What's New in **Maptitude 2023**

Maptitude 2023: New Features Overview

Maptitude 2023 is a major release of Caliper Corporation's popular Geographic Information System (GIS) and mapping software. The 2023 version provides the most up-to-date and accurate data available.

Maptitude 2023 provides the business value you expect when investing in mapping software. Maptitude includes the latest streets, postal data, and demographics. Maptitude 2023 is the fastest and most intuitive professional mapping application, with significant enhancements to sharing, visualizations, and logistics/operations analytics.

Key Features of Maptitude 2023

1. Sales territory map editing is now faster. It is also much easier to **switch between multiple territory layers in a map** using the redesigned Territory Manager. When using selection sets to manage your alignments, you can now track multiple running total columns.
2. The most up-to-date geographic and demographic information available, including the latest data and boundaries from the **American Community Survey (ACS) and 2020 USA Census**.
3. **Maptitude Online** allows you to easily **share** your desktop Maptitude data privately with your team or publicly as a web app. Map background tiles are now provided for **Germany, Austria, Switzerland, France, Italy, and Portugal** in addition to the UK, Ireland, Canada, Australia, New Zealand, and the USA. Shared maps can also be embedded on your website as an **iframe**.
4. **Maptitude Online as a stand-alone SaaS application** allows you to map your data using any device or operating system. New features allow you to **select and filter** map features and dataviews, to **delete** map layers, to **add multiple spreadsheets** of data to a map, and to **add new thematics and analytics to an existing map** using the Create-a-map-Wizard and sets.
5. Maptitude continues to expand support for **MapPoint** users with the ability to **import pushpin information labels** and to **import read-only drawing items**.
6. The enhancements to the Routing Deliveries & Pickups tool provide powerful new logistics features for **optimizing your delivery fleets**. You can model multiple vehicles, routes, and depots, over multiple days, with rest stops, time windows, and balancing. In addition, routing calculations are now faster.
7. A variety of new and improved visualizations have been implemented that include a scatter plot chart and **large area hot-spot thematic maps**.
8. Interoperability with external data has been expanded with support for **OpenStreetMap point and area layers**, in addition to lines.
9. The entire interface can be **translated into Chinese or Spanish** simply by changing a preference. The addition of Unicode supports the display of characters and fonts in different languages.

Maptitude can map your information whether you have data from Google Maps, from a Microsoft mapping product such as MapPoint, or from Microsoft Office. You can analyze your information using the intuitive Maptitude 2023 mapping wizards and export your results as attractive, preformatted Excel or PDF reports, or **upload them to Maptitude Online for public or private sharing**.

Maptitude delivers easy-to-use professional mapping tools and data at the unbeatable price of only US$695 (or US$420 for Maptitude Online.) For pricing and ordering information, please visit the Mapping Software Store, e-mail Maptitude Sales, or call US sales at +1 617-527-4700.

New Data

Maptitude 2023 comes standard with one detailed Country Package of your choice, and additional Country Packages can be purchased separately. Each Country Package includes a wealth of data unavailable in any other product, such as an up-to-date street layer with addresses for pin-mapping (geocoding) and travel time information for computing routes and drive-time rings. Features such as building footprints for many urban locations, railways, and named landmarks are also built into the software. The comprehensive landmarks range from public facilities to commercial buildings including businesses, restaurants, and retail stores, and include addresses and phone numbers where available. Where available, postal data and detailed demographics are shipped with the product.

As you switch between the countries you have purchased, Maptitude will seamlessly refresh the interface with country-specific tools such as Create-A-Map Wizard and tools for finding, pin-mapping, and routing. New Map Libraries allow you to easily create attractive geographic and demographic maps while locating unlimited numbers of addresses and territory-based records.

The basic global map that is provided with every Maptitude license enables you to view your data for anywhere on Earth, and it allows you to map your locations by coordinate, manually, or by any populated place (village/town/city).

United States

New U.S. datasets provide access to the most up-to-date geographic information available. Maptitude 2023 comes with October 2022 HERE® Map Content, which allows for accurate address locating and street visualization, in addition to robust data that you can use to calculate directions, drive-time rings, and drive-time territories. Speeds based on HERE Traffic Patterns are included.

Other 2022 U.S. map layers from HERE include those for buildings, highways, railroads, and landmarks. The Points of Interest layer contains over 3.7 million named public and business locations.

Maptitude 2023 ships with the January 2023 ZIP Code update to ensure that you are using the latest data. The 5-digit ZIP Code boundaries are a nationwide area database with ZIP Codes for all 50 states, the District of Columbia, Puerto Rico, and the territories.

Other standard features of Maptitude 2023 are updated 3-digit ZIP Code areas and a point database of ZIP Code points for the entire country. The ZIP Code area layers extend into non-deliverable areas to provide complete coverage of the USA. The 3-digit and 5-digit ZIP Code areas include updated counts of businesses by detailed industry type (retail, finance, etc.), along with the number of employees working in each ZIP Code, and annual payroll figures. The ZIP Codes are also classified by their updated rural-urban commuting characteristics and with the numbers of hospitals, hospital beds, and healthcare providers. The HERE street layer now indicates whether a street permits cars, buses, deliveries, emergency vehicles, motorcycles, pedestrians, taxis, through traffic, or trucks.

The US Census boundaries (e.g., Tracts, Places, Counties, MCDs, MSAs, States) and the 3- and 5-digit ZIP code areas that come with Maptitude contain some or all of several demographic profiles from a variety of data providers. These sources include the 2020 Census and the 2021 American Community Survey (ACS) to name a few. This data is available for the USA, Puerto Rico, and the Territories. These layers include daytime population, and percent change (2020 to 2021) in population, median income, and mean income. The ZIP Code, Tract, County, and State layers also include updated buying power (disposable income for 2020) figures.

Personal income and change in personal income BEA data for 2021 are included for States and Counties, and 2021 GDP (by total, goods, services, government, and by 2-digit NAICS code) and change in GDP BEA data for 2021 are included for Counties. 2025 population projections for Counties, States, and Tracts are included by age, race, gender, and ethnicity, and for population by 5-year increment for 2025-2100.

The **Demographic Map Librarian** tool makes it easy to access a series of pre-defined thematic and shaded maps of the updated data. There are also maps for the 2020 Tract layer with updated banking compliance FFIEC data for 2022.

The Country Package updates under development are listed below:

Australia
- October 2022 HERE update with speeds based on noontime HERE Traffic Patterns
- Updated HERE postal boundaries and centroids
- 2021 Census Demographics

Brazil
- October 2022 HERE update with speeds based on noontime HERE Traffic Patterns
- Updated HERE postal boundaries and centroids

Canada
- October 2022 HERE update with speeds based on noontime HERE Traffic Patterns
- Updated 3-character postal Forward Sortation Area (FSA) boundaries and centroids (HERE)
- Updated 6-character postal point layer (HERE)
- New 6-character postal **area** layer (Caliper Created/Derived from HERE)
- 2022 Population estimates for Provinces
- 2021 Census Demographics

United Kingdom
- October 2022 HERE update with speeds based on noontime HERE Traffic Patterns
- Updated postal boundaries for the UK (HERE)
- Updated postal boundaries and postcode points for GB (Caliper)
- 2021 Estimated population by age and gender, UK
- 2021 Census Demographics

Mexico
- October 2022 HERE update with speeds based on noontime HERE Traffic Patterns
- Updated HERE postal boundaries and centroids

New Zealand
- October 2022 HERE update with speeds based on noontime HERE Traffic Patterns
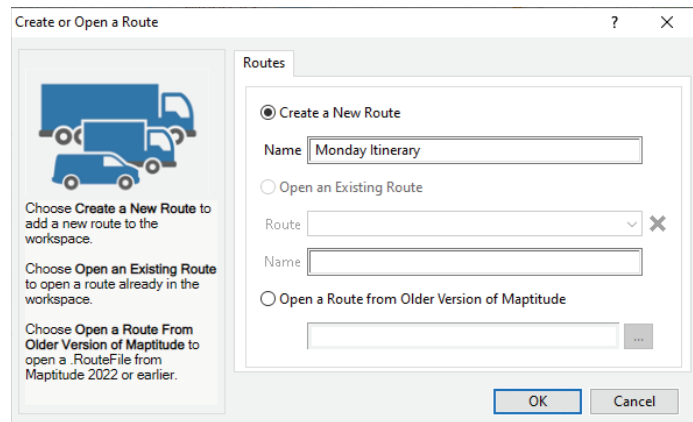- Updated HERE postal boundaries and centroids

Network Analysis, Directions, and Routing

Maptitude 2023 gives you powerful tools to model routes, to calculate the distances and travel times between locations, and to display and analyze service provision over the road network.

Routing & Directions Manager
The *Tools>Routing & Directions> Routing & Directions Manager* now:

- Saves your settings with your workspace (*.WRKZ), no longer requiring separate files to save/open

Routing Deliveries and Pickups (2023 Beta)
The *Tools>GISDK Developer's Kit>Add-Ins>Vehicle Routing and Deliveries* tool now:

- Supports, for vehicles, global settings for driving start and end times
- Supports, for vehicles, global settings for rests and breaks based on route or driving time and with a time flexibility threshold
- Uses pre-processing and multiple threads for faster calculations
- Better optimizes routes
- Better handling of multiple time windows
- Supports route balancing **across** depots using time, distance, or number of stops and with a time flexibility threshold
- Allows depots to have multiple vehicle types, where there can be multiples of each vehicle type
- Allows vehicles to service multiple routes during a single time frame, which is useful for vehicles that have to return to the depot due to factors such as limited capacities, short trips, but with heavy demand
- Supports schedules that span multiple days
- Allows vehicles to make multiple routes for multiple day schedules

New Map Styles

Maptitude 2023 gives you the greatest flexibility to date in setting the styles of map features, themes, and selection sets.

Themes

- The *Map>Display Manager Toolbar* now:
  - Allows you to show or hide a theme by toggling visibility using the green check/red cross buttons, giving you the ability to easily switch between different thematic visualizations

Labels

- Labels now:
  -
  - Support the display of Emojis when using the Segoe UI Emoji font
  - Support Unicode that allows, for example, the display of characters from different languages at the same time
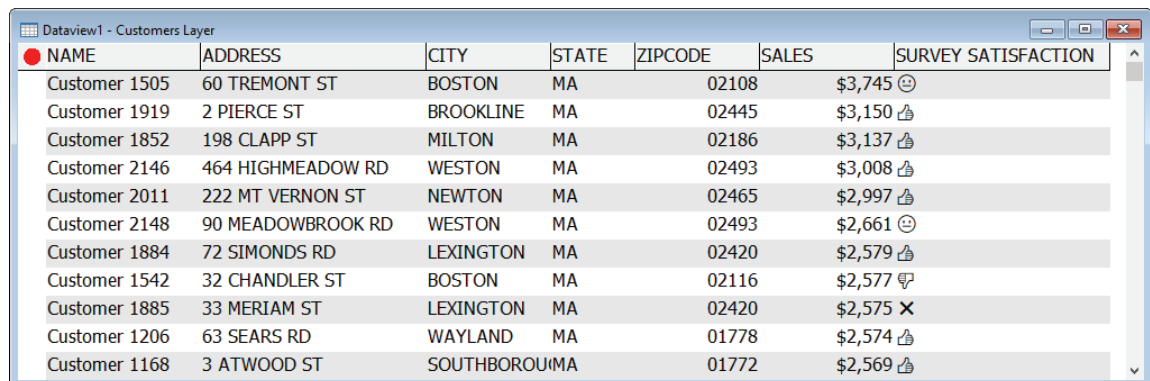
Drawing

- Drawing items now:
  - Support the display of Emojis when using the Segoe UI Emoji font
  - Support Unicode that allows, for example, the display of characters from different languages at the same time

New Database Functionality

New capabilities for geographic databases have been introduced.

- Supports the display of Emojis when using the Segoe UI Emoji font
- Supports Unicode that allows, for example, the display of characters from different languages at the same time

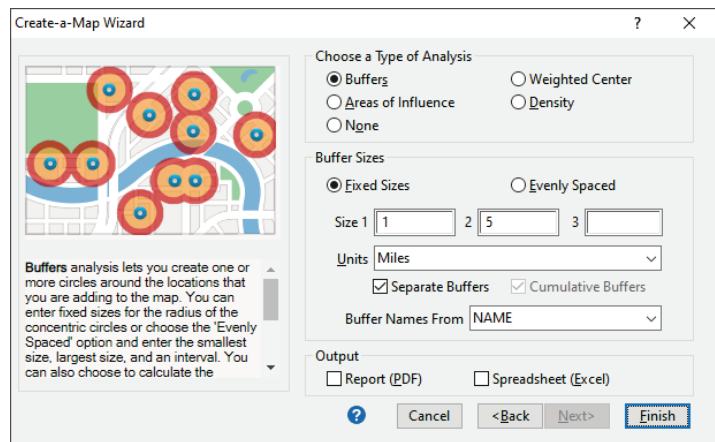| NAME	ADDRESS	CITY	STATE	ZIPCODE	SALES	SURVEY SATISFACTION
Customer 1505	60 TREMONT ST	BOSTON	MA	02108	$3,745	☺
Customer 1919	2 PIERCE ST	BROOKLINE	MA	02445	$3,150	
Customer 1852	198 CLAPP ST	MILTON	MA	02186	$3,137	
Customer 2146	464 HIGHMEADOW RD	WESTON	MA	02493	$3,008	
Customer 2011	222 MT VERNON ST	NEWTON	MA	02465	$2,997	
Customer 2148	90 MEADOWBROOK RD	WESTON	MA	02493	$2,661	☺
Customer 1884	72 SIMONDS RD	LEXINGTON	MA	02420	$2,579	
Customer 1542	32 CHANDLER ST	BOSTON	MA	02116	$2,577	
Customer 1885	33 MERIAM ST	LEXINGTON	MA	02420	$2,575	✕
Customer 1206	63 SEARS RD	WAYLAND	MA	01778	$2,574	
Customer 1168	3 ATWOOD ST	SOUTHBOROU	MA	01772	$2,569	

Locating Data

The geocoding tools use the updated street and postal data, making location matching results more accurate than in previous versions of Maptitude.

- The **Tools>Locate>Locate by Value** method provides faster geocoding
- The **Global Geocoding and Download Free Layers Add-In** now:
  - Correctly displays Unicode characters from different languages in the downloaded data

Improved Create-a-Map Wizard
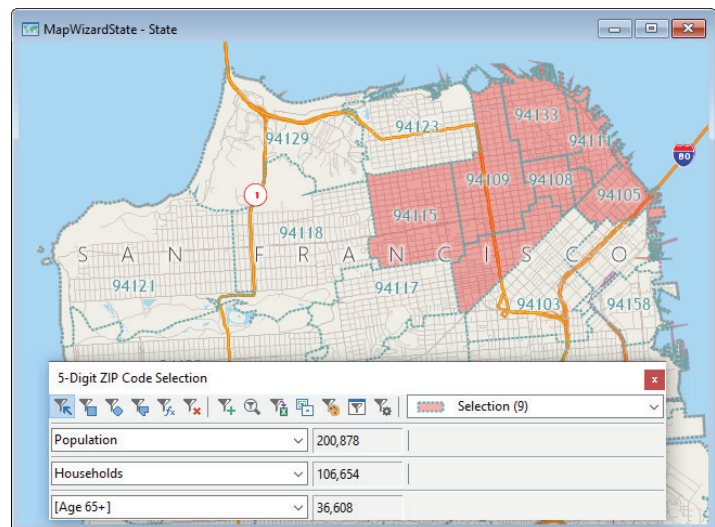
Create-a-Map Wizard is now more robust and easier to use:

- The maps have been updated with the latest geography
- The Wizard help panel has been updated to better scale images on high resolution 4K monitors
- Create separate and/or cumulative buffers/radii using the Create-a-Map-Wizard, allowing for demographic reports for each location

Creating Selections and Formulas
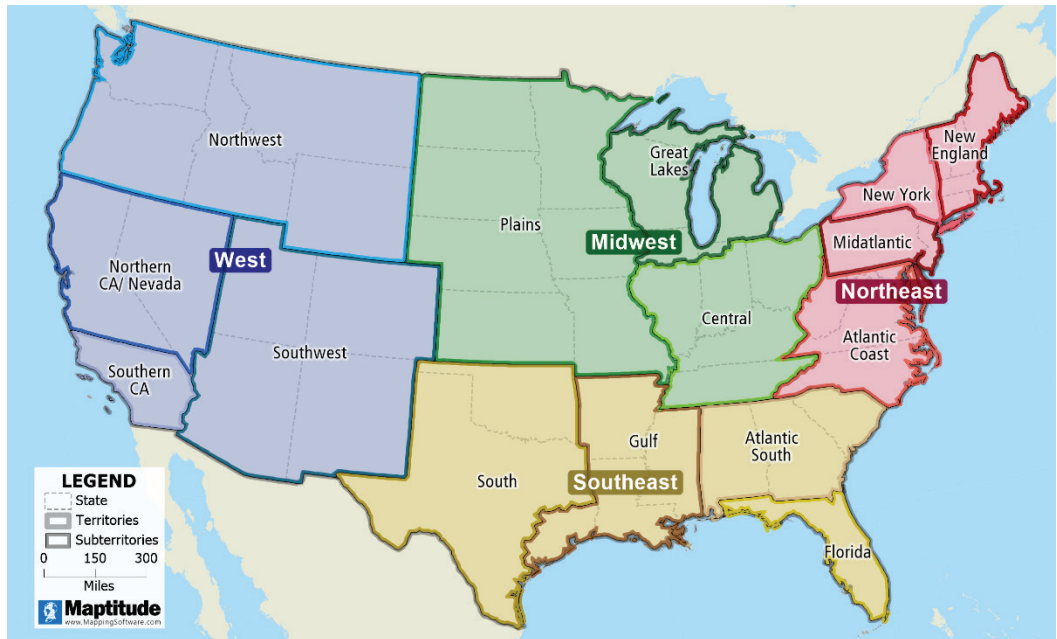
Condition building tools improvements:

- The **Selection>Toolbar>Options** under "Optional Tools" allows for showing multiple running total fields, making it easier to see data on-the-fly as you select records
- The **Selection>Settings>Style** under "Options" allows for **Show Centroids** by selection set, making it possible to visualize area layer sets using icon styles
- The dataview right-click **Delete Formula Field(s)** context sensitive menu allows you to remove expression columns without having to use the Formula Fields dialog box
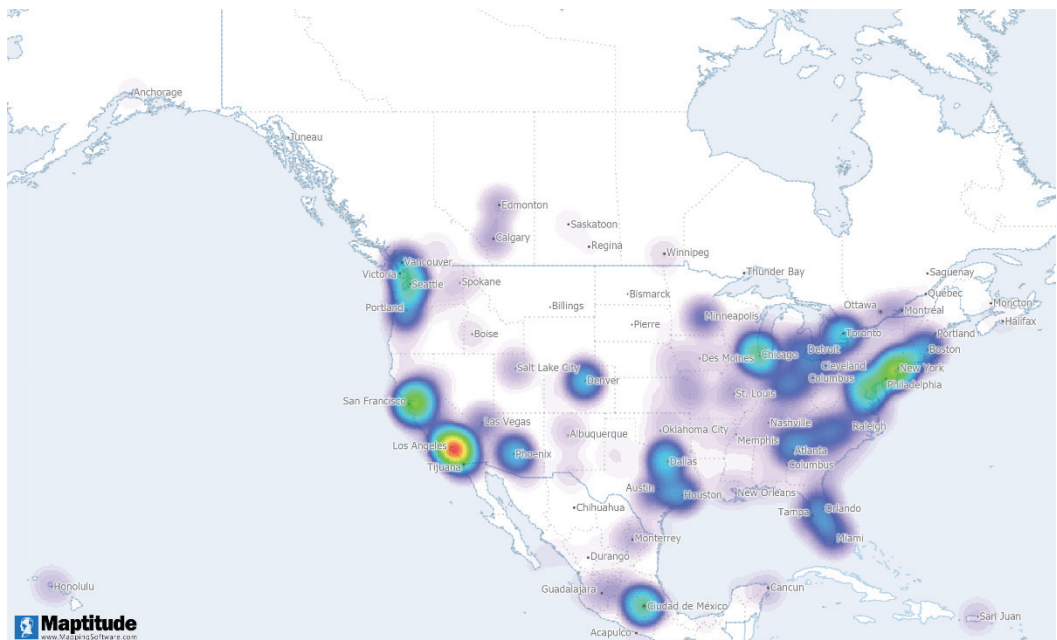
Analysis Tools

Completely new and innovative analytics have been added to Maptitude 2023:

- The *Map>Territory Manager Toolbar*:
  - Provides a grid view that allows for resizing of columns
  - Supports toggling of the tool from the menu, the close button, and from the **Territory Manager Toolbar** button, making it easier to switch between territories in a map
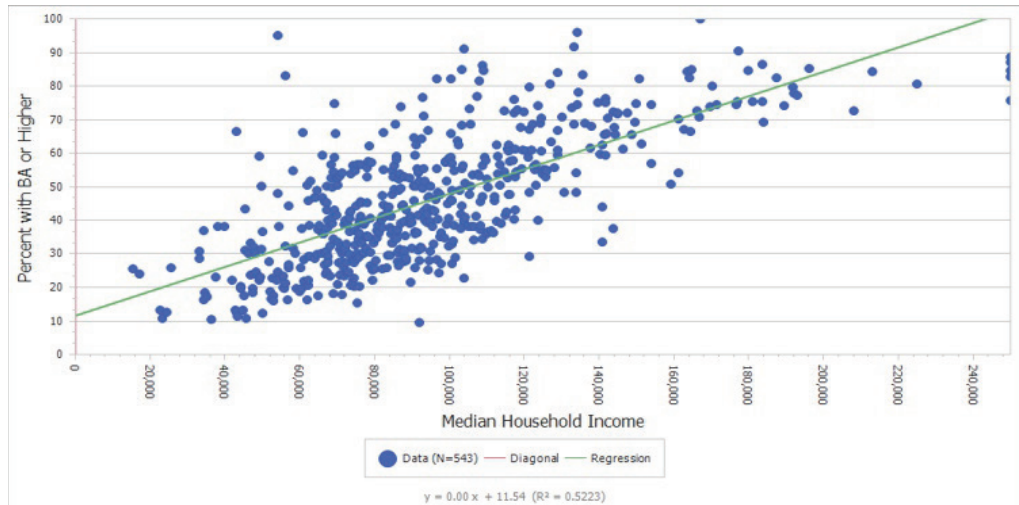 - Supports faster territory map editing

- The *Tools>Analysis>Density/Heat Layer* tool:
  - Supports analysis over much larger areas and can be used to visualize densities at the continental and global scale

Output Improvements

In Maptitude 2023:

- Added Scatter Plots chart type
  - The **Dataview>Statistics>Scatter Plots** chart allows you to visualize and test the strength of the relationship between two attributes along with the equation of the trendline and the regression constant

- Added a customizable font setting to **Tools>Reports>Settings>Report Settings**

Imagery Improvements

Accessing, creating, and visualizing imagery is a core feature of Maptitude:

- **File>Export>Image** now defaults to the Portable Network Graphic file format instead of Windows Bitmap, encouraging smaller file sizes without a loss of resolution

New Documentation

Maptitude continues to provide numerous ways to get you started with the software. The online Learning Portal has been updated, and new and revised tutorials are incorporated into the Maptitude Help.

In addition, a variety of comprehensive learning materials (including videos and live or pre-recorded training webinars) are available on the Caliper Corporation website. The training videos run in all browsers, with playback settings, as Vimeo and YouTube videos.

The Maptitude Help (**Help>Maptitude Help**) can be viewed within a web browser and has a modern browser-based interface. The GISDK Help (**Help>GISDK Help**) is available online.

Maptitude 2023 includes a Windows Microsoft Office style question mark icon on most windows. Clicking this will take you to the relevant section of the Help. You can also hover over any menu item and click F1 to access the updated Help. In addition, several message windows in Maptitude link directly to the relevant Learning Portal article.

System and Interface

Maptitude 2023 supports the latest Windows operating systems, file types, and common design elements.

- The *Edit>Preferences>System>Language>Translate Interface* option now supports full interface translation into Spanish or Chinese (Simplified).
- The support for Maptitude on Intel chip Apple Macs with Windows has been extended to Apple Mac or Surface Pro ARM M1/M2 chips with Windows. Please contact Sales for the ARM enabled version.
- The Maptitude installer remembers your previously entered serial number.
- The Maptitude buttons are now displayed in a modern flat style.
- The **File Not Found** window file path can be visualized as a tooltip and copied via a new button.
- The support for 4K high resolution monitors has been improved with scaling of Wizard images, toolbar titles, and buttons.
- The *Map>Territory Manager Toolbar>Select by Condition* button has moved to the selection toolstrip, an **Add New Territory** button was implemented, and drop-down list prompt wording is improved in the territory tools.
- The support for Unicode has been implemented and the *Edit>Preferences>System* options for **Code Page** and **Locale** are used when converting strings in workspaces and tables to UTF-8.

New File Import Support
- MapPoint (*.AXE; *.EST; *.PTM) pushpin information labels and read-only drawing items
- OpenStreetMap (*.OSM) batch import point and area layers (in addition to lines)
- OpenStreetMap (*.OSM) optionally intersect all lines for Highway layers
- GeoJson (*.GEOJSON; *.JSON) optional import in **Open File** window
- ESRI File Geodatabase (*.GDB) optional import in **Open File** window
- ESRI File Geodatabase (*.GDB) optional linking of line and node layers

New File Export Support
- Microsoft Excel (*.XLSX) support for date and time field types

New Native File Support
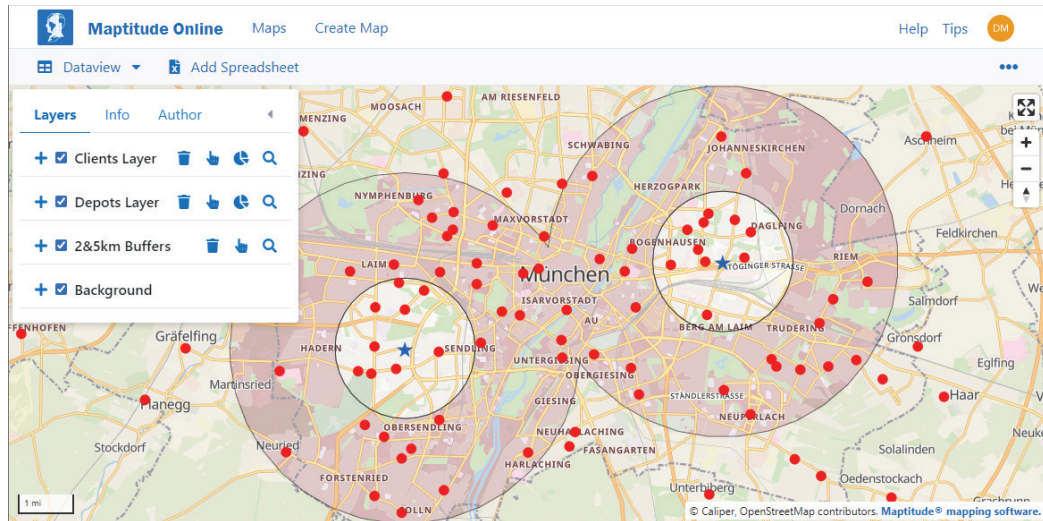- GeoJson (*.GEOJSON; *.JSON) optional "Add to map" in **File Open** window

Maptitude Online

Maptitude Online is both a **map sharing add-in for desktop Maptitude** and a **stand-alone mapping application**. New capabilities are listed below.

Online Sharing

As a sharing add-in, maps and reports are created and uploaded using desktop Maptitude. Once uploaded, you can use the maps with the full functionality of the SaaS.

- Upload your maps when you have a Country Package for **Germany, Austria, Switzerland, France, Italy, or Portugal** in addition to the UK, Ireland, Canada, Australia, New Zealand, and the USA
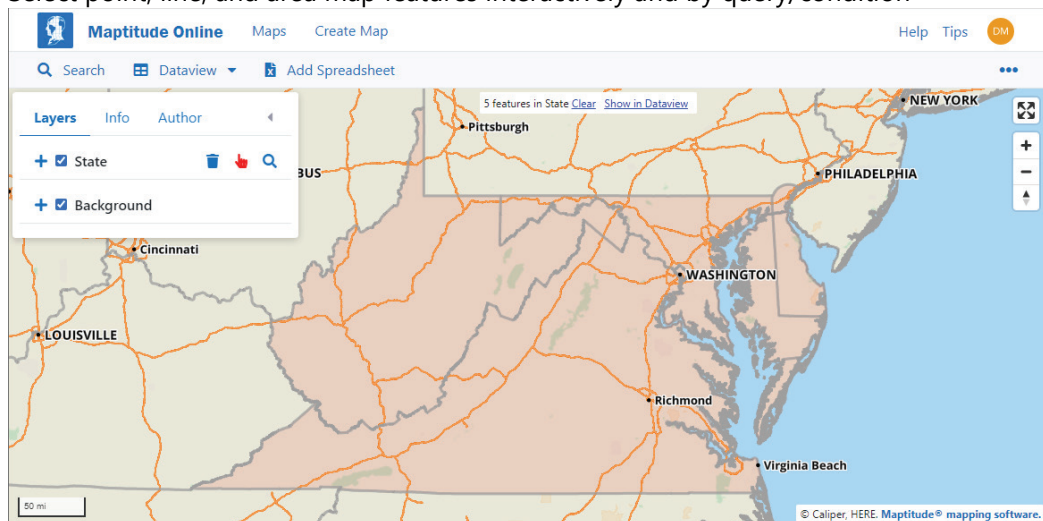

- Embed publicly shared maps on your website as an iframe

Software-as-a-Service (SaaS)

Desktop Maptitude is not required to use Maptitude Online. Directly from your browser you can upload Excel or CSV tables and map the data using the Create-a-Map-Wizard. The maps can be shared online publicly or privately.

- Select point, line, and area map features interactively and by query/condition

- Map all or selected features with the Create-a-Map-Wizard
- Filter dataviews using selected features
- Delete map layers from a map
- Add more than one spreadsheet/table of data to a map using the Create-a-Map-Wizard
- Add or replace a layer theme (color/chart/size/symbol) using the Create-a-Map-Wizard
- Add or replace an analysis layer (buffer/weighted center/areas of influence) using the Create-a-Map-Wizard
- Add or change layer labels using the Create-a-Map-Wizard
- Toggle the selection set style visibility for area layers
- Create multiple selections on a layer, allowing, for example, interactive creation and visualization of territories (as sets) on an area layer such as ZIP Codes, Counties, or States
- Create separate and/or cumulative buffers/radii using the Create-a-Map-Wizard, allowing for demographic reports for each location

Geographic Information System Developer's Kit (GISDK)

APIs

The GISDK APIs make it easy to add mapping functionality to any Windows desktop application written in Python, C#, or any .NET programming language.

Code examples and the user documentation for the Maptitude API have been updated for Maptitude 2023 and are included under **Help>GISDK Help**.

The following functions and code have been added or modified:

- Routing.Router DisplayPath() now uses with AddAnnotation() the "Path" type instead of "Polyline" to support the display of longer routes
- "GISDK Snippets" is a Microsoft Visual Studio Code snippets extension that makes it easier to develop with Caliper Script.
- A new VBA example, a new VB.NET example, and individual folders for the GISDK, DotNet, Python, VB, and VBA examples have been added to the Maptitude samples folder.

GISDK Functions

Please see the "Listing of GISDK Functions" topic in the Online Help to view a full list of GISDK functions that were added, changed, or replaced in Maptitude 2023. Highlights of the GISDK changes:

- ReplaceArea() supports the modification of non-topological area layers, e.g., territories, and is used instead of the much slower AddToArea() and RemoveFromArea()
- Compound datetime variables now support a "delta" method for days, hours, minutes, seconds, and milliseconds: DaysSince, HoursSince, MinutesSince, SecondSince, MillisecondsSince
- Unhandled error messages now contain the exception name (notfound, error, etc.)
- GISDK Debugger: shows line numbers in the editor window; supports context sensitive "run to" and "jump to" menus; supports shortcut keys for "run to" (**Ctrl-F10**) and "jump to" (**Ctrl-Shift-F10**); supports context sensitive menus for the alphabetical sorting of variables and watch expressions

About Caliper

Caliper Corporation develops state-of-the-art Geographic Information System (GIS) software. With a focus on usability, Maptitude is designed to be the most cost-effective professional mapping software product on the market. Maptitude enables organizations to leverage their location-based data to improve decision making and planning while minimizing expenditure through competitively priced solutions.

Caliper is a privately held corporation and is a leading developer of mapping, redistricting, transportation, traffic simulation, and GIS software.