



Spectrum Spatial Analyst

Spectrum Spatial Analyst User Guide

Version 2022.1



Table of Contents

1 - Getting Started

Overview.....	5
Supported Browsers and Operating Systems.....	7
Supported Languages.....	8

2 - Sign-in

Signing-in to your account.....	11
Signing-out.....	11

3 - Learn the Basics

Getting Help.....	13
URL Launch Parameters.....	13
Searching an address.....	14
My Current Location.....	17
Changing Map Center.....	17
Navigating in the Map.....	18
Map Information Callout.....	19
Displaying Data Bind Result in Custom Template.....	20
Change the Map Project.....	21
Displaying Raster Information.....	21
Switch the Base Maps.....	21
Changing the Language.....	22
Working with Map Legend	23
Saving the Map Project.....	26
Save As the Map Project.....	27
Copyright Information.....	27

4 - Template Designer

Creating New Template.....	29
----------------------------	----

Editing Template.....	33
Assigning a custom template to a data bind linked table.....	33

5 - Project Home

Creating a New Map Project.....	36
Project Settings.....	42

6 - Adding and Editing New Records

Adding New Records.....	48
Edit Records.....	49
Delete Records.....	50

7 - Uploading and Saving Data to Spectrum Spatial Repository

Uploading Data Overview.....	53
Uploading Files to Spectrum Spatial (TAB, SHP, CSV, XLS).....	53
Uploading a Vector File	64
Geocoding Your Address Data in Batches.....	68
Browsing the Spatial Repository.....	69

8 - Building a Query

Create a Query.....	72
Styling Query.....	74
Query Results View.....	75

9 - Adding Layers

Adding Spectrum Spatial Layers.....	79
Adding Vector Layers.....	80
Editing Vector Layer.....	84

10 - Working with Thematic Map

Creating an Individual Value Thematic Map.....	88
Creating a Ranged Thematic Map.....	90
Creating a Graduated Symbol Thematic Map.....	93
Deleting a Thematic Map.....	94

11 - Working with Labels

Customizing the Label using Label Properties....	96
Label Properties.....	96

12 - Working with Annotations

Drawing Shapes on a Map.....	99
Text Annotation	104
Merge or Split Annotation	105
Import Annotation	106
Editing Annotation.....	107
Annotation Properties.....	109
Summarizing Data in Single and Multiple Annotation.....	116
Styling Annotation.....	119
Saving an Annotation to the Map Project.....	123
Loading the Annotation.....	124

13 - Measuring Distance and Area

Measuring Distance	126
Measuring an Area.....	126

14 - Multi-select Feature

Selecting multiple features on the map.....	129
Multi-Select Options.....	129

15 - Printing Maps

Print Preview.....	132
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1 - Getting Started

In this section

Overview.....	5
Supported Browsers and Operating Systems.....	7
Supported Languages.....	8

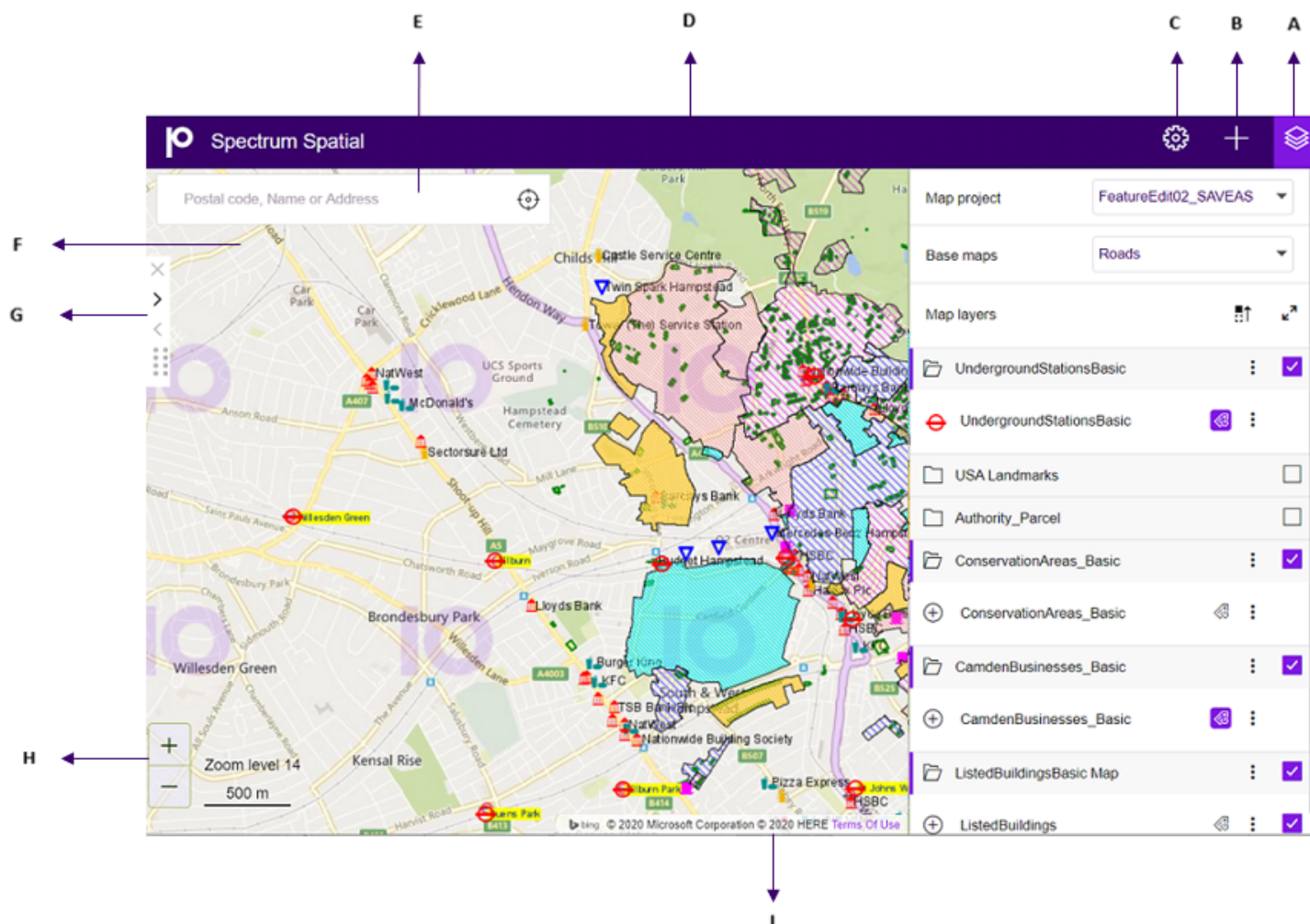


Overview

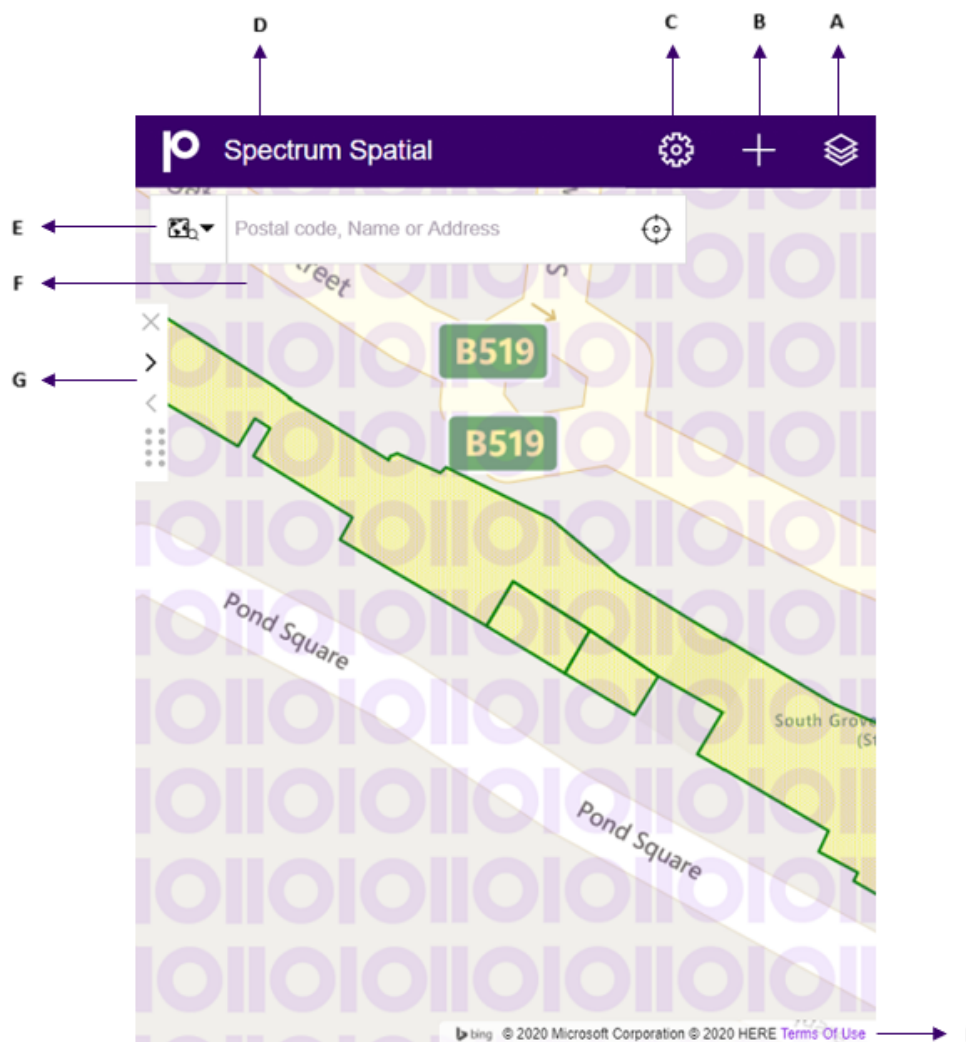
Spectrum Spatial Analyst is the web mapping client that is part of Spectrum Spatial. It extends the functionalities of Spectrum Spatial (Analyst) web client and enables you to create rich client-side vector thematic maps and reports. It is an interactive mapping service provided by Precisely. It provides access to mapping and geographic-based information, addresses and postcode searches.

The image given below shows the desktop and mobile view of Spectrum Spatial Analyst application.

A. Spectrum Spatial Analyst Application- Desktop View



B. Spectrum Spatial Analyst Application- Mobile view



Item	Name	Description
A	Map Legend Panel	The Map legends panel allows you to show a key to the map overlays available on your map.
B	Add Panel	The Add panel allows you to perform query, add thematics layers, create annotation, and provide measurement tools.
C	Options Panel	The Options panel allows you to print map, view current coordinates, access help, change language, sign-in to the application, launch template designer and open the project home page to create new map project.
D	Banner (optional)	This displays the banner of the organization.

Item	Name	Description
E	Search Addresses	The search box to search for an address, place name and ZIP code.
F	Map Area	This is the visible area of the current map.
G	Expand/collapse left panel	This button allows you to expand or collapse left hand panel.
H	Zoom In and Out (Desktop only)	Click the Zoom in button on the lower left corner to zoom in to the map. Click the Zoom out button on the lower left corner to zoom out of the map.
I	Copyright Information	The copyright information is displayed on the lower right hand corner of the map.

Spectrum Spatial Analyst application allows you to:

- Browse current maps and data
- Switch between different background maps such as aerial maps and road maps
- Zoom in and zoom out of maps
- Search and find addresses and postcodes
- Get information about what's on the map by clicking the map
- Search for what services and facilities are nearby to an address
- Search for data within the current map or in a shape you draw
- Search for data using various criteria
- Draw annotations on the map
- Print maps to a PDF file
- Retain X, Y, View and Zoom on switching Map Project, if the projections are same.

Supported Browsers and Operating Systems

Spectrum Spatial Analyst supports the latest versions of Chrome, Firefox, Microsoft Chromium Edge, and Safari at the time of this release:

Web Browsers for Desktop:

- Google Chrome version 97.0 and 98.0
- Microsoft Edge Chromium version 97.0 and 98.0
- Mozilla Firefox version 98

For Mac:

- Safari 15.3

Web Browsers for Devices:

- Safari (iPad) on iOS 13.1.3
- Safari (iPhone) on iOS 13.1.3
- Chrome on Android 6.0
- Microsoft Edge on Windows 10

Supported Languages

Spectrum Spatial Analyst supports the following languages:

1. cy (Welsh)
2. cz (Czech)
3. da (Danish)
4. de (German)
5. en (English- default)
6. en-au (English- Australian)
7. en-gb (English- British)
8. es (Spanish)
9. et (Estonian)
10. fi (Finnish)
11. fr (French)
12. it (Italian)
13. ja (Japanese)
14. nl (Dutch)
15. pt (Portuguese)
16. tr (Turkish)

To launch Spectrum Spatial Analyst in one of these languages, add a "lang" parameter to the end of the URL. For example:

```
https://<server>:<port>/connect/analyst/?lang=en-gb
```


Note: The language parameter is case sensitive, for example- "`?lang=en-gb`".

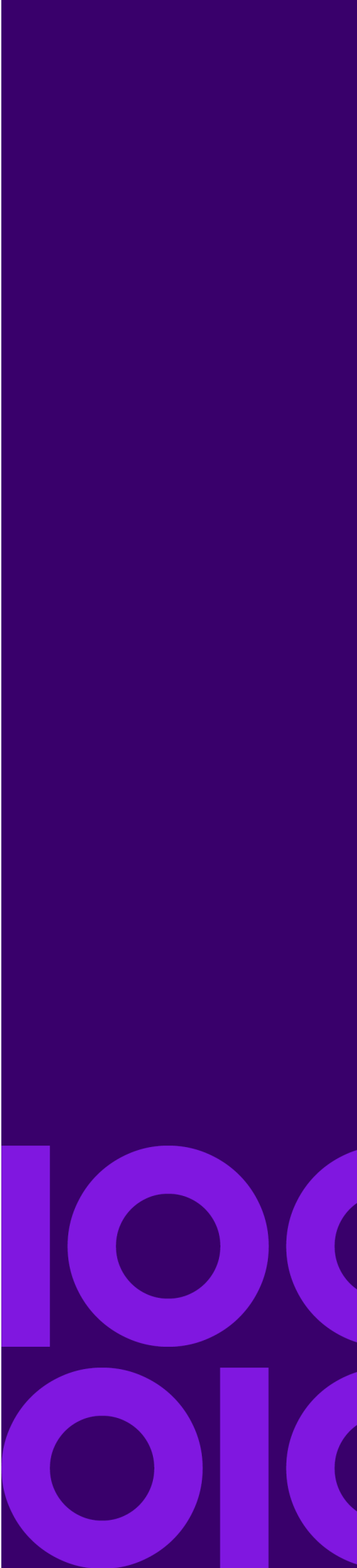
2 - Sign-in

Spectrum Spatial Analyst allows you to work as a Guest User for some authorized configurations. However, if you sign-in with your credentials you may get access to all the resources (configurations) for which you have been authorized. Spectrum Spatial Analyst has a role based access and a user can sign-in with different role.

Note: In case you do not have the login information contact your Administrator to get the login credentials.


In this section

Signing-in to your account.....	11
Signing-out.....	11



Signing-in to your account

To sign-in to your account:

1. Open the Spectrum Spatial Analyst application.
2. Click or touch the **Options**  icon on the upper right corner of the map to open the **Options** panel.
3. Click or touch the **Sign-in** link. The Sign-in page appears.
4. Fill in your account information.

Note: User name and password are case sensitive.

5. Click or touch **Sign In** button. The Spectrum Spatial Analyst application appears with your credentials.

Signing-out

To sign-out from your account:

1. Click or touch the right side menu  to open the **Options** panel.
2. Click or touch the **Sign-out** link. You are now logged out of Spectrum Spatial Analyst.

Note: In case you don't have log-in information then please contact your Administrator to get the login credentials.

3 - Learn the Basics

In this section



Getting Help.....	13
URL Launch Parameters.....	13
Searching an address.....	14
My Current Location.....	17
Changing Map Center.....	17
Navigating in the Map.....	18
Map Information Callout.....	19
Displaying Data Bind Result in Custom Template.....	20
Change the Map Project.....	21
Displaying Raster Information.....	21
Switch the Base Maps.....	21
Changing the Language.....	22
Working with Map Legend	23
Saving the Map Project.....	26
Save As the Map Project.....	27
Copyright Information.....	27




Getting Help

Spectrum Spatial Analyst provides online help for all the features present in Spectrum Spatial Analyst application.

To access online help:

1. Click or touch the **Options**  icon on the upper right corner of the map to open the **Options** panel.
2. Click or touch the **help**  icon to view the online help.

Note: You can also download PDF from the **Welcome** page of the online help.

Note: You can also access Spectrum Spatial Analyst documentation from **Map Project** > **Project Home** >  help option.

URL Launch Parameters

Spectrum Spatial Analyst allows you to launch URLs by using the available parameters to display the Spectrum Spatial Analyst interface in a specific way.

Apart from specifying the map project name, locator address data set and language you can also use parameters to:

- show specific map features with a call out
- highlight the location of a specific place using a marker
- show results of nearest features to a location
- define map overlays to be toggled as visible
- specify the active base map
- draw a concentric ring

For more information on available parameters, refer to *URL Launch Parameters* chapter in *Spectrum Spatial Guide*.

Searching an address


You can use the search box to search for an address, place name and ZIP code. Your search may include a single phrase or number or any combination of multiple phrases or numbers separated by a space. This can include:

- Road name
- Property number and name
- Property number and ZIP code
- Full Postcode
- Part of a postcode
- Mix of postcode and road name (full or part)
- Place name (for example, school)

Searching a ZIP Code, Place name or Address

To search for an address, place name or ZIP code, follow the steps given below:

1. Look for the search box at the top left side of your home screen.
2. Click or touch the search box and type an address or name of a place. You can enter part of an address (for example, ZIP code, street name etc.) in the search box.



You can control the search area by clicking the  icon and selecting one of the following options:

- a. **Search in the Visible Map Region** - The search is performed only within the visible map area on your screen. You can pan and zoom on your map before applying search for a better result.
- b. **Search in entire map** - Search is performed in the entire map region.

Note: These option are available only when **Precisely developer's API** Geosearch service or **Interactive Geocoder** is selected as the Geocoder by the Administrator.

Sub-addresses within a range - The search result may show either address or address range, which means there are multiple sub-addresses within a range.

3. Click or tap **Return** key on the keyboard.
List of matching addresses are displayed in the left panel.
4. From the Search Results, click or tap on the address of your interest. A callout with address is marked on the map with a map-marker. For more information refer to [Map Information Callout](#) on page 19.

5. Click or tap on the **Back to Results**  button to go to previous search results.
6. Click or tap on the  button to clear the search box and close search results.

Searching Using Coordinates

You can enter coordinates to find a place. To search for an address using coordinates or Latitude and Longitude, follow the steps given below:

1. Click or touch the search box.
2. Type the values for `x:` or `y:` or `lon:` or `lat:` in the search box instead of an address.
3. Click or touch the Go button.

Note:

You can also paste or enter a longitude latitude pair directly in the address search box and press enter to locate the map to that position. The only format accepted is a latitude followed by longitude using decimal degrees separated by a space or comma. Note that this is the same format supported by Google maps.


For example, entering "51.5099023, -0.134470" will locate Piccadilly Circus in London on the map.

The map is centered to the specified point.


Find my Nearest

To search for nearby location of selected address, follow the steps given below:

1. Search for an address through the search box.

The address is marked on the map with a mini-callout and a **Search Nearest**  button is displayed on the left hand panel at the top.





Note: The Search Nearest button is available only if you have privilege to do the nearby searches.

Note: In mobile devices, the address is marked on the map with a mini-callout along with a **Search Nearest**  button to search for nearby services.

2. Click or tap on the **Search Nearest** button to display the list of **Nearby places** on the left hand panel.
For example, categories like hospitals, schools, coffee shop etc. are listed in the left hand panel.

3. Click or tap on any of the **Category** (search result) to display the sub-categories. For example, MAX Hospital, City Hospital etc.
4. Click or tap on the **Sub-categories** results to display the marker on the exact location in the map.

Note: The marker on the map is highlighted whenever you hover over the searched nearest location (sub-categories) list.

5. Click or tap on the Marker to get the detailed information in the left panel.
6. Click on the **Overflow**  button to download the FMN results as .csv file.
7. You can print Search Nearest information to the PDF along with the map. For more information, refer to [Printing maps](#) section.
8. Click or tap on the  button to go to previous search result.
9. Click or tap on the  button to close recently searched addresses.
10. Click or tap on the  button to close all the search results.

Recently Searched Locations

In the Search Text box, as you place cursor for typing a new text, you will see the list of five recently searched locations in the search panel.

Quick Search

The Quick search is the list of predefined queries available under the search panel based on the settings done in Spatial Manager. It also allows user to quickly search in map layers without having to input any value in the query filter.

To perform quick search, follow the steps given below:

1. Look for the search box at the top left side of your screen.
2. As you place cursor in the Search box, you will see the list of available Quick Search options.
3. Click on the listed query options to display the results.


For more information on working with query results, refer to [Query Results View](#).

My Current Location

It allows you to go to your current location. My Location is a feature to find where you are located right now.

My Location

To go to your current location, follow the steps given below:

1. Look for the search box at the top left side of your screen.
2. In the search box, click on the  icon to go to your current location.

Note: This feature is available only in secure contexts (HTTPS), in some or all supporting browsers.

Changing Map Center

It allows you to locate the map to X and Y value that you have provided. You can enter values in longitude and latitude in addition to the current projection of the map.

Default Map Center

To bring the map to default map center, follow the steps given below:

1. Look for the search box at the top left side of your screen.
2. Click or touch the search box.
3. Click on the **Default Map Center** icon to go back to default map position.

Change X-Y and Lon-Lat Value

To change the x-y value, follow the steps given below:

1. Look for the search box at the top left side of your screen.
2. Click or touch the search box and click on **Enter Co-ordinates** icon.
3. Select **XY** or **Longitude-Latitude** radio-button to enter the value of x and y or longitude-latitude. The map is centered to the specified point.

Change X-Y and Lon-Lat Value from Search Box

To change the x-y value from the search box, follow the steps given below:

1. Click or touch the search box.



2. Type `x:` or `y:` or `lon:` or `lat:` in the search box. The two search boxes appear.
3. You can switch between x/y and lat/lon inputs from the drop-down box.
4. Enter the value in the text boxes.
5. Click or touch the **Go** button.
The map is centered to the specified point.

Navigating in the Map

Spectrum Spatial Analyst navigation tools help you to explore the map visually.

Zooming In and Out

There are numerous ways to zoom in and out of the maps.

- In desktop, you can select  button on the lower left corner to zoom in to the map. You may select  button on the lower left corner to zoom out of the map.
- To zoom in, click or touch an area with two fingers at once and spread them apart.
- To zoom out, click or touch once with two fingers or touch an area with two fingers and pinch them together.

Frequently Asked Questions?

I just zoomed out and the legend control now shows following error message:

```
Layer not visible at this zoom level
```

In Spectrum Spatial Analyst the administrator can determine the zoom levels at which map layers are displayed. This is called "Zoom Layering". When a map layer becomes disabled you need to zoom in (or in some cases zoom out) to make the layer visible. Normally, layers that show very detailed information are enabled only when you zoom in.

Where is the zoom layering stored?

The zoom layering is stored as the part of layer definition, and cannot be viewed or changed by users after it has been created and uploaded into Spectrum Spatial Analyst.

Why are disabled layers not getting reflected in the PDF print?

This is an expected behavior. The layers which are disabled are not shown on the map or the print PDF. You can zoom in to show layers for both.



Moving around the Map

To move around the map, drag the map with your finger or mouse.

Viewing Current Coordinates

It displays the current coordinates of a map in current projection.

To view the current coordinates, follow the steps given below:

1. Click or touch the **Options**  icon on the upper right corner of the map to open the **Options** panel.
2. Click on Current Coordinates  icon to view the current coordinates. You can view
 - a. **X-Y** - Select the **X-Y** radio button to see the current x-y coordinates of the map.
 - b. **Longitude-Latitude** - Select the **Longitude-Latitude** radio button to see the current longitude-latitude of the map

Note: To change the coordinates of map, refer to [Changing Map Center](#).

Map Information Callout

Map Information callout shows information about features displayed on a map. It appears on the left panel.

1. Click or touch a point on the map to see more information about a feature.

A callout appears in the left panel showing the attribute information for all of the features at that location. The information will vary from feature to feature but can include:






- X and Y
- Longitude and latitude
- Total number of tables containing feature at selected point
- The title and description of the feature
- Find my nearest button

Note: The map information callout feature is available on the basis of settings done by administrator. You may not see all the above mentioned information in the callout.

Note: On mobile devices, a mini-callout will appear with *XY* and *Longitude-Latitude* information.

2. The Map Information Callout details are displayed on the left hand panel.
3. Click on **See on Map** button to display the feature highlighted on the map.

Note: Remember that as soon as you select another feature on the map or on the map information callout, this feature will get unhighlighted and a new feature will be highlighted.

4. Click or touch the **Overflow**  icon > **Add as Annotation** to add this information as an annotation on the map.
5. Click or touch on the **Overflow**  icon to see one or more options.
 - a. Click or touch **Linked-Out**  button to open the feature results in supported application, for example, **Confirm** Application.
 - b. Click or touch on the **Link**  icon to open related information.
 - c. Click or touch on the **Export as CSV**  icon to download results.

Note: Map Information Callouts are also available for Query results.

For more information on Application Link-out, refer to [Application Link-out](#) on page 75.



Displaying Data Bind Result in Custom Template

In Spectrum Spatial Analyst, the data bind table information appears in the left panel as key-value pair. To improve the display of this information, you can apply a custom template. For example, you can apply a template that was created using the Template Designer tool.

The custom template is assigned to a data bind table by the administrator or sub-administrator. Using the Template Designer tool an administrator or sub-administrator can create a custom template and assign the template as a default to a data bind table. As a result, when a user views the data bind results, the information is displayed according to the assigned template.


How to view the data bind result:

1. Display the callout or map information in the left panel.

2. Click or touch on the **Overflow**  icon.
 3. Click or touch on the data bind **Link**  icon.
- The information appears according to the applied template.

Change the Map Project

To change the map project, follow the steps given below:

1. Open the Spectrum Spatial Analyst application.
2. Click or touch the **Map Legend**  icon on the upper right side of the map to open the **Map Legend** panel.
3. From the **Map Project** drop-down list, select the map.


Displaying Raster Information

In Spectrum Spatial Analyst, you can view the grid cell values of a raster file. The callout on a Raster layer will display information for all fields and bands. For example, if you open an MRR (Multi-Resolution Raster) file, you can view the cell values of all bands of all fields. In the case of a classified MRR, you can now view both the label and the ID fields.

Switch the Base Maps

You can switch to a different type of background map. For example, Aerial, Hybrid and Roads map.

To change the base map, follow the steps given below:

1. Open the Spectrum Spatial Analyst application.
2. Click or touch the **Map Legend**  icon on the upper right side of the map to open the Legend panel.
3. From the **Base Maps** drop-down list, select the base map.

Changing the Language


You can change the language in following ways:

1. Spectrum Spatial Analyst application UI
2. Spectrum Spatial Analyst Application URL

Note: Spectrum Spatial Analyst application supports several languages.

Changing the language from Spectrum Spatial Analyst UI

To change the language from UI, follow the steps given below:

1. Click or touch the **Options**  icon on the upper right corner of the map to open the **Options** panel.
2. Select the desired language from the **Languages** drop-down list.

For example, to view the application in **French**, select **French** language from the drop-down list.

Changing the language from Spectrum Spatial Analyst URL

To change the language from Spectrum Spatial Analyst URL:

1. Add a “lang” parameter to the end of the URL. The language parameter is case sensitive “?lang=en-gb”.

For example,

```
https://<server>:<port>/connect/analyst/mobile/#/main?lang=en-gb
```

Note: You can also change language from your device browser. For more information, refer to your device's help documentation.

Working with Map Legend



Map legends show a key to the map overlays available on your map. It allows you to:


- turn on or off individual overlays and individual layers in a map to show only the maps more appropriate to your requirements.
- adjust translucency of a layer.
- Save the current map project.




You can perform following actions in the Map Legend:


1. Click or touch the right side menu  to open the **Map Legend** panel.
2. In the **Map Layers** you will see following options:











Table 1: Map Layer Options





Icon	Option	Description
	Reorder Map Layers	<p>This option allows you to reorder the map layers in the map legend panel.</p> <ol style="list-style-type: none"> 1. Click on the Reorder Map Layers toggle icon to enable the reordering of the map layers. <p>Note: You are now in the reordering mode.</p> <ol style="list-style-type: none"> 2. Drag the map layers up or down and position them according to your choice. 3. Once done, click reorder map layers icon again to come out of the reordering mode.
	Expand or Collapse Map Layers	<p>Click the toggle icon to expand all the map layers. Similarly, click it again to collapse all the map layers.</p>

Icon	Option	Description
	Overflow	<p>It has following options:</p> <ul style="list-style-type: none"> • Save Project - Allows you to save the current state of the map. Only the owner of the project can a project. For details, refer to Saving the Map Project section. • Save As Project - Allows you to make a copy of existing map project. It is useful when you want to make a copy and edit admin and user defined maps. For details, refer to Save As the Map Project section. • Project Settings - Allows you to edit the settings of the selected map project. For details, refer to Project Settings section.

- Click or Touch the **Show\Hide Overlay on the Map** check box ☒ next to the required map overlay in the legend to turn on a map layer. Overlay check boxes can show following three states:
 - Checked**- when all children layers are checked.
 - Unchecked**- when all children layers are unchecked.
 - Indeterminate**(☐) - when some and not all layers are checked.
- Click or touch the overlay name or the  or  icon next to the overlay name to expand or collapse the legend display for an overlay. You can check or un-check individual map layers to show or hide them from the map.
- Click or touch the **Overflow**  icon next to the **Show\Hide Overlay on the Map** check box to set the translucency of the layer. It has following options:

Icon	Name	Description
	Multi Select	<p>Click to select multiple features from a layer on the map. You can toggle a selected layer to deselect it. Once done, click <input checked="" type="checkbox"/> to display information on the left hand panel.</p> <p>Note: The Multi Select option is available with named layers, vector layers and query layer.</p> <p>Note: The Multi-select option is also available from Add Panel.</p>

Icon	Name	Description
	See Tabular Results	Click to see detailed results on the left hand panel in tabular format. Note: This option is not available if Query is disabled from adminconsole.
	View Entire Layer	Click to zoom and pan the map to view the entire layer. It displays all the data in a layer in the visible bounds of a map.
	Query	Click or touch to do the query on the selected table. The Create Query panel appears.
	Thematic	Click or touch to do the thematics on the selected table. The Create Thematics panel appears.
	Edit	Click or touch to edit annotation. For more information, refer to Editing Annotation on page 107. Note: This option is available for annotations.
	Map Information	Click or touch to see feature information for all the visible map layers intersecting with the underlying annotation on the left hand panel. Note: This option is available for annotations.
	Move	Click or touch to move the annotation. Note: This option is available for annotations.
	Zoom to	Click or touch to zoom to selected annotation. Note: This option is available for annotations.
	Add New Record	Click or touch to add new records to the selected table. The Add New Record panel appears.
	Rename	Click or touch to rename the annotation. Note: This option is available for annotations.

Icon	Name	Description
	Delete	Click or touch the Delete icon to delete the layer(s).
		Click or touch the  or  icon next to Opacity option to increase or decrease the translucency of a layer.

- Click or touch the **Overflow** icon again to close it.



Note: The Opacity Control icon appears only when **Show/Hide Overlay** on the Map check box is touched or clicked.

Saving the Map Project

Note: The **Save** option is always available to the Admin. The **Save** option will be available to the non-admin user (users who do not have admin role) in their self-created project via **Save As** option.

- Guest users do not have access to **Save** and **Save As** feature.
- Save** option will be available to any user if project lies in a folder where the user have Write access.
- Save As** option is available to any user who have write access on at least one folder in repository.

You can save the current state of the map project. Only the owner of the project can a project. To save, follow the steps given below:

- Click the right side menu  to open the **Map Legend** panel.
- Click the **Overflow**  icon next to the **Map Layers** section.
The Save option is listed.
- Click on the **Save** option to save the current state of the map. You can save a map center, zoom position, query done on the map, thematics, browse and add layer, layers initially visible and repositioning of the map layers.

Note: The Save option will not save vector layers and query based on vector layer.

- The current map project is saved. You can open it anytime for viewing and editing.



Note: In case you have not saved the changes in your Map Project, the changes will be lost and will not be available when you reopen the same map project later.

Save As the Map Project

Note: The Save As option is always available to the Admin. For Non-admin users (users who do not have admin assigned role) the Save As option is available only if **Save Map Project** setting is enabled from **Functionality Profile** tab in **Properties** tab of Spatial Manager.

Note: Guest Users do not have access to Save and Save As feature.

The Save As option allows you to save the copy of Admin defined map project and also make a copy of Non-admin map project. To save a copy of the map project, follow the steps given below:

1. Click the right side menu  to open the **Map Legend** panel.
2. Click the **Overflow**  icon next tin the **Map Layers** section.
The Save As option is listed.
3. Click on the **Save As** option to save the current state of the map.
The **Name your project** dialog box appears.
4. Enter the name of the map project to make a copy of existing map project.

Points to remember

- The new map project cannot have same name as Admin defined map project.
 - The new map project cannot have same name as existing user defined map project.
 - The new map project can have same name as that of other user defined map project.
5. The current map data is saved and displayed as current map project.

Note: Once you have saved the map project, the new map project will be displayed. The saved map project can also be loaded via the URL parameters. It will also be available in drop-down list of map projects.

Copyright Information

The copyright information is displayed on the lower right hand corner of the map.

Note: The Copyright information is left aligned in print PDF and the Bing logo will be a text "bing" instead of original logo icon which you see on the actual map.

4 - Template Designer

Note: This functionality is available only to the administrator and the sub-administrator. You must Sign-in to the Spectrum Spatial Analyst application as administrator or sub-administrator to work on the template designer.

Once you have signed-in as administrator or sub-administrator, you will see

Template Designer  icon under the **Options** tab.

Click on the **Template Designer** option to open the Template Designer window. It allows you to:

- 1. Choose your Column
- 2. Create Bar Chart
- 3. Create Pie Chart
- 4. Add Text
- 5. Show Street Imagery

Click on the **Get Started** button to start creating your own information templates.

In this section

Creating New Template.....	29
Editing Template.....	33
Assigning a custom template to a data bind linked table.....	33

Creating New Template

This topic helps you to select a table and create a new information template on the selected table.

Naming conventions for Template:

- Template name should not start with a number.
- Template name should not contain &, *, \$, =, >, <, ?, |, [,], :, \, ", %, @, #, ^, ;, ., /, and {, } .

To create a template, follow the steps given below:

1. Choose the Table to create customized information map template.
2. Click on the **Create New** button.
The template designer page appears. You can now select-
 - Column Selection
 - Bar Chart
 - Pie Chart
 - Street Imagery
 - Add Text
3. Click on the **Save** button.
4. Enter a name for your template in the **Name your template** field.
5. Click **Save**.

Your template is created and saved, now you can go to the **Project Settings** page to map your template.

Column Selection

This topic helps you to select column and set properties for the previously selected table and generate template.

To create a new info template with Column selection, follow the steps given below:

1. Click on the Column Selection option on the left hand side.
2. Select the column(s) you want to add to the template. You can select one, multiple or all column at once.
3. Modify the Column properties in the **Set property** dialog box. There are following types of Properties:
 - a. Numeric (Decimal, Double, Short, Integer, Long & Float)
 - b. Text

- c. Image
- d. Hyperlink

Table 2: Set Properties Options

Option	Description
Hide section when value is null	Select the checkbox to hide the section when value is null.
Show Labels	Select the checkbox to display the label.
Inline Labels	Select to display the label in the same line.
Label Above Value	Select to display the label above the value.
Prefix	Enter the prefix to display. For example, if you want to add \$ to the value, you can enter it in the prefix box. You need to add the space if you wish to have a space between prefix and the value.
Suffix	Enter the suffix to display. For example, if you want to add a unit value, you can enter it in the suffix box. You need to add the space if you wish to have a space before the suffix and the value.
Show as	Select the value from the drop-down list - image, text, hyperlink, or email.
Link Label	Enter the name of hyperlink. This option is available with hyperlink only.
Flexible (%) based	Select to display image as flexible. This option is available with Image only.
Fixed	Select to enter the value of width and height for Image. This option is available with Image only.

4. The selected column are listed in the **Preview and Re-order** panel on the right hand side. You can reorder column names by dragging and dropping them in the list.
5. Click on the **Save** button to create a new template. The **Name your Templates** dialog box appears.
6. Enter the template name in the text box and click **Save**.

You can access these templates from [Project Home](#).

Creating a Bar Chart

This topic helps you to select bar chart and set properties for the previously selected table and generate template.

To create a new info template with new Bar chart, follow the steps given below:

1. Click on the **Bar Chart** option on the left hand side to set up the bar chart.
2. Click on the **Add Bar Chart** button to display the properties of the bar chart.
3. Enter the name of bar chart in the **Title** text box. This is an optional field.
4. Enter the bar chart axis value in the **Value (axis)** text box. This is an optional field.
5. Choose the columns name from the list below.
6. Click **Add static value option** to add Label and value to the Bar chart. This is optional.
7. The Bar chart is listed in the **Preview and Re-order** panel on the right hand side. You can reorder column names by dragging and dropping them in the list.
8. Click on the **Save** button to create a new template. The **Name your Templates** dialog box appears.
9. Enter the template name in the text box and click **Save**.

You can access these templates from [Project Home](#).

Creating a Pie Chart

This topic helps you to select pie chart and set properties for the previously selected table and generate template.

To create a new info template with new Pie chart, follow the steps given below:

1. Click on the **Pie Chart** option on the left hand side to set up the pie chart.
2. Click on the **Add New Pie Chart** button to display the properties of the pie chart.
3. Enter the name of pie chart in the **Title of Pie Chart** text box. This is an optional field.
4. Choose the columns name from the list below.
5. Click **Add static value option** to add Label and value to the Pie chart. This is optional.
6. The Pie chart is listed in the **Preview and Re-order** panel on the right hand side. You can reorder column names by dragging and dropping them in the list.
7. Click on the **Save** button to create a new template. The **Name your Templates** dialog box appears.
8. Enter the template name in the text box and click **Save**.

You can access these templates from [Project Home](#).

Setting up a Street Imagery

This topic helps you to setup a street imagery and set properties for the previously selected table and generate new template.

To setup a street imagery, follow the steps given below:

1. Click on the **Street Imagery** option on the left hand side to set up the street view.

Note: To setup Google street view you need to configure Google key in Spatial Manager > Properties > Global Project Settings page. Google key need to be purchased by your organization.

2. Select **Add Google street view** checkbox to enable the Google street view.
3. To show street view from **Map Click** or **Specific Coordinate from table**, select the desired option.
4. If you choose **Specific Coordinate from table** option, select the projection, x and y values from the drop-down list.
5. Click on the **Save** button to create a new template. The **Name your Templates** dialog box appears.
6. Enter the template name in the text box and click **Save**.

You can access these templates from [Project Home](#).

Adding Text

This topic helps you to add text and set properties for the previously selected table and generate new template.

To add text to selected table, follow the steps given below:

1. Click on the **Text** option on the left hand side to set up the text.
2. Enter the text in the **Add Text** box .
3. Set text properties like style, alignment, and appearance from the text properties options.
4. Click on the **Save** button to create a new template. The **Name your Templates** dialog box appears.
5. Enter the template name in the text box and click **Save**.


You can access these templates from [Project Home](#).


Editing Template

This topic helps you to edit an existing template that was created by template designer.

To edit an existing template, follow the steps given below:

1. Choose the **Table** for editing from the list. A new list with the pre-existing template names appears.

Note: Select the  icon to make the selected template as a default template.


2. Click on the **Edit**  button next to the pre-existing Template name. The template designer page appears for editing. You can now edit-
 - Column Selection
 - Bar Chart
 - Pie Chart
 - Street Imagery
 - Add Text
3. Once you have made the changes, you can click on the **Save** button to save the template. All the changes are saved to existing template.
4. In case you want to clone the template, you can click on the **Save As** button. The **Name your Templates** dialog box appears.
5. Enter a different name for the cloned template in the text box and click **Save**. Once the template is cloned, you will see the new template on the screen, as it overlaps the previous template.

Note: In case you have modified the template manually outside the Template Designers, then you may lose the changes while editing through template designer.

Assigning a custom template to a data bind linked table

An administrator or sub-administrator can create a custom template and assign the template as a default to a data bind table. To assign a custom template, follow the steps given below:

1. Open the **Template Designer** tool.
2. Click **Get Started**.

3. Select the table which is linked to data bind.
4. Make a new template or choose an existing template.
5. Click the  icon against the template name to set the template as default.


A **Default** label is displayed against the selected template.

5 - Project Home

The Project Home page allows you to set up a Map Project, which defines what maps are to be displayed, and what settings will be used to display them on the Spectrum Spatial Analyst application. The Map Project concept in Analyst replaces what was previously called the Map Configuration.


Note: This functionality is available only to the administrator. You must Sign-in to the Spectrum Spatial Analyst application to work on the map projects.

Once you have signed-in as Administrator, you will see **Map Project >**

Project Home  icon under the **Option** tab.

Click on the **Project Home** option to open the Projects Home window.

The Project Home page allows you to:

- 1. Create map projects.
- 2. Open existing map projects in Spectrum Spatial Analyst.
- 3. Edit existing map projects.
- 4. Access Help by clicking  icon on the top right corner. This help panel has various Spectrum Spatial Analyst user guides and utility links.
- 5. Sign-out from the Admin mode from the top right corner.
- 6. Alternatively, you can navigate directly to the home page and sign in using a URL. For example-
`http://ssa-server-name:8010/connect/analyst/mobile/#/home.`

In this section

Creating a New Map Project.....	36
Project Settings.....	42

Creating a New Map Project

The home page shows a list of all projects with project thumbnail images. Using the projects list and filter option at the top you can filter and search for projects. When you mouse over or touch a project thumbnail you have options to delete or clone the project and to open it for viewing or for editing. You can also create a new project from here.

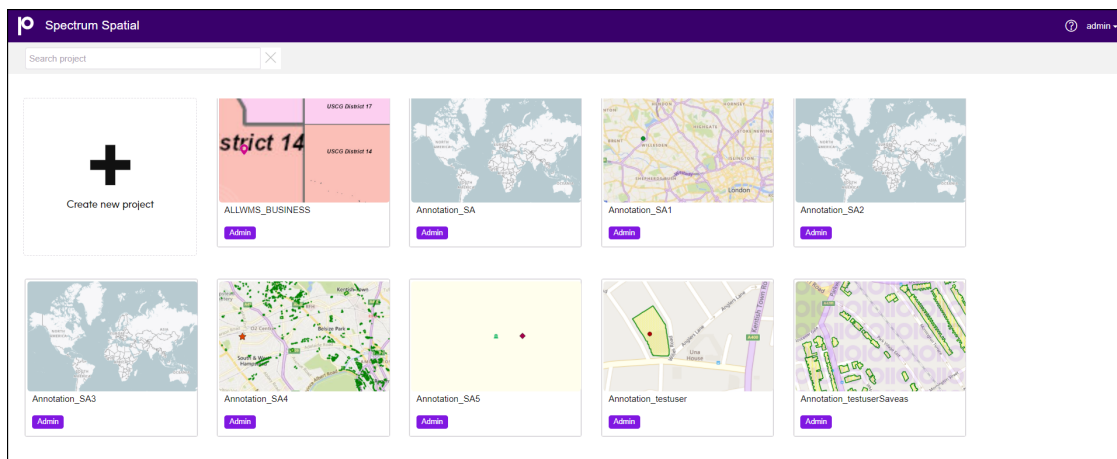


Figure 1: Project Home Page

To create a new project, follow the steps given below:

1. Click the **+** icon on the **Create new project** tile to create a new project. A **Name your project** dialog box appears.
2. Enter the name of your map project.

Note: The map project name:

- must contain only characters from the Latin alphabet
- must not contain any spaces or special characters
- is case sensitive

3. Click **Create New** button.

The new map project page with the entered name appears. It has following sections available to define the project:

- Base Map
- Business Map
- Project Settings
 - Profile Settings
 - Find My Nearest

- Extents
- Permissions


Note: A new map project is initially populated with the base maps and settings of the default map project. After you have created a new map project, you can open or edit it.

Configuring Base Maps


A Base map can be made up of several layers. It is a starting point for map operations, such as layering additional data onto the map. Generally, a base map is a satellite image or a road map, which is then overlaid with business data.

Note: By default, Bing map layers will be displayed.

To configure a basemap, follow the steps given below:




1. Click or touch the **Options**  icon on the upper right corner of the map to open the **Options** panel.
2. Click **Map Project**.
3. Click **Project settings**.
4. Click the **Manage Layers** button.
The **Manage Layers** dialog box opens.
5. In the **Manage Layers** dialog box, select the layer category from drop-down list. You can select one of the following layers.
 - Bing maps
 - OSM
 - Google Maps
 - Spectrum Spatial Tiles
 - External WMS Layers
 - External WMTS Layers
 - External Tiles

Note: You can either add Google map or a Bing map. Adding a Google map will remove all Bing maps from the map project and vice-versa.

6. Select the map layers from the **Maps** list by clicking the check box. You can select multiple layers. The basemap layers are listed on the screen.
7. Once you have added the map layers, collapse the **Manage Layer** panel by clicking in the **Close**  button.

The basemap has following properties:

Table 3: Base Map Properties


Properties	Description
Maps and Layers	Display the name of the map as defined in the Spatial Services for tiling or mapping.
Friendly Name	A short and descriptive display name that identifies the map to users of the website.
Opacity	Move the slider to choose how transparent the map should be. The value ranges from 0% to 100%. A value of 0% represents an invisible map, whereas a value of 100% represents an opaque map.
	Reorder the selected base map layer in the list by drag and drop. By default, the last map layer on the list is visible on the map. If you want to change it, you can bring the map layer of your choice to the end.
	Static Map icon.
	Removes the base map layer from the list.

- Click the **Save** button to save the change to the base map project.

Configuring Business Maps

Business maps contain information (data) relating to the activities or business of your organization. One or more business maps are overlaid onto a base map to gain context. For example, you could overlay a business map that shows the locations of schools on top of a business map.

To configure a business map, follow the steps given below:

- Click or touch the **Options**  icon on the upper right corner of the map to open the **Options** panel.
- Click **Map Project**.
- Click **Project settings**.
- Click the **Manage Layers** button.
The **Manage Layers** panel opens.

5. In the **Manage Layers** panel, select the layer category from drop-down list. You can select multiple layers.



- Spectrum Spatial Maps
- Spectrum Spatial Layers
- Spectrum Spatial Tiles
- External WMS Layers
- External WMTS Layers
- External Tiles

Note: You can add Spectrum Spatial Maps, Layers and Tiles.


6. In the **Search** box, look for the layers you want to add to the business map.
7. Select the layers from the list. You can select multiple layers.
8. Once you have added the map layers, close the **Manage Layer** dialog box by clicking the close button.

A business map has following properties:

Table 4: Business Map Properties

Properties	Description
Basic Properties	Displays the basic properties of business map.
	Click to rearrange the layers.
	Click to expand or collapse the layers.
Manage layers	Click to open the Manage layer dialog.
Enable Map Information	<p>Enables the user to view map information and callout in the Spectrum Spatial Analyst application.</p> <p>Note: If you disable the Map Information option, it will also disable the callout, query and thematics feature on the map.</p>

Properties	Description
Search Width in px	<p>The width (in pixels) of map information search. This value will be used when a user clicks on the map in Spectrum Spatial Analyst to display a map information for the features underneath the mouse pointer.</p> <p>The search width represents the side length of a square buffer that is created around the mouse pointer location when performing the underlying feature search. This is particularly important when searching for point features, because it would be impossible to exactly hit the point coordinates with the mouse pointer. Also, since points are typically represented by 2-dimensional icons, a search width that coincides with the maximum diameter of the icon makes it possible to click anywhere on the icon and still get the expected result back. The Map information Search width will also be used by Multi-select functionality available from Map Legend Panel.</p>
Max. Cache Time in seconds	Specify the maximum number of seconds to cache a map. By default, it is 3600 seconds.
Copyright	The copyright notice for the map. The copyright notice appears in Spectrum Spatial Analyst only if the corresponding map is visible.
Template	The Template Mapping tab allows you to associate map information callout and feature edit/insert validation templates with the tables present in the map project.
> Info Template	<p>Select the map information templates from the drop-down list. It lists all the templates present in following directory -</p> <p><code>customerconfigurations\analyst\theme\infotemplates</code></p>
> Feature Edit Template	<p>Select the feature edit templates from the drop-down list. The drop-down lists all the templates present in the Feature Edit Template</p> <p><code>customerconfigurations\analyst\theme\featureEditTemplates</code> directory.</p>
FMN	The Find My Nearest (FMN) tab enables you to modify a find my nearest configuration by changing the map marker, results icon, friendly name and callout template for each table.
> Enable FMN	Click to enable the FMN on the selected layer.


Properties	Description
> Map Marker	<p>Click on the Map Marker icon to select Font and custom symbol. By default, Spectrum Spatial Analyst supports Custom Symbols, Custom Symbols Pin Point, and Custom Symbols Civic England.</p> <p>Note: FMN custom icon supports png, .jpg, .jpeg, .bmp, and .gif.</p> <p>It is also possible to add your own custom symbols to Spectrum. These will be shown in symbol picker dialog as “Uploaded Symbols”. For more information, refer to Custom Symbols.</p> <p>Click on the symbol of your choice and click Select button.</p>
FMN Name	You can enter friendly name for FMN.
Query	The Query tab allows you to enables the user to display data for the table that is selected.
Enable Query	Enables the user to query on the selected table.
Enable CSV Export	Enables the user to export query results to a csv file on Spectrum Spatial Analyst.
Databinds	<p>The Data Binds tab allows you to assign multiple data bind to a map layer on the Spectrum Spatial Analyst web application.</p> <p>Select the data bind(s) that you want to display in Spectrum Spatial Analyst. It lists all the data bindings corresponding to the table that you have created in Properties tab > Data Binding page in Spatial Manager.</p>
	Removes the business map layer from the list.

- Click the **Save** button to save the change to the map project.

Adding a WMS, WMTS, Google or Bing Layer

You can use the **Manage layers** dialog to add any external tile service such as WMS, WMTS, Google, or Bing maps as a layer in your project.

To add external tiles as a layer in your project, follow the steps given below:

1. Click or touch the **Options**  icon on the upper right corner of the map to open the **Options** panel.
2. Click **Map Project**.
3. Click **Project settings**.
4. Click the **Manage Layers** button.
The **Manage Layers** panel opens. Click the Manage layers button to open the Manager layers dialog box. A list of external tile services appear.
5. From the drop-down list, select the type of layer you want to add (e.g., Bing maps, OSM, Google Maps, Spectrum Spatial Tiles, External WMS Layers, External WMTS Layers, or External Tiles).
6. Click the **Save** button to save the change to the map project.

Project Settings

Only admin and sub-admin can see Project Settings.

The Project Settings section allows you to do settings for profile, extent and permissions for map project that will be used to display them on Spectrum Spatial Analyst application.

Functionality Profile

This section provides help on how to attach a functionality profile with selected project.

To add the functionality profile, follow the steps given below:

1. From the **Functionality Profile** drop-down list, select the functionality profile.
2. Click **Save** button to add the selected functionality profile to the project.

Note: The functionality profile settings are done in Spatial Manager.

Find my Nearest

This section provides help on adding find my nearest functionality to selected project.

To add the Find My Nearest functionality to selected project, follow the steps given below:

Settings	Description
Enable find my nearest search	Display whether the Find my nearest search is enabled for selected map.
Find my nearest config	Select the Find my nearest config from the drop-down list.
Export find my nearest results as CSV	Display if selected FMN config can export find my nearest results to CSV files.

Extents

This section provides help on how to specify map view properties like, zoom levels and pan-able extents and projection.

The Extents are the pan-able extents within which a user is allowed to pan. For example, if using Bing Maps, you can set pan-able extents to restrict users to panning within the New York area only and use the minimum zoom level to stop them zooming out to the whole world. The pan-able extents must be less than full extents that are set when you load a base map and specified in the same units (usually meters)

To set the map extents, follow the steps given below:

1. Press the **Shift Key** on your keyboard and click on the map where you want to draw the extent. Now, drag the rectangle to draw the extent.
2. You can pan and zoom into the panable extents.

Note: By default, Bing Map is used as a map for extents.

Settings	Description
Projection	The coordinate/projection system for the map. You choose this by picking one of the base maps which will provide the projection for the Map Project. The other base maps and business maps can all be in different projections. Analyst will re-project them to match the projection that is chosen here.
North Extents	The northern extent of the map up to which a user can pan.
South Extents	The southern extent of the map up to which a user can pan.
East Extents	The eastern extent of the map up to which a user can pan.

Settings	Description												
West Extents	The western extent of the map up to which a user can pan.												
Minimum Zoom Level	Minimum Zoom Level for a map project can be set to a lowest value of 2. This is the most zoomed-out level for a map project. Level 1 is not available as it would always show a very small map tile with white space around it.												
Maximum Zoom Level	<p>Maximum zoom level for a map config can be set at 25. One important point to note is that, many Tile Service providers don't support max zoom to 25. For example, Google Maps support max zoom of 21 only. In those scenarios, when the supported max zoom is less than the map config max zoom, Spectrum Spatial Analyst renders map for the remaining zoom level by stretching the map images on client side. Please refer to the table below for details on the max zoom for different Tile Map providers.</p> <table> <tr> <td>Bing Aerial, Bing Hybrid & Open Street Map</td><td>19</td></tr> <tr> <td>Bing Roads</td><td>20</td></tr> <tr> <td>Europa TMS</td><td>15</td></tr> <tr> <td>Google Maps</td><td>21</td></tr> <tr> <td>Any other XYZ or TMS layer</td><td>20</td></tr> <tr> <td>Spectrum Spatial Tile Maps</td><td>Supported levels as defined</td></tr> </table>	Bing Aerial, Bing Hybrid & Open Street Map	19	Bing Roads	20	Europa TMS	15	Google Maps	21	Any other XYZ or TMS layer	20	Spectrum Spatial Tile Maps	Supported levels as defined
Bing Aerial, Bing Hybrid & Open Street Map	19												
Bing Roads	20												
Europa TMS	15												
Google Maps	21												
Any other XYZ or TMS layer	20												
Spectrum Spatial Tile Maps	Supported levels as defined												
Initial Zoom Level	The zoom level at which the map is displayed on start-up. This must be a number within the range of available zoom levels. The higher the number, the more zoomed-in the map will appear.												
Search Zoom	The zoom level that the map will zoom to when the Spectrum Spatial Analyst website visitor searches for an address/location. If the user searches for an address/location, they often want to view the surrounding area at a zoomed-in level, such as street level, which is a high zoom level number.												
Zoom Level Descriptions	The text labels that appear on the zoom slider to indicate which zoom level the user is viewing (For example, street view versus city view).												
Display Units	The distance unit used to display the results in the find my nearest results panel. You can select any values from the available drop-down list. For example, select meters/kilometers.												

Settings	Description
Repeat world horizontally	<p>When this setting is enabled, Spectrum Spatial Analyst automatically repeats the world map horizontally (to make it appear seamless). It check the underlying data extents of the layers added from the mapping service and ensures that the data is rendered and queried correctly.</p> <p>As a result, the data that goes beyond the world extents and the data that is originally inside the world extents are shown repeated and seamless.</p> <p>Note: This behavior applies only to maps rendered from the Spectrum Spatial mapping service and to vector layers added by you. Maps rendered from the Tile Service, or any third-party services such as WMS, are still only displayed and queried for data lying within the usual world extents. For more information see, plotting geometries that cross the international date line.</p>

Plotting geometries that cross the international date line

Spectrum Spatial Analyst can handle rendering and querying of data which goes beyond the international date line. For example, where the co-ordinates of the data exceed either +180 degrees in the east or -180 degrees in the west (or the equivalent in meters for other world projections).

This applies primarily to data in Russia and Alaska. Data from Russia sometimes has co-ordinates in the range of +180 to +192 degrees (rather than -180 to -168), since this shows the country as a single polygon in Precisely MapInfo Pro application. The same is true for some Alaska data where the islands off the west coast go beyond the date line to -187 degree.

Spectrum Spatial Analyst enables you to render eastern part of Russia or western islands of Alaska seamlessly. You can also perform query on the data using point or annotation tools.

Permissions


This section provides help on setting permissions on Map Projects. Permissions are set on roles which are listed on the right hand side panel. The roles are defined in Spectrum's Management Console.

Spectrum Spatial Analyst lists only those roles from Spectrum which starts with the word Analyst, i.e., `AnalystUserRole` or `AnalystGuestRole`. The administrator can select one or more roles from the available list of roles.

The permissions that are set are also propagated to the named maps, layers, tiles and tables which are referenced by the Map Project. The individual permissions on these resources can be seen in Spectrum Spatial Manager.

When assigning permissions, administrators should pay careful consideration to the Guest role. The Guest role is only available if Analyst is installed in the Guest & Secured mode. When Analyst is installed in Guest & Secured mode, you can browse to Analyst and see the maps and data which are assigned the guest role without authentication. All users will initially access Analyst in guest mode and can then choose to sign in to see secure data assigned to the roles which they belong to.

To add the permissions on the selected map project, follow the steps given below:

1. On the **Permissions** page, click the **Available Roles** button on the right hand side of the screen. The **Available Roles** panel opens.
2. In the **Available Roles** panel, select the roles you want to assign to the selected map project.
3. Click the **Save** button to save the changes.
4. Click the  button to remove the role from the **Roles** list.

6 - Adding and Editing New Records

In this section

Adding New Records.....	48
Edit Records.....	49
Delete Records.....	50





Adding New Records

This topic provides help on how to add new records on tables.

Note: This functionality is available on the basis of permissions given by Administrator.


Spectrum Spatial Analyst allows you to add new records on tables. It also allows you to edit and delete records.

To add new records, follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Click or touch the **Add New Records**  icon to add a new record.
3. Expand the **Edit Toolset** option and select the tool to draw a feature on the map. For example, point, line, circle, rectangle, polygon etc. You can click on **Cancel** button to exit without drawing.

Note: The tool set are available on the basis of setting done by administrator. You may not see all the tool set.

Note: Only one geometry type can be added in a record, it can be either of point/ line/ polygon but not combination of different geometry types. In case of multiple geometries added via toolset, they would get merged when you add them.

4. You can also pick an existing feature using the Pick from map option available in the toolset. For more information, refer to [Pick from Map](#) section.
5. Once you have drawn the feature, you will come out of drawing mode automatically. The feature is drawn on the map and is also listed under the **Edit Workspace**.
6. Click or touch the **Show/Hide Overlay on the Map** check box ☒ next to the **Edit Workspace** and **Features** list to turn it on or off on a map overlay.
7. Click or touch the **Overflow**  icon next to the feature to view editing options. You will see following options:

Properties	Description
Edit Workspace	This is the main feature group. It has following options:
Delete Selected	Allows you to delete selected feature.

Properties	Description
Feature Layer	This is the list of features that you have created on map. For example, point, line, circle, rectangle, polygon etc.
Edit	Allows you to edit the feature. To modify the annotation, tap, drag, again tap to release. To delete a vertex, double tap or click on it. Note: This feature is available with Line and Polygon only.
Move	To move feature, click or touch the feature and reposition it.
Zoom To	Allows you to zoom to selected feature.
Delete	Delete selected feature.




8. Click or touch the **Feature** to open its properties. You may touch or click the feature again to close the properties dialog box.
9. Expand the **Attributes** option. A form will be displayed with options like Unique no, Type of space, future use etc. as per the tables selected.
10. Select the **Keep Adding More** checkbox to save the record and add more records.
11. Click or touch the **Add** button to add the record. Click or touch the **Exit** button to quit without saving.
The dialog box appears.
12. Enter a name in the **Name of the Record** text box.
13. Click or touch **Apply** to add new records.

Edit Records

Note: This functionality is available on the basis of permissions given on tables by administrator. You may have full editing rights or only editing rights for attributes.

Spectrum Spatial Analyst allows you to add a vector layer as a NamedLayer in map project. Spectrum Spatial Analyst can browse a TAB file and upload it into Spectrum and create named table

To edit existing records, follow the steps given below:

1. Click or touch the **Map Legend**  icon on the upper right corner of the map to open the **Map Legend** panel.
2. Enable layers if not already enabled to edit the record.
3. Click or tap on the map, a call out appears with information on the left hand panel.
4. Click or tap in the **Name** text box and type a name for the new shapefile.
5. Click or touch the **Overflow**  icon > **Edit the Records** to edit the record.
The Add/Edit record is opened on right hand side for editing. You can add/update features and attributes.
6. From the **Edit Workspace** option select the feature to edit or add. You are now in drawing mode. You can also draw more features. In case of multiple geometries added via toolset, they would get merged when you add them.
7. Once you have edited the feature, you will come out of the drawing mode automatically.
8. Click or touch the **Overflow**  icon next to the feature to view editing options.
9. Click or touch the **Feature** to view and edit its properties. You may touch or click the feature again to close the properties dialog box.
10. Expand the **Attributes** option to edit the record. A form will be displayed with options like Unique no, Type of space, future use etc. as per the tables selected.
11. Once your have done editing, you can choose any one of the following Save options:
 - a. Click or touch the **Save** button to save the record and remain in the the **Add/Edit record** panel to do more editing. Or,
 - b. Click or touch the **Save and Exit** button to save and quit the panel.


The record is now updated.
12. You may click the **Cancel** button to quit without saving.


Delete Records

Note: This functionality is available on the basis of permissions given on tables by administrator.

Spectrum Spatial Analyst allows you to update attribute data and edit geometry on tables. It also allows you to insert and delete records.

To delete existing records, follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Enable layers if not already enabled.

3. Click or tap on the map, a call out appears with information. The callout information details are also displayed on the left hand panel.
4. Click or touch the **Overflow**  icon > **Delete Records** to delete the record.
A dialog will appear to confirm deletion of record.
5. Click or tap **Delete** to remove the record.

7 - Uploading and Saving Data to Spectrum Spatial Repository

In this section

Uploading Data Overview.....	53
Uploading Files to Spectrum Spatial (TAB, SHP, CSV, XLS).....	53
Uploading a Vector File	64
Geocoding Your Address Data in Batches.....	68
Browsing the Spatial Repository.....	69





Uploading Data Overview

Spectrum Spatial Analyst allows admins and sub-admins to upload supported data files from their computers and save them to Spectrum Spatial repository. Once the data is uploaded, you can add the data as a layer to your map. The users who do not have one of the admin roles can not upload files.

Spectrum Spatial Analyst provides the following two ways to upload your data.

1. **Upload files to Spectrum Spatial (TAB, shp, csv, xls)** - In this case, the table is first uploaded to the Spectrum Spatial repository, and then you have an option to add it as a layer in the Spectrum Spatial repository and to your map. After the layer is added to the repository, the layer will be available for adding to any map project. The same layer can be added to multiple projects.
2. **Add Files to map temporarily (csv, xls, GeoJson, kml)** - In this case, the layer is first added to your map as a temporary vector layer. You can then choose upload table to Spectrum Spatial repository from the layers menu. After the layer is added to the repository, the layer will be available for adding to any map project.

For more information, click the links below.

	Upload files to Spectrum Spatial (TAB, shp, CSV, XLS)
	Add files to map temporarily (csv, xls, GeoJSON, kml)

Uploading Files to Spectrum Spatial (TAB, SHP, CSV, XLS)

Note: This functionality is available to admins and sub-admins only.

Uploading Files to Spectrum Spatial

Spectrum Spatial Analyst allows you to upload TAB, shp, csv and xls files to Spectrum Spatial repository and then add the data as a layer in the map project.

- The data uploaded in Spectrum Spatial repository are stored as MapInfo TAB or database file.

- When uploading a .TAB or .SHP file, you need to select all of the required files. These are listed in the supported file types section below.
- When adding CSV or XLS as spatial data, you need to specify coordinates (longitude and latitude).
- You can save a layer to Spectrum Spatial repository using SQL-based or file-based connection.
- After the data has been uploaded to Spectrum Spatial repository it can be added to multiple map projects.

Note: The size of your data file will affect how much can be transferred at one time. For more details see, Spectrum Spatial Manager guide.

Supported File types

You must be careful while selecting your data. Spectrum Spatial Analyst validates your files for any errors or warnings. The following types of files are allowed.

File extension	Description
.TAB	<p>A MapInfo .TAB file.</p> <p>The associated files are:</p> <ul style="list-style-type: none"> • .map (required) • .id (required) • .dat (required) • .ind (optional) <p>For step by step instructions see, Uploading a TAB File.</p>
.shp	<p>A shapefile is an Esri vector data storage format for storing the location, shape, and attributes of geographic features.</p> <ul style="list-style-type: none"> • The shapefile should not be empty. • It should not have corrupt or null geometry. • A shapefile should not have invalid column names. <p>A Shapefile is made up of a collection of files. To upload your data in Shapefile format you will need the .shp, .dbf, and .shx files.</p> <p>The associated files are:</p> <ul style="list-style-type: none"> • .dbf (required) • .shx (required) • .prj (optional) • .cpg (optional) <p>For step by step instructions see, Uploading Shapefile.</p>

File extension	Description
.csv	You can upload a CSV file containing spatial data to Spectrum Spatial repository then show the geospatial data on a map. For step by step instructions see, Uploading a CSV File .
.xls/.xlsx	You can upload an Excel file containing spatial data to Spectrum Spatial repository then show the geospatial data on a map. For step by step instructions see, Uploading an Excel File .

For more details on uploading data refer to [Uploading Data](#) section in the Spectrum Spatial Guide.

Uploading by sub-admins

The sub-admins must have Write access to a repository folder (in which the named table is to be created) and Read access to a folder where a named connection is available. The admin can provide these rights to the sub-admin. For more information, see the Spectrum Spatial Guide.

Uploading a non-spatial table

You can upload a non-spatial table. This option is only available if the destination data source is SQL Server. Non-spatial tables cannot be saved to a TAB file. To display data on the map after uploading it, an administrator would need to join the table to a spatial table by creating a named view in Spectrum Spatial Manager, or by creating a view in SQL Server and making that available as a new named table in Spectrum Spatial Manager.

Errors and Warnings

There are a number of reasons why your upload might fail. Here are the most common reasons. You may get the following errors and warnings during the data upload:

Message	Description
Required file extension missing	This error occurs when you miss adding a required file for .TAB or SHP.
Invalid file or column information	This error occurs when you select a file from your computer which is not supported.
Multiple tables selected	This error occurs when you select more than one base file, or associated files while choosing your data files.

Message	Description
Selected named table cannot be replaced due to insufficient permission	In the select Named Table dialog, the Tree view lists only named tables. On selecting named table, describe that table and ensure read permission on Named connection. Spectrum Spatial Analyst shows error in case user does not have read permission on the named tables.
File content should not be blank	This message appears when you upload an Excel or CSV file with no records in the file.
A resource with this name already exists in folder	This message appears when named resource already exists. You can edit the name filed to give it another name.
Name already taken	This message appears when the table name already exists. You can edit the name filed to give it another name.

Important: A primary key column will be generated and added to the table. If you choose to create a new table and then create a named layer, the vector layer will be rendered as an image from Spectrum Spatial. As a result, options such as heat maps will not be available.

Uploading a TAB File



Note: This functionality is available to admins and sub-admins only.

When uploading a .TAB file, ensure you have selected all associated files along with the .TAB file. The associated files are .MAP, .ID, .DAT, and .IND (optional).

Examine your data before uploading:

- Make sure you have a valid file and valid column information in your file.
- You select only one .TAB file along with the required associated files, not multiple .TAB files.

To upload a .TAB file:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Click or touch the **Add layer**  icon.
3. Choose **Upload Files to Spectrum Spatial (.TAB, .shp, .csv, .xls)**
The **Upload files** panel opens. This panel will guide you through the upload process. Follow the instructions given under **Checklist before Upload** to avoid any error.
4. Click or touch the **Choose file ...** to browse your computer and select your .TAB files.

The required associated files must be selected along with the base file (.TAB) to avoid error.

Base file	Associated files
.TAB	<ul style="list-style-type: none"> • .MAP (required) • .ID (required) • .DAT (required) • .IND (optional) <p>Note: All required and optional files should have the same name.</p>

After you select your files, Spectrum Spatial Analyst verifies the selected files and shows a summary of selected files. In case of any validation error, you can click **Choose files** again to select the correct files. You can click **Other file extensions** to see the details of the selected files.

If you select incorrect files, for example two .TAB files, Spectrum Spatial Analyst displays **Incorrect File Selection error**. You may click **View Checklist** to see the details.

If you select correct files, Spectrum Spatial Analyst displays the name of the file you have selected.

- Click or touch **Next** on the **Upload files** panel.
The **Table details** page opens.
- Choose **Create new table** or **Replace existing table** to specify whether you want to create a new table or replace an existing table on the spatial repository. Based on your selection, follow the sub-steps given in the table.



Options	Sub-steps
Create new table	Create a new table
Replace existing table	Replace an existing table

Create a New Table

If you choose **Create new table**, follow these steps:

- From the Named Connection drop-down list select one of the named connection. We support the following types of named connections.
 - Choose the file-based connection for uploading data as TAB files.
 - Choose the SQL-based connection for uploading data as SQL table.


- Choose PostGIS for uploading data to PostGIS database.

2. Click  to specify the **File system path**.
 - For file-based connection Spectrum Spatial Analyst displays the root folder. By default, Spectrum Spatial Analyst displays the name of first folder in the list on which the user has the write-access.
 - For SQL-based connection, it shows the list of schemas. If you select SQL-based connection, the default database schema is `dbo`. If the `dbo` schema is not available it will show the first schema of the SQL connection. For more information see, [Browsing the Spatial Repository](#) on page 69.
3. In the **Datasource table name** field, displays the name of the data source. If the name already exists, you can edit the table name.
4. In the **Named table name** field, the name of selected table displays. If the table name already exists, you can edit the name.
5. Click  to specify the path of the repository folder on the Spatial Spectrum server. Your table will be saved in this folder.

Note: While browsing the repository folder, if you cannot locate a folder, check with your administrator to determine if restrictions have been placed at the file-server level. You must have Write permission to the folder that you select.


6. Click Upload. You get a message that the files have been uploaded, which means a new table is created on the Spatial repository. If you wish, you can view the new named table by clicking the hyperlink in the message.

After the file is uploaded, you can choose to create layer and save it to repository with the default layer style or with your custom styles.

- The **Add layer to project** checkbox enables you to add the layer to your map project. By default, it is checked.
 - If required, click  to browse the Spatial Spectrum repository and select another folder.
7. (Optional) Select **Define style override**, to modify the style for the layer.
 8. Click or touch the **Create Layer** button to add a new layer to the current map. When you save map project, the new layer is also saved.

Replace an Existing Table

If you choose **Replace table**, follow these steps.

1. In the **Named Connection** field, click  to browse the Spatial Spectrum repository and select the named table that you want to overwrite.

The selected named table should have the same column structure as the table being uploaded.

2. Spectrum Spatial Analyst detects the Datasource name to which the table belongs and populates the **Named connection** and **Datasource table name** fields.
3. Click **Upload**. You get a message that the files have been uploaded and the selected named table is updated. If you wish, you can view the updated named table by clicking the hyperlink in the message.
4. Click **Done** to return to the **Map legend** panel. If a layer in your current map is based on the updated table, the map gets refreshed.



Uploading a Shapefile

Note: This functionality is available to admins and sub-admins only.

A shapefile is an Esri vector data storage format for storing the location, shape, and attributes of geographic features.

A Shapefile is made up of a collection of files. To upload your data in Shapefile format you will need the .shp, .dbf, and .shx files. Optionally, you can also select .prj, and .cpg files.

To upload a .shp file:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Click or touch the **Add layer**  icon.
3. Choose **Upload Files to Spectrum Spatial (.TAB, .shp, .csv, .xls)**
The **Upload files** panel opens. This panel will guide you through the upload process. Follow the instructions given under **Checklist before Upload** to avoid error.
4. Click or touch the **Choose file ...** to browse your computer and select your data files.

Base file	Associated file
.shp	<ul style="list-style-type: none"> • .dbf (required) • .shx (required) • .prj (optional) • .cpg (optional)

After you select the files, Spectrum Spatial Analyst verifies the selected files. In case of any validation error, you can click **Choose other files** to select the correct files. You can click **Files chosen** to see the details of the selected files.

If you select incorrect files, for example two .shp files, Spectrum Spatial Analyst displays **Incorrect file selection error**. You may click **View Checklist** to see the details.

Note: When uploading a shapefile, if you choose .prj file along with other required files Spectrum Spatial Analyst reads the projection information from the .prj file, else you need to specify the projection. Click **Select** and choose a projection from the drop-down list.

The **Upload table** panel opens and displays the name of the file that you have selected.

5. Click or touch **Next** on the **Upload files** panel.
The **Table details** page opens.
6. Choose **Create new table** or **Replace existing table** to specify whether you want to create a new table or replace an existing table on the spatial repository. Based on your selection, follow the sub-steps given in the table.

Options	Sub-steps
Create new table	Create a new table
Replace existing table	Replace an existing table

Uploading a CSV File



You can upload data from .csv files to Spectrum spatial repository and then add the layer to the current map. You can upload a new file or replace an existing file on the repository. When adding CSV or XLS as spatial data, you need to specify coordinates (longitude and latitude).

Note: This functionality is available to admins and sub-admins only.

Examine your data before uploading:

- Make sure that column separator is comma. If the record delimiter is not comma, then you get the option to choose decimal character. If you have French locale file, choose comma as delimiter. For English locale choose decimal.
- While uploading a .csv file, whole column is dropped if column name is blank in the file.
- In case of duplicate column name, the values from last column are picked only and duplicate columns will not be displayed in callout, query and download.
- The first row (header) should contain column title and all other columns should have data. If a file does not contain any header then default column names are displayed, like column1, column2, column3 etc. in query, callout and downloaded file.

To upload a .CSV file:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Click or touch the **Add layer**  icon.
3. Choose **Upload Files to Spectrum Spatial (.TAB, .shp, .csv, .xls)**
The **Upload files** panel opens. This panel will guide you through the upload process. Follow the instructions given under **Checklist before Upload** to avoid error.
4. Click or touch the **Choose file ...** to browse your computer and select your data file.
After you select the file, Spectrum Spatial Analyst verifies the selected files. In case of any validation error, you can click **Choose different file...** again to choose the correct files.
The **Upload files** panel opens.
5. Choose one of the following options and click **Next**.

Option	Description
Coordinates	<p>Use this option if your source file contains X, Y or lon/lat columns. Spectrum Spatial Analyst automatically reads the correct column from the chosen source file and displays it. You can change Projection and X/Longitude or Y/Latitude from the drop-down list.</p> <p>If required, specify projection from the Projection drop-down list. After the layer is added, the points will be directly shown on the map as a business layer.</p>
Addresses	<p>Use this option if your source file contains an address column. The addresses will be geocoded and points will be shown on map as a business layer. Spectrum Spatial Analyst automatically reads the address column from the source file and displays it. The geocoded data is then uploaded to the named table on the Spectrum Spatial repository.</p> <p>If required, change the address column from the Select address column drop-down list.</p> <p>This option is available only when Global Geocoding or LI API geocoder module is selected as the Geocoder by the Administrator. For more information see, Geocoding the Address Data.</p>
Non-spatial	<p>Use this option if your source file does not contain data for geometry. In this case the table on the repository is updated, however, the data is not plotted on the map.</p> <p>With a non-spatial table, you do not get the option to add it to the map. Non-spatial tables will need to be joined to aspatial table in Spectrum Spatial Manager using a named view, and then a named layer can be created, referencing the named view.</p>

6. Choose **Create new table** or **Replace existing table** to specify whether you want to create a new table or replace an existing table on the spatial repository. Based on your selection, follow the sub-steps given in the table.

Options	Sub-steps
Create new table	Create a new table
Replace existing table	Replace an existing table

Uploading an Excel File

You can upload Excel spreadsheet (.xls/xlsx) files to Spectrum spatial repository and then add the data as a layer to your map. You can upload a new file or replace an existing file on the Spectrum Spatial repository.



Note: This functionality is available to admins and sub-admins only.

Examine your data before uploading:

- Only Excel Workbook (*.xlsx) and Excel 97-2003 Workbook (*.xls) are supported. Previous XLS versions and Strict Open XML Spreadsheet (*.xlsx) are not supported.
- In an Excel workbook, each worksheet is a separate table.
- Make sure that a table doesn't have a complex formatting (merged cells, double header, more sheets, font color etc.)

Spectrum Spatial Analyst allows you to add and update Geocoded addresses while uploading XLS/XLSX file. It reads the address information from the source file.

To upload .xls/xlsx file:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Click or touch the **Add layer**  icon.
3. Choose **Upload Files to Spectrum Spatial (.TAB, .shp, .csv, .xls)**.
The **Upload files** panel opens. This panel will guide you through the upload process. Follow the instructions given under **Checklist before Upload** to avoid error.
4. Click or touch the **Choose file ...** to browse your computer and select your data file.

After you select the files, Spectrum Spatial Analyst verifies the selected files. In case of any validation error, you can click **Choose different file...** again to choose the correct files.

The **Upload files** panel opens.

- Choose one of the following options and click **Next**.

Option	Description
Coordinates	<p>Use this option if your source file contains X, Y or lon/lat columns. Spectrum Spatial Analyst automatically reads the correct column from the chosen source file and displays it. You can change Projection and X/Longitude or Y/Latitude from the drop-down list.</p> <p>If required, specify projection from the Projection drop-down list. After the layer is added, the points will be directly shown on the map as a business layer.</p>
Addresses	<p>Use this option if your source file contains a column with addresses. The addresses will be geocoded and points will be shown on map as a business layer. Spectrum Spatial Analyst automatically reads the correct column from the source file and displays it.</p> <p>If required, specify address column from the Select address column drop-down list.</p> <p>This option is available only when Global Geocoding or LI API geocoder module is selected as the Geocoder by the Administrator. For more information see, Geocoding the Address Data.</p>
Non-spatial	<p>Use this option if your source file does not contain data for geometry. In this case the table on the repository is updated, however, the data is not plotted on the map.</p>

- Choose **Create new table** or **Replace existing table** to specify whether you want to create a new table or replace an existing table on the spatial repository. Based on your selection, follow the sub-steps given in the table.

Options	Sub-steps
Create new table	Create a new table
Replace existing table	Replace an existing table

Uploading a Vector File

Spectrum Spatial Analyst allows you to add Geojson, KML, CSV, and XLS files temporarily to the map. You can then save the layer to Spectrum Spatial repository using SQL or File based connection.

Adding Vector Layers

Spectrum Spatial Analyst allows you to add CSV, XLS, GeoJSON and KML file along with metadata option files to the map.

Note: For optimal performance, the suggested limit for vector data points being added via browse and add layer may range from 1 to 100000 points based on internal benchmarking. Beyond that you may see graceful degradation in system response time for heat map view during pan/zoom operation.



Note: This functionality is available on the basis of permissions given by the administrator.

- [Adding Layers from CSV, XLS and XLSX Files](#)
- [Adding GeoJSON and KML Files](#)

Adding Layers from CSV, XLS and XLSX Files

Note: This functionality is available to admins and sub-admins only.

Spectrum Spatial Analyst allows you to import data from .csv or .xls or .xlsx file to the map. To import data from .csv or .xls or .xlsx file, follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Click or touch the **Add layer**  icon.
3. Choose **Add files to map temporarily (.csv, xls, .geojson, kml)** to add vector layer to the map.
Add a file page appears.
4. Click or touch the **Choose file...** button to add .csv or .xls or .xlsx file. After importing files successfully, you can choose to plot **Addresses** or **Co-ordinates** on the map.

Note: You can geocode up to 1000 records only. Due to the inherent limitations of browsers and varied structure of data, there is a limit to the sizes of files that can be uploaded for Vector Mapping. In general, we suggest keeping the file size below 25 MB but depending on the complexity of data and format of file you may be able to upload up to 80 MB. For example, we have successfully processed GeoJSON file of size 85 MB. For more information see, [Geocoding Your Address Data in Batches](#) on page 68.

Points to remember-

- While uploading files csv, xls and xlsx, whole column is dropped if column name is blank in the file.
 - In case of duplicate column name, the values from last column is picked only and duplicate columns will not be displayed in callout, query and download.
 - If file do not contain any header then default column names are displayed, like column1, column2, column3 etc. in query, callout and download.
 - Only UTF-8 encoded files are supported (i.e., kml, GeoJSON, csv ,xls and xlsx) otherwise data may look corrupted.
5. Select **Addresses** radio button to import a file that contains a column with address which will be geocoded and points will be shown on map as business layer.


Note: This option is available only when `Global Geocoding` or `Precisely API geocoder` module is selected as the Geocoder by the Administrator.

- a) Click or touch **Next**. The **Select Coordinates** page appears. It has following options.

Option	Description
First row as header	Check if first row of the selected file is a header.
Select Address Column	Select the address column from the drop-down list.
Style	Select the style color and shape from the drop-down.
Back	Go back to previous screen.

6. Select **Coordinates** radio button to import a file that contains coordinates x-y or lat-long. These point will be directly shown on map as business layer.
- a) Click or touch **Next**. The **Select Coordinates** page appears. It has following options.

Option	Description
First row as header	Check if first row of the selected file is a header.
Projection	<p>Select or enter the projection in the format EPSG:<projection></p> <p>You can also select from default projections-</p> <p>EPSG:4326</p> <p>EPSG:3857</p> <p>EPSE:27700</p> <p>Note: MapConfigs with 3857 projection will show long/lat (EPSG:4326) as coordinate values for POI location instead of x,y.</p>
X/Longitude	Select the X\longitude column from the file to be added to the map.
Y/Latitude	Select the Y\Latitude column from the file to be added to the map.
Style	Select the style color and shape from the drop-down.
Back	Go back to previous screen.

- Click or touch on the **Overflow**  icon and click **Upload table** to add the data to Spectrum Spatial repository.
The name of the vector layer that you have added on the map is displayed and the **Upload table** panel opens. Next you need to provide the table details.
- Choose **Create new table** or **Replace existing table** to specify whether you want to create a new table or replace an existing table on the spatial repository. Based on your selection, follow the sub-steps given in the table.

Options	Sub-steps
Create new table	Create a new table
Replace existing table	Replace an existing table




Adding GeoJSON and KML Files

Note: This functionality is available to admins and sub-admins only.

You can not directly upload .GeoJSON or .kml file.

Spectrum Spatial Analyst does not allow you to directly upload .GeoJSON or .kml file. However, you can add .GeoJSON or .kml file to the map as a vector layer. You can then upload the data to the Spectrum Spatial repository.

To add a GeoJSON or KML file:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Click or touch the **Add layer**  icon.
3. Choose **Add files to map temporarily (csv, xls, GeoJSON, kml)**.
The **Add a file** panel opens.
4. Browse your computer to select your data file.
If the selected .GeoJSON or .kml file has missing data, then an error message will appear. You can download the .csv file to see the missing data.
5. Click on the **Add** button to see selected data plotted on the map and it is also added to the **Map Legend** panel with default file name. You can click at any point on the plotted data to see the underlying information in the left hand panel.
6. Click or touch the **Overflow**  icon and click **Upload table to Spectrum Spatial** to add the data to Spectrum Spatial repository.
The name of the vector layer that you have added on the map is displayed and the **Upload table** panel opens. Next, you need to provide the table details.
7. Choose **Create new table** or **Replace existing table** to specify whether you want to create a new table or replace an existing table on the spatial repository. Based on your selection, follow the sub-steps given in the table.

Options	Sub-steps
Create new table	Create a new table
Replace existing table	Replace an existing table

Geocoding Your Address Data in Batches

Geocoding is the process of finding geographical coordinates (latitude/longitude) for an address to plot the address on the map. When you upload a CSV or Excel file which has address data, Spectrum Spatial Analyst geocodes the address data in batches before rendering it on the map. If there are thousands of records in your source file, batch Geocoding works as described below.

Note: The Geocoding option is available only if the map project is using either the on-line Precisely API geocode service or a locally installed Spectrum Global Geocoding module. For more information on Precisely API see, <https://developer.precisely.com/apis/geocode>.

- By default, the Precisely API service has a geocode limit of 1000 records per request, therefore only the first 1000 records would be geocoded if your file is large. Geocoding more than 1000 records by making multiple requests can take a long time (more than a few minutes). If you have larger datasets, we recommend to perform geocoding as a separate step, and then upload the CSV or Excel using Spectrum Spatial Analyst.
- The Global Geocoding Module is deployed locally to Spectrum. Hence it is faster to access and is usually on the same server that Spectrum Spatial Analyst is deployed on. Analyst will make multiple requests to this service if needed. There is a batch size limit which determines how many records can be geocoded in one request. The default is only 100 records. Admins can modify this limit to increase this from 100 to a higher value. The steps are given below. We recommend increasing this limit to 1000 for better performance with large dataset.

The number of records Spectrum Spatial Analyst will attempt to geocode prior to uploading is summarized in the table below.

Geocoder	Batch size	Maximum records geocoded by Analyst
Precisely API	This is fixed at 1000 and cannot be changed	Spectrum Spatial Analyst will make only 1 request to geocode a maximum of 1000 records
Global Geocoding module	Is set under 500 (note that the default is only 100)	Spectrum Spatial Analyst will make up to 25 requests to geocode records. With a batch size of 100, only the first 2,500 records would be geocoded.
Global Geocoding module	Is set at 1000	Spectrum Spatial Analyst will geocode a maximum of 10,000 records , and make as many requests as needed to reach this limit

Note: If the CSV or Excel file is being added as a vector layer (rather than being directly uploaded) by a user who is not an admin or sub-admin, the batch size limit is assumed to be 100. This is because Spectrum Spatial Analyst is not able to request the batch size unless the user is in an admin, spatial-admin or spatial-sub-admin role.


Increasing Batch Geocoding Limit


The batch size for a global geocoding database can be modified by following the steps below.


1. Log into Spectrum Management Console as an admin (a sub-admin will not always have the rights to change batch size)
2. Choose Resources and then Spectrum Databases.
3. Pick one of the databases used by the Global Geocoding module.
4. You will be taken to the Edit Database page for the database.
5. Scroll down and select Override advanced settings.
6. Expand the **Java Properties** section.
7. Inside you will see a property called `MAXIMUM_BATCH_SIZE`.
8. Change its value to 1000 (Do not change its name or add/remove any other properties).
9. Then click Save at the top right of the page to save the setting.
10. Repeat for other Global Geocoding module databases if you have more than one databases.

Browsing the Spatial Repository

Spectrum Spatial Analyst allows you to upload data files from your computer and save it to Spectrum



Spatial repository. While uploading the data to the repository, you need to click  to browse the Spatial Spectrum repository and specify the path of the repository folder on the Spatial Spectrum server. The window presents you a list of directories or database schemas.



If you choose SQL-based connection, click  to select a schema. A primary key column will be generated and added to the table.

If you choose file-based connection, click  to select File system path.

You can specify the target location on the Spectrum Spatial repository.

For SQL-based connection, the Schemas are presented in the following ways:

Icons	View
	List view
	Tree view

The file-based connection is presented only in the Tree view. You can click  or  to switch the table view.

By default, Spectrum Spatial Analyst displays the name of first folder in the list on which the user has the Write access.

When you create a connection, you provide basic information required for the connection such as user name and password. The connection choice will determine whether that table is created as a TAB file or a SQL table in Spectrum Spatial.

Browsing the Spatial Repository As a Sub-admin

While browsing the Spatial repository, sub-admin users will see only those folders on which Write permission is granted.

Note:

The **Select** button is enabled only when you choose a writable folder. If you select a folder on which you do not have the Write permission, the following message displays.

You only have read access to the chosen folder.

8 - Building a Query

The query builder allows you to search for information on individual map layers shown on the map. Results are displayed as an interactive table. Tapping a result on the table will zoom to and highlight that feature on the map. You can search and display all of the data for a layer, constrain your search to within the current map view, or search for information which is inside the shapes that you draw on the map as annotations. For some layers the Spectrum Spatial Analyst Administrators will have set up additional criteria that you can choose to further filter the results you get (for example, to return results within a date range or results which meet some other value). A query can be set up to perform a more detailed search on a map.

Adding Predefined filter criteria

You can create a View table with parameters from Spatial Manager and associate it to a map layer from the **Project Settings** dialog. When you create a query, the associated view table will be listed under the Filter drop-down list against the corresponding layer.

The parametrized view table will be listed under Search, if **Quick search** is enabled in the corresponding functionality profile.

View table with parameters

If IN operator is used in MYSQL while creating Parametrized view table in Spatial Manager then the criteria is displayed in drop-down list as picklist. For all other parametrized view a text box is displayed as User input in Spectrum Spatial Analyst.

Note: For getting picklist options parameter name has to match the column name.

In this section



Create a Query.....	72
Styling Query.....	74
Query Results View.....	75

Create a Query

The **Create Query** option allows tabular queries on the attribute data from any of the currently displayed layers.

Note: When making queries in Spectrum Spatial Analyst there is a HTTP POST limit of 2 MB (2097152 Bytes). If a query is referencing a very complicated annotation geometry, typically over 50,000 points, it can exceed the limit in which case the query will fail with error.

To create a query, follow the steps given below:


1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Click or touch the **Create Query**  icon to build a query.
3. In the **From** drop-down list, select the name of the map layer you wish to search.
4. In the **Query In** drop-down list, select the geographic area to be queried. You can choose to see entire map region data or data within the visible map region or choose one of the annotations you have drawn to search for data that is inside or touches it.

Note: You can select multiple options for query.

5. In the **Filter** drop-down list, select one of the following:
 - **No Filter**- No criteria is selected.
 - **Custom Filter**- Displays **Filter Criteria** dialog box and allows you to customize your search. Once selected, the Filter Criteria section is displayed.

Table 5: Custom Filter Criteria Options

Options	Description
Column	Select the column that is to be queried.
Operator	Select the search operator from the drop-down list. It provides following search operators.
=	This function only retrieves records that exactly match the text or value entered in the criteria text box.
<>	This function looks for all values that are different from the value entered in the criteria text box.

Options	Description
<	This function looks for all values lower than the value entered in the criteria text box.
>	This function look for all values higher than the value entered in the criteria text box.
>=	This function looks for all values higher than or at the same level as the value entered in the criteria text box.
<=	This function looks for all values lower than or at the same level as the value entered in the criteria text box.
Like	It looks for records in the chosen field that contain the criteria entered in any way.
Value	<p>Enter the value to be matched with operator.</p> <p>Note: If there are less than 50 records associated with selected column then criteria is shown as drop down list with multi-select option and if records are more than 50 then criteria is shown as text box.</p>
Add more conditions	<p>Click or Tap to add more search criteria. You can add up to 5 search criteria.</p> <p>Note: Click or Tap on the  icon to remove the search criteria.</p>

- **Others-** The query filter is created from Project Home.

Note: Some layers will have a list of criteria you can choose. If criteria exist you will be presented with additional text boxes or pick lists to further refine the results you return.


6. Select the color from **Color** picker to show query in that color on the map. You can also change color later from **Map Legend** panel. For more information, refer to [Styling Query](#) on page 74.
7. Enter a name in the **Name of the Query Layer** text box if you want to change the default name.
8. Click or touch **Create** button to see query results on the map. When you zoom out on the map a message **Layer not visible at this zoom level** may appear. This is because the zoom constraint settings was applied on the original layer on which query has been created.

The Query results are listed on the left hand side. For more information, refer to [Query Results View](#).

The query result name is also listed on the [Map Legend](#) panel.

Note: You may tap or click anywhere on the query results on the map to see callout information. For more information, refer to [Map Information Callout](#).




Note: There is a HTTP POST limit of 2 Mb (2097152 Bytes) applied on a query. If a query is referencing a very complicated annotation geometry, typically over 50,000 points, it can exceed the limit in which case the query will fail with error.





9. Save the map project. For example, click the **Overflow**  icon next to the **Map Layers** and click **Save project**. When you save the project, the map project is saved along with any zoom constraint settings applied on the original layer.

Note: If you do not save the changes in your Map Project, the changes will be lost on reloading the project or refreshing the browser.

Styling Query

You can change color of how query appear on map. To style query, follow the steps given below:


1. Click or touch the right side menu  to open the **Map Legend** panel.
2. In the **Map Legend**, click or touch the **Query** that you want to style.
3. Select the color from **Color** picker to change query color on the map.
4. Click or un-check the **Show\Hide Overlay on the Map** checkbox  next to the query layer name to turn it on or off on the map.
5. Click or touch the **Overflow**  icon to view editing options.

Icon	Name	Description
	Multi Select	Click to select multiple features from a layer on the map. You can toggle a selected layer to deselect it. Once done, click  to display information on the left hand panel.
	See tabular results	Click or touch the view results icon to see the query results on the left hand panel.
	Delete	Click or touch the Delete icon to delete the query result.

Icon	Name	Description
	Opacity	Click or touch the  or  icon next to Opacity option to increase or decrease the translucency of a layer.

Query Results View

The query results are displayed on the left hand side of the screen. It allows you to:

- Re-order the results by tapping on the column headings. You can choose from **Sort Ascending**, **Sort Descending** or **Hide Column** drop-down options.
- Navigate from page to page.
- Export Visible Data as a CSV file.
- Export Selected Data as a CSV file.
- Export All Data as a CSV file (or choose to export one page at a time).
- Click or Tap each result to zoom to and highlight the record on the map.
- Resize the column widths by dragging the edges between the columns.
- Drag the complete table by moving the handle on the top of the table.
- You can also close query result tab.
- The query result is also listed in the **Map Legend**.
- You can tap or click on individual geometry that came up as a Query Result. You can view its attribute in a callout.
- You can delete query results from **Map Legend** by clicking or tapping the **Delete** icon .
- You can also print query results. For more information, refer to [Printing Maps](#) on page 131.

Application Link-out

Spectrum Spatial Analyst allows you to open query results in supported external applications. It is called **Application Link-out**. The Spectrum Spatial Analyst is configured to pass a bind column of the current selection set in XML format to the external application. For example, a value of `central_asset_id` column of selected record can be passed to **Confirm** application. When **Confirm** application is opened, record corresponding to selected `central_asset_id` will be displayed.



The supported external application can synchronize its own selection set based on the selection description to provide a seamless work-flow between applications.

Prerequisite

Below prerequisites needs to be satisfied for enabling Link-out to external application

1. Applinking should be enabled in Spectrum Spatial Analyst from controller properties.
2. Node server should be up and running.
3. GLF should be installed and configured for Link-out.
4. Third party application should be installed on same machine from where Spectrum Spatial Analyst is accessed via browser.



To open query results in external application, follow the steps given below:

1. Open Spectrum Spatial Analyst application and create a Query. For more information refer to [Create a Query](#).
2. In the Query Results View, click or touch the **Menu**  button.
3. Click or touch on the **Linked-Out**  button to open the query results in supported application, for example, Confirm Application.

The external application opens with the query results. You can export up to 1000 results at a time.

Query On the Vector Layer


Once you add a vector layer to your map project, you can perform query on the vector layer. Spectrum Spatial Analyst allows you to perform query using SQL-like expressions on a vector layer. You can use the following numeric operators in your expression.

1. Click or touch the **Add**  icon on the upper right corner of the map.
2. Click or touch the **Query**  icon to open the **New Query** page.
3. In the **From** drop-down list, select the name of the map layer you wish to search.
4. In the **Query In** drop-down list, select the geographic area to be queried. You can choose to see entire map region data or data within the visible map region or choose one of the annotations you have drawn to search for data that is inside or touches it.

Note: You can select multiple options for query.

5. In the **Filter** drop-down list, select one of the following:
 - **No Filter**- No criteria is selected.
 - **Custom Filter**- Displays **Filter Criteria** dialog box and allows you to customize your search. Once selected, the Filter Criteria section is displayed.

Table 6: Custom Filter Criteria Options

Options	Description
Column	Select the column that is to be queried.
Operator	Select the search operator from the drop-down list. It provides following search operators.
=	This function only retrieves records that exactly match the text or value entered in the criteria text box.
<>	This function looks for all values that are different from the value entered in the criteria text box.
<	This function looks for all values lower than the value entered in the criteria text box.
>	This function look for all values higher than the value entered in the criteria text box.
>=	This function looks for all values higher than or at the same level as the value entered in the criteria text box.
<=	This function looks for all values lower than or at the same level as the value entered in the criteria text box.
Like	It looks for records in the chosen field that contain the criteria entered in any way.
Value	Enter the value to be matched with operator. Note: If there are less than 50 records associated with selected column then criteria is shown as drop down list with multi-select option and if records are more than 50 then criteria is shown as text box.
Add more conditions	Click or Tap to add more search criteria. You can add up to 5 search criteria. Note: Click or Tap on the  icon to remove the search criteria.

- **Others-** The query filter is created from Project Home.

Note: Some layers will have a list of criteria you can choose. If criteria exist you will be presented with additional text boxes or pick lists to further refine the results you return.

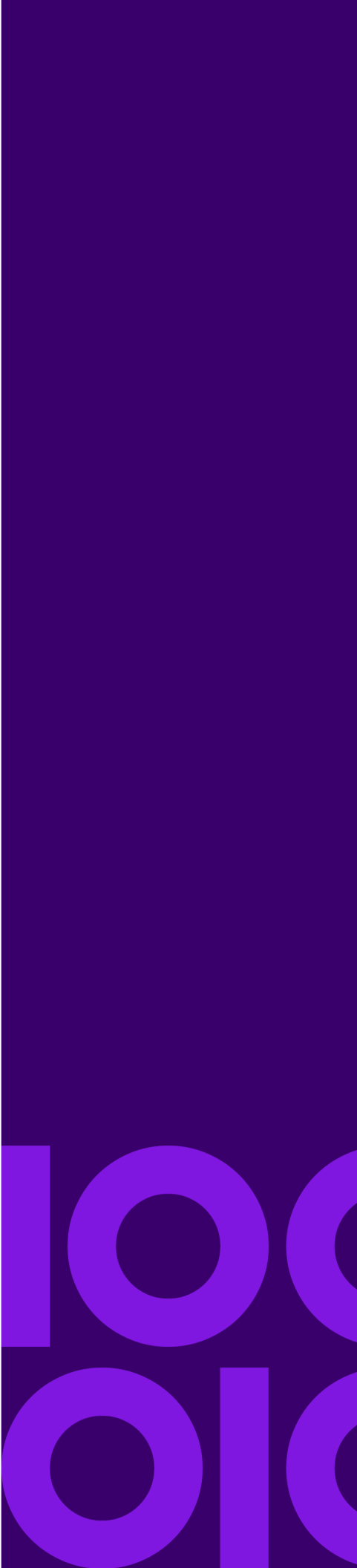
6. Click the **Add another condition** button to add more conditions.

9 - Adding Layers

Note: The functions available in Spectrum Spatial Analyst are controlled by the administrator for each organization and some users may not have these tools enabled.

In this section

Adding Spectrum Spatial Layers.....	79
Adding Vector Layers.....	80
Editing Vector Layer.....	84



Adding Spectrum Spatial Layers

Spectrum Spatial Analyst allows you to add Spectrum Spatial Layers to the map.




Note: This functionality is available on the basis of permissions given by Administrator.

Adding Spectrum Spatial Layer Files

Spectrum Spatial Analyst allows you to add Spectrum Spatial Layers to the map.

Note: This functionality is available on the basis of settings done by administrator.

To add layers, follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Click or touch the **Add Layer** option  to add spectrum spatial layer to map. **Add Spectrum Layers** page appears with list of all the layer names.
3. Enter the layer name in the search box to shortlist the files.
4. Select the layer name to be added on the map. You can select multiple layers to be added to the map.
5. Click on the  button to view the layer details of the desired layer. A layer preview image is also displayed if available.
6. Click on **Add Selected** button to add the spectrum spatial layer files on the map. The valid layers are successfully added to the map and listed in the Map Legend Panel.
7. You can delete added layer from the Map Legend Panel. For more information, refer to Map Legend Panel.

Note: Layers added will not be persisted to the map project. They will remain in user session and will be cleared if user refreshes page/ changes the map project or logs in or logs out.

Note: Only following types of layers are supported:

```
NamedFeatureLayer/ NamedChartLayer /NamedPieLayer /NamedBarLayer/  
NamedGraduatedSymbolLayer
```

If a layer has a linked Labels, the same will also be added to map.

Note: For adding any of the above layers, user must have permissions on the corresponding table.

Adding Vector Layers

Spectrum Spatial Analyst allows you to add CSV, XLS, GeoJSON and KML file along with metadata option files to the map.

Note: For optimal performance, the suggested limit for vector data points being added via browse and add layer may range from 1 to 100000 points based on internal benchmarking. Beyond that you may see graceful degradation in system response time for heat map view during pan/zoom operation.



Note: This functionality is available on the basis of permissions given by the administrator.

- [Adding Layers from CSV, XLS and XLSX Files](#)
- [Adding GeoJSON and KML Files](#)

Adding Layers from CSV, XLS and XLSX Files

Note: This functionality is available to admins and sub-admins only.

Spectrum Spatial Analyst allows you to import data from `.csv` or `.xls` or `.xlsx` file to the map. To import data from `.csv` or `.xls` or `.xlsx` file, follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Click or touch the **Add layer**  icon.
3. Choose **Add files to map temporarily (.csv, xls, .geojson, kml)** to add vector layer to the map.
Add a file page appears.
4. Click or touch the **Choose file...** button to add `.csv` or `.xls` or `.xlsx` file. After importing files successfully, you can choose to plot **Addresses** or **Co-ordinates** on the map.

Note: You can geocode up to 1000 records only. Due to the inherent limitations of browsers and varied structure of data, there is a limit to the sizes of files that can be uploaded for Vector Mapping. In general, we suggest keeping the file size below 25 MB

but depending on the complexity of data and format of file you may be able to upload up to 80 MB. For example, we have successfully processed GeoJSON file of size 85 MB. For more information see, [Geocoding Your Address Data in Batches](#) on page 68.

Points to remember-

- While uploading files csv, xls and xlsx, whole column is dropped if column name is blank in the file.
 - In case of duplicate column name, the values from last column is picked only and duplicate columns will not be displayed in callout, query and download.
 - If file do not contain any header then default column names are displayed, like column1, column2, column3 etc. in query, callout and download.
 - Only UTF-8 encoded files are supported (i.e., kml, GeoJSON, csv ,xls and xlsx) otherwise data may look corrupted.
5. Select **Addresses** radio button to import a file that contains a column with address which will be geocoded and points will be shown on map as business layer.

Note: This option is available only when `Global Geocoding` or `Precisely API geocoder` module is selected as the Geocoder by the Administrator.

- a) Click or touch **Next**. The **Select Coordinates** page appears. It has following options.


Option	Description
First row as header	Check if first row of the selected file is a header.
Select Address Column	Select the address column from the drop-down list.
Style	Select the style color and shape from the drop-down.
Back	Go back to previous screen.

6. Select **Coordinates** radio button to import a file that contains coordinates x-y or lat-long. These point will be directly shown on map as business layer.

- a) Click or touch **Next**. The **Select Coordinates** page appears. It has following options.

Option	Description
First row as header	Check if first row of the selected file is a header.

Option	Description
Projection	<p>Select or enter the projection in the format EPSG:<projection></p> <p>You can also select from default projections-</p> <p>EPSG:4326</p> <p>EPSG:3857</p> <p>EPSE:27700</p> <p>Note: MapConfigs with 3857 projection will show long/lat (EPSG:4326) as coordinate values for POI location instead of x,y.</p>
X/Longitude	Select the X\longitude column from the file to be added to the map.
Y/Latitude	Select the Y\Latitude column from the file to be added to the map.
Style	Select the style color and shape from the drop-down.
Back	Go back to previous screen.

- Click or touch on the **Overflow**  icon and click **Upload table** to add the data to Spectrum Spatial repository.
The name of the vector layer that you have added on the map is displayed and the **Upload table** panel opens. Next you need to provide the table details.
- Choose **Create new table** or **Replace existing table** to specify whether you want to create a new table or replace an existing table on the spatial repository. Based on your selection, follow the sub-steps given in the table.

Options	Sub-steps
Create new table	Create a new table
Replace existing table	Replace an existing table




Adding GeoJSON and KML Files

Note: This functionality is available to admins and sub-admins only.

You can not directly upload .GeoJSON or .kml file.

Spectrum Spatial Analyst does not allow you to directly upload .GeoJSON or .kml file. However, you can add .GeoJSON or .kml file to the map as a vector layer. You can then upload the data to the Spectrum Spatial repository.



To add a GeoJSON or KML file:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Click or touch the **Add layer**  icon.
3. Choose **Add files to map temporarily (csv, xls, GeoJSON, kml)**.
The **Add a file** panel opens.
4. Browse your computer to select your data file.
If the selected .GeoJSON or .kml file has missing data, then an error message will appear. You can download the .csv file to see the missing data.
5. Click on the **Add** button to see selected data plotted on the map and it is also added to the **Map Legend** panel with default file name. You can click at any point on the plotted data to see the underlying information in the left hand panel.
6. Click or touch the **Overflow**  icon and click **Upload table to Spectrum Spatial** to add the data to Spectrum Spatial repository.
The name of the vector layer that you have added on the map is displayed and the **Upload table** panel opens. Next, you need to provide the table details.
7. Choose **Create new table** or **Replace existing table** to specify whether you want to create a new table or replace an existing table on the spatial repository. Based on your selection, follow the sub-steps given in the table.

Options	Sub-steps
Create new table	Create a new table
Replace existing table	Replace an existing table



Editing Vector Layer

Spectrum Spatial Analyst allows you to edit vector layer data drawn on map as Cluster layer, and Heat layer. Once the vector layer data is drawn on the map, you can perform following actions from Map Legend:

1. Click or touch the right side menu  to open the **Map Legend** panel.
2. Under the **Map Layer**, select the **Vector Layer** that you want to edit.
Note: The legend icon of the vector layer is represented by its geometry like- polygon, line, or point. In the case of mixed geometries, the legend icon of the vector layer will be represented by polygon.
3. Click or touch the **Show/Hide Overlay on the Map** check box ☒ next to the vector layer to turn it on or off on the map.
4. Click or touch the **Overflow**  icon to view editing options.

Option	Description	
Multi Select	Click to select multiple features from a layer on the map. You can toggle a selected layer to deselect it. Once done, click <input checked="" type="checkbox"/> to display information on the left hand panel. Note: The Multi Select option is available with vector layers. This option is not supported in case of Heat or Cluster layer.	
See detailed results	Click or touch to see the results on the left hand panel.	
Vector Layer	Select to convert current Cluster layer or Heat layer to Vector layer. You have following options to style the Vector layer. Note: The polygon, line and point tab for styling in vector layer is available on the basis of geometry present in vector layer	
	Polygon Tab	The polygon tab has following options:
	Pattern	Select the pattern from drop-down list.
	Border Style	Select the border style.

Option	Description	
	Color	Choose the color from the Color picker to change the color of vector layer on the map.
	Border Color	Select the border color.
	Border Width	Change the width of the polygon annotation. You may choose from 1pt to 7pt.
	Line Tab	The line tab has following options:
	Color	Choose the color from the Color picker to change the color of line annotation.
	Width	Change the width of the line annotation. You may choose from 1pt to 7pt.
	Style	Select the line style from drop-down list. You may choose from dotted, solid and dashed line. By default, the style is solid line.
	Point Tab	The Point tab has following options:
	Icon	Select the style from the drop-down list.
	Color	Click to open the color palette and select the color. Click or tap on Choose button to apply the new color.
Cluster Layer	Select to convert current Vector layer or Heatmap layer to Cluster layer. You have following options to style the Cluster layer.	
	Cluster Points within	Minimum distance in pixels between clusters. Default is 30. Minimum is 1px and maximum is 100px.
	Color	Choose the color from the Color picker to change the color of cluster layer on the map.
	Smallest Cluster	Size of smallest cluster. By default it is 6 px.
	Largest Cluster	Size of largest cluster. By default it is 64 px
	Show cluster count value	Select to displays cluster count value on the map.

Option	Description	
Heatmap Layer	Select to convert current Cluster layer or vector layer to Heatmap layer. You have following options to style the Heatmap layer.	
	Vary color for	Select to vary color for numeric column.
	Radius size	By default, radius size is 8 px.
	Blur size	By default, blur size is 15 px.
Download	<p>Click on the Download option to download the list of vector data drawn on map. You can choose the projection from the drop-down list. The available projections are EPSG:4326, EPSG:27700, and EPSG:3857.</p> <p>Note: You can download vector data as <code>.csv</code> or <code>GeoJSON</code> file. While downloading as CSV format, for plotted point data, the point coordinates will be sent as X, Y columns. For others, centroid of underlined geometry will be sent.</p>	
Delete	Click or touch the Delete icon to delete the vector layer from map.	
Opacity	Click or touch the  or  icon under Opacity option to increase or decrease the translucency of a layer. You can also enter value manually by clicking on the value. You can go back by clicking on the check mark.	

5. You can click at any point on the plotted data to see the underlying map information on the left hand panel.

10 - Working with Thematic Map

Spectrum Spatial Analyst allows you to apply themes on maps. Thematic mapping allows you to analyze your data and display it in a variety of ways on a map.

A map that contains one or more Thematic Layers is termed a thematic map. A Layer on the map that has had its visual style altered to represent data associated with that map layer. For example, a Layer might contain suburb boundaries and have associated information about the total population of each suburb. A Thematic can be applied to this Layer so that each suburb is displayed in a different color depending on how large the population of the suburb is?

Note: The Thematic Map feature is available on the basis of settings done by administrator in Spatial Manager.

Support for zoom visibility constraint on thematic and query maps

The thematic and query maps support zoom visibility constraint. For example, when a Spectrum Spatial Analyst user creates a thematic or query map on a layer where zoom layering has been set by the admin, Spectrum Spatial Analyst application obeys the Zoom Layering settings. The same settings are applied on the thematic or query map also. As a result, when you zoom in/zoom out of the defined level, the thematic layer will not be visible on the map, and the legend control panel will show the "Layer not visible at this zoom level" message.

In this section


Creating an Individual Value Thematic Map.....	88
Creating a Ranged Thematic Map.....	90
Creating a Graduated Symbol Thematic Map.....	93
Deleting a Thematic Map.....	94



Creating an Individual Value Thematic Map

An Individual thematic map show points, lines, or boundaries that are shaded by individual values contained in a particular field. You can use both numerical and nominal values in individual values maps. Individual thematic map is useful when you want to emphasize categorical differences in the data rather than showing quantitative information. For example, types of stores in a given area, zoning classifications in a given area etc.

To create an Individual Value thematic map, follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.

2. Click or touch the **Create Thematic Map**  icon to create a thematic map.

Note: You can also create thematic on query data.

3. From the **Layer Name** drop-down list select a table on which you would want to apply thematic.
4. From the **Column** drop-down list, select a column on which you would like to create thematic.
5. From the **Thematic type** drop-down list, select the **Individual Value** thematic map.

Note: Only 50 unique values are allowed to generate individual thematic map.

6. Enter a new name in the **Thematic Map Name** text box for the Thematic map or you may also retain the default name. The default name is a combination of a table name, column name and visualization name.

Note: A thematic map name can be of maximum 50 characters. Special characters are not allowed in thematic map names.

7. Select a template from the **Theme** drop-down list. You may choose from a **Default** and **Black and White** theme.
The legend attributes are displayed for the selected theme.
8. Click or tap on the **Legend** image to change the color and attributes for any of the individual values. A dialog box appears for changing attributes
9. Select **Map Geometries** to style. You can choose from Polygon, Line or Point map geometries. By default, the predominant map geometry is selected.

Note: This option is available only when the selected table contains two or more types of geometry.

A dialog box appears for changing attributes.

Table 7: Legend Attributes- Polygon


Option	Description
Pattern	Select the pattern from the drop-down list.
Border Style	Select the border style from the list. Note: If desired, you can turn the border off while creating Range thematic. It enables you to see the thematic view of a layer without the border.
Color	Select the color by dragging the color bar or simply tapping on the color in the color box.
Border Color	Select the border color by dragging the color bar or simply tapping on the color in the color box.
Border Width	Select the size for border.
Apply	Click or Tap to apply changes.
Cancel	Click or Tap to exit without saving changes.

Table 8: Legend Attributes- Line

Option	Description
Color	Select the line color by dragging the color bar or simply tapping on the color in the color box.
Width	Select the width for border line.
Style	Select the line style from the list.
Apply	Click or Tap to apply changes.
Cancel	Click or Tap to exit without saving changes.

Table 9: Legend Attributes- Point

Option	Description
Color	Select the point color by dragging the color bar or simply tapping on the color in the color box.
Size	Select the size of image icon.
Style	Select the point style from the list.
Apply	Click or Tap to apply changes.
Cancel	Click or Tap to exit without saving changes.


- Click or tap on the **Create** button.
The thematic map is created and added as a top level map item. The thematic map also gets listed in the **Map Legend** panel. When you zoom out on the map a message **Layer not visible at this zoom level** may appear. This is because the zoom constraint settings was applied on the original layer on which thematic has been created.
- Save the map project. For example, click the **Overflow**  icon next to the **Map Layers** and click **Save project**. When you save the project, the map project is saved along with any zoom constraint settings applied on the original layer.

Note: If you do not save the changes in your Map Project, the changes will be lost on reloading the project or refreshing the browser.

Creating a Ranged Thematic Map

A Ranged thematic map groups all records into ranges and assigns different colors, symbols, patterns or line style. For example, if you want to visualize the population of the world by growth rate, you would shade countries according to their reported growth rate amounts.

To create a Ranged thematic map, follow the steps given below:

- Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
- Click or touch the **Create Thematic Map**  icon to create a thematic map.

3. From the **Layer Name** drop-down list select a table on which you would want to apply thematic.

Note: You can also create thematic on query data.

4. From the **Column** drop-down list, select a column on which you would like to create thematic.

Note: A Range Thematic can be created on a numeric column only.

5. From the **Thematic type** drop-down list, select the **Ranged** thematic map.

6. Enter a new name in the **Thematic Map Name** text box for the Thematic map or you may also retain the default name. The default name is a combination of a table name, column name and visualization name.

Note: A thematic map name can be of maximum 50 characters. Special characters are not allowed in thematic map names.

7. From the **Method** drop-down list, select to create ranges automatically using any one of the following methods.

You can select from:

- **Equal Count-** It has the same number of records in each range.
- **Equal Ranges-** It divides records across ranges of equal size.
- **Standard Deviation-** In this method the middle range breaks at the mean of your values, and the ranges above and below the middle range are one standard deviation above or below the mean.

8. From the **Interval**, select range. It ranges from 2 to 16.

9. From the **Start Color** box, select the start color of the range. The start color is same for all the map geometries.


10. From the **End Color** box, select the end color of the range. The end color is same for all the map geometries.

11. Select **Map Geometries** to style. You can choose from **Polygon**, **Line** or **Point** map geometries. By default, the predominant map geometry is selected.

Note: This option is available only when selected table contains two or more type of geometry.

Table 10: Map Geometries Options

Option	Description
Border Style	Select the border style from the list. Note: This option is available with polygon and line geometries only. If desired, you can turn the border off while creating Range thematic. It enables you to see the thematic view of a layer without the border.
Border Color	Select the border color from color palette. Note: This option is available with polygon geometries only.
Border Width	Select the size for border. Note: This option is available with polygon and line geometries only.
Pattern	Select the pattern from the list. Note: This option is available with polygon geometries only.
Style	Select the image icon from the drop-down list. Note: This option is available with point geometries only.
Size	Select the size of image icon. Note: This option is available with point geometries only.



12. Click or tap on the **Preview Legend** button to preview legend range.
13. Click or tap on the **Create** button.
The thematic map is created and added as a top level map item. The thematic map also gets listed in the **Map Legend** panel. When you zoom out on the map a message **Layer not visible at this zoom level** may appear. This is because the zoom constraint settings was applied on the original layer on which thematic has been created.
14. Save the map project. For example, click the **Overflow**  icon next to the **Map Layers** and click **Save project**. When you save the project, the map project is saved along with any zoom constraint settings applied on the original layer.

Note: If you do not save the changes in your Map Project, the changes will be lost on reloading the project or refreshing the browser.

Creating a Graduated Symbol Thematic Map

Graduated symbol map uses symbols to represent different values. The size of the symbol varies according to the values in the field. For example, use graduated symbols to show the number of housing units in the city.

To create a Graduated Symbol thematic map, follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Click or touch the **Create Thematic Map**  icon to create a thematic map.
3. From the **Table** drop-down list select a table on which you would want to apply thematic.

Note: You can also create thematic on query data.

4. From the **Column** drop-down list, select a column on which you would like to create thematic.
5. From the **Thematic type** drop-down list, select the **Graduated Symbol** thematic map.


Note: A Graduated Thematic can be created on numeric column only.

6. Enter a new name in the **Thematic Map Name** text box for the Thematic map or you may also retain the default name. The default name is a combination of a table name, column name and visualization name.

Note: A thematic map name can be a maximum of 50 characters. Special characters are not allowed in thematic map names.

7. From the **Style** drop-down list, select symbol of your choice.
8. From the **Positive value** color box, select the color to display symbols for positive data values.
9. From the **Size**, select the size.
10. The **Highest value** displays the maximum absolute value present in the selected column.
11. From the **Relative size by**, you can choose size by constant, square root or log.
12. Click or tap on the **Preview Legend** button to preview legend range.
13. Enter a new name in the **Thematic Map Name** text box for the Thematic map or you may also retain the default name. The default name is a combination of a table name, column name and visualization name.

Note: A thematic map name can be of maximum 50 characters. Special characters are not allowed in thematic map names.





14. Click or tap on the **Create** button.
The thematic map is created and added as a top level map item. The thematic map also gets listed in the **Map Legend** panel. When you zoom out on the map a message **Layer not visible at this zoom level** may appear. This is because the zoom constraint settings was applied on the original layer on which thematic has been created.
15. Save the map project. For example, click the **Overflow**  icon next to the **Map Layers** and click **Save project**. When you save the project, the map project is saved along with any zoom constraint settings applied on the original layer.

Note: If you do not save the changes in your Map Project, the changes will be lost on reloading the project or refreshing the browser.

Deleting a Thematic Map

Once you create a thematic map, you can easily delete it. The Theme legends are listed automatically in Map Legend when you create a thematic map. It displays colors, symbols, and styles used in the map.

To delete a thematic map, follow the steps given below:

1. Click or touch the right side menu  to open the **Map Legend** panel.
2. Click or touch on the **Show/Hide Overlay on the Map**  check box next to the required map overlay in the map legend to turn on a thematic map overlay.
3. Click or touch the **Overflow**  icon to view editing options.
4. Click or touch the **Delete**  icon to delete a thematic map.
The thematic map is deleted from the map and the Map legend.

11 - Working with Labels

Labels are text used to provide a feature's name or other attributes. Labeling is important to provide interpretation, description and context for a map. Spectrum Spatial Analyst enables you to edit various properties of a label.





In this section

Customizing the Label using Label Properties.....	96
Label Properties.....	96



Customizing the Label using Label Properties

You can customize the label style for non-raster spatial layer in Spectrum Spatial Analyst. To edit the label properties, follow the steps given below:

1. Click or touch the right side menu  to open the **Map Legend** panel.
2. From the **Map Legend**, click or touch the map layer whose label you want to style.
3. In the map layer, click or touch the  icon to switch on the Label.
The label icon  turns on.
4. Click on the **Overflow**  button and then click **Label Properties** from the context menu. The **Label Properties** page opens and the Labels on the layer become visible. All fields are editable now. You can edit one or more label properties and observe the change on the layer by clicking **Preview on Map** button.
5. If required, change the label source by selecting a different column from the **Label Source** drop-down list.
6. Edit other label properties as desired and click on the **Preview on Map** button to see a preview of the label on the map.
7. Click **Apply** to apply the changes you have made.
8. Click **Save Project** to save the label settings in the Map Project.
When you reopen this map project in future, your changes will be preserved.
9. Click **Cancel** to discard your changes and return to **Map Legend**.

Label Properties

You can edit the following label properties. You can save the applied label in the map project.

Table 11: Label Properties

Properties	Description
Label Source	Displays the column name from the table which is the source of label. You can change the label source by clicking another column from the drop-down list.

Properties	Description
Font Family	Select a font family.
Font Style	Select a font style.
Font Color	Select a font color.
Font Size	Select a font size.
Font background	<p>Select a background from the drop-down list. You can choose from Halo, Box, and None.</p> <ul style="list-style-type: none"> Click None to have no background. Choose Halo to create a halo effect around the text. Click Box to create a background box behind the text.
Box Color	If you have selected Box as background, select this to set a color for the box.
Halo Color	If you have selected Halo as background, select this to set a color for the Halo.
Horizontal alignment	Select this to set Horizontal alignment. If left is selected, then the label will be shown to the left of the feature.
Vertical alignment	Select this to set Vertical alignment.
X offset (px)	Select this to set distance between the map object and the label by entering a value in pixel. You can select a numeric values from 0 to 267 are allowed.
Y offset (px)	Select this to set distance between the map object and the label by entering a value in pixel. You can select a numeric values from 0 to 267 are allowed.
Allow overlapping text	Select to allow labels to be drawn on top of each other. By default, it is unchecked. If you have overlapping labels, only those labels will be shown which have higher priority.
Allow duplicate text	Check to allow duplicate labels for different objects to display. This option can also be used with street maps to label street segments individually.

12 - Working with Annotations

Annotations are used for annotating the map, for example, population density around a point of interest, or drive time around a store.

Spectrum Spatial Analyst provides various types of annotation features that you can draw on the map. The following topics provide help on working with annotations:

Note: The functions available in Spectrum Spatial Analyst are controlled by the administrator for each organization and some users may not have these tools enabled.

In this section

Drawing Shapes on a Map.....	99
Text Annotation	104
Merge or Split Annotation	105
Import Annotation	106
Editing Annotation.....	107
Annotation Properties.....	109
Summarizing Data in Single and Multiple Annotation.....	116
Styling Annotation.....	119
Saving an Annotation to the Map Project.....	123
Loading the Annotation.....	124






Drawing Shapes on a Map

You can draw a number of shapes on the map for annotation and marking.




Draw a Point

To add a point annotation to the map follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Under the **Annotation**, select **Point**  annotation. You can click on **Cancel** button to exit without drawing annotation.
3. Click or tap on the map once where you wish to add the point.
The point annotation is added to the map and it is also listed with a default name in the **Map Legend**  panel, under the **Annotations** heading.
 - For more information on editing point annotation, refer to [Editing Annotation](#) on page 107
 - For more information on point annotation properties, refer to [Point Annotation Properties](#).
 - For more information on styling point annotation, refer to [Styling Annotation](#)

Draw a Line

To draw a line, follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Under the **Create Annotations** list, select **Line**  annotation. You can click on **Cancel** button to exit without drawing annotation.
3. Click or tap on the map to mark the first point.
4. Click or tap again to mark the second point.
5. Repeat the above step for as many points that you wish to add to the line on the map.
6. Click or tap twice to add the last point. The line annotation is drawn on the map and is also listed with a default name in the **Map Legend**  panel under the **Annotations** heading.

Length is also displayed while drawing the line.



Note: If you click or tap on the map and drag the finger whilst drawing you can pan the map. This is useful if you want to carry on drawing past the edge of the current map view. A line must have at least two points to be added to the map.

Note: You can also draw free hand line by pressing Shift key while drawing the Line annotation on the map.


- For more information on editing line annotation, refer to [Editing Annotation](#) on page 107.
- For more information on line annotation properties, refer to [Line Annotation Properties](#).
- For more information on styling line annotation, refer to [Styling Annotation](#).

Draw a Circle

To draw a circle, follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Under the **Create Annotation** list, select **Circle** . You can click on **Cancel** button to exit without drawing annotation.
3. Click or tap on the map where the center of the circle will be and then tap at another point on the map to draw the circle.

The circle annotation is drawn on the map and is also listed with a default name in the **Map**




Legend  panel under the **Annotations** heading.

Note: The radius of circle is displayed while drawing the circle.

- For more information on editing circle annotation, refer to [Editing Annotation](#) on page 107.
- For more information on circle annotation properties, refer to [Circle Annotation Properties](#).
- For more information on styling circle annotation, refer to [Styling Annotation](#).

Draw Polygon

To draw a polygon, follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
 2. Under the **Create Annotation** list, select **Polygon** . You can click on **Cancel** button to exit without drawing annotation.
 3. Click or tap on the map once to start the first point.
 4. Click or tap at another point on the map to draw the polygon.
 5. Repeat the above step for as many points that you wish to add.
 6. Click or tap twice to add the last point.
- The polygon annotation is drawn on the map and is also listed with default name in the **Map Legend**  panel under the **Annotations** heading.




Note: If you click or tap the map and drag the finger whilst drawing you can pan the map. This is useful if you want to carry on drawing past the edge of the current map view. A polygon must have at least 3 points to be added to the map.

Note: You can also draw free hand polygon by pressing Shift key while drawing the Polygon annotation on the map.

- For more information on editing polygon annotations, refer to [Editing Annotation](#) on page 107.
- For more information on polygon annotation properties, refer to [Polygon Annotation Properties](#).
- For more information on styling polygon annotation, refer to [Styling Annotation](#).

Draw Rectangle




To draw a rectangle, follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
 2. Under the **Create Annotation** list, select **Rectangle** . You can click on **Cancel** button to exit without drawing annotation.
 3. Click or tap on the map where one corner of the rectangle will be and then click or tap at another point on the map to draw the rectangle.
- The rectangle annotation is drawn on the map is also listed with default name in the **Map Legend**  panel under the **Annotations** heading.
- For more information on editing rectangle annotations, refer to [Editing Annotation](#) on page 107.

- For more information on rectangle annotation properties, refer to [Rectangle Annotation Properties](#).
- For more information on styling rectangle annotation, refer to [Styling Annotation](#).

Draw Concentric Ring

To draw a concentric ring on a map, follow the steps given below:




1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Under the **Create Annotation** list, select **Concentric Ring** . You can click on **Cancel** button to exit without drawing annotation.
3. Click or tap on the map where the center of the concentric ring will be and then tap at another point on the map to draw the concentric ring. The radius of the drawn circle becomes the initial outer radius of the rings.
The concentric ring annotation is drawn on the map and is also listed with a default name in the **Map Legend**  panel under the **Annotations** heading.

Note: The radius of circle is displayed while drawing the concentric ring.

- For more information, refer to [Editing Annotation](#) on page 107.
- For more information on concentric ring annotation properties, refer to [Concentric Ring Annotation Properties](#).
- For more information on styling concentric ring annotation, refer to [Styling Annotation](#).

Draw Ellipse

To draw a ellipse, follow the steps given below:



1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Under the **Create Annotation** list, select **Ellipse** . You can click on **Cancel** button to exit without drawing annotation.
3. Click or tap on the map where the starting point of the ellipse will be and then tap at another point on the map to draw the ellipse.
The ellipse annotation is drawn on the map and is also listed with a default name in the **Map Legend**  panel under the **Annotations** heading.


Note: The radius is displayed while drawing the ellipse. By default, the minor axis is half the size of major axis.

- For more information on editing ellipse annotation, refer to [Editing Annotation](#) on page 107.
- For more information on ellipse annotation properties, refer to [Ellipse Annotation Properties](#).
- For more information on styling ellipse annotation, refer to [Styling Annotation](#).

Draw Sector

To draw a sector, follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Under the **Create Annotation** list, select **Sector** . You can click on **Cancel** button to exit without drawing annotation.
3. Click or tap on the map where the starting point of the sector will be and then tap at another point on the map to draw the sector.

The sector annotation is drawn on the map and is also listed with a default name in the **Map Legend**  panel under the **Annotations** heading.


Note: The radius is displayed while drawing the sector.



- For more information on editing sector annotation, refer to [Editing Annotation](#) on page 107.
- For more information on sector annotation properties, refer to [Sector Annotation Properties](#).
- For more information on styling sector annotation, refer to [Styling Annotation](#).

Draw Drive Time Polygon

Note: This feature is available on the basis of permissions given by Administrator.

To draw a drive time polygon, follow the steps given below:




1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.

2. Under the **Create Annotation** list, select **Drive Time Polygon**  You can click on **Cancel** button to exit without drawing annotation.
3. Click or tap on the map once where you wish to add the center point.
The drive time polygon annotation is added to the map and is also listed with a default name in the **Map Legend**  panel under the **Annotations** heading.
 - For more information, refer to [Editing Annotation](#) on page 107.
 - For more information on drive time polygon annotation properties, refer to [Drive Time Polygon Annotation Properties](#).
 - For more information on styling drive time polygon annotation, refer to [Styling Annotation](#).

Draw Drive Distance Polygon



Note: This feature is available on the basis of permissions given by Administrator.


To draw a drive distance polygon, follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Under the **Create Annotation** list, select **Drive Distance Polygon**  You can click on **Cancel** button to exit without drawing annotation.
3. Click or tap on the map once where you wish to add the center point.
The drive distance polygon annotation is added to the map and is also listed with a default name in the **Map Legend**  panel under the **Annotations** heading.
 - For more information, refer to [Editing Annotation](#) on page 107.
 - For more information on drive distance polygon annotation properties, refer to [Drive Distance Polygon Annotation Properties](#).
 - For more information on styling drive distance polygon annotation, refer to [Styling Annotation](#).

Text Annotation

To add a text annotation to the map follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Under the **Create Annotation** list, select **Text** . You can click on **Cancel** button to exit without drawing annotation.
3. Click or tap on the map once to register the entry point for the text.
The text annotation dialog box appears.
4. Type the text you wish to add and click **Done**.

The text will be added to the map and is also listed with a default name in the **Map Legend**  panel under the **Annotations** heading.

Note: You cannot query on a Text Annotation.

For more information on editing text annotation, refer to [Editing Annotation](#) on page 107.

For more information on text annotation properties, refer to [Text Annotation Properties](#).




For more information on styling text annotation, refer to [Styling Annotation](#).

Merge or Split Annotation

Merge or split is a functionality that enables a user to select polygon annotations and perform operations like merge, intersect, subtract and split.

Note: The Merge or Split feature is enabled only when there are 2 or more polygon annotations drawn on the map.







To merge or split the annotation, follow the steps given below:


1. Click the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Under the **Create Annotation** list, select annotation, for example- **Circle** .
3. Click or tap on the map where the center of the circle will be and then tap at another point on the map to draw the circle on the map.
4. Repeat above step to draw another circle annotation on the map. Now you can see two annotations on the map.
5. Click the **Merge or Split**  annotation button. The Merge or Split toolbar appears on the map.



6. Click on the first circle annotation and then on the other circle annotation to select it.
7. Now, select any one of the option available on the Merge or Split toolbar shown above.


Merge or Split toolbar has following options-

Option	Description
	Merge
	Intersection of A and B
	Difference between A and B
	Split A and B
	A minus B
	B minus A

8. You can see the preview of the merge or split operation on the map.
9. Click on the Check  button to complete the merge or split action.
The new polygon is added in the Map Legend panel.
 - For more information on editing polygon annotations, refer to [Editing Annotation](#) on page 107.
 - For more information on polygon annotation properties, refer to [Polygon Annotation Properties](#).
 - For more information on styling polygon annotation, refer to [Styling Annotation](#).




Import Annotation

To add a text annotation to the map follow the steps given below:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Under the **Create Annotation** list, touch **Import Annotation** button to import a new set of annotations from a Google KML file you have in your device.
The Import KML file dialog box appears.
3. Touch the **Choose File** button to import KML file.
4. Tap on the **Apply** to import the file.
The imported annotation is drawn on the map and is also listed in the **Map Legend** panel.



Editing Annotation

You can edit properties of individual annotation. To edit annotation properties, follow the steps given below:

1. Click or touch the right side menu  to open the **Map Legend** panel.
2. Under the **Annotations** list, select the **Annotation** that you want to edit.
3. Click or touch the **Show/Hide Overlay on the Map** check box  next to the **Annotation** to turn it on or off on the map.
4. Click or touch the **Overflow**  icon to view editing options.

Note: You may or may not see all the editing options. It is displayed on the basis of selected annotation.


Properties	Description
Annotations Group	This is the main Annotation group. It has following options:
Query in Selected	Allows you to query in selected annotation. Note: You cannot query on a Text Annotation.
Delete Selected	Allows you to delete selected annotations.
Export Selected as KML	Allows you to export selected annotation to KML file. Note: Export of Text Annotation is not supported.

Properties	Description
Summarize	Summarizes the data that is contained within the selected annotations, or intersects the annotation or on boundaries of selected annotation. For more information, refer to Summarizing data .
Opacity	Touch the  or  icon next to Opacity option to increase or decrease the translucency of a layer.
Annotation Layer	This is the list of annotations that you have created on map. For example, point, line, circle, rectangle, polygon and text annotations. It has following options:
Edit	<p>Allows you to edit the shape of annotation. To modify the annotation, tap, drag, and release. To delete a vertex, double tap on it. To come out of the selected annotation click on the Exit button.</p> <p>Note: This feature is available with Line, Polygon and Text annotation only.</p>
Query In	<p>Allows you to query in selected annotation.</p> <p>Note: You cannot query on a Text Annotation..</p>
Map Information	<p>Touch to see feature information for all the visible map layers intersecting with the underlying annotation on the left hand panel.</p> <p>Note: This feature will work with Spectrum Business maps only.</p>
Move	To move annotation, touch the annotation and reposition it.
Zoom To	Allows you to zoom to selected annotation.
Rename	Touch to rename the annotation.

Properties	Description
Summarize	Summarizes the data that is contained within the selected annotations, or intersects the annotation or on boundaries of selected annotation. For more information, refer to Summarizing data .
Delete	Delete selected annotation.

Annotation Properties

You can view or edit properties of individual annotation. To view or edit annotation properties, follow the steps given below:

1. Click or touch the right side menu  to open the **Map Legend** panel.
2. In the Map Legend, click or touch the annotation to open its properties. You may touch the annotation again to close the properties dialog box.

Note: You may or may not see all the properties option. It is displayed on the basis of selected annotation.

Note: The units are displayed as per the configured measurement system in the project. For example,

- **Line:** If the length is greater than 1000 meter, unit is converted to km, if the length is greater than 5280 ft, unit is converted to mile.
- **Circle/Sector:** If the radius is greater than 1000 meter, unit is converted to km. If the radius is greater than 5280 ft, unit is converted to mile.
- **Polygon/Rectangle:** If the area is greater than 1000*1000 sq meter, unit is converted to sq km. If the area is greater than 5280 * 5280 sq ft, unit is converted to sq mile.
- **Ellipse:** If the major axis is greater than 1000 meter, unit is converted to km. If the major axis is greater than 5280 ft, unit is converted to mile.
- **Concentric Circle:** If the innermost circle radius is greater than 1000 meter, unit is converted to km. If the radius is greater than 5280 ft, unit is converted to mile.
- **DriveDistance:** If the innermost travel cost is greater than 1000 meter, unit is converted to km. If the travel cost is greater than 5280 ft, unit is converted to mile.

Table 12: Point Annotation

Properties	Description
Units	Displays the measurements of selected annotations like area, length and perimeter. You can select various measurement units from the drop-down list. The supported measurement units are Meters, Feet, Yards, Kilometers, Miles, Acres, and Hectares. The default measurement unit will be the configured map unit for all annotations.
Center X	Enter the value of x to relocate an existing annotation to a new location.
Center Y	Enter the value of y to relocate an existing annotation to a new location.
Add Buffer	Enter a buffer value to apply to the selected annotation.
Apply	Tap Apply, to apply changes to annotation properties.
Cancel	Tap Cancel, to cancel and close the properties dialog box.

Table 13: Line Annotation

Properties	Description
Units	Displays the measurements of selected annotations like area, length and perimeter. You can select various measurement units from the drop-down list. The supported measurement units are Meters, Feet, Yards, Kilometers, Miles, Acres, and Hectares. The default measurement unit will be the configured map unit for all annotations.
Center X	Enter the value of x to relocate an existing annotation to a new location.
Center Y	Enter the value of y to relocate an existing annotation to a new location.
Length	Displays the length of line annotation.
Add Buffer	Enter a buffer value to apply to the selected annotation.
Apply	Tap Apply, to apply changes to annotation properties.
Cancel	Tap Cancel, to cancel and close the properties dialog box.

Table 14: Circle Annotation

Properties	Description
Units	Displays the measurements of selected annotations like area, length and perimeter. You can select various measurement units from the drop-down list. The supported measurement units are Meters, Feet, Yards, Kilometers, Miles, Acres, and Hectares. The default measurement unit will be the configured map unit for all annotations.
Center X	Enter the value of x to relocate an existing annotation to a new location.
Center Y	Enter the value of y to relocate an existing annotation to a new location.
Radius	Displays the radius.
Perimeter	Displays the perimeter in selected unit.
Area	Displays the area in selected unit.
Apply	Tap Apply, to apply changes to annotation properties.
Cancel	Tap Cancel, to cancel and close the properties dialog box.

Table 15: Polygon Annotation

Properties	Description
Units	Displays the measurements of selected annotations like area, length and perimeter. You can select various measurement units from the drop-down list. The supported measurement units are Meters, Feet, Yards, Kilometers, Miles, Acres, and Hectares. The default measurement unit will be the configured map unit for all annotations.
Center X	Enter the value of x to relocate an existing annotation to a new location.
Center Y	Enter the value of y to relocate an existing annotation to a new location.
Perimeter	Displays the perimeter in selected unit.
Area	Displays the area in selected unit.
Add Buffer	Enter a buffer value to apply to the selected annotation.

Properties	Description
Apply	Tap Apply, to apply changes to annotation properties.
Cancel	Tap Cancel, to cancel and close the properties dialog box.

Table 16: Rectangle Annotation

Properties	Description
Units	Displays the measurements of selected annotations like area, length and perimeter. You can select various measurement units from the drop-down list. The supported measurement units are Meters, Feet, Yards, Kilometers, Miles, Acres, and Hectares. The default measurement unit will be the configured map unit for all annotations.
Center X	Enter the value of x to relocate an existing annotation to a new location.
Center Y	Enter the value of y to relocate an existing annotation to a new location.
Perimeter	Displays the perimeter in selected unit.
Area	Displays the area in selected unit.
Rotation	Enter the value to rotate the selected annotation.
Add Buffer	Enter a buffer value to apply to the selected annotation.
Apply	Tap Apply, to apply changes to annotation properties.
Cancel	Tap Cancel, to cancel and close the properties dialog box.

Table 17: Concentric Ring Annotation

Properties	Description
Units	Displays the measurements of selected annotations like area, length and perimeter. You can select various measurement units from the drop-down list. The supported measurement units are Meters, Feet, Yards, Kilometers, Miles, Acres, and Hectares. The default measurement unit will be the configured map unit for all annotations.

Properties	Description
Center X	Enter the value of x to relocate an existing annotation to a new location.
Center Y	Enter the value of y to relocate an existing annotation to a new location.
No. of Rings	Enter the total number rings. You can enter minimum 2 to maximum 5 rings only.
Equidistant	Tap to create rings at equal distances.
Custom	Tap to create rings at customized distances. The radius text box appears on the basis of total number of rings. The last radius text box cannot be edited. It displays the value entered in Outermost Radius text box.
Radius	Displays the radius.
Apply	Tap Apply, to apply changes to annotation properties.
Cancel	Tap Cancel, to cancel and close the properties dialog box.

Table 18: Ellipse Annotation

Properties	Description
Units	Displays the measurements of selected annotations like area, length and perimeter. You can select various measurement units from the drop-down list. The supported measurement units are Meters, Feet, Yards, Kilometers, Miles, Acres, and Hectares. The default measurement unit will be the configured map unit for all annotations.
Perimeter	Displays the perimeter in selected unit.
Area	Displays the area in selected unit.
Center X	Enter the value of x to relocate an existing annotation to a new location.
Center Y	Enter the value of y to relocate an existing annotation to a new location.
Major Axis	Displays the diameters (lines through the center) of the ellipse. The major axis is the longest diameter.
Minor Axis	Displays the diameters (lines through the center) of the ellipse. The minor axis is the shortest diameter.

Properties	Description
Rotation	Enter the value to rotate the selected annotation from the center.
Apply	Tap Apply, to apply changes to annotation properties.
Cancel	Tap Cancel, to cancel and close the properties dialog box.

Table 19: Sector Annotation

Properties	Description
Units	Displays the measurements of selected annotations like area, length and perimeter. You can select various measurement units from the drop-down list. The supported measurement units are Meters, Feet, Yards, Kilometers, Miles, Acres, and Hectares. The default measurement unit will be the configured map unit for all annotations.
Perimeter	Displays the perimeter in selected unit.
Area	Displays the area in selected unit.
Center X	Enter the value of x to relocate an existing annotation to a new location.
Center Y	Enter the value of y to relocate an existing annotation to a new location.
Arc Radius	Displays the radius of an arc.
Arc Span	Display the span of an arc. By default, the arc span is 30 degree.
Sector Direction	Displays the angle between positive x-axis and the line drawn from origin point to middle point of the arc. The value can be 0 to 359 degrees.
Apply	Tap Apply, to apply changes to annotation properties.
Cancel	Tap Cancel, to cancel and close the properties dialog box.

Table 20: Text Annotation

Properties	Description
Center X	Enter the value of x to relocate an existing annotation to a new location.
Center Y	Enter the value of y to relocate an existing annotation to a new location.
Rotation	Enter the value to rotate the selected annotation from the center.
Apply	Tap Apply, to apply changes to annotation properties.
Cancel	Tap Cancel, to cancel and close the properties dialog box.



Table 21: Drive Time\Distance Annotation

Properties	Description
Center X	Enter the value of x to relocate an existing annotation to a new location.
Center Y	Enter the value of y to relocate an existing annotation to a new location.
Routing Database	Select the database to use (For example, Pedestrian, Driving)
No. of Rings	Enter the total number rings. By default, 1 ring is created. You can increase upto maximum 5 rings only.


Properties	Description
Travel Time	<p>If Travel Time is chosen then further options are:</p> <ul style="list-style-type: none"> • Time Units- The units to return time. The default is min (minute). Available values are: min(minute), s(second), h(hour). • Historic Speed Profile- Specifies whether the routing calculation uses the historic traffic speeds. These speeds are based on different time-of-day buckets. The data must have historic traffic speeds included in order to use this feature. The data for each country/region has the same bucket definitions, where the speeds for these bucket values may vary. The options are: <ul style="list-style-type: none"> • None- The default value. Historic traffic data is not used in the calculation. Instead an averaged speed value is used. • AMPeak- Calculate routes with the peak AM speeds. The AMPeak time bucket is from 07:00 to 10:00hr time of day. • PMPeak- Calculate routes with the peak PM speeds. The PMPeak time bucket is from 16:00 to 19:00hr time of day. • OffPeak- Calculate routes with the off peak (daytime) speeds. The OffPeak time bucket is from 10:00 to 16:00hr time of day. • Night- Calculate routes with the nighttime speeds. The Night time bucket is from 22:00 to 04:00hr time of day. • Time- Enter time.
Travel Distance	<p>If Travel Distance is chosen then further options are:</p> <ul style="list-style-type: none"> • Distance units- The units to return distance. The default is m (meter). Available values are: m(meter), km(kilometer), yd(yard), ft(foot), mi(mile). • Distance- Enter distance.
Apply	Tap Apply, to apply changes to annotation properties.
Cancel	Tap Cancel, to cancel and close the properties dialog box.




Summarizing Data in Single and Multiple Annotation

You can summarize data in\within a single annotation or multiple annotation. It displays the sum, average, min and max of numeric data that falls within the selected annotation. To get summarized data for the selected annotation(s):

1. Click or touch the right side menu  to open the **Map Legend** panel.
2. Under the **Annotations** list, select the **Annotation** that you want to summarize data for. For example, Polygon.
3. Click or touch the **Overflow**  icon next to the **Annotation** list to view editing options.

Note: You can also summarize data individually from **Overflow** icon next to selected annotation.
4. Click on the **Summarize** option. The Summary of the data for the selected annotation appears on the left hand panel.

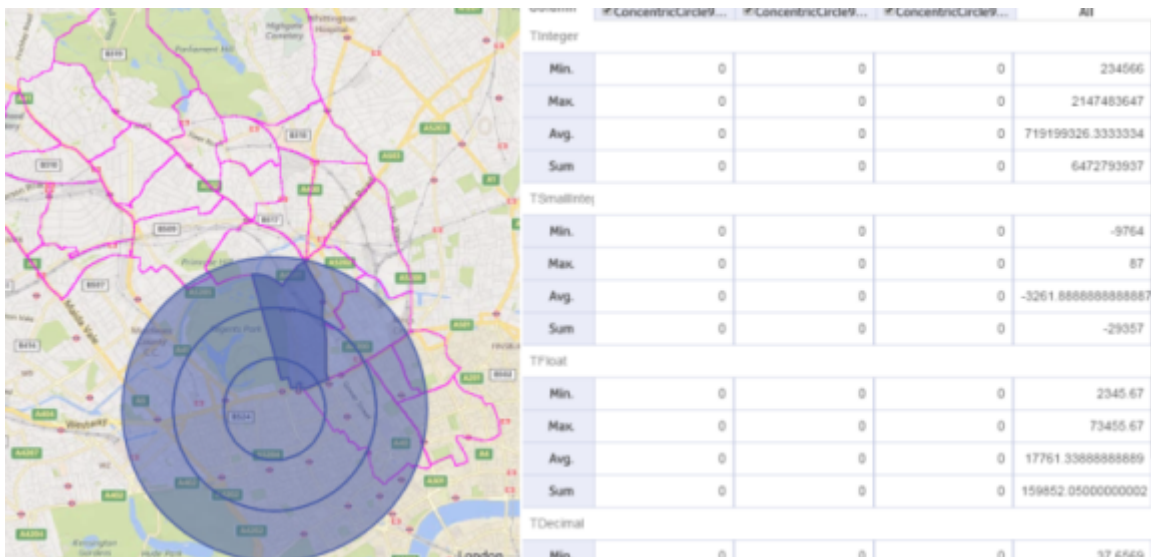
Options	Description
Table	Select the table for which you want to summarize data.
Where	<p>Select any one of the following options for data from-</p> <ul style="list-style-type: none"> • Intersecting the annotations-Features on/intersecting the boundaries or within the annotation. <p>Note: Line and Point annotation can only be summarized by Intersecting the annotation option. Other options are not available line and point annotation</p> • Entirely within the annotations-Only within the annotation. • Proportionally within the annotation- If the feature is intersecting the annotation, this will consider only the area inside the annotation to calculate summarize data. <p>Note: <i>Proportionally within the annotation</i> option will be available only for polygon or the combination of selected annotations is having polygon only. The default selected option is based on the predominant geometry.</p>
Summarize	<p>Click or touch the Summarize button to display the sum, average, min and max of numeric data that falls within the selected annotation.</p> <p>Note: Summarize button will be disabled if selected Table has no numeric column and a information message will be displayed to user.</p> <p>The total number of features found in the selected area will be displayed on the top. For no numeric column, summarization is disabled.</p>
	Click or touch to edit table and where options and then click Summarize button to get new results.

	<p>Click or touch the Overflow menu to see more options. Here you can-</p> <ul style="list-style-type: none"> • Export data- Click or touch Export as CSV  button to export all data in a CSV file. • Check or un-check to make table columns visible or invisible. By default all table columns are visible.
Sum	Displays the sum of corresponding values for numeric data for each table column.
Average	Displays the average of corresponding values for numeric data for each table column.
Min	Displays the minimum value of corresponding values for numeric data for each table column.
Max	Displays the maximum value of corresponding values for numeric data for each table column.
	Closes the Summary dialog box. All summarized data will be lost.

Note: Summarize data is not supported for Text Annotations.

Example 1-

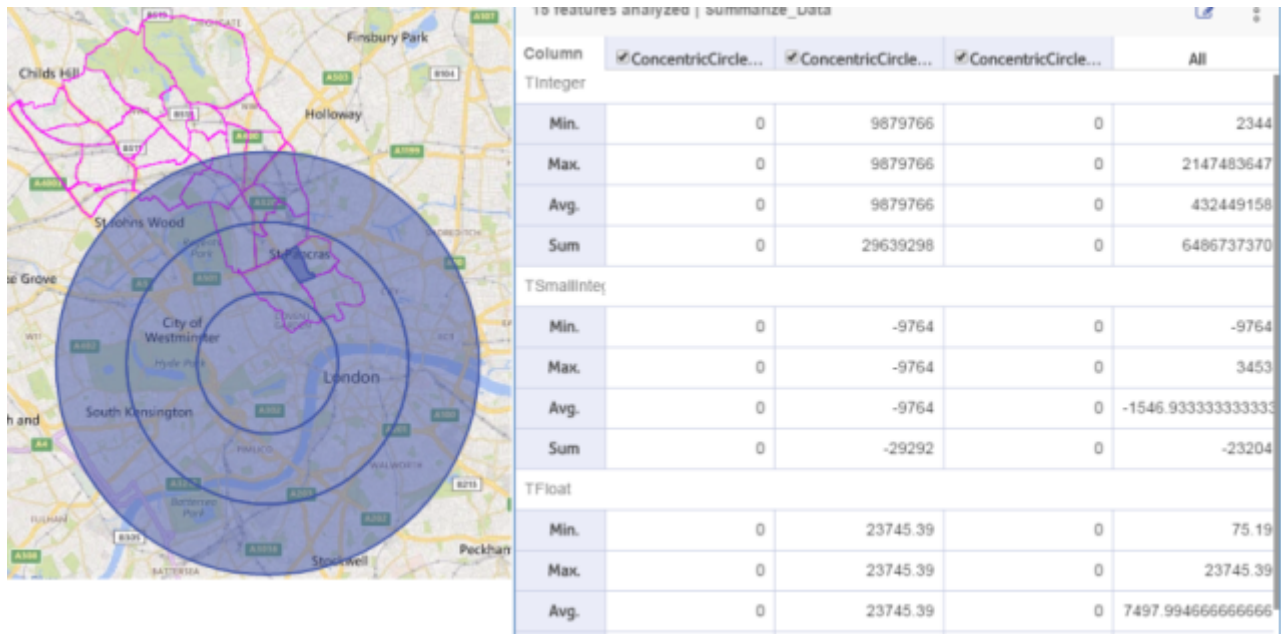
For 'Entirely within' operation, value in All columns can be completely different from the individual 'Annotation' geometries.



In above case, 'Concentric circle' annotation is drawn and the feature highlighted is business map data. This feature intersects each of the concentric circle ring but it is not satisfying the condition 'Entirely within' for any of these ring. If 'Entirely within' operation is performed on this kind of data, individual ring data will come as 0 but 'All' column can have non-zeros values.

Reason of this behavior is , though there is no feature 'entirely within' in any of the individual ring but there may be many more features in the merged geometry.


Example 2-



In this case, 'Feature' highlighted is within the 2nd ring of concentric circle, but no feature is within 1st and 3rd ring of the annotation. So, if 'Entirely within' operation is performed on this data, 'All' column data can completely differ from the only nonzero data of second concentric circle ring. This is because of the reason, though there is only one geometry entirely within the middle ring but there may be many more features in the merged geometry of these rings.

Styling Annotation

You can apply various styles to annotation like, edit color, size and pattern of selected annotation. To style annotation, follow the steps given below:

1. Click or touch the right side menu  to open the **Map Legend** panel.
2. In the **Map Legend**, click or touch the **Annotation** that you want to style. A **Style** tab appears next to **Properties** tab.
3. Click or Touch on the **Style Annotation** tab if it is not selected. The edit properties for styling annotation are displayed.

Annotation	Style	Description
Point		<i>Displays the properties and styles for point annotation.</i>
	Icon	Select the style from the drop-down list.
	Size	Select the size of the point annotation. You may choose from 1 to 64 px.
	Color	Click or Touch to open the color palette and select the color for annotation. Click or Tap on Choose button to apply the new color.
Polygon		<i>Displays the properties and styles for polygon annotation.</i>
	Fill Pattern	Select the fill pattern for annotation. You can choose from no fill, solid pattern and graphic pattern.
	Fill Color	Click or Touch to open the color palette and select the fill color for annotation. Click or Tap on Choose button to apply the new color.
	Border Style	Select border style from the drop-down list. You may choose from dotted, solid and dashed line. By default, the annotation has solid line.
	Border Color	Click or Touch to open the color palette and select the border color. Click or Tap on Choose button to apply the new color.
	Border Thickness	Change the size of the border. You may choose from 1px to 7px.
Circle		<i>Displays the properties and styles for circle annotation.</i>
	Fill Pattern	Select the fill pattern for annotation. You can choose from no fill, solid pattern and graphic pattern.
	Fill Color	Click or Touch to open the color palette and select the fill color for annotation. Click or Tap on Choose button to apply the new color.
	Border Style	Select border style from the drop-down list. You may choose from dotted, solid and dashed line. By default, the annotation has solid line.
	Border Color	Click or Touch to open the color palette and select the border color. Click or Tap on Choose button to apply the new color.
	Border Thickness	Change the size of the border. You may choose from 1px to 7px.

Annotation	Style	Description
Line	<i>Displays the properties and styles for line annotation.</i>	
	Line Color	Click to open the color palette and select the color for line annotation.
	Line Style	Select the line style from drop-down list. You may choose from dotted, solid and dashed line. By default, the annotation has solid line.
	Line Width	Change the size of the line annotation. You may choose from 1pt to 7pt.
Rectangle	<i>Displays the properties and styles for rectangle annotation.</i>	
	Fill Pattern	Select the fill pattern for annotation. You can choose from no fill, solid pattern and graphic pattern.
	Fill Color	Click or Touch to open the color palette and select the fill color for annotation. Click or Tap on Choose button to apply the new color.
	Border Style	Select border style from the drop-down list. You may choose from dotted, solid and dashed line. By default, the annotation has solid line.
	Border Color	Click or Touch to open the color palette and select the border color. Click or Tap on Choose button to apply the new color.
Text	Border Thickness	Change the size of the border. You may choose from 1px to 7px.
	<i>Displays the properties and styles for text annotation.</i>	
	Style	Select a new font from drop-down list for text annotation.
	Size	Change the size of text annotation.
	Color	Click or Touch to open the color palette and select the color for the text annotation. Click or Tap on Choose button to apply the new color.
	Halo	Select the color for halo. You can choose from Black and White.
	Bold	Select to apply bold style to text
	Italics	Select to apply italics style to text

Annotation	Style	Description
Concentric Ring <i>Displays the properties and styles for concentric ring annotation.</i>		
	Ring 1	Displays the ring number like, Ring1, Ring2, Ring3
	Fill Color	Click or Touch to open the color palette and select the fill color for annotation. Click or Tap on Choose button to apply the new color.
	Fill Pattern	Select the fill pattern for annotation. You can choose from no fill, solid pattern and graphic pattern.
Ellipse <i>Displays the properties and styles for ellipse annotation.</i>		
	Fill Pattern	Select the fill pattern for annotation. You can choose from no fill, solid pattern and graphic pattern.
	Fill Color	Click or Touch to open the color palette and select the fill color for annotation. Click or Tap on Choose button to apply the new color.
	Border Style	Select border style from the drop-down list. You may choose from dotted, solid and dashed line. By default, the annotation has solid line.
	Border Color	Click or Touch to open the color palette and select the border color. Click or Tap on Choose button to apply the new color.
	Border Thickness	Change the size of the border. You may choose from 1px to 7px.
Sector <i>Displays the properties and styles for sector annotation.</i>		
	Fill Pattern	Select the fill pattern for annotation. You can choose from no fill, solid pattern and graphic pattern.
	Fill Color	Click or Touch to open the color palette and select the fill color for annotation. Click or Tap on Choose button to apply the new color.
	Border Style	Select border style from the drop-down list. You may choose from dotted, solid and dashed line. By default, the annotation has solid line.
	Border Color	Click or Touch to open the color palette and select the border color. Click or Tap on Choose button to apply the new color.

Annotation	Style	Description
	Border Thickness	Change the size of the border. You may choose from 1px to 7px.
Drive Time Polygon	<i>Displays the properties and styles for drive time polygon.</i>	
	Drive Time Polygon	Displays the polygon like, polygon1, polygon2, polygon3
	Fill Color	Click or Touch to open the color palette and select the fill color for annotation. Click or Tap on Choose button to apply the new color.
	Fill Pattern	Select the fill pattern for annotation. You can choose from no fill, solid pattern and graphic pattern.



- Click or touch the annotation- point, circle, text, polygon etc. again to close the annotation style dialog box.

Saving an Annotation to the Map Project

After you draw an annotation and apply various styles to the annotation like color, size and pattern, you can save them to the map project so that it is available when you open the project in future. When you save annotations in the map project, it saves all annotations in the current state, and queries created on the annotations. The annotations will be available when you reopen the same map project later.

- You can save annotation from Project Settings and Legend panel.
- You can query on annotations and save the result.
- You can also save opacity for the annotation.

To save annotation, follow the steps below.

- Click or touch the right side menu  to open the **Map Legend** panel.
- Click the **Overflow**  icon next to the **Map Layers**.
- Click **Save Project** from the context menu.

All annotations, and query on the annotations are saved with the map project.

Note: When you delete an annotation, all queries based on that annotation will also be deleted. Spectrum Spatial Analyst alerts you and displays a list of queries created on that annotation.

Loading the Annotation

When you reload a map project, annotation layer is drawn with all the saved annotations. The annotation is visible if the visibility checkbox was enabled at the time of saving the map project.

- All annotations are drawn on the map with annotation properties and style.
- If the visibility checkbox was checked at the time of saving the project, all annotations are visible on the map.

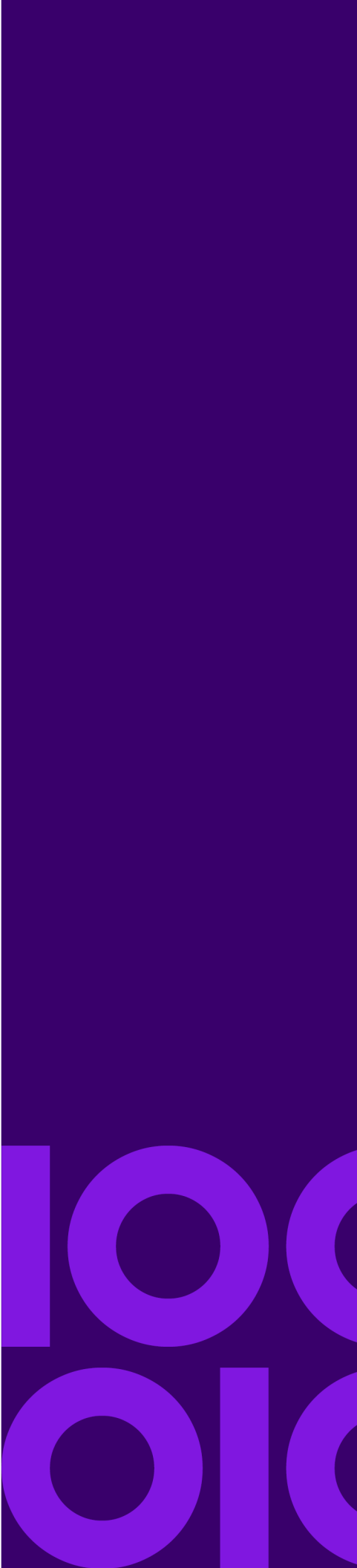
To load the annotations, reopen the map project.

13 - Measuring Distance and Area

Note: The Measuring functions are available on the basis of settings done by Administrator in Spatial Manager. Some users may not have these tools enabled.

In this section



Measuring Distance	126
Measuring an Area.....	126



Measuring Distance

Note: The Measuring functions are available on the basis of settings done by Administrator in Spatial Manager. Some users may not have these tools enabled.

To measure distances on the map:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Under the **Measurement tools** list, select **Measure Line** . Now, you are in the drawing mode.
3. Click on the map once to start the first point.
4. Move the mouse and click again to enter the second point.
5. Repeat the above step for as many points that you wish to add.
6. When you are adding the last point, add it using a double click of the mouse. The distance measured is shown in the map next to the measuring line.



Note: You can measure distance in meters, feet, yards, kilometers and miles.

7. Click or touch on the **Clear** button to remove the measured area.

Measuring an Area

Note: The Measuring functions are available on the basis of settings done by Administrator in Spatial Manager. Some users may not have these tools enabled.

To measure an area on the map:

1. Click or touch the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Under the **Measurement Tools** list, select **Measure Area** . Now, you are in the drawing mode.
3. Click on the map once to start the first point.
4. Move the mouse and click again to enter the second point.
5. Repeat the above step for as many points that you wish to add.

6. When you are adding the last point, add it using a double click of the mouse. The distance measured is shown in the map next to the measuring area.
7. You can change the measuring unit from the drop-down list.

Note: You can measure area in meters, feet, yards, kilometers, miles, acres and hectares.

8. Click or touch on the **Clear** button to remove the measured area.

14 - Multi-select Feature

Multi-select allows the user to select multiple layers on the map. The **Multi-select** feature is also available from the **Overflow** menu in the **Map Legend** panel.



In this section

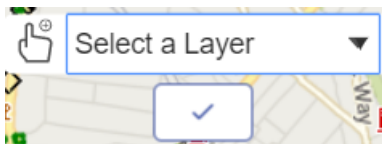
Selecting multiple features on the map.....	129
Multi-Select Options.....	129




Selecting multiple features on the map

To select multiple features on the map, follow the steps given below:

1. Click on the **Add**  icon on the upper right corner of the map to open the **Add** panel.
2. Click on the **Multi-select feature**  icon to select multiple layers on the map. The Multi-select feature is enabled and you can see list of available layers on the Map as shown in the figure below.



3. Click on the **Select a Layer** drop-down list to choose a different layer. Generally, the layer that is enabled on the Map Legend panel is displayed on the map.
4. Click on the map to select the feature. The feature details are displayed immediately on the left hand panel.

Note: In mobile devices, the multi-select feature doesn't have live updates. You need to select feature(s) on the map and click the  mark to display results on the left hand panel.



5. Click on the  mark to complete the multi-select feature.





For more information on Map Legend in the Overflow menu, refer to [Map Legend](#).



Multi-Select Options

The Multi-select feature in Spectrum Spatial Analyst supports the following marque-based selection tools. These tools help you in either selecting or de-selecting groups of features.

You can use a marque-based selection using a square, circle, or polygon for either selecting or de-selecting multiple features on a layer.

The two secondary buttons  or  allow you to choose whether a marque-based selection adds to or subtracts from the selection. The default is to add to the selection.

Icon	Name	Description
	Point	Click or touch the Point icon to select one or more features on the map. The point click tool toggles a feature selection on or off.
	Square	Click or touch the Square icon to draw a Square on the map.
	Circle	Click or touch the Circle icon to draw a Circle on the map.
	Polygon	Click or touch the Polygon icon to draw a Polygon on the map.

Click or touch  or  to add to or remove objects from the selection.

15 - Printing Maps

Spectrum Spatial Analyst allows you to print maps with annotations. It also allows you to preview your map before printing.

The following topics provide help on printing maps:

In this section

Print Preview.....	132
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Print Preview

To preview the map before printing:

1. Click or touch the right side menu  to open the **Options** panel.
2. Click or touch the **Print Preview**  button.

The Print Preview Mode appears with the print settings bar on the top. You can also pan and zoom on the map in print preview mode.

Note: Pan and zoom is not available with Google base maps.

Note: You may or may not see the scale print option in the **Print Settings** bar. It is available on the basis of settings applied by the Spectrum Spatial Analyst Administrator.

3. Select the template from the Template drop down list. You can select from following default templates:
 - Portrait
 - Landscape
 - Portrait Map Only
 - Landscape Map Only

Note: You may see more print designer templates based on settings applied by the Spectrum Spatial Analyst Administrator.

4. Click or tap and select the zoom level from the **Zoom** drop-down list. You can zoom in/out by tapping and pinching in/out on the screen.

Note: The maximum zoom level is configurable by Administrator.

5. Click or tap and select the scale to print from **Scale** drop-down list. The Scale drop-down displays the current scale (as it would appear if the current visible map is fitted into the print template) and also lists a number of other scales. You can also type in a specific scale of your choice. The range of available scales is chosen based on the current zoom level to ensure that the print appears at a good resolution. If the scale you want is not in range then try zooming in or out and then printing.
6. Enter the title for the map in the **Title** text box.
7. Click or Touch **Export to PDF** to save the map as PDF document.

Note: The callout information on Left hand panel is printed on the PDF in the next page along with the map.

8. Click or Touch **Cancel** to return to the map mode.

Note: For IE11/Edge, only PNG format is supported instead of SVG format in this release. The only limitation of this approach is that style annotation legend will not be shown on IE legend panel for print. It will not impact on main page legend panel. The main page legend panel will work as it is with SVG images. This fix will only impact the print functionality legend panel in IE11/Edge.

Note: The Copyright information is left aligned in print PDF and the Bing logo will be a text "bing" instead of original logo icon which you see on the actual map.



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