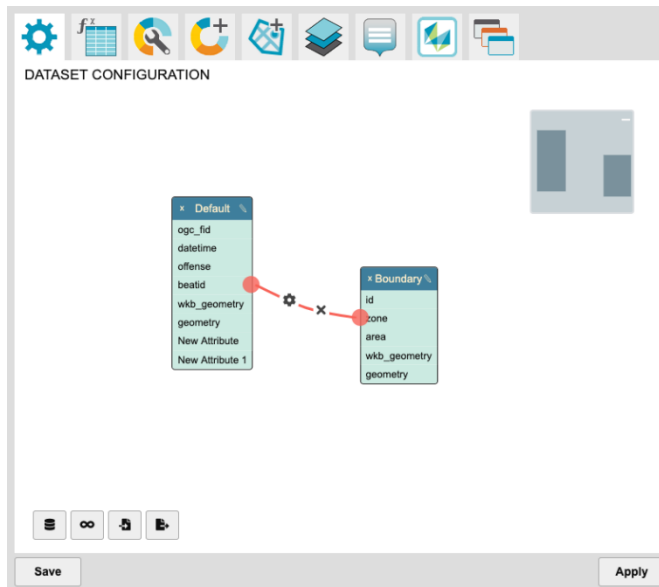
Motif Colour Synchronization Enhancement

A new option has been added to the Motifs tab to keep your M.App Enterprise branding in sync with your Analyzer views. If you want to use M.App Enterprise branding, enable the “Use M.App Enterprise Branding/Theme” option. This option will also use dark/light theme modes as defined by the user or from default browser settings.

☒ Use M.App Enterprise Branding / Theme

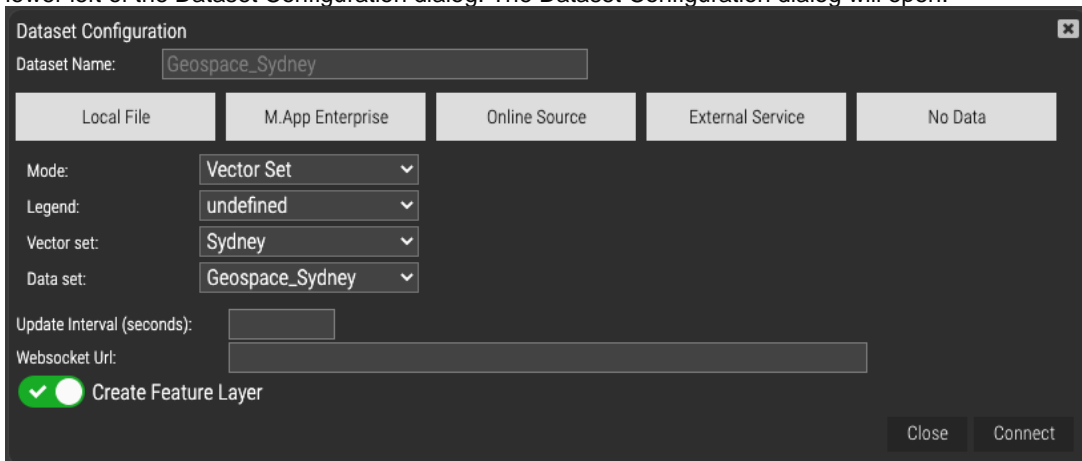
Multi-Dataset Support

You can now easily add and manage multiple datasets in Feature Analyzer. By default, when you first create an Analyzer view, a default dataset with no data will be created. This dataset is a container for the default map view (referenced in the Additional Charts tab). There are several new functions in the Dataset Configuration dialog. These are Add Dataset, Delete Dataset, Update Dataset, Link Datasets, specify linking options, Import View, and Export View.



Add Dataset

- You can add a dataset to your view by clicking the “Add Dataset” button. This button, , is located at the lower left of the Dataset Configuration dialog. The Dataset Configuration dialog will open:



This screen replaces the original Dataset Configuration definition screen. There are new options in addition to the previous dataset definition screen. These new items are Local File, No Data, Update Interval (seconds), WebSocket Url, and Create Feature Layer

- Dataset Name**
This option allows you to specify a unique name for your dataset. This dataset name will be referenced in the Dataset Configuration, Functional Attribute, Additional Charts, Additional Features, and Tooltip configuration tab.

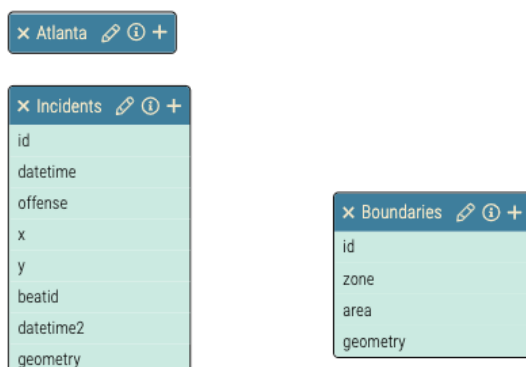
- Local File**
 The Local File option is now available on the M.App Enterprise platform. This lets you import small datasets (< 15MB) directly from a file on your hard disk. These datasets are stored directly in the view configuration file. Larger datasets need to be imported into the M.App Enterprise content database.
- No Data**
 The No Data option allows you to specify a dataset with no data. With these types of datasets, you can host widgets that require no Analyzer data like Leaflet Map Views, Luciad RIA Map Views, and HTML Display widgets.
- Update Interval (seconds)**
 This option has been moved from the Advanced tab in the Field Configuration dialog. You can now specify an independent update interval per dataset.
- Websocket Url**
 The WebSocket Url specifies a service to provide real-time additions to a dataset. The WebSocket payload to add new records to an existing dataset is as follows:


```
{
  type: "new",
  data: [ {<javascript object containing fields for the new row> } ]
}
```

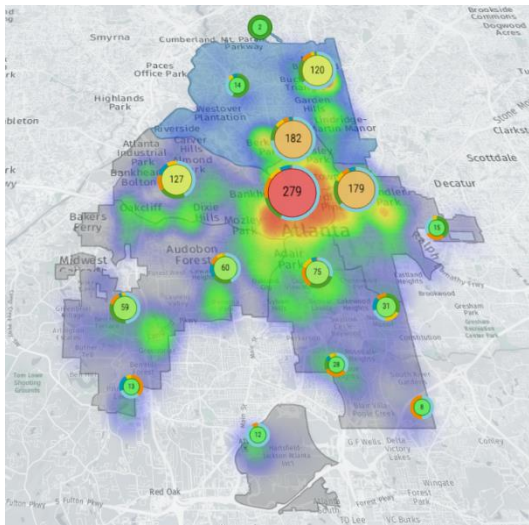
 The schema of the new record must match the dataset the new record is being added to.
- Create Feature Layer**
 You can now specify attribute-only datasets. If you use an attribute dataset (i.e. no geometry feature information), uncheck this option. If you have geometry features in your dataset and a map view visible, the geometry will be automatically added to the map view when this option is checked.
- Cancel**
 Closes the Add Feature Data dialog without adding the dataset to the view.
- Connect**
 Analyzer will attempt to connect to the dataset. If an error occurs while making this connection, an error dialog will appear with the error details. Once the connection has been made, the Add Feature Data dialog will close, and you will see your new dataset in the Dataset Configuration screen.

Dataset Linking

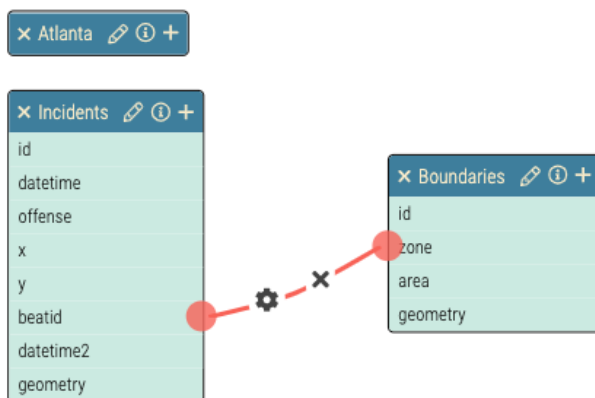
You can now easily manage dataset links. Dataset links can be made by dragging a field in one dataset to a field in another dataset. Once a link has been made, a red line is drawn between the two field names. When two datasets are linked, filtering one dataset in the relationship will affect filters on the linked dataset. Take the following dataset configuration as an example:



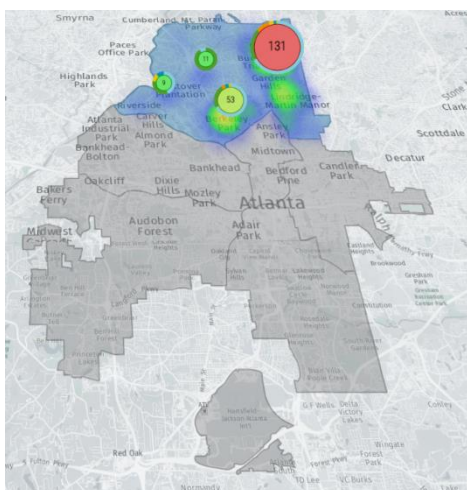
There are three datasets. The Default dataset contains a single widget – a LuciadRIA map view. Atlanta2 contains points, and atlboundaries contains polygon features. With this setup, these datasets will filter independently of each other. When a boundary is clicked (uppermost), the Heatmap and clustered point features remain unfiltered:



Here is the result when a link is established between “BeatId” on the atlanta2 dataset and “ZONE” on atlboundaries.




Now when a geometry is selected on the atlboundaries dataset, the atlanta2 dataset will filter to reflect the geometry selection. Note that when using M.App Enterprise datasets, you may need to click “Apply” for all the necessary attribute data to download.



Link Configuration




The configuration cog, , lets you specify an inner vs. outer join on the linked datasets. By default, datasets are linked via inner join. If a record does not match, it will be filtered out. (If no points fall within a boundary feature, the system will not display the boundary feature.) In some instances, it is desirable to include unlinked records and features. Uncheck this option if you would like to see all data when no filters are defined in instances where field data from the first dataset does not match any data in the second dataset.

Enable N-Level Deep Linking

By default, Analyzer preforms a 1-level deep link on datasets. This is done to facilitate simple scenarios and avoid circular linking references. Take, for example, this scenario of Dataset A <-> Dataset B <-> Dataset C. If you filter Dataset A, Dataset B will update to reflect the filter of Dataset A. However, Dataset C will remain unfiltered. If you have a scenario where you need a filter to carry through to all linked datasets, click the Enable



N-Level Deep Linking button, . Be careful with circular references (e.g., *Dataset A <-> Dataset B <-> Dataset C <-> Dataset A*). Analyzer will attempt to resolve these, but you may get undesired filtering results.

Deleting a Link

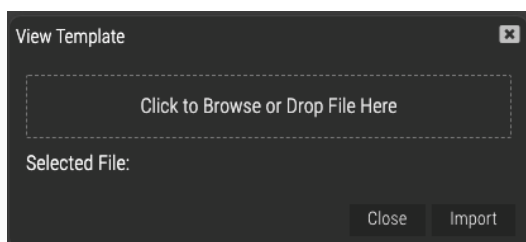
To delete a dataset link, click the X in the middle of the line.

View Template Import/Export

You can now import/export views as view templates from the Dataset Configuration screen.




To import a dataset, click the import button, . This will open up the view template screen:



Once a view template is specified, click Import to load the view.

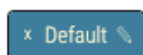


To export or save your view templates to your downloads folder, click . This option is still available on the Menu->Export menu item.

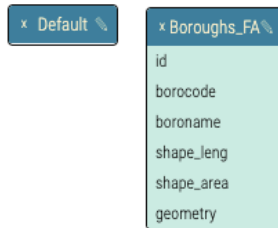
Error Handling

If a dataset fails to load, Analyzer will continue to load all remaining datasets. You can see which dataset failed to load on the loading dialog and the dataset configuration dialog. The dataset in an error state will be colored red. You have the option of deleting the dataset or editing the dataset to correct the error.

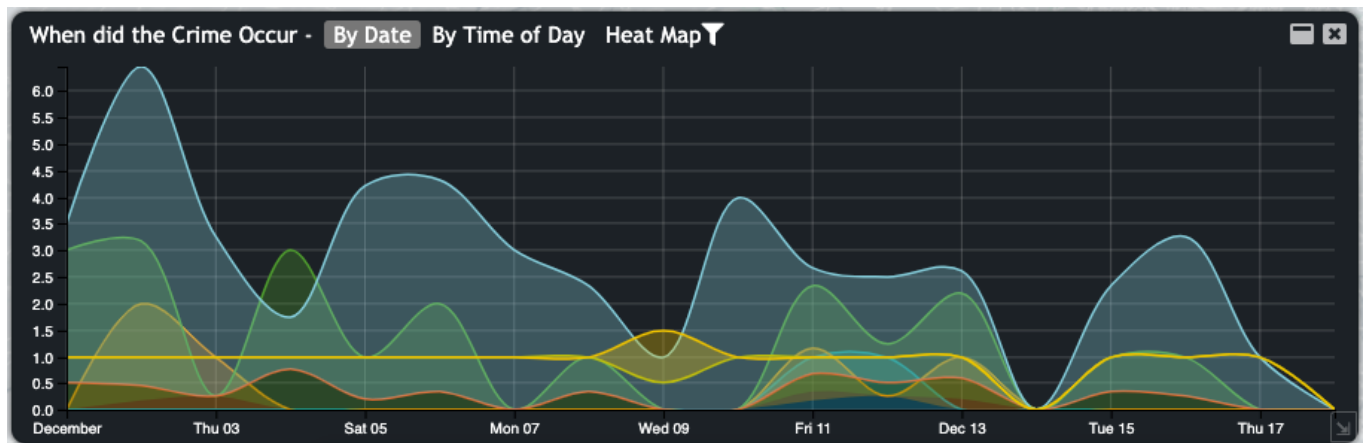
DATASET CONFIGURATION




Once the error is resolved by editing, the dataset definition will update to show that the error is cleared and also show available attributes.



New Chart: Tabbed Chart Container



You can now dock your charts into a tabbed container. This allows for a much cleaner dashboard interface in cases where many widgets are required. The tabbed container will show you which docked charts have filters enabled and also quickly clear the filters by clicking the filter icon, . To enable this functionality, create a Tabbed Chart. Set the dock type of your existing charts to the name of your new tabbed chart.



New Chart: Workflow Widget

You can now easily use M.App Enterprise Workflows from within Feature Analyzer. To use a M.App Enterprise Workflow, add a new Chart and set the type to **Workflow**.

You will need to specify the workflow name and the start-up form. If you don't want your workflow widget to automatically start when the view loads, uncheck **Start on Load**. This is useful in cases where you want your workflow to start from another action (e.g., clicking an Edit button from within a tooltip).

CONFIGURATION

General Style

Workflow Name: Atlanta

Startup Form: TestAtlanta

☐ Start on Load

You may wish to set some additional style parameters to control the execution of your workflow. Two common options are **Allow User Mode Resizing** and **Hide from Charts Menu**. Allow user mode resizing allows the user to move/size the workflow window freely, while the Hide from Charts menu gives added control over how your workflow is launched.

CONFIGURATION

General Style

☐ Transparent Background

☐ Allow User Mode Resizing

☒ Hide from Charts Menu

Launching a Workflow

There are a few common ways to launch a workflow. The first is via an action on a tooltip. To do this:

1. Create a workflow widget. Take note of the workflow widget name.
2. Create a functional attribute. Insert the **Launch a Workflow** example.
3. Update the functional attribute dataset, if applicable.
4. Update the chartTitle parameter to match your workflow widget name.
5. Note that the default command button text is "Edit". You can change this.
6. Click Apply.
7. On the Tooltip Configuration tab, add the new functional attribute.
8. Click Apply.

The next method is via an HTML chart. To do this:

1. Create a new HTML chart.
2. Insert the **Launch a Workflow** example.
3. Update the workflow title to match your workflow widget title (the default is "Editor").
4. Click Apply.

Workflows can also be launched via API:

```
Analyzer.workflows.getWorkflowByTitle("Editor").launchWorkflow(optional record id);
```

If you launch a workflow in Studio mode, the workflow will launch with a login prompt. This is done because an Apps session ID is needed to launch the workflow. A login prompt will not appear in Apps mode.

Workflow API

You can access Analyzer API from within a Workflow script. Simplified workflow API has been made available to perform common functions. Most of these functions are in the `Analyzer.workflows` namespace.



Analyzer.workflows.getAllWorkflows(): Returns an array of all workflow widgets defined in Analyzer
Analyzer.workflows.getWorkflowByTitle(*title*): Returns a specific workflow widget by widget title
Analyzer.workflows.closeAllMapPopups(): Closes all active popup windows in all map views
Analyzer.workflows.updateWorkflowDataset(*workflow*): Tells Analyzer to reload the dataset tied to the workflow; will reflect any edits immediately in Analyzer

Each workflow object also has a set of functions:

Workflow.closeWorkflow(): Closes the workflow widget in Analyzer

Workflow.launchWorkflow(*optional record id*): Launches the workflow and makes the workflow widget visible to the user

Example Workflow script for a simple attribute edit operation:

```
var Analyzer = window.parent.Analyzer;
var workflow = Analyzer.workflows.getAllWorkflows()[0];

function closeWorkflow() {
  Analyzer.workflows.closeAllMapPopups();
  workflow.closeWorkflow();
}

function saveForm() {
  IG.submit('Form', 'Save').done(function(result) {
    Analyzer.workflows.closeAllMapPopups();
    workflow.closeWorkflow();
    Analyzer.workflows.updateWorkflowDataset(workflow);
  });
}
```

New Global Window Style – Modern

A new window style has been added that changes the appearance of each widget window. By default, the modern setting is now used. This option is available in the Motifs Configuration tab.

MOTIFS

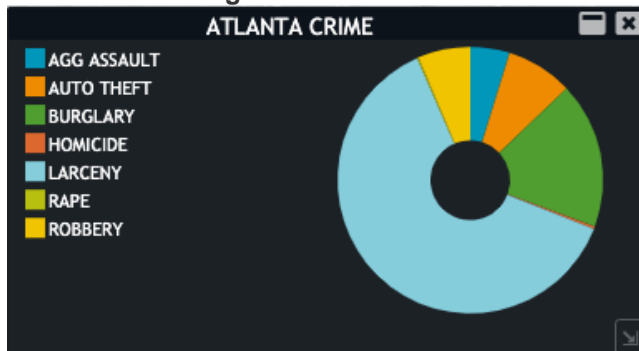
Style:

CUSTOMIZE

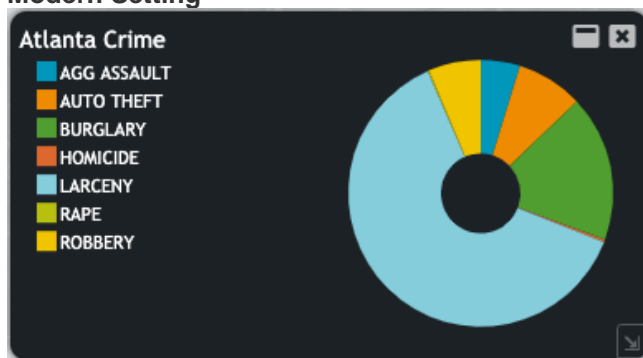
Font:

Window Style:

Traditional Setting



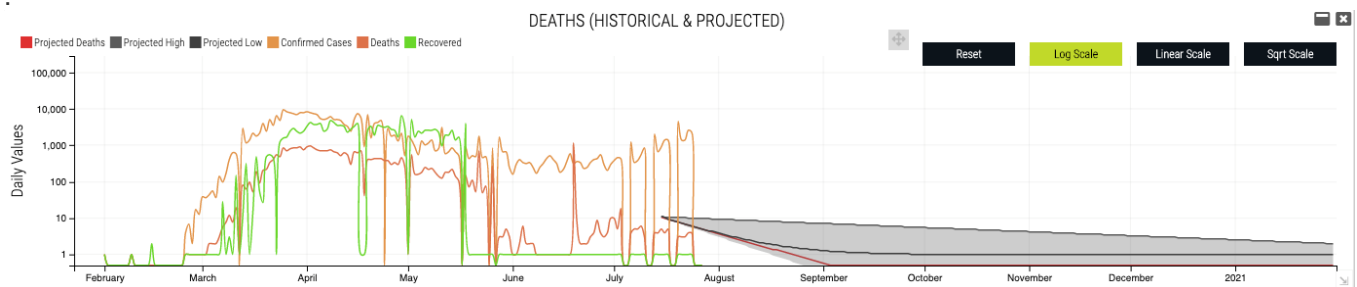
Modern Setting



New Individual Chart Window Styles

Transparent Background

New options have been added as a style setting for each chart. These can be accessed in the Style tab of the Additional Charts tab. Each chart now has the option of configuring the chart window background as transparent. To enable this, check “Transparent Background.” This is useful if you want to create a widget that extends the functionality of other charts. For example:



A transparent HTML chart has been placed on the Date chart to extend the capability of the date chart.

Hide from Charts Menu

Active widgets in Analyzer are typically listed in the Charts menu and can be toggled by the user. Check this to remove a widget from this menu.

Allow User Mode Resizing

Allows a user to resize and move widgets in Apps mode.

Automatic Width (HTML Widget)


The width of the HTML Widget will be automatically determined by content size.

Automatic Height (HTML Widget)

The height of the HTML Widget will be automatically determined by content size.

LuciadRIA View Enhancements


You can now use heatmaps, cluster layers, spatial filter drawing tools, fit all, and zoom tools within a LuciadRIA view. Line and point styles can be defined in meters in addition to pixels.

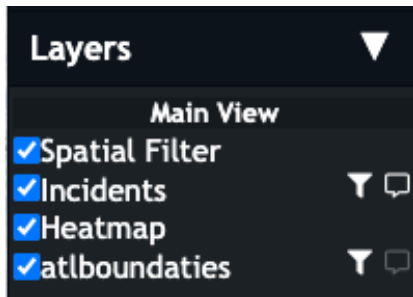
Measurement Tools are now built in. To activate measure, click the Measure Icon in the 3D View: . The following panel will display:



By default, the Distance measure is active.

Spatial Filter Enhancements

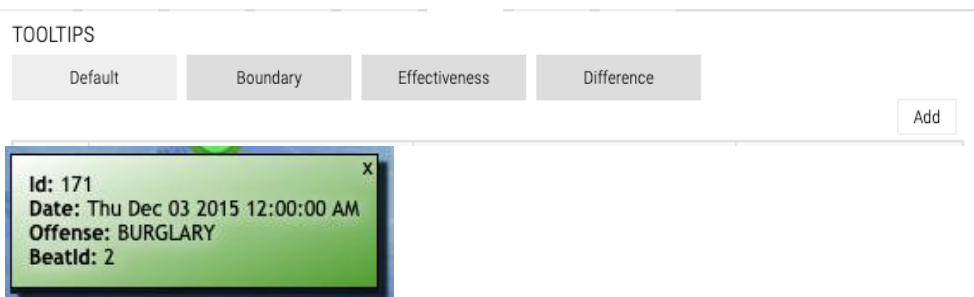
Spatial filters can now be applied per layer in each map view. Once a spatial filter is defined, spatial filter layer toggle options can be accessed via the Layers menu by clicking the filter icon, .



Tooltip Definition Enhancement

You can now define tooltips for multiple datasets from the user interface. A new command strip has been added to the tooltip configuration tab. To switch between datasets, click the dataset name.

The tooltip window activated from the map view has been redesigned. If a tooltip window is too large, the tooltip window will now scroll.



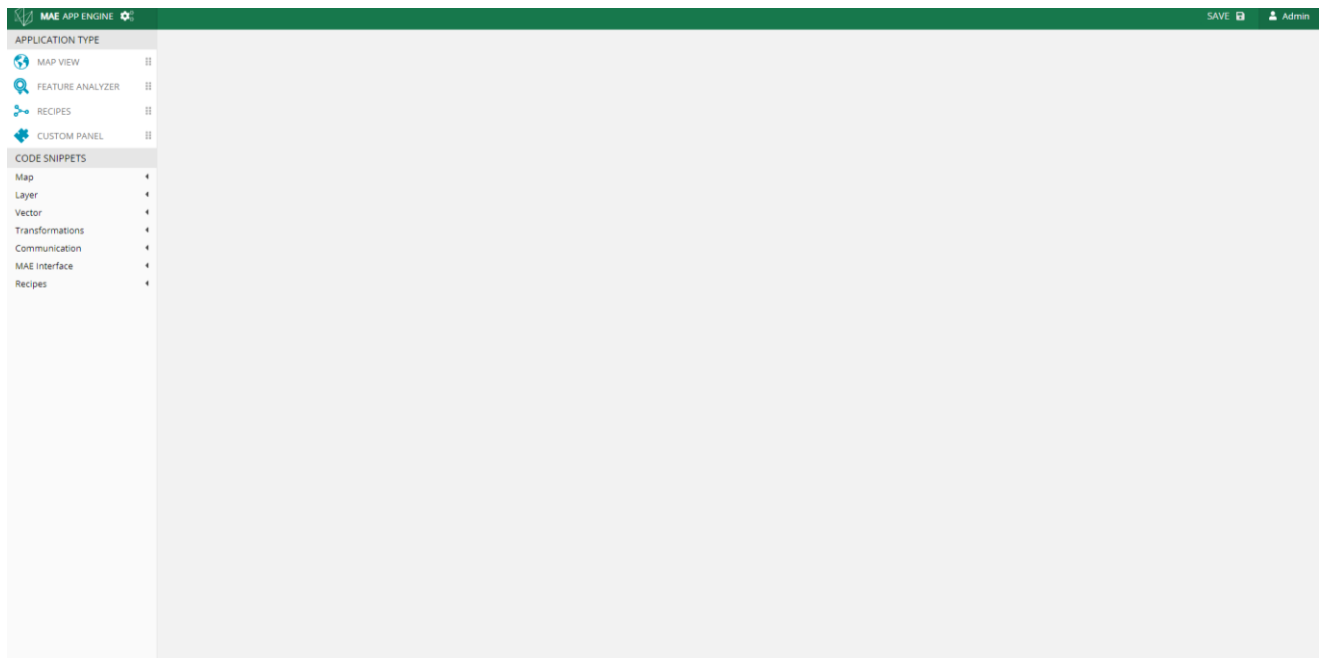
Legend Behavior

With the M.App Enterprise 2021 release, there is a unified place for legends. You will find them in **Content -> Legends**. With this change, it is possible to use a legend regardless of client. Drag and Drop still works as before with two changes:

- Themes are not required any longer.
- The visualization for VectorSets is different. On the left side you only see the name of the VectorSet, but as soon as you drop it in the legend it gets unraveled, and you can handle the single layers as you knew it from previous releases.

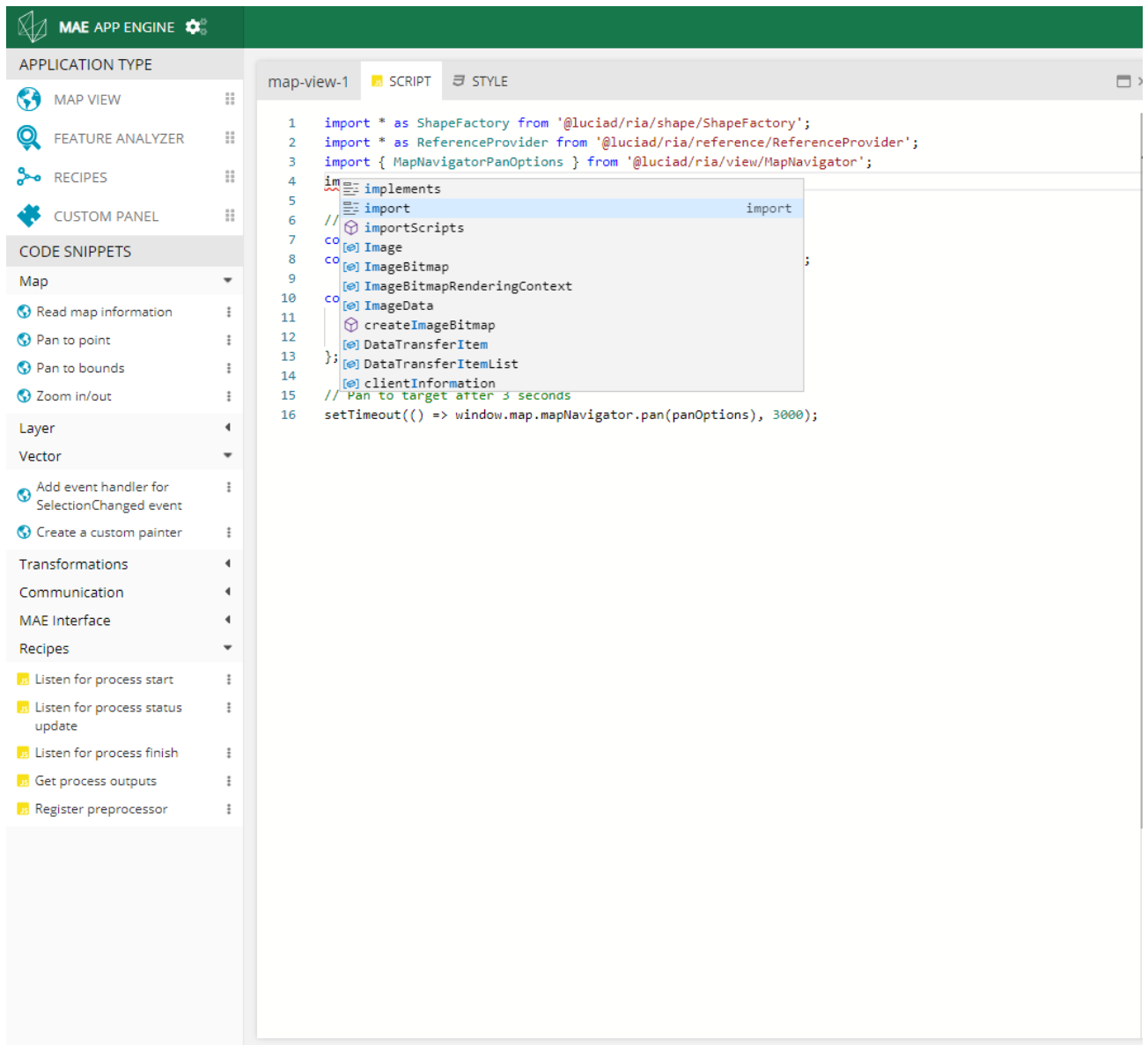
New M.App Editor for Browser Apps

The M.App Editor, introduced in M.App Enterprise 2021, got a new framework.



The way you work with the new M.App Editor is the same as in previous releases. A simple drag-and-drop allows you to insert **Map Views**, **Feature Analyzer Views**, and **Recipes** in the browser app.

The **Custom Panel** gives you the opportunity to access the API in the background. To give you a helping hand, some code snippets are also available to use within the browser app. Because in the background we are using the entire LuciadRIA API, the handling of code is reworked and you get the feeling of working with a visual interpreter of your custom code:



OGC Plugin

In this release, we offer a new plugin in the desktop client. It is now possible to add various OGC Services directly on the client side.

Note: If you want to use the same OGC service for different located clients, you still have to use the GeoService tab in M.App Enterprise Studio.



The icon of the plugin looks like this:

Import OGC Service

URL:

http://sg.geodatenzentrum.de:80/wms_vg2500?request=GetCapabilities&service=WMS&VERSION=1.3.0

Legend

▼ Layers

Bundesland

Kreis

Regierungsbezirk

Metadata

Service:

WMS 1.3.0

Selected layer:*

Bundesland

Feature name:*

Bundesland

Output type:*

JPEG


CRS:*

3857

Max. Tile width:

Max. Tile height:

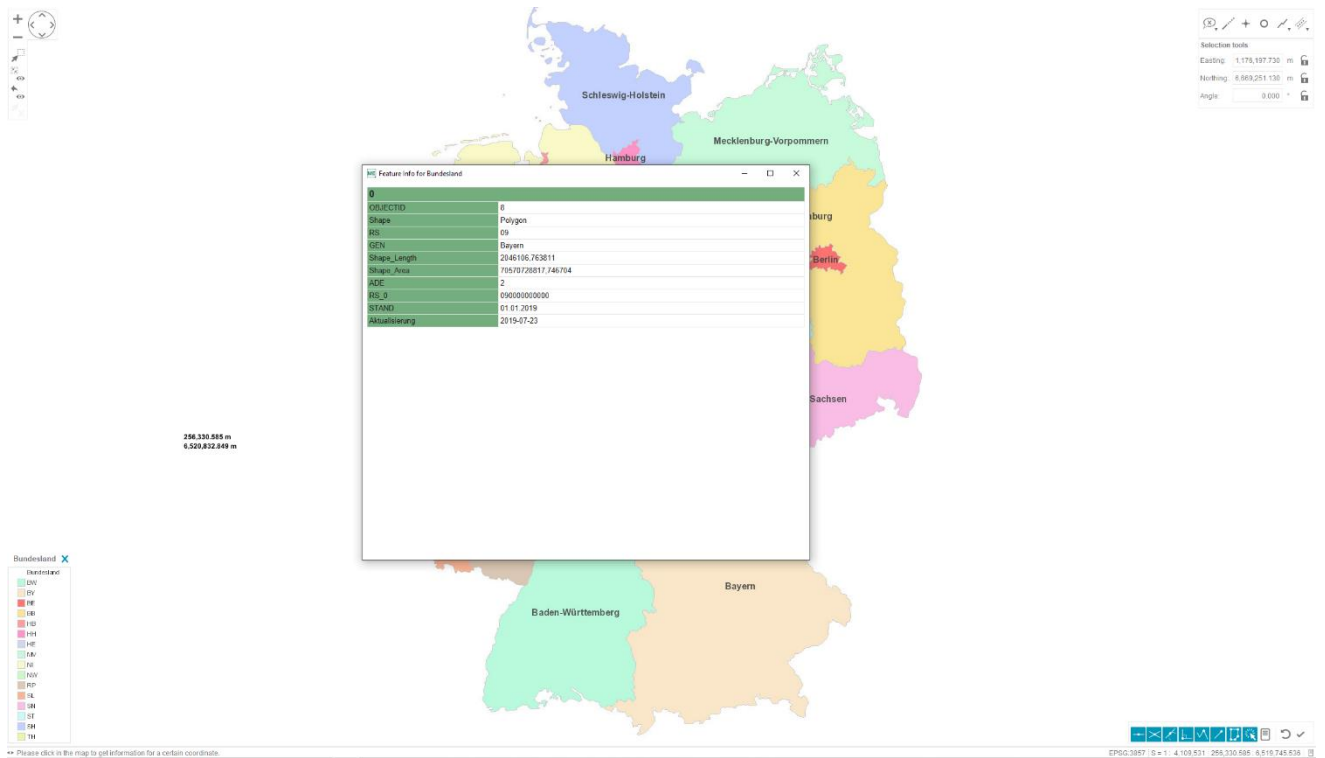
Preview



Update

Import

Close



Service metadata	
Version	1.3.0
Name	WMS
Title	WMS Verwaltungsgebiete 1:2 500 000
Abstract	Darstellungsdienst der Verwaltungsgebiete 1:2 500 000 für das Gebiet der Bundesrepublik Deutschland. Datengrundlage sind die VG2500 mit Stand 01.01. Der Datenbestand umfasst die Verwaltungseinheiten der hierarchischen Verwaltungsebenen vom Staat bis zu den Kreisen.
Keywords	VG2500 INSPIRE:ViewService ViewService WMS INSPIRE infoMapAccessService
Online resource	http://sg.geodatenzentrum.de/wms_vg2500?
Contact information	Technischer Administrator Dienstleistungszentrum des Bundes für Geoinformation und Geodäsie Karl-Rothe-Str. 10 - 14 Leipzig DE-BKG 04105 Deutschland +49 (0) 341 5634 333 +49 (0) 341 5634 415 dlz@bkg.bund.de
Fees	Die Daten sind urheberrechtlich geschützt. Der Datensatz wird entgeltfrei mit der Datenlizenz Deutschland – Namensnennung – Version 2.0 (https://www.govdata.de/dl-de/by-2-0) zur Verfügung gestellt. Der Quellenvermerk ist zu beachten. Quellenvermerk: © Bundesamt für Kartographie und Geodäsie <Jahr>
Access constraints	Es gelten keine Zugriffsbeschränkungen.
Layer limit	-
Max width	4096
Max height	4096
GetCapabilitiesURL	http://sg.geodatenzentrum.de/wms_vg2500?text/xml http://sg.geodatenzentrum.de/wms_vg2500?application/vnd.ogc.wms_xml
GetMapURL	http://sg.geodatenzentrum.de/wms_vg2500?image/png http://sg.geodatenzentrum.de/wms_vg2500?image/jpeg http://sg.geodatenzentrum.de/wms_vg2500?image/png32



For more information, visit: <https://community.hexagongeospatial.com/t5/M-App-Enterprise-Tutorials/OGC-Plugin/ta-p/41707>

SAP Hana

With this M.App Enterprise release, we introduced the 4th fully supported database provider: SAP Hana. Fully supported means that it doesn't matter if your master DB, tenant DB, or data DB is in SAP Hana. The limitation of the database itself is the only limit of SAP Hana in M.App Enterprise.



Provider*

☐ Oracle ☐ Microsoft SQL Server ☐ PostGIS ☒ Hana

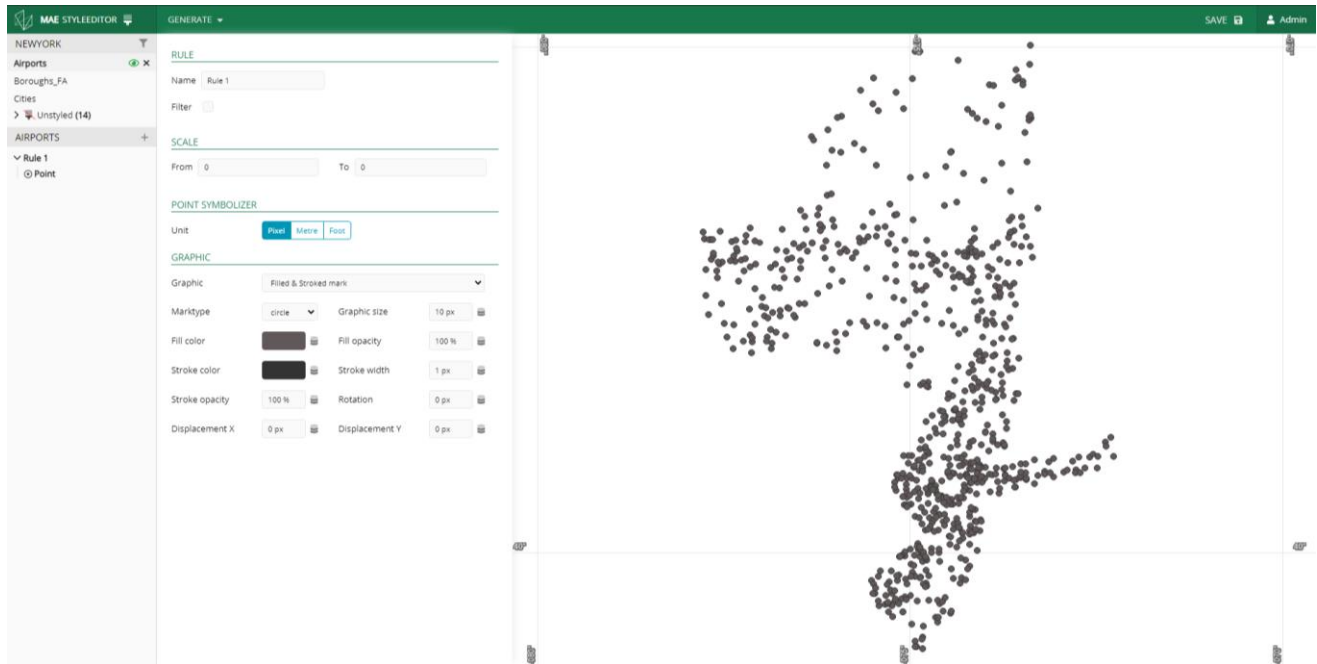
Server*

User*

Style Editor

One big feature in this new release is a completely reworked Style Editor. To describe all new features would be out of the scope of the Release Guide, but the most important and most obvious ones are highlighted here:



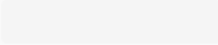




- Live preview of the styles in the map on the right side



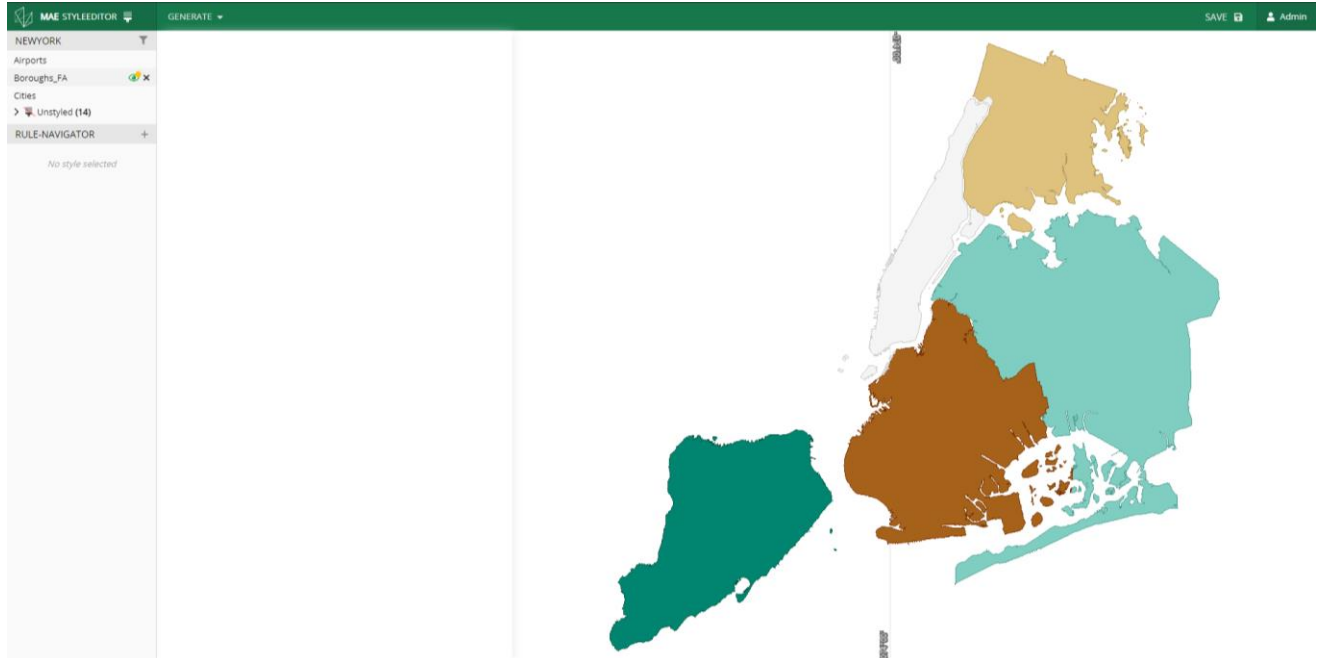
- Classify and Categorize allows you to get simple styles quickly via a wizard. Just select the style for which you want the classification done and the corresponding database field.

Note: Only numeric fields are allowed for **Classify**.

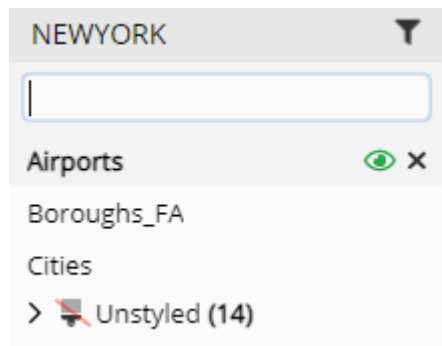
Generate categorized rules

Style	Boroughs_FA	Brooklyn	
Field	boroname	Bronx	
Categories	5	Manhattan	
Color scheme	 	Queens	
		Staten Island	

Cancel
Generate

















- Filter and rearrange layers within the style editor. You can filter all styled layers to the ones you currently need, and if one or more layers are overlapped, a simple drag-and-drop approach solves this issue.



For more information, visit: <https://community.hexagongeospatial.com/t5/M-App-Enterprise-Tutorials/How-to-use-the-new-Style-Editor/ta-p/41541>

Spatial Workshop

You can now find the Spatial Workshop in **Content -> Spatial Recipes** after you've created a new spatial recipe or edited an existing one.

	IMAGERY
	VECTOR DATA
	VECTOR SETS
	GEO SERVICES
	ATTRIBUTE DATA
	3D DATA
	LEGENDS
	STYLESETS
	WORKFLOWS
	MY GEO SERVICES
	CONNECTIONS
	COPYRIGHTS
	CUSTOM CRS
	RECIPES

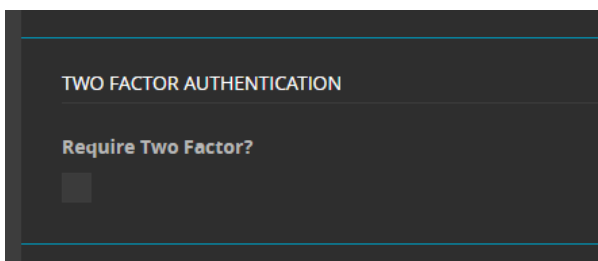
Two-factor Authentication

Two-step verification or **two-step authentication** is a method of confirming a user's claimed identity by using something they know (password) and a second factor *other* than something they have or something they are (Wikipedia, 2 December 2020).

In M.App Enterprise, there are several options where you can enable/disable two-factor authentication.

- Management
- Studio
- Apps

But you can also set it as a requirement when creating a tenant.



This checkbox is inherited by every user (Studio users as well as Apps users).

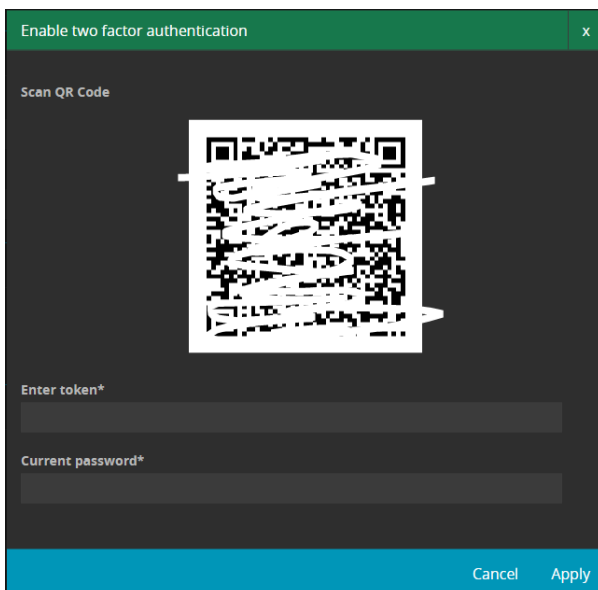


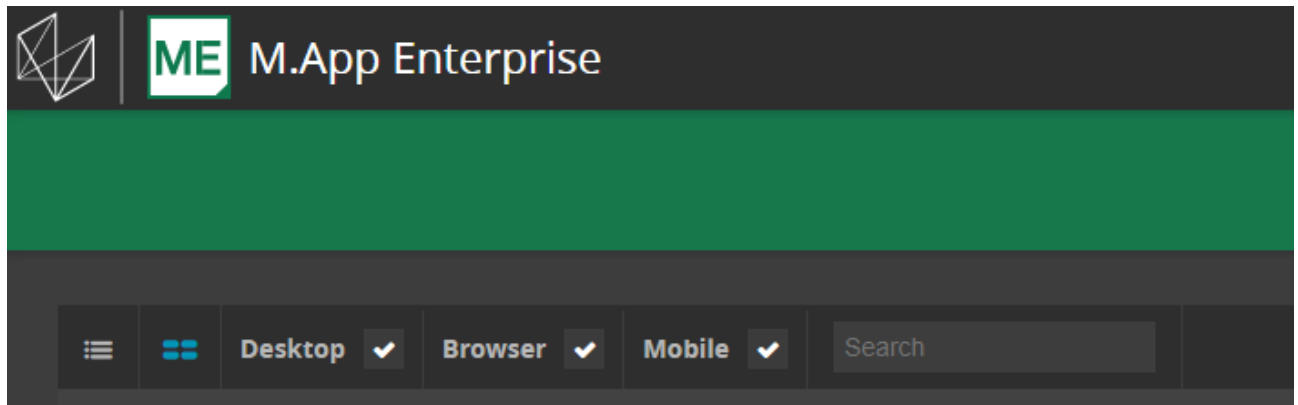
Figure 1: No worries -> your QR code is working and looks like a correct QR code.

For a tutorial and video, visit: <https://community.hexagongeospatial.com/t5/M-App-Enterprise-Tutorials/How-to-set-up-Two-factor-authentication/ta-p/41538>

Various Enhancements

App Type Filter in My Apps Page

Based on the Product Idea <https://community.hexagongeospatial.com/t5/Product-Ideas/Overview-Apps-Page/idi-p/37568>, with M.App Enterprise 2021, it is now possible to filter your created apps based on the type. And with the enhancement [AutoComplete Fields in Lists](#), you can also filter the entire list on the fly.



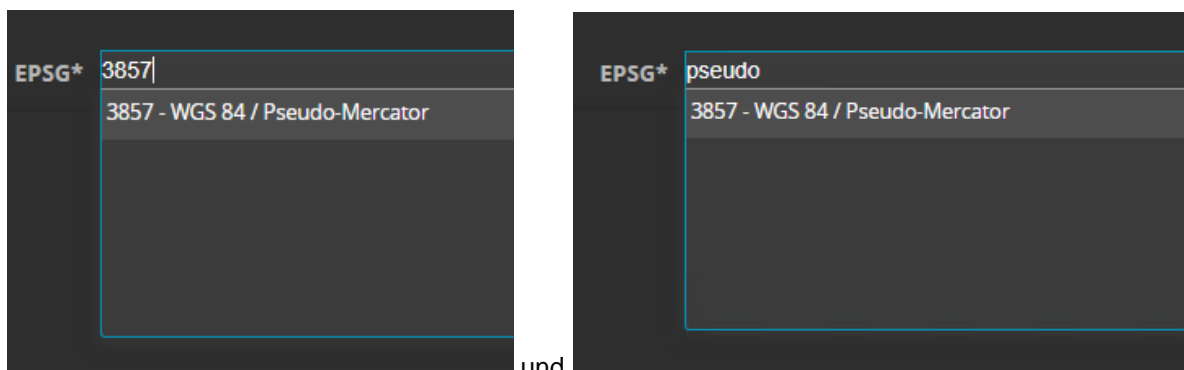
AutoComplete Fields in Lists

Beside **Filter**, we introduced an AutoComplete Field in lists, which allows you to just type in character(s) and the list gets automatically filtered.



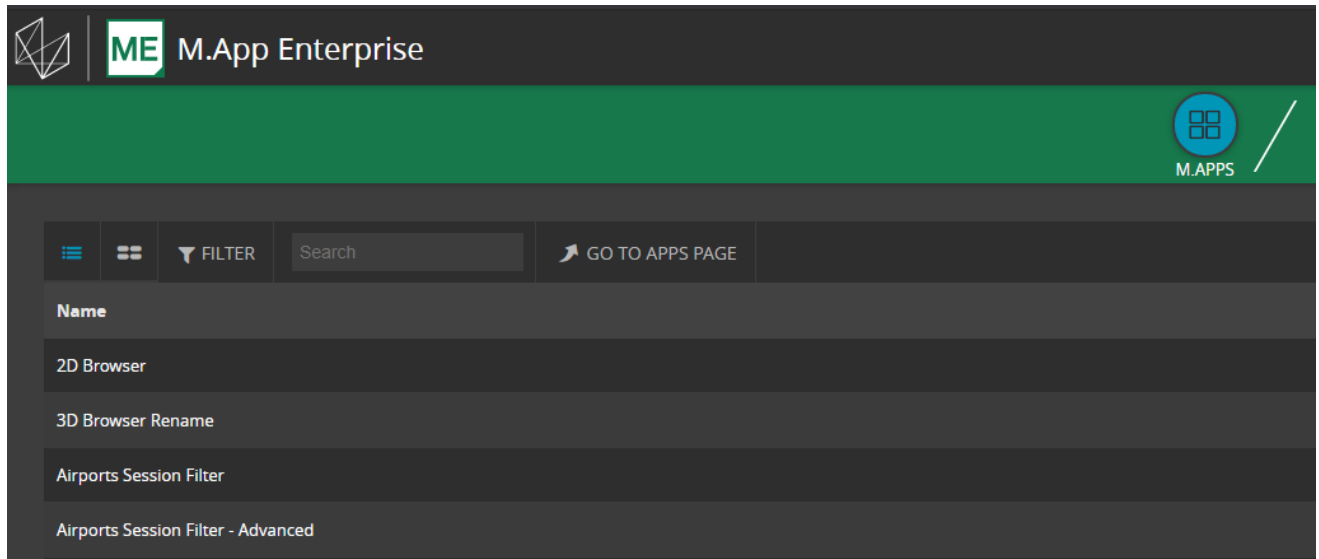
EPSG Code or Name

With the M.App Enterprise 2021 release, we introduced a new behavior in using EPSG codes within the apps. Type in the EPSG code or the name and get the result as a dropdown list.



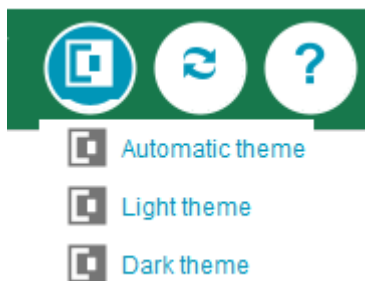
Go to Apps Page Button

Instead of copying the URL of M.App Enterprise Studio, replacing some URL parameters, and searching out the hashtag in the URL to run the MyApps Page, a new method has been introduced in this release. In the Studio, there is a new button called “Go to Apps Page” that allows you get to the login window with one simple button click.



New Icons in Desktop Client

In M.App Enterprise 2021 you will find three new icons in the right top corner of your desktop app.



From left to right:

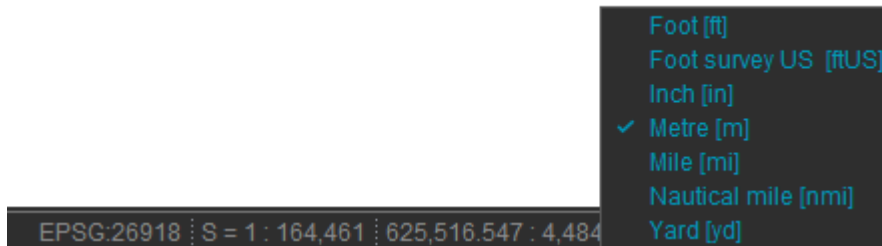
- **Switch themes:** Currently, the desktop client uses the values of your operating system. With this icon, you can overwrite this behavior.

Note: If you switch the theme, the app is restarted.

- **Reload:** The reload of the app is now an icon instead of a plain button with text.
- **Help:** This icon is back in M.App Enterprise and allows you to open up the documentation on FluidTopics.

Changing Unit of Measurement (UOM) in the Desktop Client

With the release of M.App Enterprise 2021 we introduced a new feature, which allows you to change the UOM on the fly. At the bottom right you find the current UOM (default = meter), and by clicking on it you can change it to the following options:



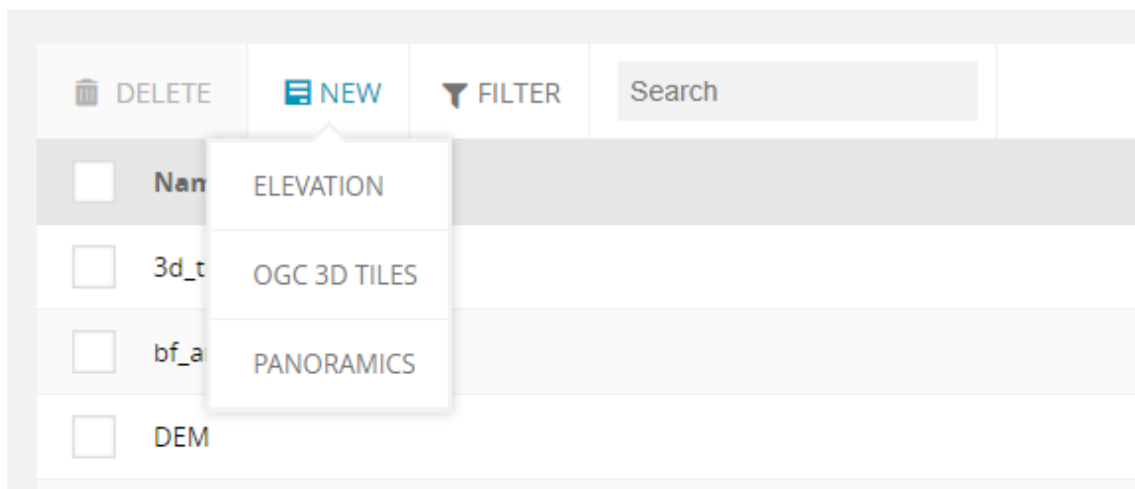
This setting is saved on the client side. Only a manual override will change it.

Support for Panoramics


Note: Panoramics only work in M.App Enterprise 2021 with a PRO license.

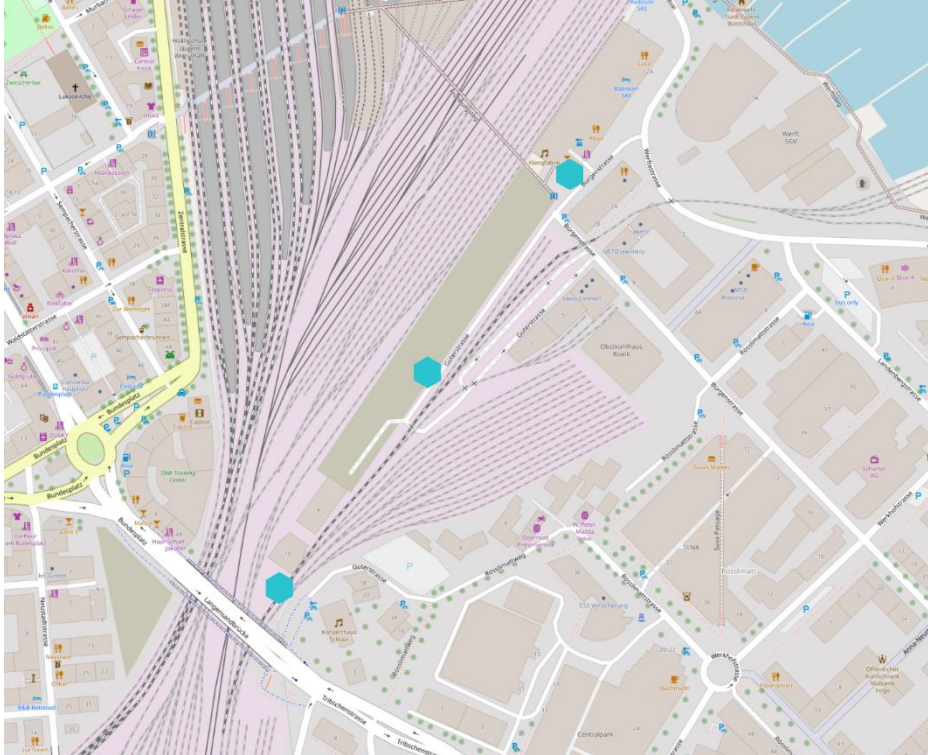
Note: You have to do all the data crawling and creating of the service itself in LuciadFusion for M.App Enterprise.

With the 2020.1 release of the Luciad portfolio, panoramics were introduced with a new service endpoint, which is also available in M.App Enterprise 2021.



As soon as you point to the endpoint of the panoramics service, you should have it available for all browser-based apps. You can use it in a “normal” map view based on LuciadRIA as well as in Feature Analyzer. To exit

panoramics mode in Feature Analyzer, click the door icon, .



For more information, visit: <https://community.hexagongeospatial.com/t5/M-App-Enterprise-Tutorials/How-to-visualize-Panoramics/ta-p/41542>

Issues Resolved

Salesforce Ticket Number	Subject	Description
00056102	Feature Analyzer doesn't honor scale set on Dataset	We have customer data that has more than 300k records for the feature data to be used on Analyzer. The boundary data that is linked has more than 600k records. The analysis is done fine with feature data, but when doing a zoom to all the country it takes some time to load the boundary, and sometimes it reaches the memory limit of the browser .
00045490	Customized legend: unpleasant visualization	Is a customized legend (custom_legend.png) visualized in other charts - for example within the Date-Chart - there are three ' ' set in front of the text.
00032807	M.App Enterprise - WMS service without request	The WMS service from M.App (MyGeoservices) does not work correctly when REQUEST is not present in the URL.
00043620	Vector data imported as EPSG 2925 shows invalid when set to Caching	When importing datasets into Vector Data in MAE the import goes fine. However when reviewing the imported Vector Data it is showing as invalid when Caching is checked during the import. Upon further review there is message that "An error occurred importing vector data! Please define caching information manually.
00044802	Usage reported one day before in Management statistics	When reviewing usage in the master database the Usage records are tracked accurately to the date the session occurred. However, we have noticed that in Management, the Usage report is showing these same records as though they occurred a day earlier than they actually occurred.
00060468	German Official WFS not running	
00069647	Sorting Value Legend after Manual Configuration of colours	Bar graph Widget in MApp Enterprise Browser Application, the numbers in the legend aren't sorting from 1 to 10, but they are doing the following: 1,10,2,3,4,5,6,7,8,9.
00062533	Selection via Map on bigger scale in rich client not working	
00063834	Text Style Rich Client	There is a problem using attribute based text-styling. Assigning databasefields for "fontfamily", "fontstyle" and "fontweight" takes no effect on the text shown in the application.
00031667	Browser does not support expert point placement: label rotation	With expert point placement a value from database for the rotation angle is used. This works fine in desktop, but in browser same feature class with same settings are displayed standard, without rotation.
00036726	M.App Enterprise: Styleset > different Scales: not shown in GUI	In the Styleset of M.App Enterprise Studio I have the possibility to define different styles for different scales. But all additional scales disappear after saving and cannot be displayed.
00067240	WMTS not working on the same WMS data	
00056513	Saving of MODIFY when edit feature against Oracle line/polygon with curves brings error	When using the MODIFY command to edit Polygon/Line features that contain curves there will be an error upon saving those edits. ORA-29877: failed in the execution of the ODCIINDEXUPDATE routine ORA-13347: the coordinates defining an arc are not distinct

00055343	SRID missing for WMS	
00069956	Failing to remove a vertex results into a bug	
00061708	Geometry won't save on persisted element	When trying to add a geometry to an existing element, it creates a new entry.
00066756	Cannot parse datetime value into a datetimepicker FormField	When a datetimepicker FormField which contains override=true, getdate() as a defaultvalue and visible=false gets created, it throws an error: The string was not recognized as a valid DateTime. There is an unknown word starting at index 0
00067168	Edit geometry will not perform a fit action	
00067165	Visual Bug when using the move option in edit geometry mode	
00058507	Heatmap doesn't honour value order on axis when working with numbers	
00059255	Json template import problem	
00068601	Pie Chart Legend Order	There is a COVID-19 Feature Analyzer M.App that displays case counts by zip code in ranges of 5. Functional Attributes to group the counts in the ranges is used but the resulting pie chart doesn't order the legend entries in numerical order
00068777	Feature Analyzer - View Template cannot be saved	The save button does not appear though I click on several tabs of the configuration. Also, adding a chart does not make the save button visible.
00059436	Feature Analyser issue	Feature analyzer data are showing perfectly (as cluster) on 16.5.6 version but on new version data is showing (points).
00060473	Error occurred while importing vector data - EPSG 25833	
00069044	Geometry locate not working	
00069443	Error while trying to load a live area dataset as a boundary in feature analyzer.	
00069774	Installation repair cannot finish, breaks installation	When you run installation repair from Control Panel it will delete WarehouseLocation value from the master database, ending up in not working environment - M.App Service cannot be started. The installation repair thus cannot be finished and rolls back. Furthermore, MAE configuration must be re-run for adding the WarehouseLocation property back to master database.
00070080	Registration of the M.App Enterprise Usage is not correct	
00070174	MAE - STUDIO - STYLESET - Deleting a STYLESET in studio doesn't deletes its matching folder in the server	
00070586	Desktop Queries	Queries - on a field with values like "2558/6" defined as text - with input "2558/6" does not work but with 2558_6" it works.
00070960	BROWSER - FEATURE ANALYZER - Error reading the input feature data: Cannot read property 'find' of undefined	After creating a new FA view and opening the FA editor, trying to apply a FEATURE DATA source prompts an error: "Error reading the input feature data: Cannot read property 'find' of undefined". This only happen if the tenant doesn't have a registered VECTOR SET in the tenant's DB schema

00071732	Can't use database field for rotated symbology	
00052625	Desktop app shuts down on opening	
00053028	Language for M.App Enterprise won't be downloaded automatically	
00060982	STUDIO > My GeoServices > Dataset list in empty if not making at least one Vector Set in tenant	
00063898	Desktop queries raise error when using Hebrew characters in query where clause	
00063941	Updating Hebrew language package make desktop app not to work	
00064015	Print Layout Editor - Ungroup button missing	
00064467	DESKTOP > PRINT LAYOUT EDITOR - How to add MAPCROSSES on top of a map element?	
00064469	DESKTOP > PRINT LAYOUT EDITOR - After opening a *.mepl file, the MOVE ELEMENTS tool isn't working	
00064525	Feature Analyzer Tooltips on polygon, don't work anymore in latest version of Chrome (Version 83.0.4103.61 (Official build) (64-bits))	
00064515	DESKTOP - Count of records in query result don't appear until removing a record	
00064568	Tooltips work only on EDGE browser	They work only in Edge browser. On other browser we have always the "open hand" (pan symbol icon)
00064635	DESKTOP > PRINT LAYOUT EDITOR - How to set legend for right-to-left entries?	
00064735	DESKTOP > PRINT LAYOUT EDITOR - Text element containing LOWERLEFT placeholder, having wrong X coordinate	
00064953	MAE don't read attributes and views data from other than the "public" schema of PostgreSQL – only for Attribute DATA	
00065187	DESKTOP - App is crashing when scrolling zoom fast	
00065412	DESKTOP > PRINT LAYOUT EDITOR - Having a long layer name in legend, makes column to disappear	
00065742	Some texts are in English despite German language settings	
00065862	Running feature buffer recipe failed	
00066045	DESKTOP > ACTION SET - workflows to be accumulated instead of being replaced when opened more than once	
00066183	DESKTOP - Upgrading to 16.6.364.4 from 16.6.265.2 causes errors with app handling geometry create/edit workflows	
00034280	Custom polygon styling	
00034299	text rotation issue	The text rotation works in the preview but will not work when applied to the map.
00053700	Feature Analyzer - Export Attribute Data - CSV	Database entries with commas, which are used as tooltips in a Feature Analyzer app, get a csv file where all commas within the cells are replaced by an underscore and the cell content is enclosed in quotation marks.
00054754	DESKTOP CLIENT - Geometry creation/modify problems	1. No option to rotate point feature when creating. 2. The desktop app gets 'stuck' when trying to edit an existing entity (point in this matter). Some background notes: 1. Inspecting our ORACLE DB generated entities in a SQL client (PL/SQL Developer) resulted with some notions: 1a. The before-installation entities have a 6

		row 'sdo_ordinates' while the new one haven't got any. 1b. There's some inconsistencies in the 'sdo_elem_info' as well. 2. This is the JavaScript we used for modify geometry action SC.digitize('AMUDIM', {commands: ['MODIFY','MOVE'], startOnLoad: 'MODIFY'},{FORM.ID})
00066951	Import of [Shared] Bookmarks	If they're shared, ME adds [shared] to the export, which causes an error when importing it.
00052733	Dropdown list maximum restriction	
00053603	Feature Analyzer date range format doesn't honor localization	
00056037	Analyzer View Performance issue	
00056047	Some texts are in English despite German language settings	
00056247	DESKTOP CLIENT - using the JS below the client allow rotating a point but seems not to save it in the Oracle 12 database	
00056598	DESKTOP - Change alignment of table field names	When using a Hebrew defined user, the table field names aren't aligned to the right.
00043409	Issue in Workflow Editor: Not deleting unneeded Form object from the tree	
00043453	Error when changing the password for the admin	
00055094	Mobile: Login Timeout ("Could not sync change")	
00055340	ZOOMING IN - problem	
00044627	Styles with filters and scales not working	
00067389	save user id by sql trigger in mobile application	
00067498	Problem passing additional WMS parameters in M.App Enterprise 3d View	
00057073	how to create a multi-area geometry in MAPP Enterprise	
00057162	STUDIO > STYLESET > Unable to see different defined scales when reopening layer style in case of custom style filter	
00057242	STUDIO > DESKTOP > LEGEND - Unable to order a sub-theme with layers in the same level	
00057324	Geoservice not working in Browser App	
00058711	Point Clustering Gone?	
00066052	Web based application down	
00033364	Feature Analyzer Issue	When referencing a Vector Set in Feature Analyzer that includes a point/poly data set with a 1-to-Many relationship (i.e. polling places and precincts where a single polling place serves multiple precincts) only 1 polygon per point is displayed.
00052260	Issue publishing WMTS service	
00054500	Error downloading and/or updating Localization languages	
00059174	Sorting columns goes wrong in the FA table widget	
00068475	Issues adding WMTS from Apollo to Rich Client	
00059466	Clusters and point data	
00059825	Unable to see Apps when logged into MAE as an Active Directory User.	
00069171	Editing point geometry issues in RichClient 16.6	When clicking the "Edit Geometry" button, strange things happen. Steps to replicate: Select one point geometry Edit this geometry All points within an "undefined" bounding box gets selected for the edit and error occurs all_gem_selected.jpg In

		other instances, RichClient gives "No features are selected" message, when Edit button is clicked
00069493	Search Bar	Out of the box functionality search bar at the bottom right hand side of the screen continues to search when the search box is empty.
00070603	Text search(full) returns 'no value found' in cases when string contain Hebrew characters only	
00070681	MAE 16.6 - Desktop App JS API - SC.digitize issue	
00070730	MAE tooltips issues	
00060708	invalid geometry in ME	
00061693	Add login name in the activation email	
00063791	Posibilidades de MAE en cuanto poner cartografía de fondo.	
00063889	Print layout template don't appear in desktop M.App Enterprise	
00065937	Upgrade and Installation of MAE	
00065965	Issue with the Workflow Engine regarding translation	
00066706	Analyzer View Linestring Bug	
00066957	Duplication of legends	When selecting an action button that creates a new legend entry it duplicates that entry
00056349	BI M.apps not showing geometry when using none WGS84 data in the APPS.	
00067754	WMS with EPSG28992 is not showing correctly in desktop app	



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

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