



# What's New in Maptitude 2024

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## Maptitude 2024: New Features Overview

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Maptitude 2024 is a major release of Caliper Corporation's popular Geographic Information System (GIS) and mapping software. The 2024 version provides the most up-to-date and accurate data available.

Maptitude 2024 provides the business value you expect when investing in mapping software. Maptitude includes the latest streets, postal data, and demographics. Maptitude 2024 is the fastest and most intuitive professional mapping application, with significant enhancements to sales territory management, sharing, visualizations, and logistics/operations analytics.

### Key Features of Maptitude 2024

1. Provides **complete support for hierarchical sales territories**, such as levels for territories-districts-regions, with any number of levels in the hierarchy, with full undo and redo, whether with overlapping or non-overlapping territories.
2. The most up-to-date geographic and demographic information available, including the latest data and boundaries from the **American Community Survey (ACS) and 2021 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 Belgium, Colombia, Denmark, Luxembourg, Malta, Mexico, Netherlands, Peru, and Spain in addition to Australia, Austria, Canada, France, Germany, Ireland, Italy, New Zealand, Portugal, Switzerland, UK, and USA. **Shared maps can also be enhanced with drawing and measuring tools**.
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 use **drawing tools** to interactively measure features, to add shapes to maps, and to **download demographics by shape as an Excel report**, and to **add new thematics** for cluster/bubble and density/hot-spot visualizations.
5. The enhancements to the Routing Deliveries & Pickups tool provide powerful new logistics features for **optimizing your delivery fleets**. You can now balance routes on "cost", in dollars per mile and/or dollars per hour for breaks and/or wait times, and can specify the maximum weight capacities for vehicles and the weight of the goods transported.
6. Interoperability with external data has been expanded with support for FlatGeobuf (an optimized vector file format), new versions of PostgreSQL, and native **export to ESRI File Geodatabases** (in addition to open and import).
7. **Support for online geospatial web services** allows you to compare your routes with those calculated by Google, HERE, and Bing, and to geocode your locations using these services plus what3words.
8. **Python scripts can now be run in-process** using the COM API on the Python side, and you can set up your preferred Python distribution and environment directly within Maptitude, e.g., Anaconda base.

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 2024 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

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Maptitude 2024 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 2024 comes with October 2023 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 2023 U.S. map layers from HERE include those for buildings, highways, railroads, and landmarks. The Points of Interest layer contains over 3.8 million named public and business locations.

Maptitude 2024 ships with the January 2024 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 2024 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 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 2022 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 (2021 to 2022) in population, median income, and mean income. The ZIP Code, Tract, County, and State layers also include updated buying power (disposable income for 2021) figures.

Personal income and change in personal income BEA data for 2022 are included for States and Counties, and 2022 GDP (by total, goods, services, government, and by 2-digit NAICS code) and change in GDP BEA data for 2022 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 2023.

## The Country Package updates under development are listed below:

### Australia

- October 2023 HERE update with speeds based on noontime HERE Traffic Patterns
- Updated HERE postal boundaries and centroids
- 2021 Census Demographics

### Brazil

- October 2023 HERE update with speeds based on noontime HERE Traffic Patterns
- Updated HERE postal boundaries and centroids

### Canada

- October 2023 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)
- 2023 Population estimates for Provinces
- 2021 Census Demographics

### United Kingdom

- October 2023 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)
- 2022 Estimated population by age and gender, UK
- 2021 Census Demographics

### Mexico

- October 2023 HERE update with speeds based on noontime HERE Traffic Patterns
- Updated HERE postal boundaries and centroids

### New Zealand

- October 2023 HERE update with speeds based on noontime HERE Traffic Patterns
- Updated HERE postal boundaries and centroids

## Network Analysis, Directions, and Routing

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Maptitude 2024 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:

- Supports custom route colors
- A new **Options>General** setting in the Routing & Directions Manager allows you to compare your route with that calculated by web services such as Google, HERE, and Bing.

### Routing Deliveries and Pickups

The **Tools>Routing & Directions>Routing Deliveries & Pickups** tool now:

- Allows sorting by route attributes of the route list displayed in the Manager
- Uniquely identifies each vehicle in the Manager by appending a sequential number to duplicate vehicle names
- Allows time windows to span across midnight
- Allows depots to be identified using either a string column, e.g., "name", or a numeric column, e.g., "ID"
- Allows renaming of the "Schedule Title" in the Options settings
- Allows routes to be balanced on "cost", which is defined by the user in dollars per mile and/or dollars per hour for breaks and/or wait time
- Provides improved route balancing that better respects tight constraints
- Allows specifying of a "Weight per Unit" in the Stops tab, and the specifying of a "Max Weight" in the vehicle table, thus handling trucks that have maximum weight capacities
- Provides an **Edit>Preferences>Routing** setting to limit how long the tool will run before providing a result
- Allows routes to have transparent styles
- Allows the Move Stop tool to move stops within a route, in addition to between routes
- Allows an itinerary to be copied to allow exploration of what if scenarios
- Allows depots to have zero vehicles

## Distance and Travel-Time Tables Tool

Maptitude 2024 makes it easy to identify alternative service suppliers, backup field representatives, and closest locations. The distance and drive-time tool creates an Excel table that lists the costs of travel between any number of origins and destinations, allowing you to easily sort the data to identify the closest locations.

The **Tools>Routing & Directions>Distance and Travel Time Tables** tool now:

- Can output all origin and destination attribute columns along with the calculated distances and travel times

## New Database Functionality

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New capabilities for geographic databases have been introduced.

- A copy button for **File>Properties>Properties>Data from** allows the copying of the data source information or path
- Speed improvements when operating on a large number of tables
- A new editing tool **Tools>Editing>Line Simplify/Smooth Toolbar** allows for batch smoothing and simplifying of line features



## Locating Data

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

- A new **Tools>Locate>Locate by Web Service** tool allows you to geocode your locations using services such as Google, HERE, Bing, and what3words
- The what3words web service is supported for geocoding using this grid-based system via **Tools>Web Services Licenses**
- The **Click Coordinate Add-In** now:
  - Has a redesigned interface
  - Allows the copying of coordinates
  - Supports the what3words web service

## Improved Create-a-Map Wizard

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

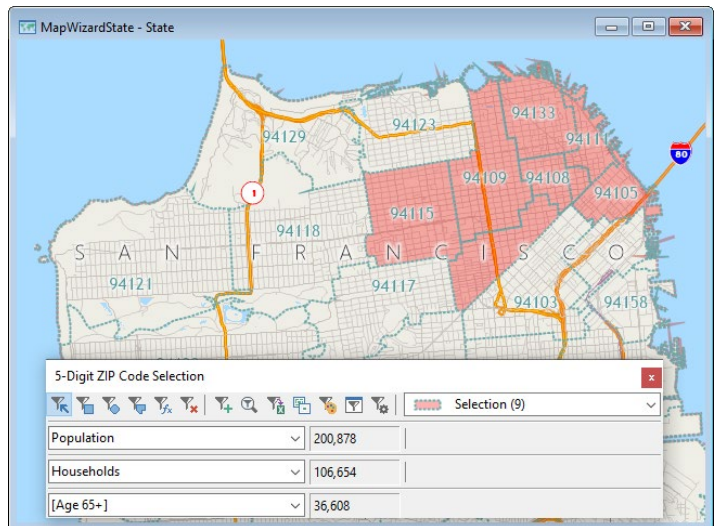
- The maps have been updated with the latest geography



## Creating Selections and Formulas

Condition building tools improvements:

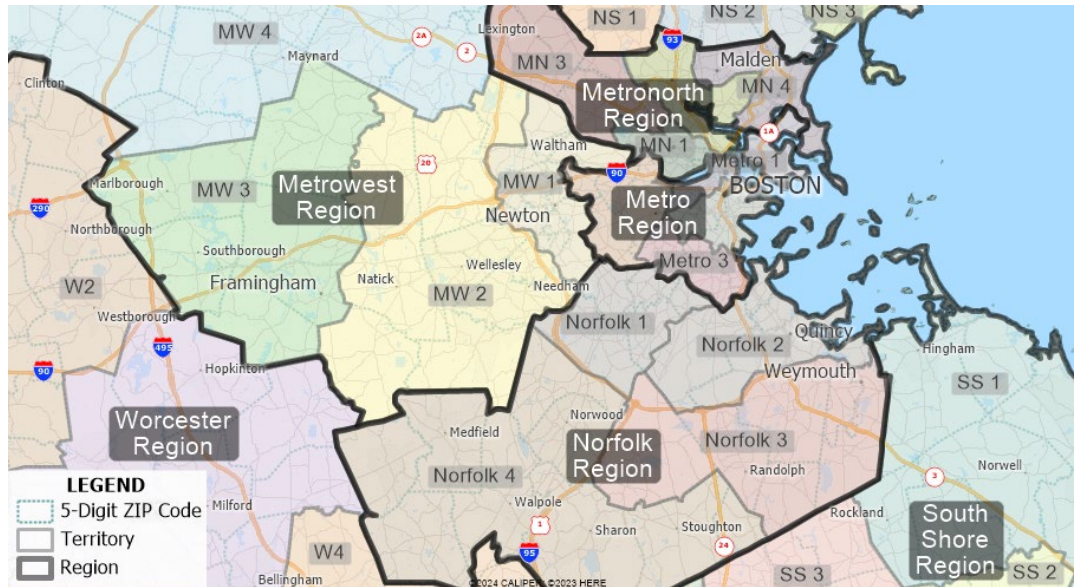
- The **Selection > Toolbar > Options > Optional Tools > Show running total fields** is now faster



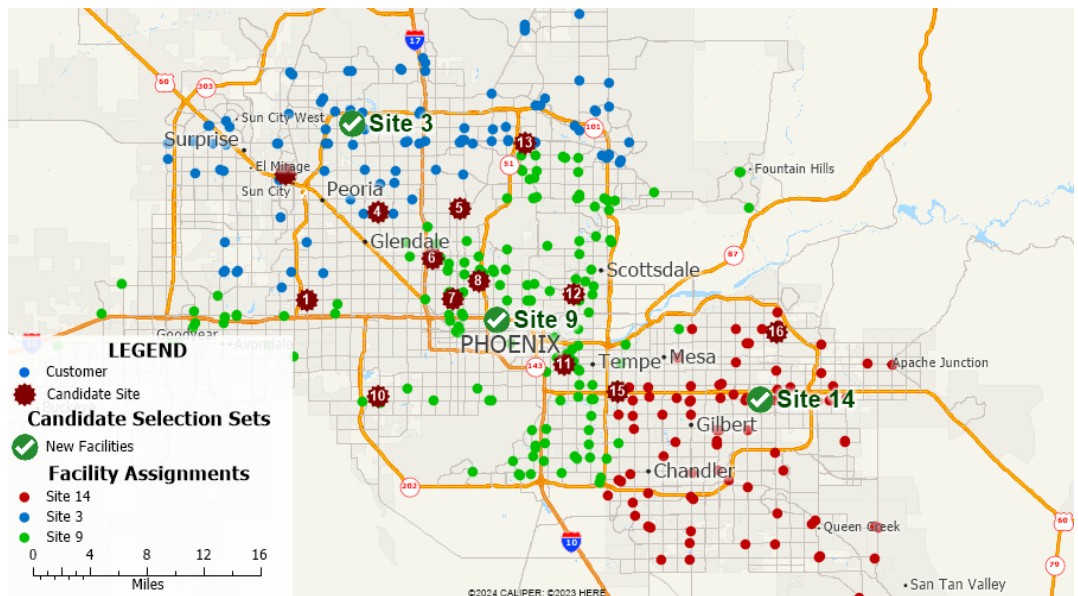
## Analysis Tools

Completely new and innovative analytics have been added to Maptitude 2024:

- The **Map>New Territory Layer Wizard** and the **Map>Territory Manager Toolbar**:
  - Allows choice of separate county and state columns when using County as the geography layer, and when creating territories from a table
  - Provides complete support for hierarchical territories, with any number of levels in the hierarchy, with full undo and redo, whether with overlapping or non-overlapping territories



- The **Tools>Analysis>Facility Location** tool:
  - Automatically creates a color theme showing the color-coded assignment of clients to each facility



## Output Improvements

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In Maptitude 2024:

- Added support for longer field names in demographic overlay reports

## New Documentation

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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](#). The [Maptitude Online Help is available online](#).

Maptitude 2024 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

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Maptitude 2024 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 Korean.
- Maptitude checks on startup if the Microsoft System component WebView2 is installed and prompts to download it if not.

### New File Import Support

- FlatGeobuf (\*.FGB)
- PostgreSQL newer than version 10

### New File Export Support

- FlatGeobuf (\*.FGB)
- PostgreSQL newer than version 10
- ESRI File Geodatabase (\*.GDB)
- GeoJson (\*.GEOJSON; \*.JSON) faster field name processing

### New Native File Support

- FlatGeobuf (\*.FGB)
- PostgreSQL newer than version 10
- Drag-drop (\*.XML) files (that are not GDAL imagery) to open them in a browser control window



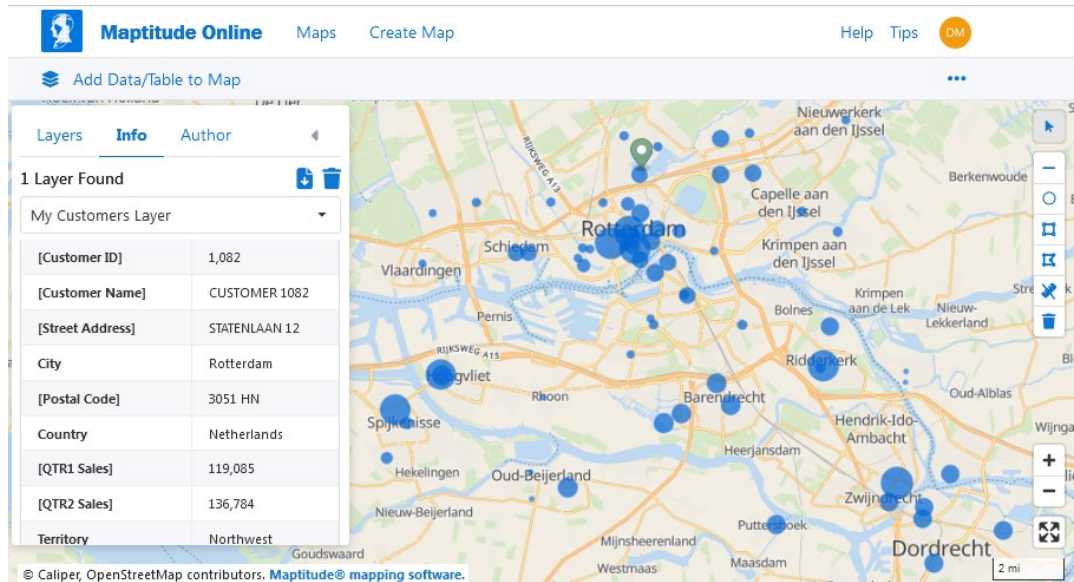
## Maptitude Online

Maptitude Online is both a [map sharing add-in for desktop Mapitude](#) and a [stand-alone mapping application](#).

### Online Sharing

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

- Upload up to 10 layers
- Access the redesigned "Upload Map to Mapitude Online" window
- Upload **Map>Thematic Mapping>Pattern** themes
- Access drawing and measuring tools in shared maps
- Upload your maps when you have a Country Package for **Belgium, Colombia, Denmark, Luxembourg, Malta, Mexico, Netherlands, Peru, or Spain**, in addition to Australia, Austria, Canada, France, Germany, Ireland, Italy, New Zealand, Portugal, Switzerland, UK, and USA



### Software-as-a-Service (SaaS)

Desktop Mapitude is not required to use Mapitude 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. New capabilities are listed below.

- Map any number of charts in a Chart Theme
- Modify maps (hide, delete, or add layers/spreadsheets, selections, themes, styles, labels, or analytics)
- Use drawing tools to measure features, to add shapes to maps, and to download demographics by shape as an Excel report
- Create thematic visualizations for cluster/bubble and density/hot-spot themes

## Geographic Information System Developer's Kit (GISDK)

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### 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 2024 and are included under **Help>GISDK Help**.

The following functions and code have been added or modified:

- Python scripts can be run in-process using COM API on the Python side
- Setup your preferred Python distribution and environment, e.g., Anaconda base, via **Tools>GISDK Developer's Kit>Register Embedded Python...**
- [caliperpy can be installed via "pip"](#), the Python package manager
- PowerShell 7 is installed with Maptitude, can be changed via **Edit>Preferences...>PowerShell Engine**, is used to register Python, is required to work through the **Help>GISDK Help** Python examples, and is needed to use **File>Export>Geography...>Esri File Geodatabase**
- The Routing API creates a drawing/annotation for routes
- The CreateObject("WebServiceGeocode") API supports online geocoding via several web services, including Bing, Google, HERE, and what3words

### 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 2024. Highlights of the GISDK changes:

- SampleArea() supports a new option for "Shape" which is "Fill"
- SaveSampleToImage() saves a sample to an image file
- Throw() supports a second, optional argument, for error type

## About Caliper

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[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](#).