HEXAGON
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RELEASE GUIDE

M.APP ENTERPRISE 2018

September 24, 2018

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Contents

ABOUT THIS RELEASE

This document describes the enhancements for M.App Enterprise. Although the information in this document is current as of the product release, see the Hexagon Geospatial Support website for the most current version.

This release includes software fixes. For information on fixes that were made to M.App Enterprise for this release, see the Issues Resolved section. For information on enhancements, see the M.App Enterprise Product section.

This document is only an overview and does not provide all the details about the product's capabilities. See the online help and other documents provided with M.App Enterprise for more information.

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, 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.

NATIVE MOBILE CLIENT

With this release of M.App Enterprise, we added a mobile client. M.App Enterprise Mobile is an application for mobile operating systems and can easily be configured to support customer-specific needs. The app supports the systematic recording of location-based business transactions. The processing of location-based information and the control of operations is supported through a 3-tier architecture and can therefore be optimally adapted to specific customer needs.

MOBILE ARCHITECTURE

- Native app on (mobile) platforms Android, iOS and Windows 10.
- Oracle, SQL Server, or PostgreSQL database connections supported.
- Customization and configuration through XAML (Extensible Application Markup Language)
- Client-side implementation of JavaScript Scripting API
- Extensibility or integration of custom data sources using .NET

MOBILE WORKFLOW INFORMATION MANAGEMENT FEATURES

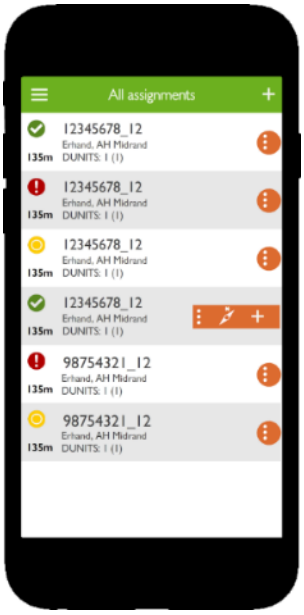
The Mobile workflow is a sequence of activities that must be carried out to start location-based business processes or to collect and process customer domain-specific data via mobile devices. This data can be in a variety of formats:

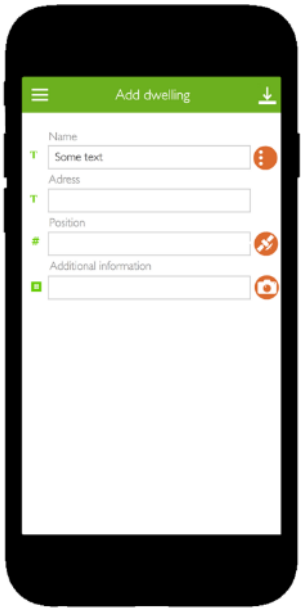
- Structural textual information
- Geometry data (areas, lines, points)
- Offline document data (PDF documents)
- Image data
- Voice recordings
- Video recordings
- Location-based information (GPS tracks, ongoing position tracking)

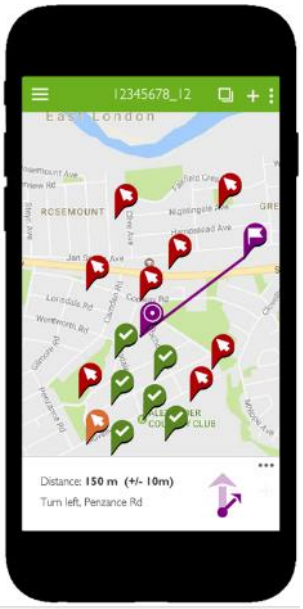
M.App Enterprise Mobile supports the following activities for information management:

1. Start a task from Dashboard, Map, Menus, and List.
2. Edit a task using forms
3. Edit a task using map modules
4. Navigation between different tasks via menu, lists and actions

The app provides the user interface for mobile employees for information and records management.







MOBILE CONFIGURATION AND USER MANAGEMENT

Operational backend systems for information management are connected via configurable interfaces. M.App Enterprise Mobile's standard components support configurable and extensible interfaces:

- Configuration management for information architecture
- Configuration management for connecting to operational backend systems
- User management
- Intelligent synchronization

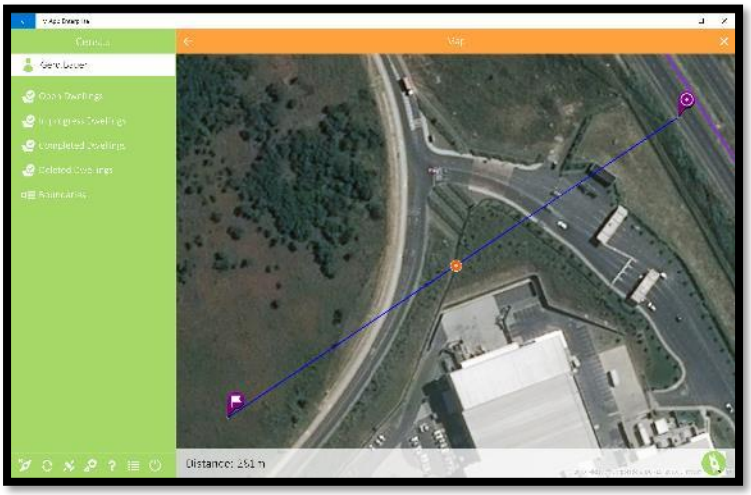
In addition, M.App Enterprise Mobile supports:

- Location-based inspections and logging
- Location-based operations and logging
- Location-based survey and logging
- Encrypted communication and offline storage

M.App Enterprise Mobile is built with Microsoft latest.NET open source multi-platform technology Xamarin using platform-specific hardware acceleration. M.App Enterprise Mobile uses native user interface controls and is compiled for native performance.

MOBILE SUPPORT FOR LOCATION-BASED WORKFLOWS WITH MAP CONTENT

- Loading and displaying vector layers
- Loading and displaying WMTS layers
- Area-based caching of map data for optimal performance
- Editing tools for geometry capturing and modification
- Routing and geotracking
- Displaying native device maps (Google, Apple, Bing Maps)



MOBILE SUPPORT FOR LOCATION-BASED INFORMATION MANAGEMENT

- Geocoding for location-based information capturing
- Geotracking for monitoring purposes
- Editing of map content
- Checklists and intelligent forms for location-based workflows
- Intelligent form elements for optimal user experience
- Dependencies and conditional validation of form fields
- Additional form-specific actions and services

A comprehensive set of user interface elements for mobile devices enables the management of complex location-based information by various means that include:

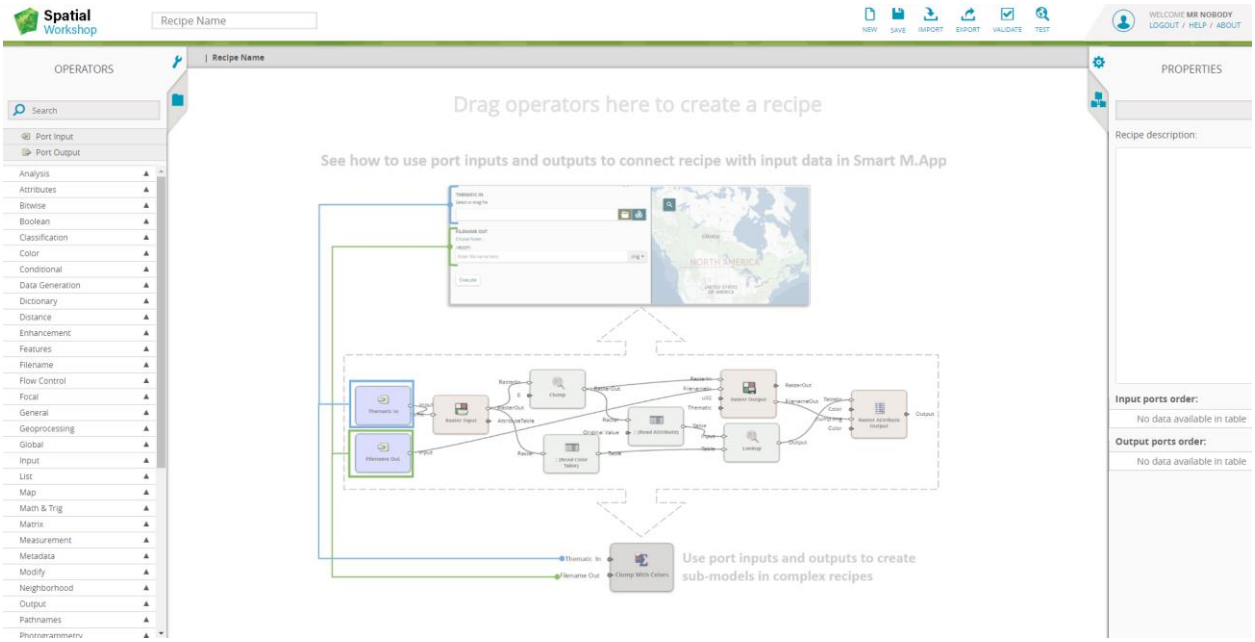
- input fields with different formats
- collection of linked information in tabular form
- collection of Geoinformation
- processing checklists
- embedding of PDF documents and displaying them.
- direct integration of the camera with preview support
- direct voice input in input fields
- direct navigation to the map from forms and lists

Location-based workflows are supported by various activities using lists, forms, and maps that include:

- capturing area information with touch or pen supported drag & drop
- capturing line information with touch or pen supported drag & drop
- capturing point information with touch or pen supported drag & drop
- location-based on-demand offline caching
- direct road navigation to objects selected in the map
- layer control to hide and show layers
- measurement functions in map layers

GEOPROCESSING

With this release of M.App Enterprise, you can leverage the geoprocessing capabilities from M.App X and add them to your M.App Enterprise apps. M.App Enterprise Studio comes with the Spatial Workshop UI to manage your spatial recipes the same way you are used to from the Smart M.App environment.



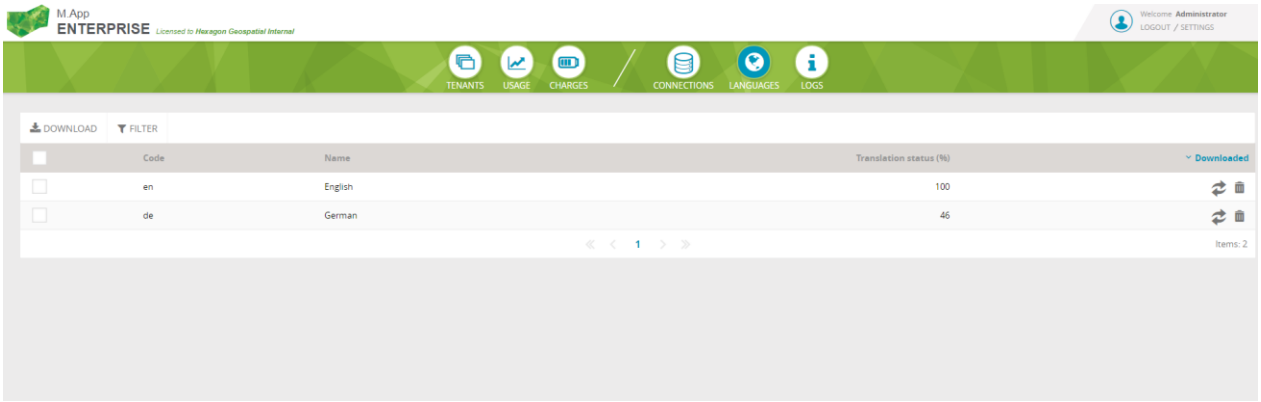
You will find more information here:

https://community.hexagongeospatial.com/t5/M-App-Enterprise-Tutorials/Build-a-Browser-App-to-run-a-spatial-Recipe/ta-p/26072

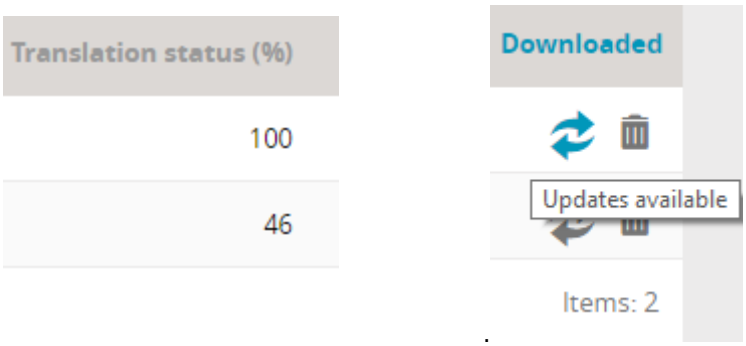
I18N PRODUCT LOCALIZATION

With this release of M.App Enterprise, you can use localized versions of the product.

MApp Enterprise Management console includes a solution for easily downloading language packs for all available languages.



You get a list of all available languages including current translation status (the grade of completion) and you are also notified if there are updates available. The downloaded language packs are stored in the M.App Warehouse, so if you have multiple M.App Enterprise installations on different servers that are connected to this warehouse, you need only download it once.



The following components are localized:

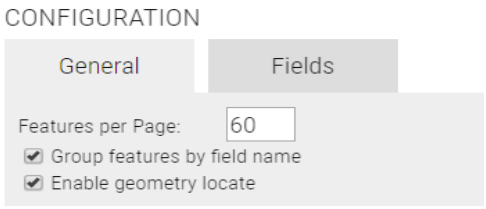
- Management Console
- Studio
- Apps page
- Desktop Client
- Mobile Client
- Feature Analyzer
- Workflows (Software only)
- App Launcher

FEATURE ANALYZER UPDATE

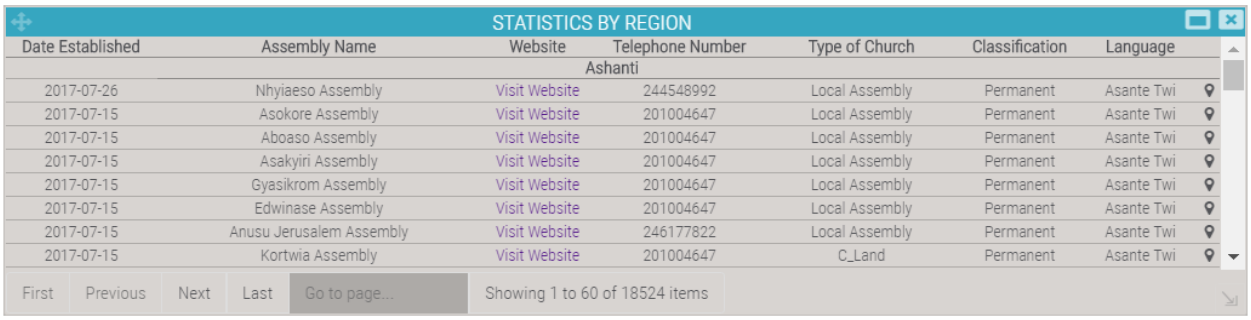
This release includes an updated version of Feature Analyzer. Highlights are listed below.

DATA TABLE CHART (GEO-LOCATE ADDITION)

The **Data Table** chart now supports a Geo-locate capability. To enable, click the **Enable geometry locate** checkbox in the data table configuration:



After clicking Apply, you will see a marker icon in each row of your data table:



Clicking the marker will fit the map to the selected row.

NUMBER DISPLAY CHART (MORE STATISTICS)

The **Number Display** chart is a read-only chart. This chart can be used to display statistical reports. With this latest release, your reports can now include **Number of Records with Numeric Values**, **Minimum Value**, **Maximum Value**, **Standard Deviation**, **Variance**, and **Range** values. Below is a sample default report showing the default layout with all the supported statistics.

EXAMPLE 1: NUMBER DISPLAY CHART (SIMPLE TABLE - DEFAULT)

Filtered:	18,524
Total:	18,524
Records with Numeric Values:	18,524
Min:	0
Max:	11,111
Standard Deviation:	236.92
Variance:	56,130.6
Mean:	131.58
Sum:	2,437,300.15
Range:	11,111

Please note that HTML can be used to modify the layout, contents, and style of your reports. Below is an example of a **Number Display** chart displayed as a formatted table.

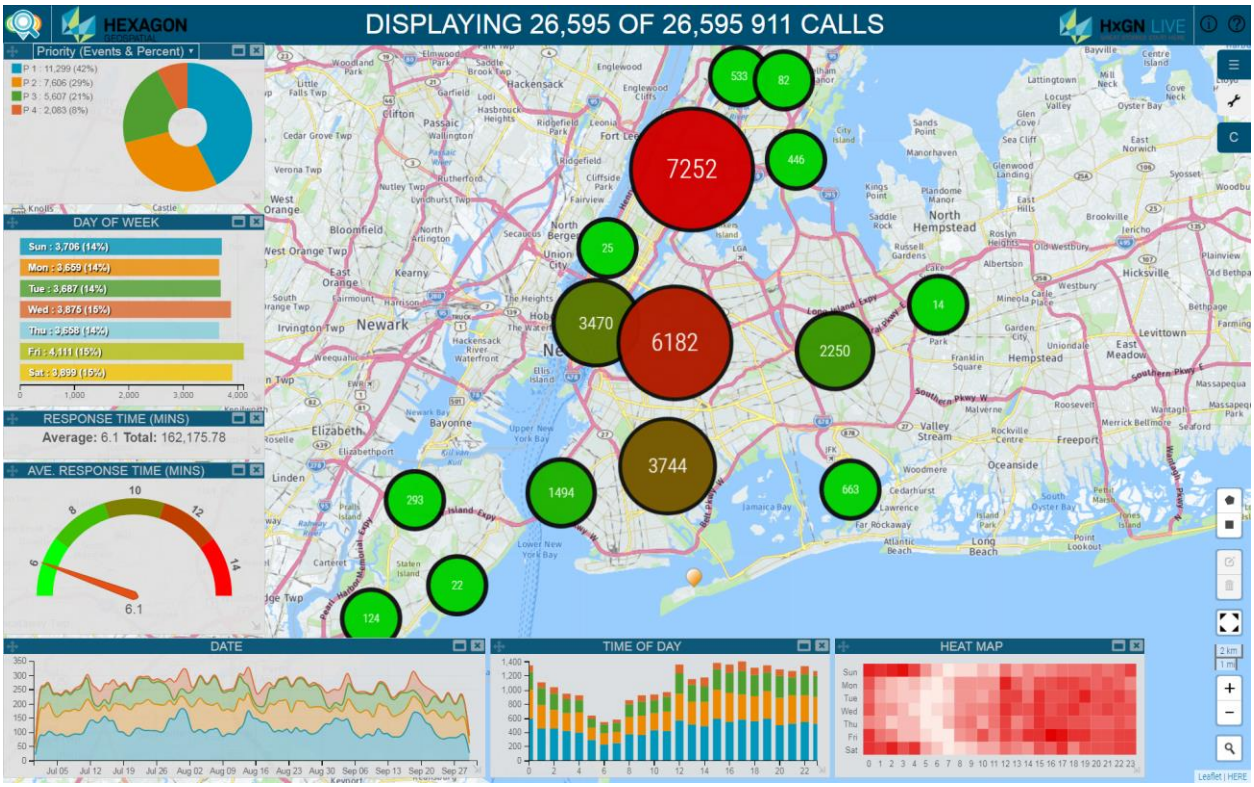
EXAMPLE 2: NUMBER DISPLAY CHART (FORMATTED TABLE)

Description	Statistic
Filtered:	18,524
Total:	18,524
Records with Numeric Values:	18,524
Minimum Value:	0
Maximum Value:	11,111
Standard Deviation:	236.92
Variance:	56,130.6
Mean:	131.58
Sum:	2,437,300.15
Range:	11,111

Click me to have an interactive look at this new feature in action.

THEMATIC CLUSTER MARKERS

Cluster markers are used to declutter a map. Points are aggregated and displayed via cluster markers. Each cluster marker includes a label to represent the number of incidents within each cluster. Cluster markers let you quickly gain insight on incident location, distribution, and pattern. In the example below, you can quickly discern hotspots (the red cluster markers containing 7252 and 6182 calls).

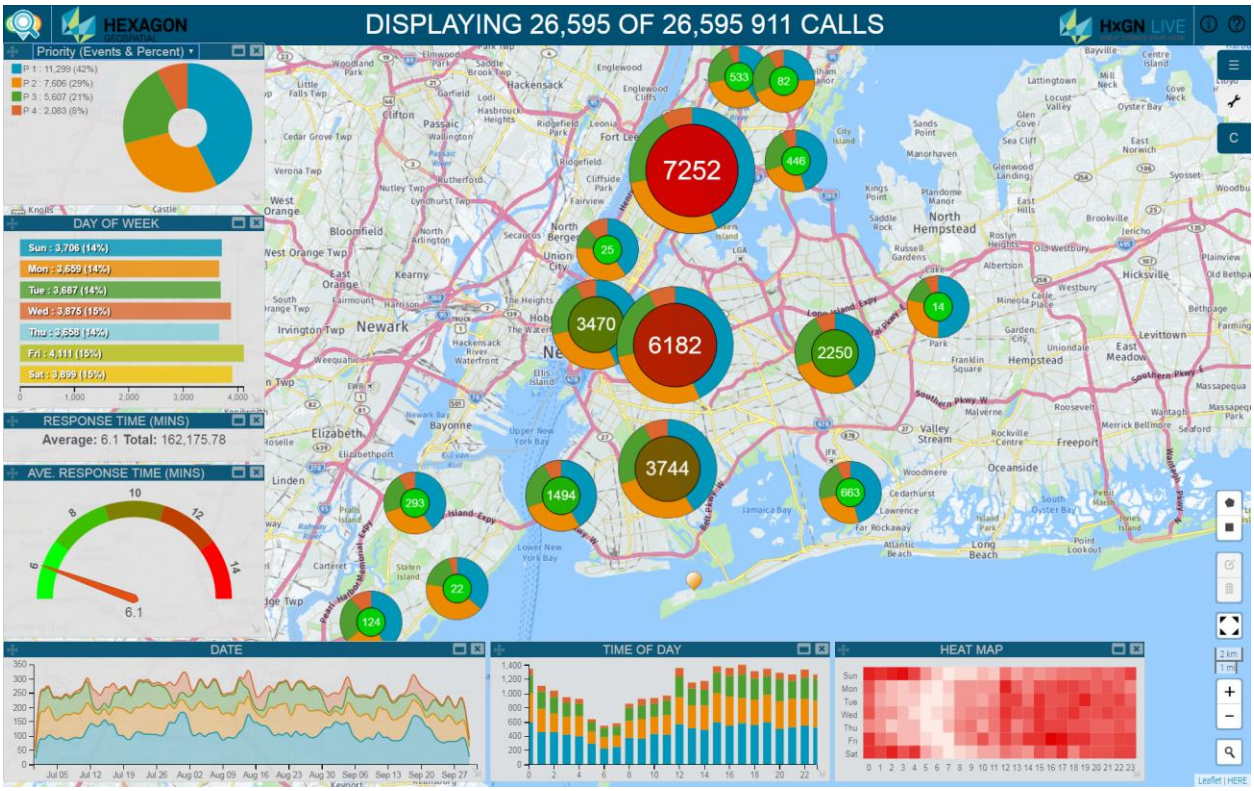


However, from this representation, it is difficult to deduce the make-up of incidents within each cluster. With the addition of Thematic Cluster Markers, you can now gain additional insight regarding the data represented by each cluster marker.

Cluster Markers as Donut Charts

In the example below, the theme chart **Priority (Events & Percent)** in the upper-left contains 4 categories (P1, P2, P3, and P4), this chart denotes the distribution of the calls by their priority for the entire dataset.

This information can now be used within the cluster markers themselves, with each cluster marker thematically depicting the distribution of the calls within that cluster by using donut charts.

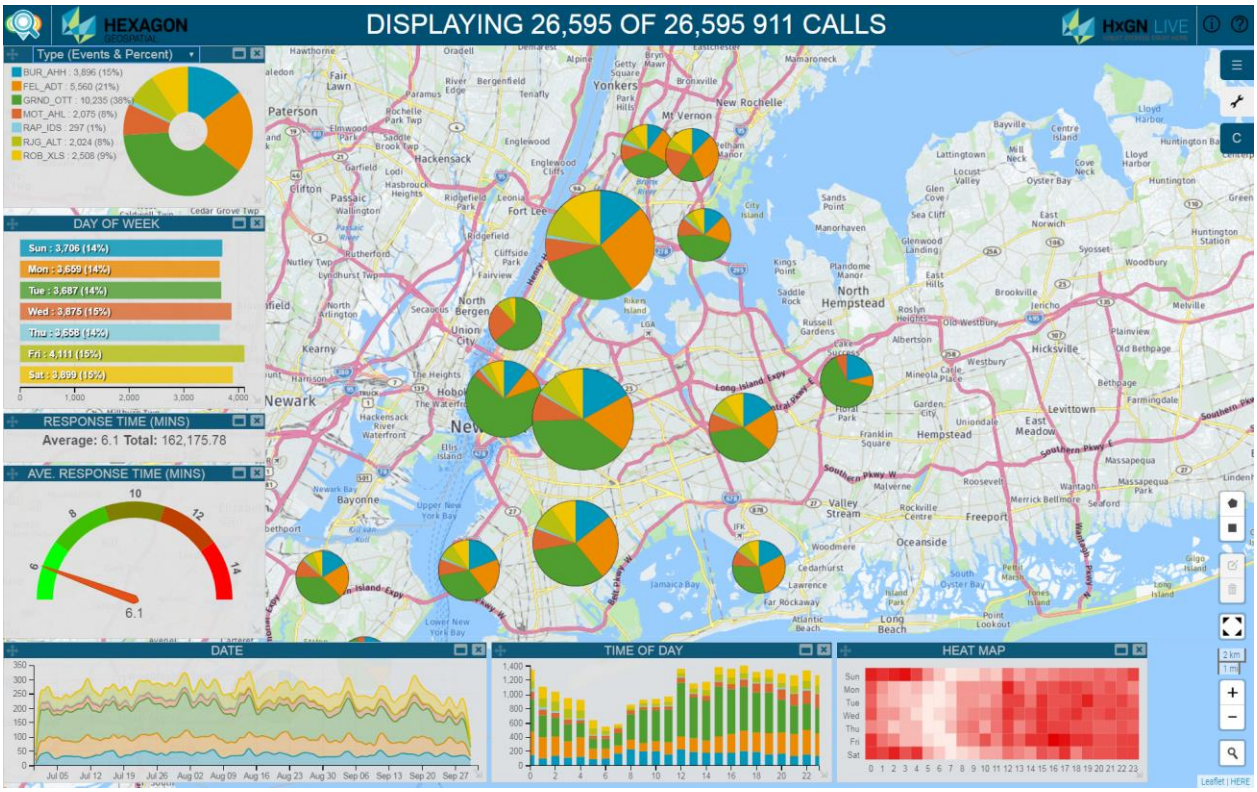


[Click me](#) to have an interactive look at this new feature in action.

Cluster Markers as Pie Charts

In the example below, the theme chart **Type (Events & Percentage)** in the upper-left contains 6 categories of call types, denoting the distribution of the calls by the call code for the entire dataset.

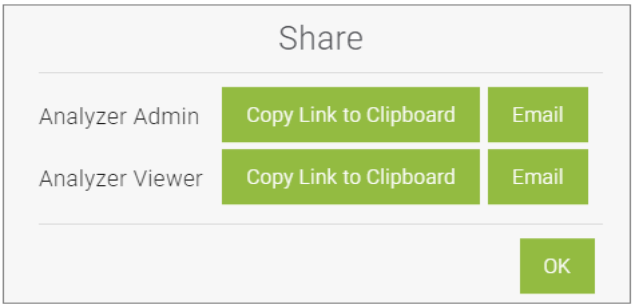
This information can, like any thematic information, now be used within the cluster markers and hence each cluster marker can thematically depict the distribution of the calls within each cluster by using pie charts.



Click me to have an interactive look at this new feature in action.

SHARE VIEWS (MORE OPTIONS)

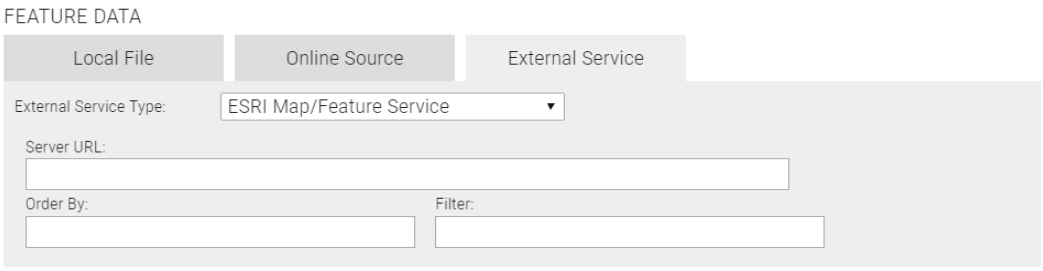
You can share your views with others in your organization. With this release, you can now specify which type of user you would like to share your view with (for example, with an **Analyzer Administrative** user or an **Analyzer Viewer** user).



Clicking the **Copy Link to Clipboard** button copies the appropriate URL link to the view to the clipboard. Clicking the **Email** button opens your email client and populates the Subject field with *Check Out My Analyzer View*. The contents or body (or email thread) includes a URL link to the view.

MORE EXTERNAL WEB SERVICES SUPPORTED

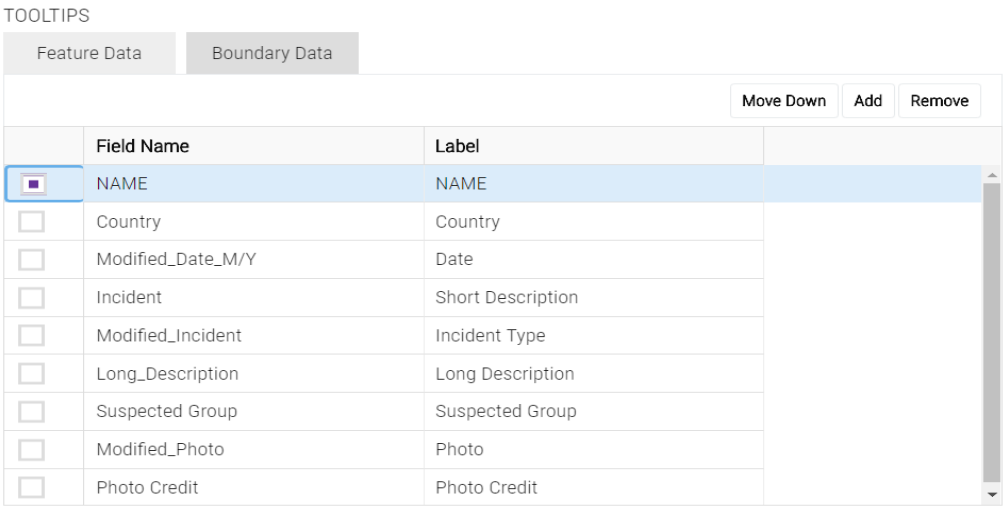
There is a new tab called **External Service**.



Use this tab to specify connection parameters for the supported service types (**Web Service**, **ESRI Map/Feature Service**, **Web Feature Service (WFS)**, or **Where's My Transportation**).

TOOLTIPS FOR BOUNDARY DATA

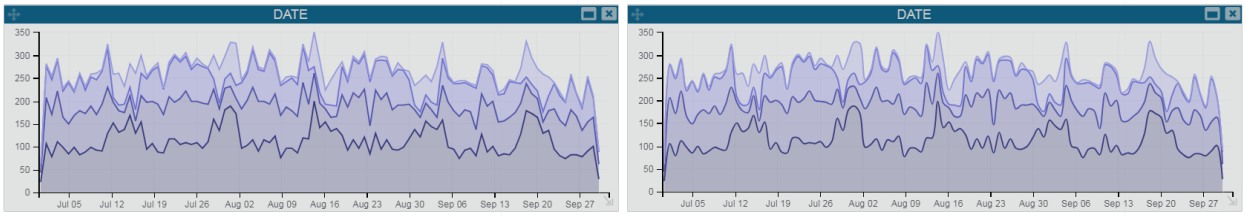
Tooltips can now be defined for **Feature** data and **Boundary** data. With this option, you can now access tooltips for both data sources. From the **Tooltips** tab, add attributes for either data source.



ADDITIONAL INTERPOLATON (LINE CHARTS)

Splines are a mathematical means of representing a curve by specifying a series of points at intervals along the curve and by defining a function that allows additional points within an interval to be calculated. In addition to the seven options already supported with line charts, a **Catmill-ROM** option has been added.

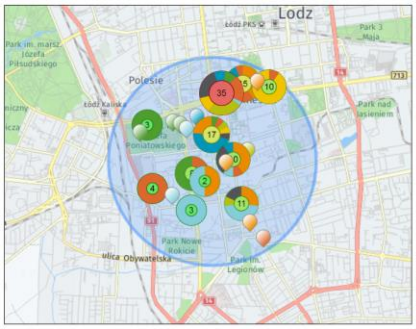
In the two examples below, the line chart on the left uses a **Linear** interpolation approach, while the line chart on the right uses the **Catmill-ROM** interpolation approach.

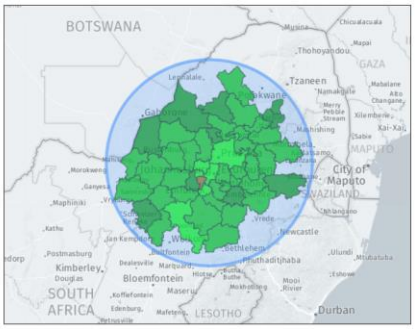


ADDITIONAL SPATIAL FILTERING (CIRCLE)

In addition to the **Polygon** and **Rectangle** spatial filters, you can now also use circles to define spatial filters.

Use the new **Draw a circle** tool to draw a circle-shaped polygon for data filtering. Click the **Draw a circle** button, then click and drag in the map window. This circle filters the underlying features (points, lines, or area).





MIGRATION TO OPENJDK AND OPENJFX

With this release of M.App Enterprise, the technology stack will change for the Java platform**.**

- OpenJDK will now be used as standard virtual machine
- Java Web Start is replaced by a component called “Hexagon App Launcher”
- OpenJFX replaces JavaFX

Considerations

- Oracle announced several changes in the last few months
- Java 11 is no longer free of charge
- Components like Java Web Start have been dropped in Java 11
- Public support for Java 8 is ending by the end of this year

Customer Benefits

- OpenJDK is a cost-effective alternative
- Deployment of a single Java VM across the organization
- No production downtime caused by new Java updates
- Technology stack is moving to the background
- Simplified deployment and performance improvements

ISSUES RESOLVED

CR #	Summary	Description / How to Reproduce
00031285	Polygon feature class with arcs not displaying in Analyzer Views	We have a valid Polygon vector content that is imported as 'CurvePolygon' Geometry Type. It is valid and cached feature coming from Oracle with SRID 3857 set in DB. We can use and display this feature in both Desktop and Browser M.App. The issue occurs when we use this feature in a valid and published vectorset in Analyzer Views. when the boundary data is applied to use this feature the Analyzer View just spins and errors on the 'preview' REST call. The error logged in M.App Enterprise Studio Log is "System.InvalidOperationException: SRID on geometry is mandatory for this operation."
00029538	Multi value tooltip from database is not working in Browser M.App	The tooltip is not displaying correctly within a Map View. Tooltip set to display a number of attributes however it will only display the first item in the tooltip and it will not display the remaining attributes.
00028297	Smart M.App API Documentation Link goes to page not found	The Smart M.App API Documentation link in MAppEditor is hyperlinked but goes to a page on the M.App Enterprise server that can't be found. (HTTP Error 404)
00025434	Date filter within Incident Analyzer showing incorrect results	There is an inconsistent issue with how the date range features are being filtered to the display and subsequent attribute data export. The date range set is not always reflecting in the Analyzer View display and attribute data export the correct results.
00030131	Use of WebMap WFS feature as Feature Analyzer Data Source	I would like to use a WebMap 2018 WFS as a Data Source for a Feature Analyzer app as the documentation states "The web service can run on any platform capable of serving JSON data" so I'm assuming a WFS should be fine. I provide the HTTPS URL to the WFS (running on the same server as M.App Enterprise) which requests a feature in GeoJSON format. Data is returned in EPSG:4326 When I click Apply the message "There was an error reading the input feature data" is displayed.
00031284	No thematic legend entry when ‘Umlaut’ character is present in a style filter	I added several filters to the style for this feature class, all in same pattern for the attribute -klasse- which has the following entries: Öffentlich, Sonstige, Unterirdisch and Wohnen. For exmaple: [klasse] = 'Öffentlich' After adding this feature with the styleset to a desktop app, publishing and starting the app, there is no thematic legend entry

00030341	Typo in List properties	In Workflow Editor when setting properties for the list control there is a type for 'Filterarea is expaned'. It should be something like 'Filterarea is expanded' as it is written in documentation.
00026915	Export from Analyzer View Tooltip is Different from Export Attribute Data from Menu	When a datetime field is present in an Analyzer View tooltip selected features from the map and exported via Tooltip 'Export' will have proper result to csv. The correct data will be in the correct columns. However, when using the Export>Attribute Data from the menu, the resulting .csv has values missing for datetime field and the other column values shift, giving me incorrect results.
00031748	Using WMS/WMTS in browser applications	We still have some problems with using WMS/WMTS in browser applications, mostly in combination with vector data. WMS/WMTS Layers are not displayed in browser applications, in one case the legend says "reference system not supported" even it is the same EPSG-Code. All of my data and services are in EPSG 25832.
	Desktop Client – 4K display support	
	Mail trigger returning 'SMTP host was not specified' despite it being valid in web.config	Mali triggers are not working from workflows. Return error: 'The SMTP host was not specified. a few seconds ago System.InvalidOperationException: The SMTP host was not specified.'
	Update ECWP libraries to the newest 2018 version	
	Invalid flag on vector data should check for CRS bounds (Area of use)	
	Log Panel in Management has wrong time when using PostgreSQL	
	Desktop Client - Exception when there are no symbols used in a StyleSet	
	PostgreSql returns error on Find_SRID when it is not Public schema	

ABOUT US

Hexagon Geospatial helps you make sense of the dynamically changing world. We enable you to envision, experience and communicate geographic information. Our technology provides you the form to design, develop and deliver solutions that solve complex, real-world challenges. Ultimately, this is realized through our creative software products and platforms.

CUSTOMERS. Globally, a wide variety of organizations rely on our products daily including local, state and national mapping agencies, transportation departments, defense organizations, engineering and utility companies, and businesses serving agriculture and natural resource needs. Our portfolio enables these organizations to holistically understand change and make clear, reliable decisions.

TECHNOLOGY. Our priority is to deliver products, platforms and solutions that make our customers successful. Hexagon Geospatial is focused on developing technology that displays and interprets information in a personalized, meaningful way. We enable you to transform location-based content into dynamic and useable business information that creatively conveys the answers you need.

PARTNERS. As an organization, we are partner-focused, working alongside our channel to ensure we succeed together. We provide the right platforms, products, and support to our business partners so that they may successfully deliver sophisticated solutions for their customers. We recognize that we greatly extend our reach and influence by cultivating channel partner relationships both inside and outside of Hexagon.

TEAM. As an employer, we recognize that the success of our business is the result of our highly motivated and collaborative staff. At Hexagon Geospatial, we celebrate a diverse set of people and talents, and we respect people for who they are and the wealth of knowledge they bring to the table. We retain talent by fostering individual development and ensuring frequent opportunities to learn and grow.

HEXAGON. Hexagon's solutions integrate sensors, software, domain knowledge and customer workflows into intelligent information ecosystems that deliver actionable information. They are used in a broad range of vital industries.

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Questions

Contact us with any questions regarding these **Terms**.