VɪzZEN™ USERS GUIDE

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Overview of VizZen

Ball's VizZen provides a dynamic data management solution with the capability to visualize content. VizZen is Commercial-Off-the-Shelf (COTS) software providing an environment for analysts to visualize, work with and evaluate source data, manage and search authoritative data and dynamically create and disseminate standard or custom products and publications. Through its flexible, context-aware micro services, VizZen can ingest, display, maintain and conflate any data format from either digital or non-digital sources. Through consolidation and conflation of multiple sources of data, VizZen achieves a true One Object, One Time (1O1T) content paradigm within data models compliant with NSG Application Schema (NAS) standards. It provides a proven and holistic platform with mission-focused capabilities including, but not limited to, GIS tool integration, data conflation, attribute-level metadata, data enrichment, provenance and lineage, fine-grained access controls, data synchronization, impact and forensic analysis, catalog and search and linked data analysis. VizZen unlocks the true potential of data and provides the path forward to allow users to have the right data at the right time and in the right format to accomplish their goals.

Features

VizZen provides the following capabilities:

- One-object-one-time (1O1T) data storage
- Extensive feature metadata
- Tracking of sources used for feature updates
- History of data changes
- Extensive data management and automation
- Conflation of objects
- Complex discovery capability
- Geographic and tabular data visualization

User Roles

VizZen users, and their basic roles, are described below:

- General User: Has limited rights to view basic entity information.
- Analyst: Has permissions (as needed) to update the database, generate products, identify data trends, create production metrics, and perform data quality control.
- Manager: Has permissions (as needed) to review, validate, prioritize, and assign requirements and sources to meet mission requirements.
- Database Administrator: Has permissions to perform database-wide updates and validations as needed.

Functional Process Flows

The VizZen process flows described in this User Guide are listed below:

- Data Assimilation: Manipulating data in the 1O1T database in the following ways:
  - Ingest: Ingesting existing digital file(s) into the 1O1T database.
  - Discovery: Searching for existing entities in the 1O1T database.
  - Entity Creation: Adding entities into the 1O1T database.
  - Entity Editing: Updating the attributes of entities in the 1O1T database.
- Conflation: Merging multiple instances of the same entity to create a unified object.
- Product Creation: Creating products from the 1O1T database in the following ways:
  - Ad Hoc Product Creation: Creating products for one-time use (i.e., not stored for repeated use).
  - Standard Product Creation: Creating products with a defined mapping, format, and content including:
- Tasking: Assigning VizZen production tasks to analysts or workgroups.
- Metrics Reporting: Calculating statistics about the use of resources and activities for production.
- Workflow Management: Managing the steps used to guide VizZen users in the consistent execution of standardized processes.

Registration and Login

When logging in for the first time, the user must register by left-clicking on the "Register" link, as shown below. Thereafter, the user may login using the e-mail address and password set during registration.

FIGURE 1: LOGIN/REGISTRATION SCREEN

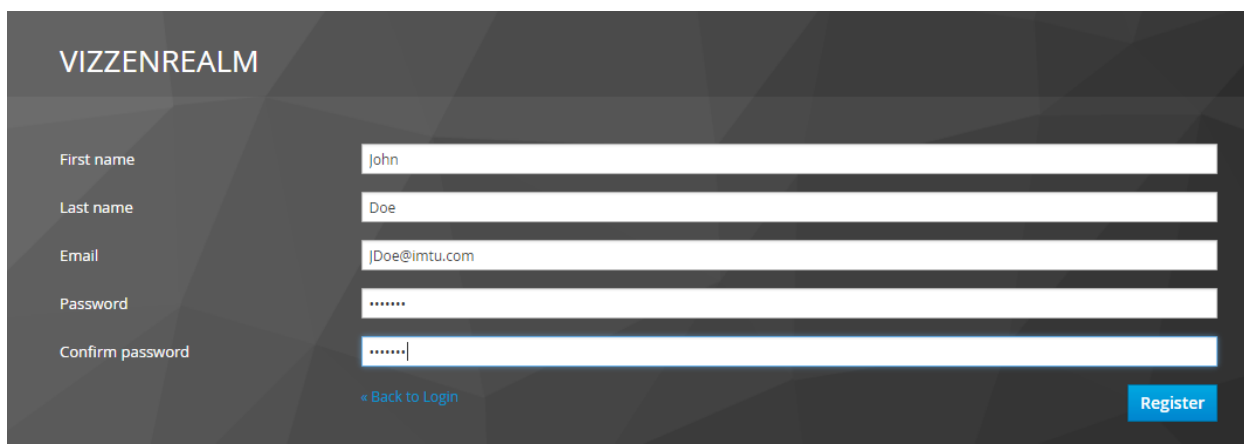To register, the user must fill out the information required, as depicted here:

FIGURE 2: REGISTRATION SCREEN

Map Display

The Map Display provides a graphical representation of all features stored in the 1O1T database, overlaid on a detailed world map.

Use the mouse to scroll, zoom in, and zoom out on the map as follows:

- To Scroll: Click and hold the left mouse button, and then drag the mouse in the desired direction.
- To Zoom In: Scroll the mouse wheel forward.
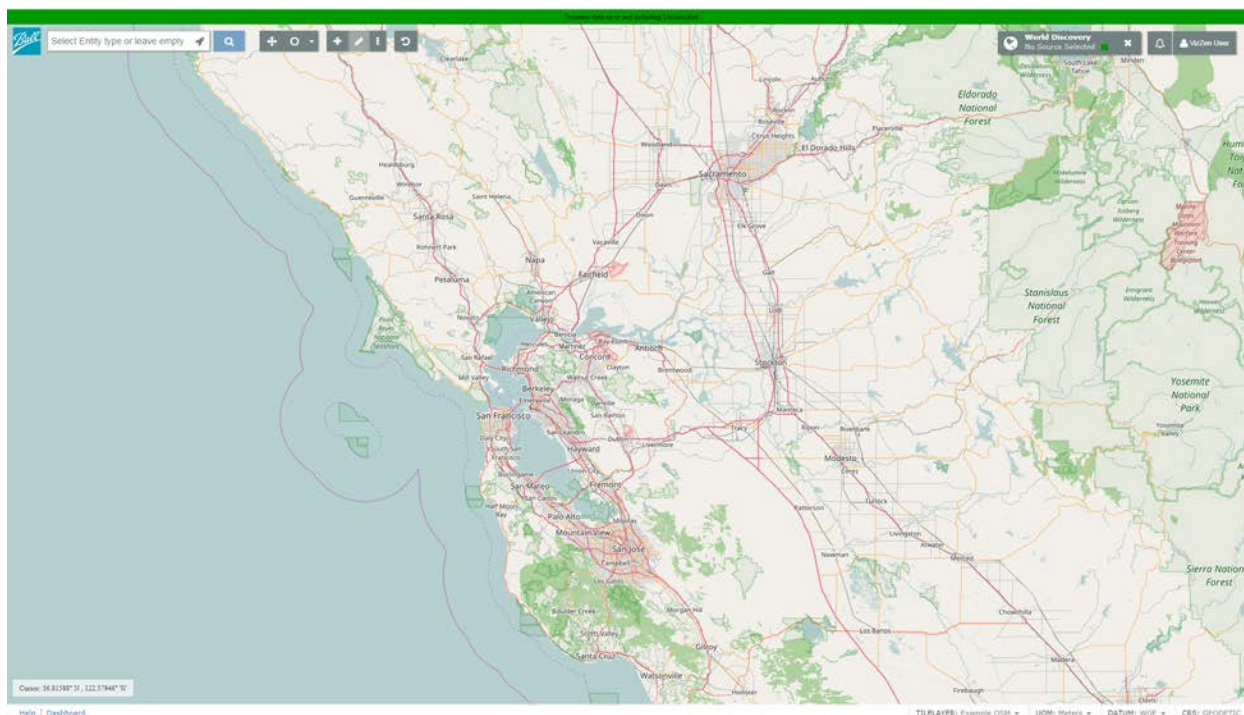- To Zoom Out: Scroll the mouse wheel backward.

FIGURE 3: VIZZEN MAP DISPLAY

Cursor Position on Map

The bottom-left corner of the Map Display shows the current latitude and longitude reading relating to the cursor's position on the world map. This position updates in real-time as the cursor is moved across the map.
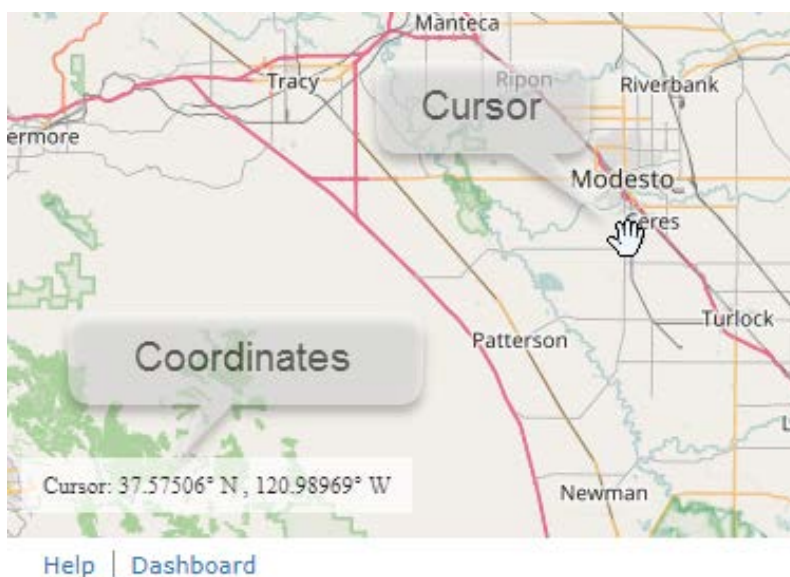

FIGURE 4: CURSOR POSITION ON MAP

Main Toolbar

The Main Toolbar contains the primary tools used to perform entity discovery within the 1O1T database. The available tools are detailed below.
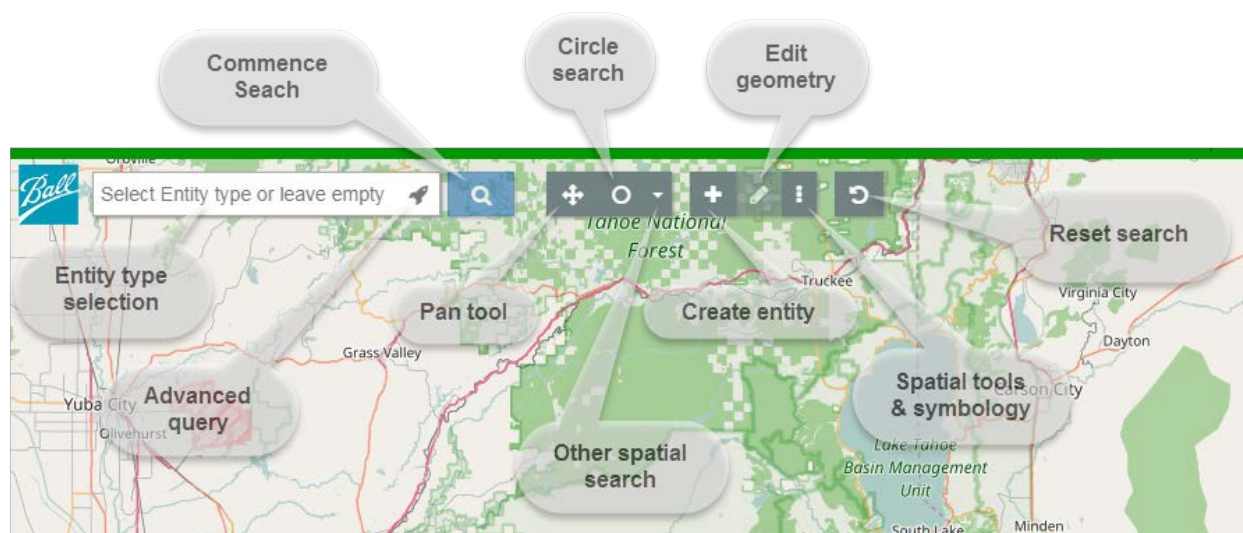

FIGURE 5: MAIN TOOLBAR

Entity type selection

Entity types may be selected from the drop-down list or by typing in the first few letters of the entity name. A single entity type may be queried using this selection combined with a spatial search area (circle or polygon). An example of the entity type drop-down list is shown below.
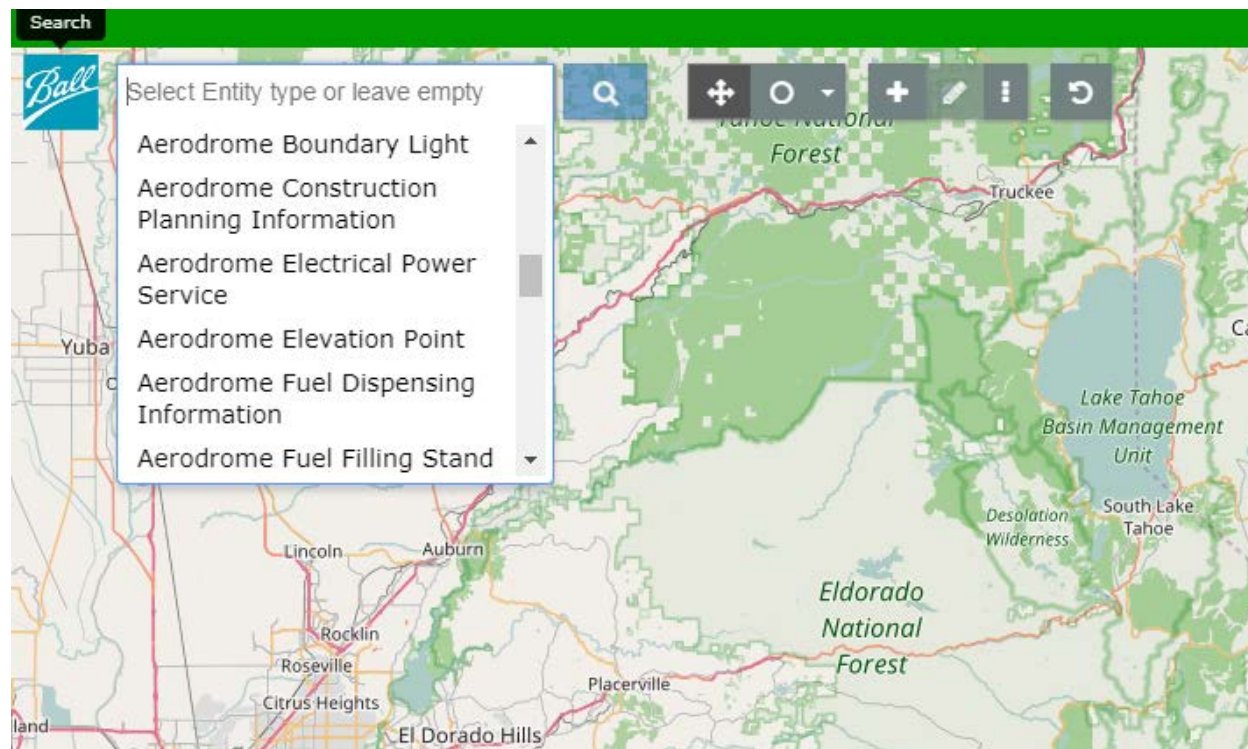

FIGURE 6: ENTITY SELECTION DROP-DOWN LIST

Advanced Query Tool

The Advanced Query Tool launches the Advanced Query Dialog, which is used to create custom queries in VizZen.

Clicking on the Advanced Query Tool displays the Advanced Query Dialog. Use the Advanced Query Dialog to create custom attribute searches.

FIGURE 7: THE ADVANCED QUERY DIALOG

The Advanced Query Dialog contains the following fields:

- Select entity: Use this drop-down field to select one or more entity attributes to query. Use the plus sign to add additional entity attributes. This provides the ability to build complex "tree" queries. Use the minus sign to delete a specific entity attribute query line.

Note: Search time may increase as search complexity increases.

- Select attribute or Select entity type: Use this drop-down field to select the attributes relative to the selected entity.
- Search Operators: Use these fields to specify Boolean operations to apply to the attributes. For example, "greater than". Use the plus sign to add additional operations to build complex "tree" queries.
- Save query: Use this button to save a query for future use. Click the Back button to cancel the query.
- Open query: Use this button to open saved queries. Saved queries are organized by the order/date they were saved by a user or team. In addition to user saved queries, Database Administrators have the capability to add custom queries.
- Cancel: Use this button to cancel the query currently entered in the dialog.
- Reset: Use this button to reset all entries currently showing in the dialog.
- Search: Use this button to execute the query currently showing in the dialog. This button contains two drop-down options as shown in the figure below.
- Include Invalid Geometry: Select this to include entity results that contain invalid geometry.
- Include Dataset Contents: Select this to include only the contents of the currently selected dataset.
- Filter by Failed Validation

The figure below shows the entries for a search for United Airline flights at an altitude over 4,000 meters. It also illustrates the ability to build a more complex "tree" query with additional entity attributes and sub-attributes.
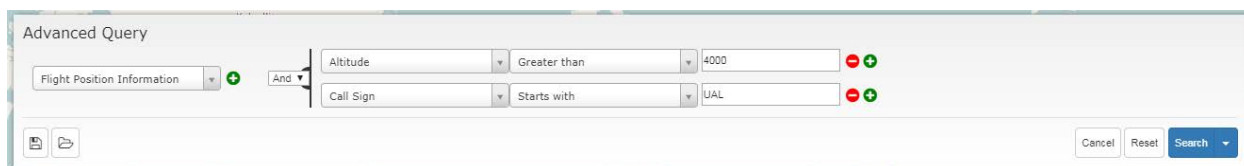

FIGURE 8: ADVANCED QUERY DIALOG WITH SAMPLE ENTRIES

Pan Tool (Map Mover)
The pan tool or Map Mover enables the user to pan the map using the left mouse button.

Spatial Search

The spatial search tools enable the discovery of all available data within a geographic region or may be confined to a search of a single entity type. The spatial search may also be combined with the advanced query.

The default option for spatial search is a circle, which is created manually by drawing a radius from a center point.

To execute a search with the Circle Tool:

1. Click directly on the Circle Tool
2. Draw the desired circle search area on the map display. A dotted outline of the circle search area appears as shown in the figure below.
3. Click the Start Search Tool to execute the query. The circle remains on the screen and any entities discovered display within the circle. The entities are listed in the Results Window. The map auto zooms and pans to fit results.
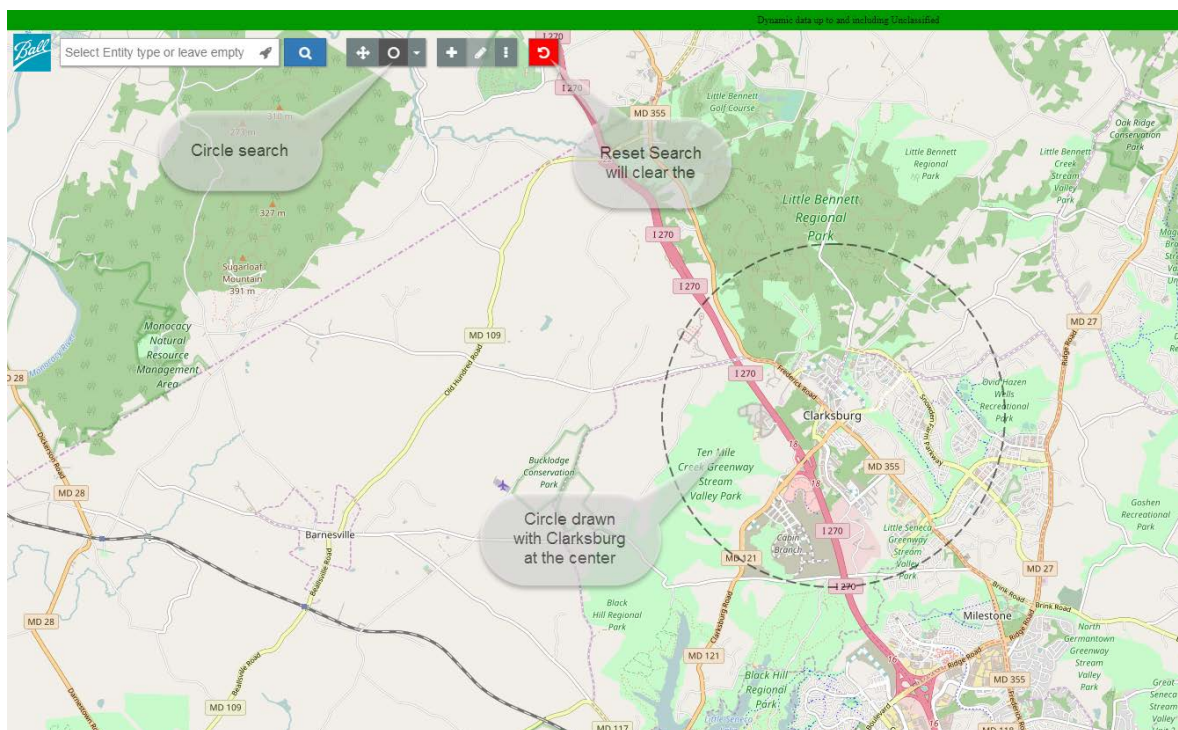

FIGURE 9: CIRCLE SEARCH EXAMPLE

The circle search (as a default) may yield results that overlap the circle and are much larger than the circle (e.g., an imagery footprint).

From the spatial search drop down, the user may select the polygon search. Selecting the polygon search changes the circle button to a rectangle and allows the user to draw a regular or irregular polygon for search.

To execute a search with the Polygon Tool:

1. Select the down-arrow (Other Spatial Search tool), then select the Polygon Tool.
2. Draw the desired polygon search area on the map display. A dotted outline of the polygon search area appears as shown in the figure below.
3. Click the Start Search Tool to execute the query. The polygon remains on the screen and any entities discovered display within the polygon. The entities are listed in the Results Window. The map auto zooms & pans to fit results.
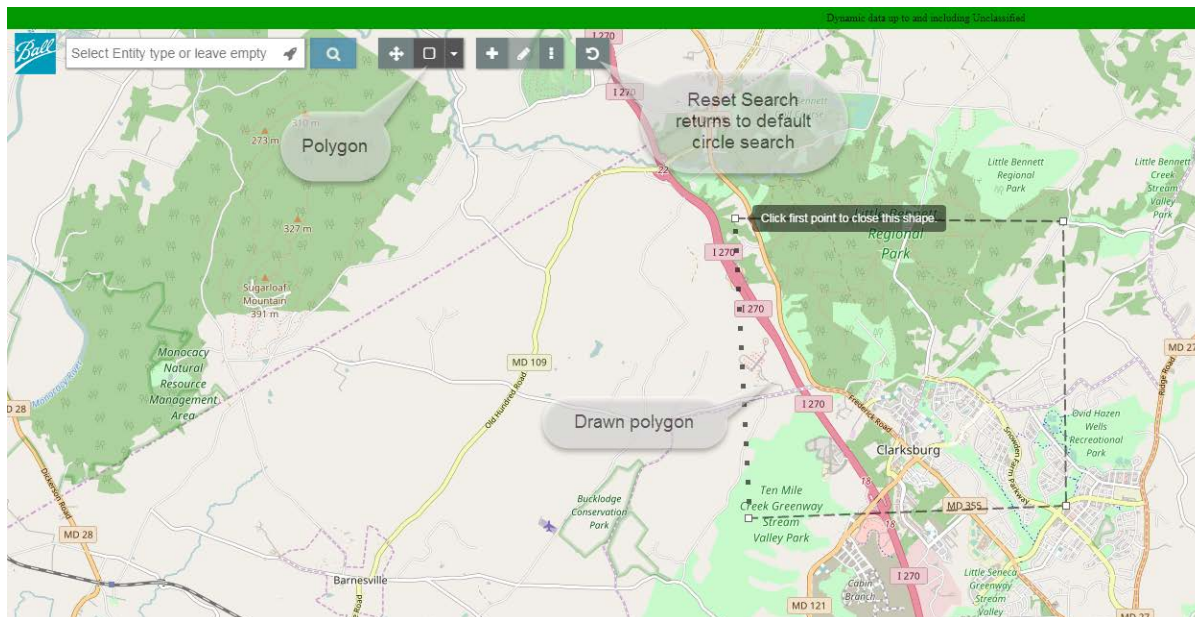
FIGURE 10: POLYGON SEARCH EXAMPLE

The Modifiers Tool defines topological relationship parameters to include in entity searches. Clicking on the Modifiers Tool activates the Spatial Modifiers submenu (shown above). From here, select the following topological relationships to include in search parameters:

- OverLap Query: This query includes entities where at least one instance of the interior of one entity is interacting with the interior of another entity. Overlap query types include "Overlap Boundary Disjoint" and "Overlap Boundary Intersect" as shown in the figure below.
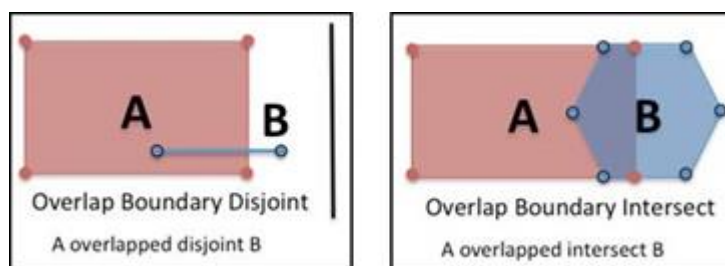

FIGURE 11: OVERLAP QUERIES

- Inside Query: This query includes entities where a point, line or the boundary and interior of a polygon are completely within the boundary of another polygon without the boundaries interacting. Inside query types include: "Inside," "Contains," Equal," "Covers," and "Covered by" as shown in the figure below.
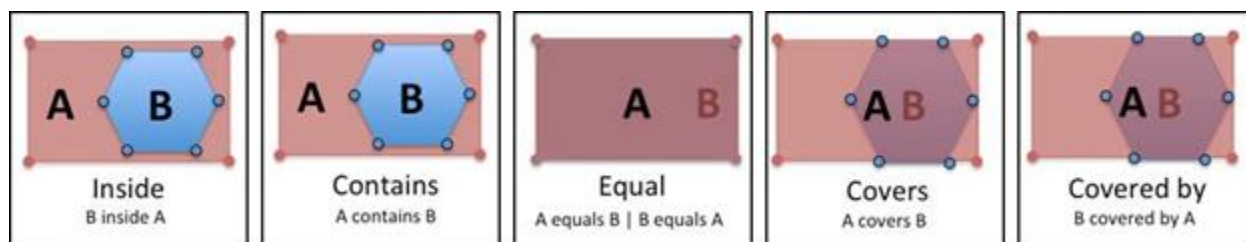

FIGURE 12: INSIDE QUERIES

- Coincident Query: This query includes entities where the boundaries of multiple entities are interacting without the interiors interacting. Coincident query types include "On" and "Touch" as shown in the figure below.
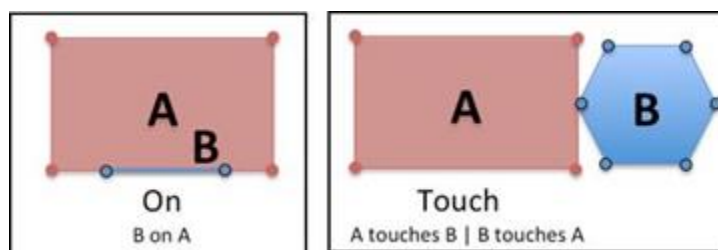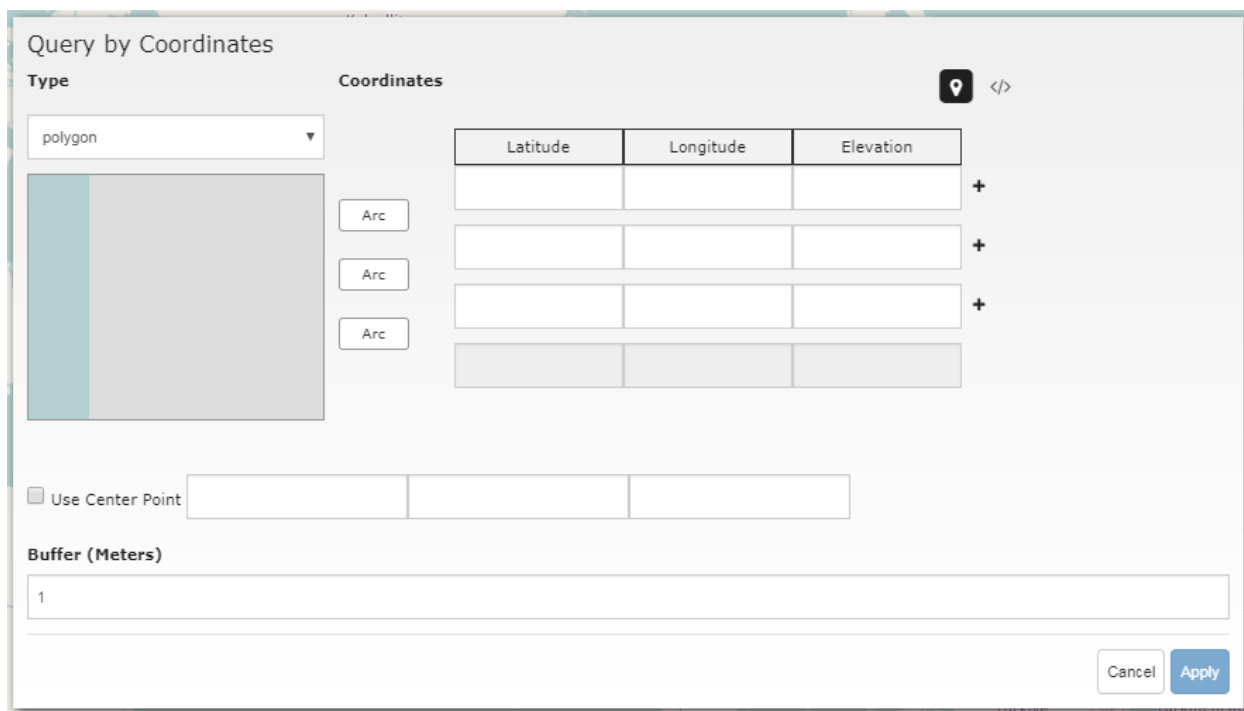

FIGURE 13: COINCIDENT QUERIES

- Any/All Query: This query includes entities that contain all spatial relationships.

Selecting the Advanced tool opens the Query by Coordinates dialog, Use the Query by Coordinates dialog, shown below, to define a search area by coordinates or well-known text (WKT) format.

FIGURE 14: QUERY BY COORDINATES DIALOG

Create Entity

Use the Create Entity Tool to add new entities to the 1O1T database.

Note: An edit source must be selected to create entities.

Clicking on the Create Entity Tool launches the Choose Entity Type dialog. Use the drop-down menu in this dialog to choose the type of entity to be created in the 1O1T database.
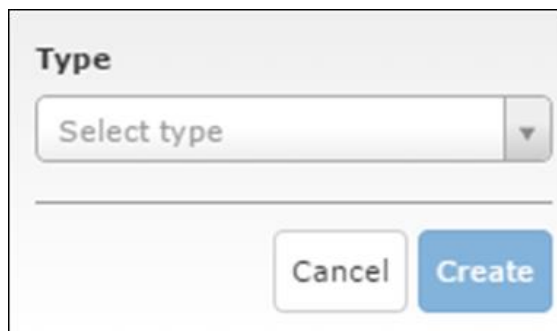

FIGURE 15: CHOOSE ENTITY TYPE DIALOG

To create a new entity, follow these steps:

1. Select an entity type, then click Create. A Results Window displays with the new entity listed as shown below.
2. Complete the desired fields in the Results Window, then save the pending changes. The figures below give examples for creating a new entity.
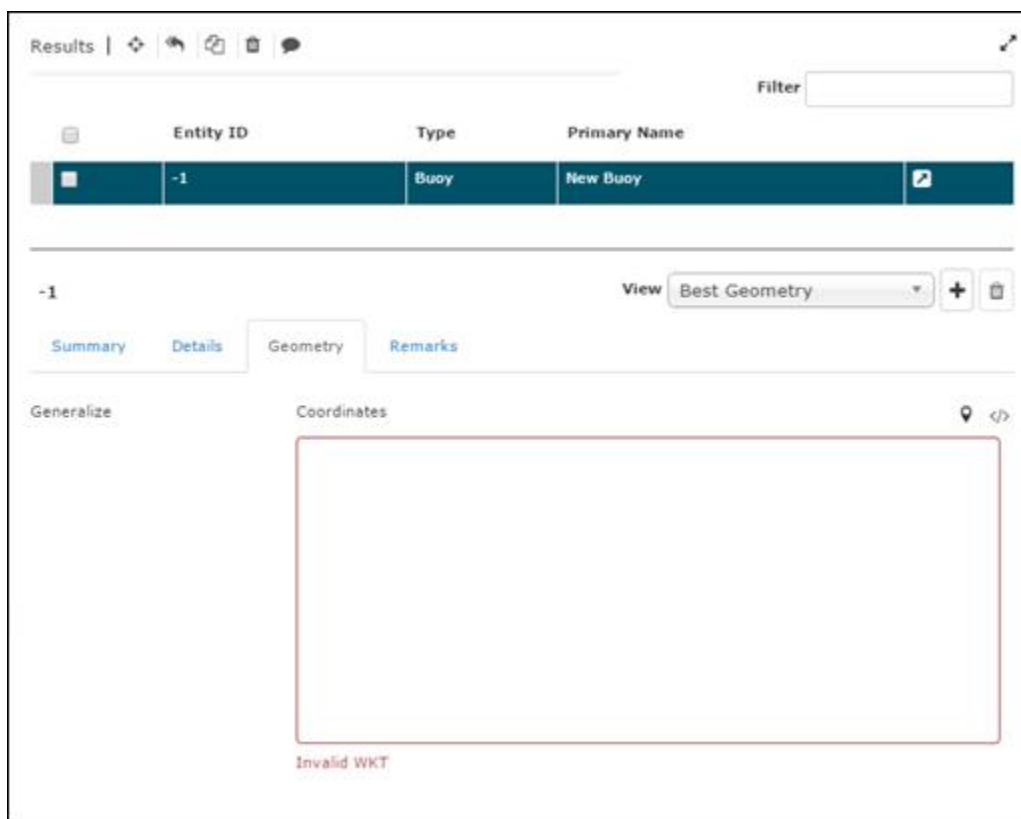

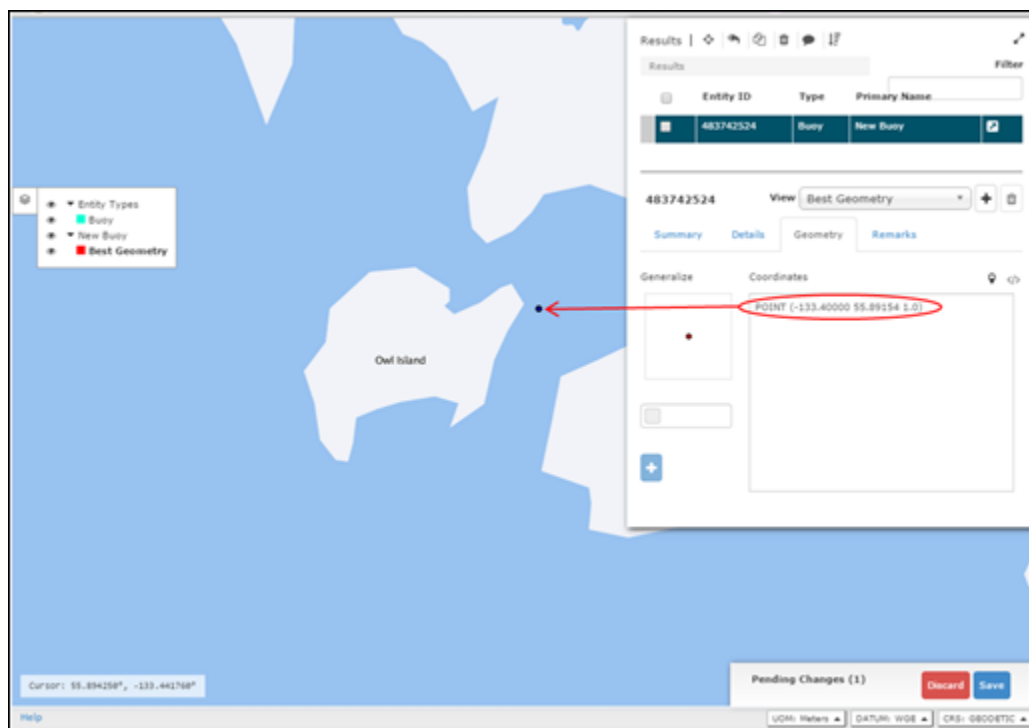FIGURE 16: RESULTS WINDOW FOR NEW ENTITY

FIGURE 17: NEW BUOY ENTITY EXAMPLE USING WKT COORDINATES

The Range & Bearing Tool calculates and display the range (meters) and bearing (degrees) between two points on the Map Display. Calculate range and bearing by entering coordinates, or by clicking and dragging between two points on the map.

To calculate range and bearing by coordinates:

1. Select Range & Bearing by coordinates from the Range and Bearing Tool. The Range & Bearing Tool displays.
2. Enter a latitude and longitude value for the first point in the Lat 1 and Long 1 fields.
3. Enter a latitude and longitude value for the second point in the Lat 2 and Long 2 fields.
4. Select Calculate. The bearing and range are displayed in the Bearing (degrees) and Range (meters) fields as shown in the figure below.

To calculate range and bearing by clicking and dragging between two points on the map:

1. Select Range & Bearing by click & drag from the Range and Bearing Tool. The Range and Bearing tool is activated.
2. Place the mouse pointer at the first point on the map.
3. Click and hold the left mouse button then drag the cursor to the second point.
4. Release the left button. A red line displays between the first and second points and the range and heading display next to the first point.

Reset Search

The Reset Search Tool clears existing feature results from the Map Display and stops existing in-process queries if desired.

Selected Source

A source must be selected before using the Edit and Create Entity Tools. Select a source from the "Selected Source:" link in the upper right corner of the Map Display as shown below.
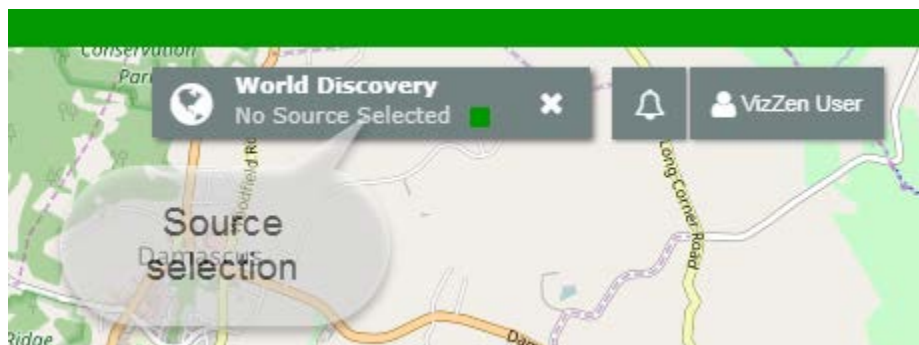
When no source is selected, it is indicated on the button and the classification banner at the top of the display states "Dynamic data up to and including Unclassified." Note the green square on the button, indicating the current classification limit.

Click Selected Source: in the upper right corner of the main Map Display to open the Editing Environment Window and select a source.

Editing Environment Window

Use the Editing Environment Window to set source, security, and dataset parameters for entity edits. A source must be selected before entities can be edited.

Use the Source Tab to query for an editing source

FIGURE 19: EDITING ENVIRONMENT WINDOW SOURCE TAB

1. Enter source search parameters in field(s) shown in the scrollable window on the left side of the view. Note you can filter the parameters down to a specific parameter by typing the parameter in the Filter field. The figure below shows an example.
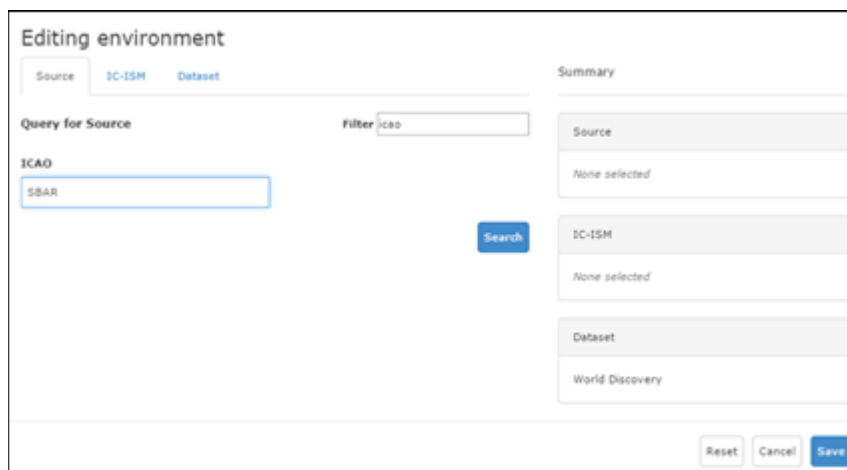

FIGURE 20: EDITING ENVIRONMENT WINDOW SOURCE TAB FILTER AND SEARCH EXAMPLE

2. Select Search to execute a search for the sources within the parameters entered. The figure below shows an example.
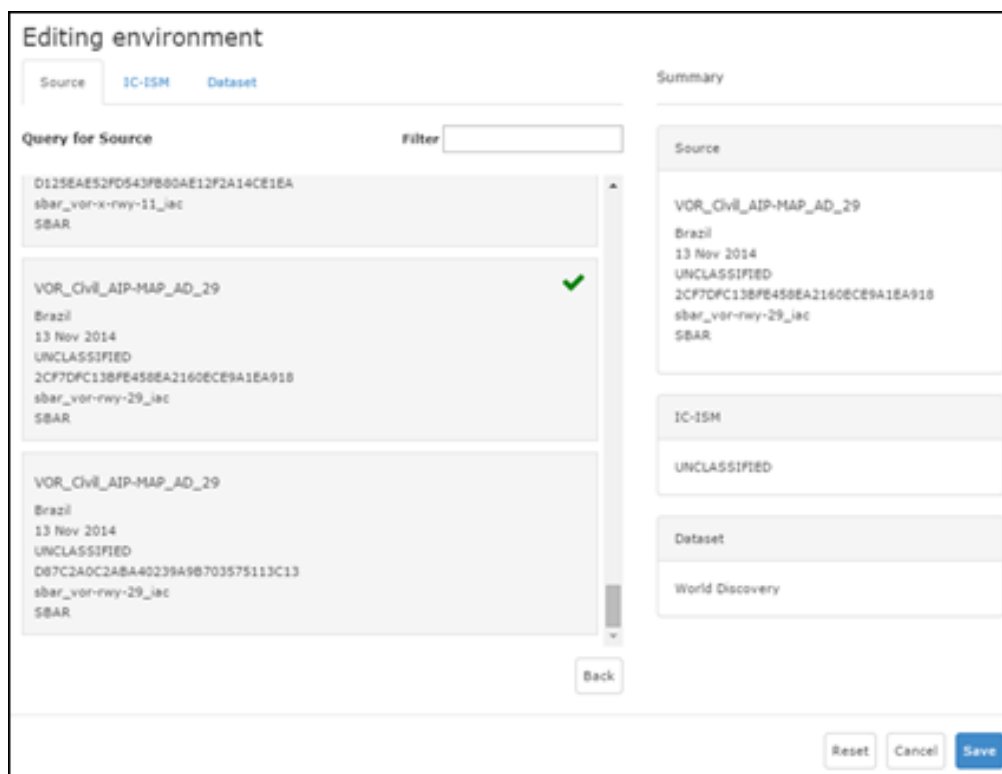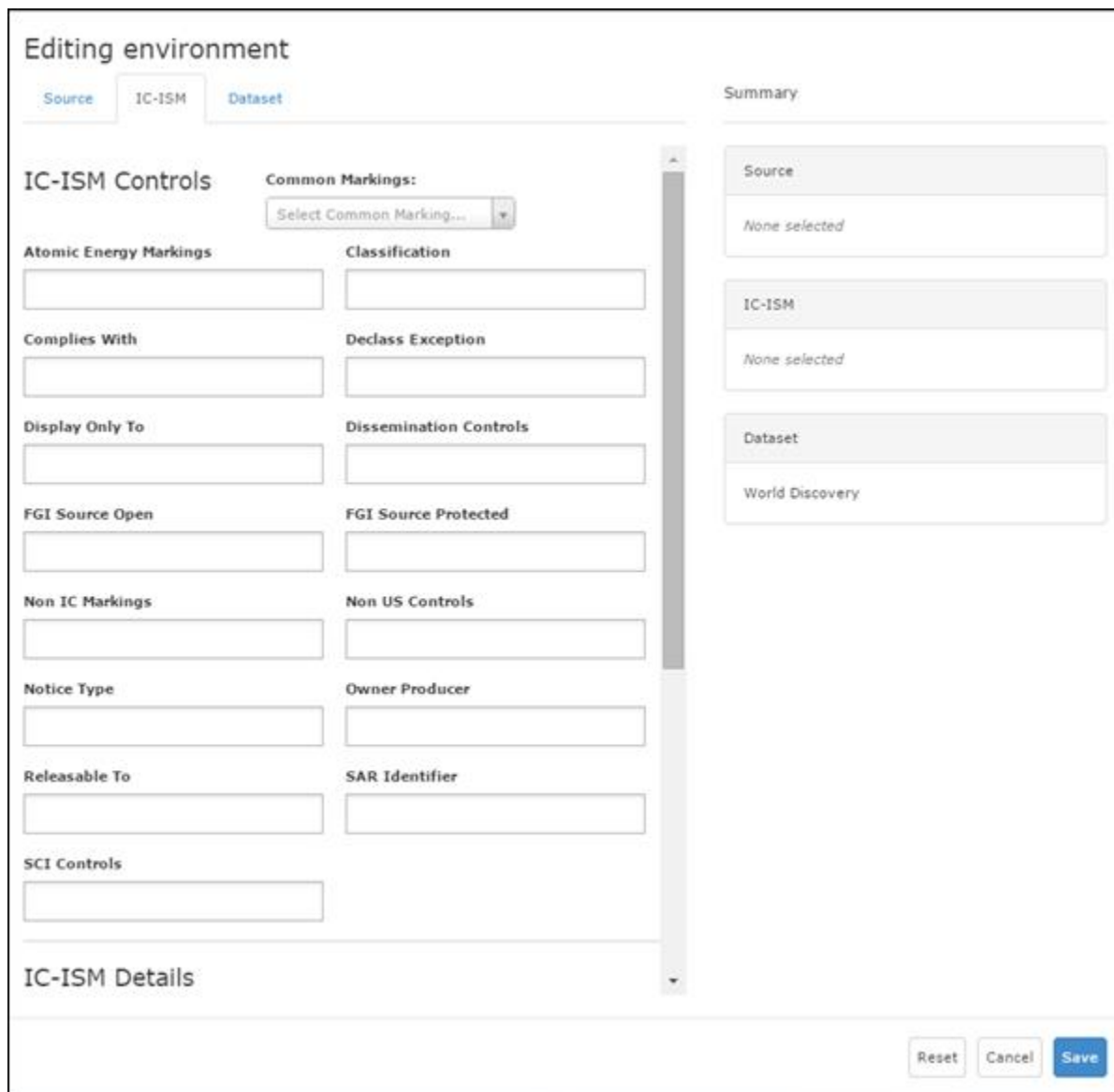

FIGURE 21: EDITING ENVIRONMENT WINDOW SOURCE TAB SEARCH RESULTS EXAMPLE

3. Select a source from the list provided. A green check appears and the source appears in the Summary table on the right side of the view.

4. Select Save to load the selected source into the VizZen environment. The Selected Source: in the upper right, should display the title of the source selected and the classification banner changes to highest level that the source contains. The figure below shows an example.

Use the IC-SM Tab to define classification settings for the editing environment.

1. Enter classification settings in field(s) shown in the scrollable window on the left side of the view.

2. The settings appear in the Summary table on the right side of the view.

FIGURE 22: EDITING ENVIRONMENT WINDOW IC-SM TAB

Use the Dataset Tab to query for a dataset.

1. Enter query parameters in the Query for Dataset field on the left side of the view.

2. Select Search (magnifying glass) to execute a search for the dataset.

3. Select a dataset from the list provided. The dataset appears in the Summary table on the right side of the view.
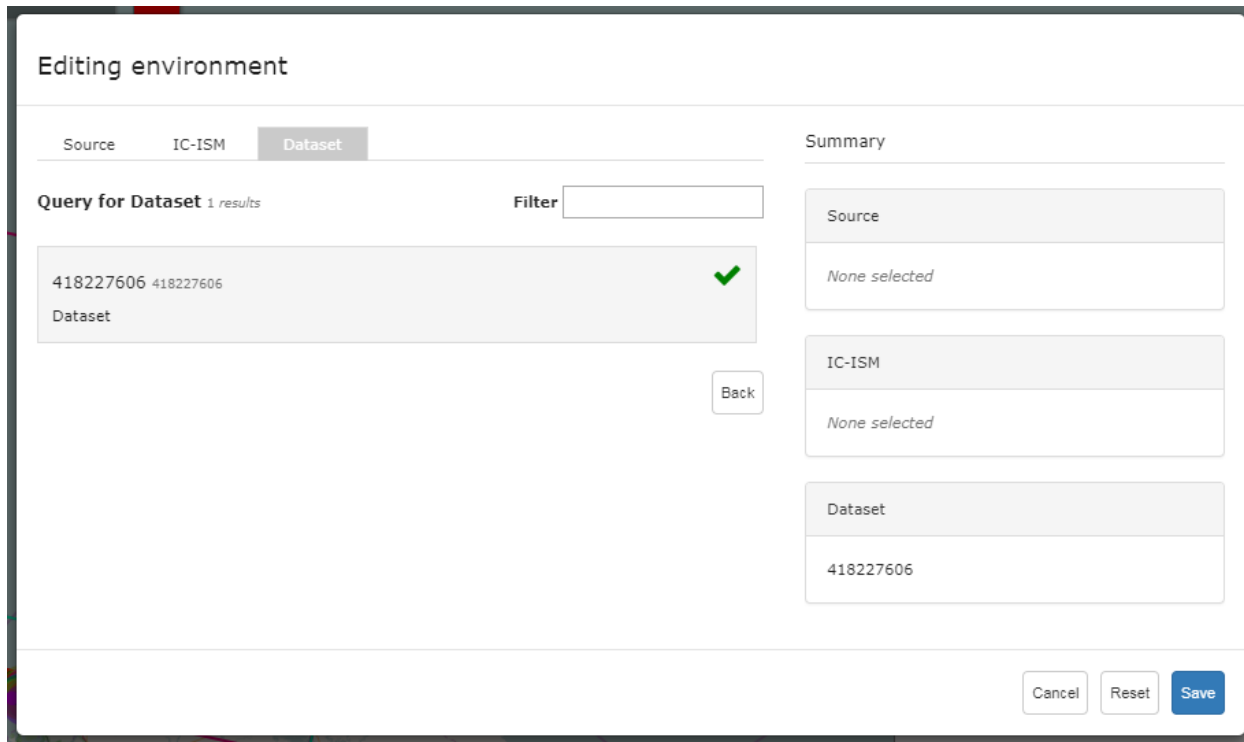

FIGURE 23: EDITING ENVIRONMENT WINDOW DATASET TAB

- Reset: Use this button to reset the selected entries.
- Cancel: Use this button to cancel the selected entries.
- Save: Use this button to save the editing environment entries and close the Editing Environment Window. The source, security, and dataset (if selected) appear in the upper-right corner of the screen.

Query Results

The Results Window lists the entities resulting from all queries. Each entity is listed as a unique row as shown in the figure below.

FIGURE 24: RESULTS WINDOW

Filter

The Filter field narrows the list of displayed entities down based on Entity ID, Type or Primary Name characters entered in the field.

Entity List Fields

The following fields display for each entity listed.

- Security Code Box: The far-left box indicates the entity's security classification level. This marking follows the standard security marking color conventions as show in the following figure.

FIGURE 25: SECURITY CODE BOX

- Check Box: This box is used to select an entity for applying the commands available on the Results Window Toolbar.
- Type: This field displays the type of feature (NAS standard feature types).
- Primary Name: This field displays the feature's primary name.
- Conflate Feature: This button () launches the Conflation Dialog.
- Production Ready Feature: This button () promotes the selected entity to production or "gold" status. Specific user privileges are required to promote an entity to production status.

Entity Color Coding

Each entity listed is color coded as follows:

- Blue: Indicates a candidate entity.
- Gold: Indicates an authoritative entity.

Toolbar

The following tools display at the top of the Results Window.

FIGURE 26: RESULTS WINDOW TOOLS

1. Zoom to fit results: Zooms the Map Display to the selected feature.
2. Conflate multiple features: Conflates all selected features.
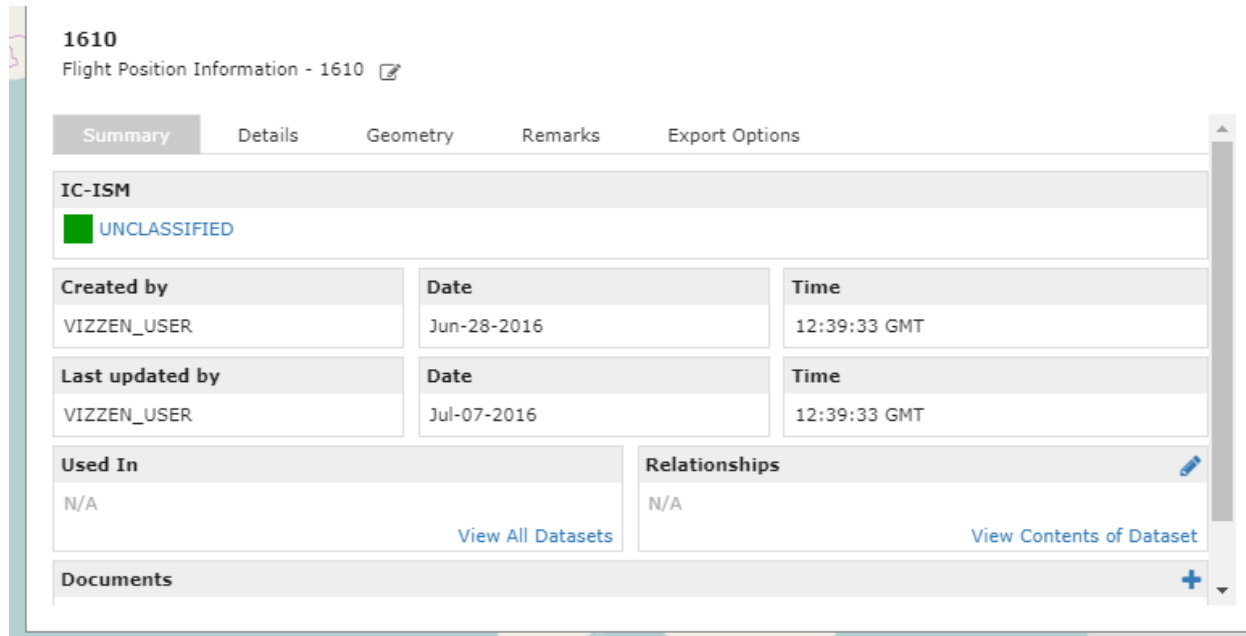
Entity Details Window

Clicking on an entity displays the Entity Details Window. This window displays all unique attributes for the selected entity. The attributes displayed vary by entity type, and conform to NAS standards. The attributes may be edited and saved, but only after selecting an editing source in the Editing Environment Window.

The Primary Name of the selected entity displays just above the tabs.

The Entity Details Window contains four tabs as detailed below.

Summary Tab

The Summary Tab lists basic entity information.
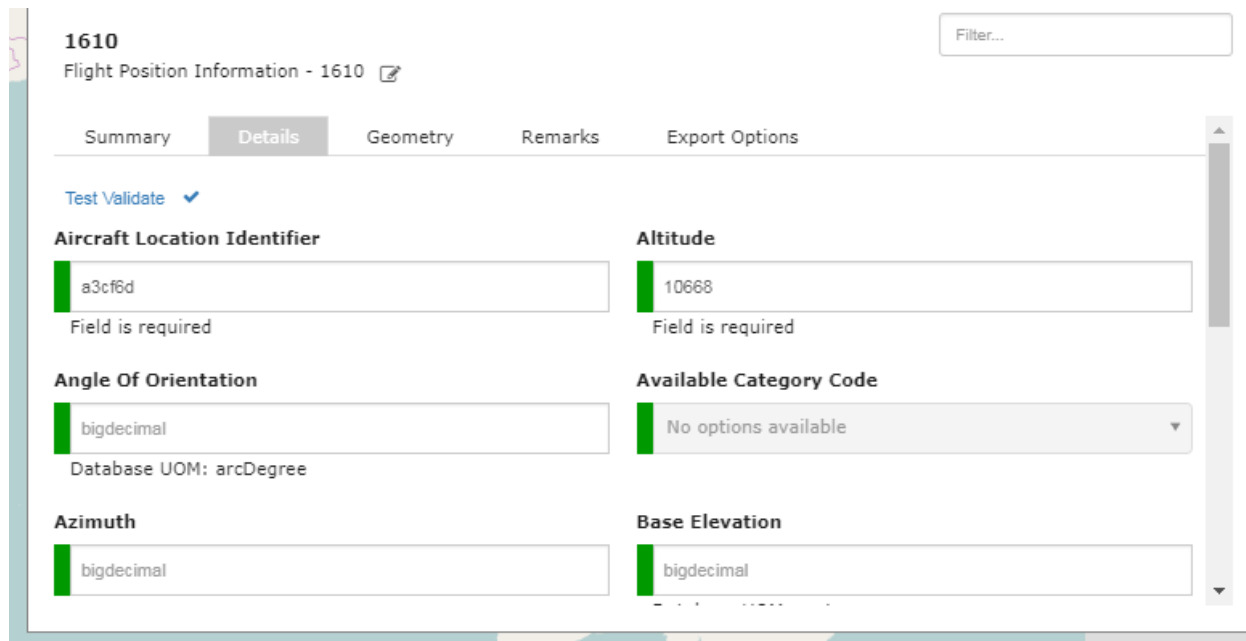
FIGURE 27: ENTITY ATTRIBUTES WINDOW – SUMMARY TAB

The Summary Tab fields are read-only and listed below:

- **IC-SM**: Displays entity security markings.
- **Created by**: Displays the user name of the analyst who created the entity. Creation **Date** and **Time** are shown.
- **Last updated by**: Displays the user name of the analyst who last updated the entity. Update **Date** and **Time** are shown.
- **Used In**: Displays datasets the entity is used in.
- **Relationships**: Displays a link to related entities.
- **Documents**: Displays documents the entity is used in.

Details Tab

The Details Tab lists all NAS-standard entity attributes. The displayed attributes vary by entity type.

FIGURE 28: ENTITY ATTRIBUTES WINDOW – DETAILS TAB

The Filter field is used to filter entity details.

The Details Tab field characteristics are described below.

- Grey fields are read-only.
- White fields may be edited and include the following types:
    - Text entry
    - Drop-down
    - Unit of measure
    - Date
    - True/false/null
    - Number

Geometry Tab

The Geometry Tab lists basic entity the best and alternate geometry information for the selected entity.
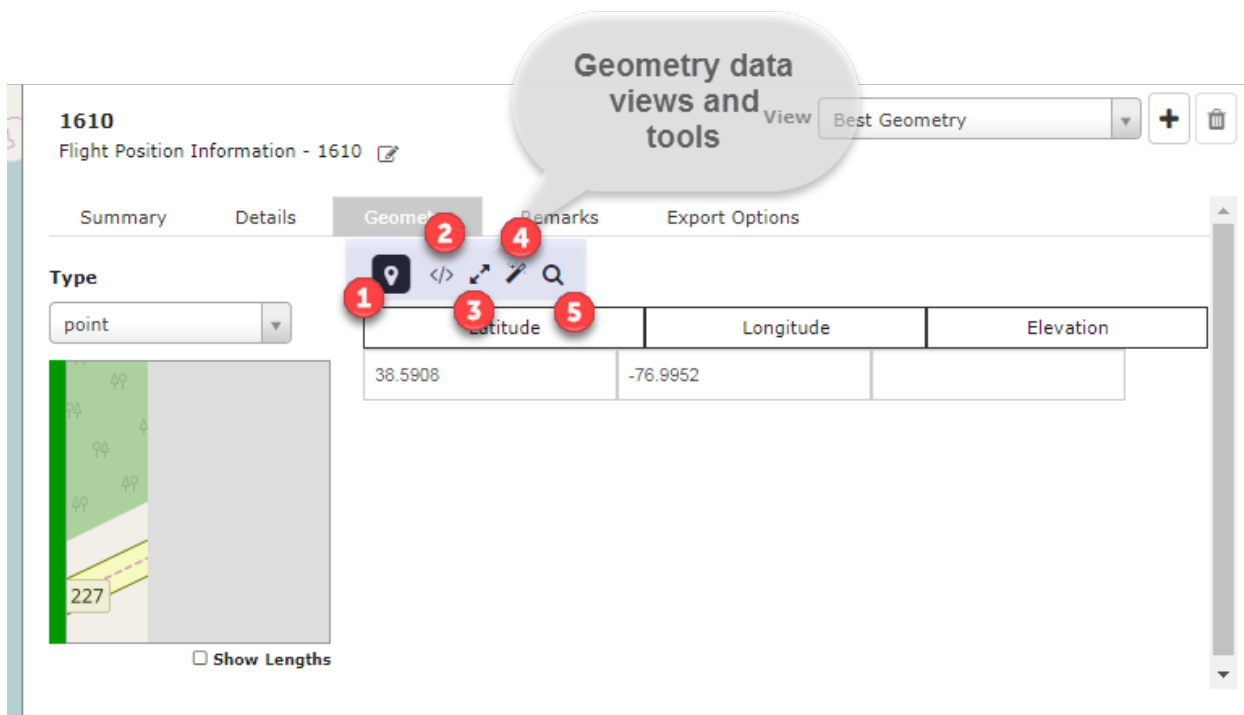
FIGURE 29: ENTITY ATTRIBUTES WINDOW – GEOMETRY TAB

The Geometry Tab data views and tools are described below.

1. Show Editor: Lists the Latitude, Longitude, and Elevation for each defined point.
2. Show WKT: Displays the WKT coordinate representation.
3. Show Grow/Shrink Tool: Enables increasing or decreasing the size of the feature.
4. Show Generalize: Drag the scroll bar to decrease (forward) or increase (backward) the number of points on the entity polygon.
5. Show Search: Enables a search for other features related to this feature by topological relationship.

Remarks Tab

The Remarks Tab lists all remarks entered for the selected entity.

H
Buoy - 527064970 ✎

| Summary | Details | Geometry | Remarks | Export Options |

Type: VPF Text   ✖
By: VIZZEN_USER   Date: 09/13/2016 18:09:59

FIGURE 30: ENTITY ATTRIBUTES WINDOW – REMARKS TAB

Export Options

The Export Options tab can be edited to contain instructions, policies or directives related to the export of data.

1610
Flight Position Information - 1610 ✎

| Summary | Details | Geometry | Remarks | Export Options |

There are no datasets associated with this entity.
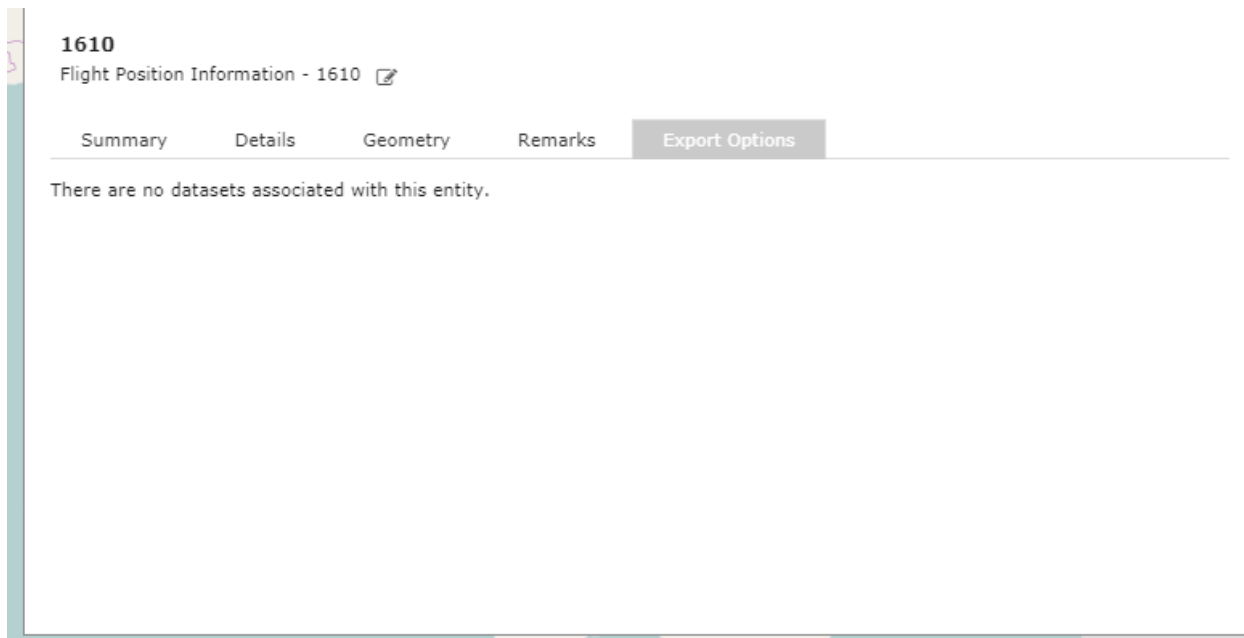
FIGURE 31: ENTITY ATTRIBUTES WINDOW--EXPORT OPTIONS TAB

Conflation Dialog

The Conflation Dialog opens when the Conflate Feature button is clicked for a selected entity in the Results Window. This dialog is used to create a single, authoritative, entity out of two or more duplicate features or entities.

The Conflation Dialog is divided into five main windows:

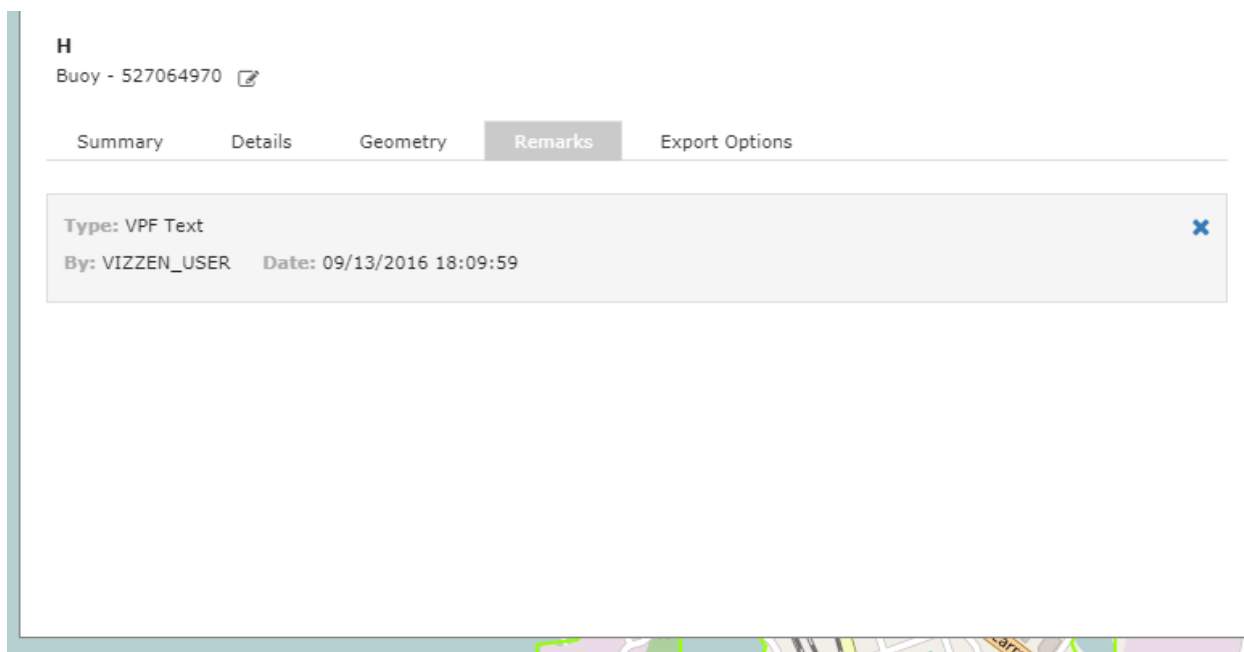- Analysis: This window displays colored circles that represent each duplicate entity. These circles are arranged in a relationship relative to the similarities in each entity's attribute data.
- Map Display: This window displays a map representing the geographic location of the entity being conflated.
- Sort: This window displays a data entry dialog for each entity being conflated. Select the desired attribute from each entity by clicking in the corresponding field.
- Consolidated Entity: This window displays the entity, with attributes, as it will become after conflation. As each attribute for a given entity is selected in the Sort window, that attribute is placed in the corresponding field in the Create window.
- Queue

FIGURE 32: CONFLATION DIALOG

Map Layer Controls

The Map Layer Controls appear on the left of the Map Display. Use the down-arrow to toggle on and off the view controls.

Each entity type included in the current discovery set displays in the Map Layers Controls Window. Click on each entity type to toggle them on and off.
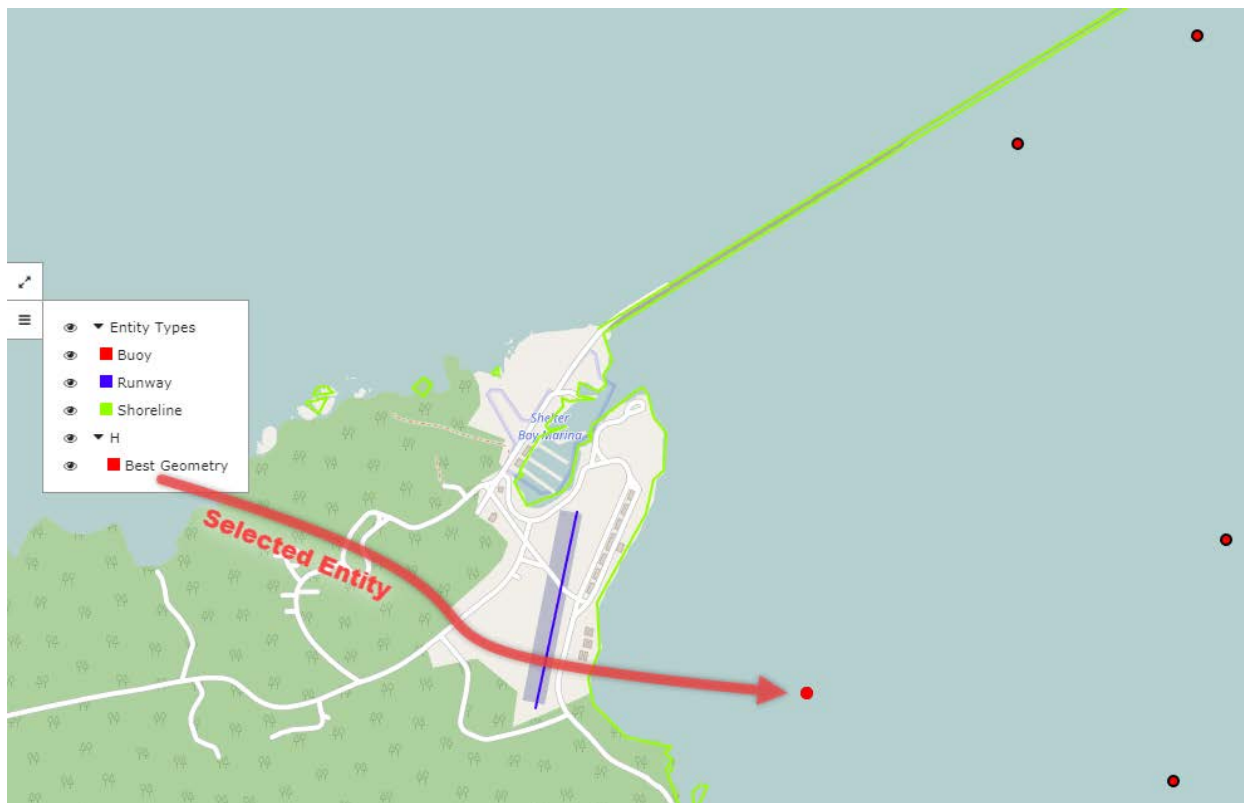
FIGURE 33: MAP LAYER CONTROLS

Clustering Control

Above the Map Layer Controls is the Cluster toggle. Retrieved data are automatically clustered upon display. At different zoom levels, optimal clustering is determined as shown below. Mousing over a cluster will show the region containing all the members of the cluster. On the left, the area for a cluster with 35 members is depicted. On the right, at a closer zoom, the cluster has split into 4 new clusters of 7, 2, 21 and 5 members, respectively.

FIGURE 34: CLUSTERING AT MULTIPLE ZOOM LEVELS.

Toggling clustering off shows the discrete location for each entity.
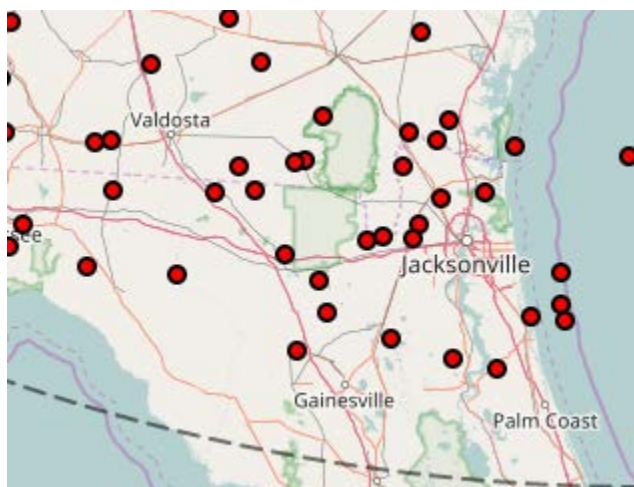
FIGURE 35: UN-CLUSTERED ENTITIES.

Geospatial Visualization Setting Controls

Every entity's geometry in the 1O1T database is stored in decimal degrees, using the WGS-84 datum. All lengths are stored in meters. All volumes are stored in cubic meters. All other units of measure are noted at the attribute level.

Four tools are in the bottom-right corner of the interface to change visualization settings. Use these tools to change base map layer, the display of Unit of Measure, DATUM, or Coordinate Reference System for the data represented.
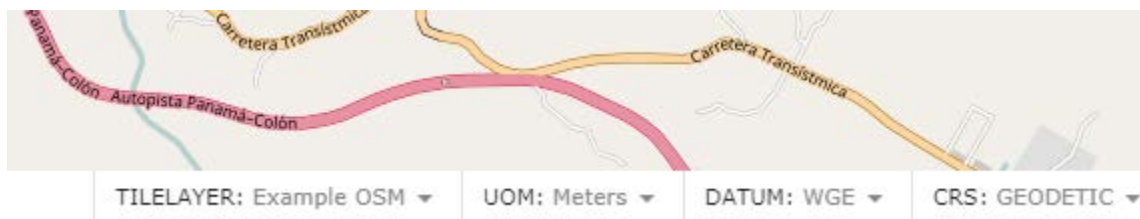
FIGURE 36: GEOSPATIAL VISUALIZATION SETTING CONTROLS

Tile Layer

The base tile layer can be set by selecting an appropriate base map from the list under the TILELAYER drop-down menu.
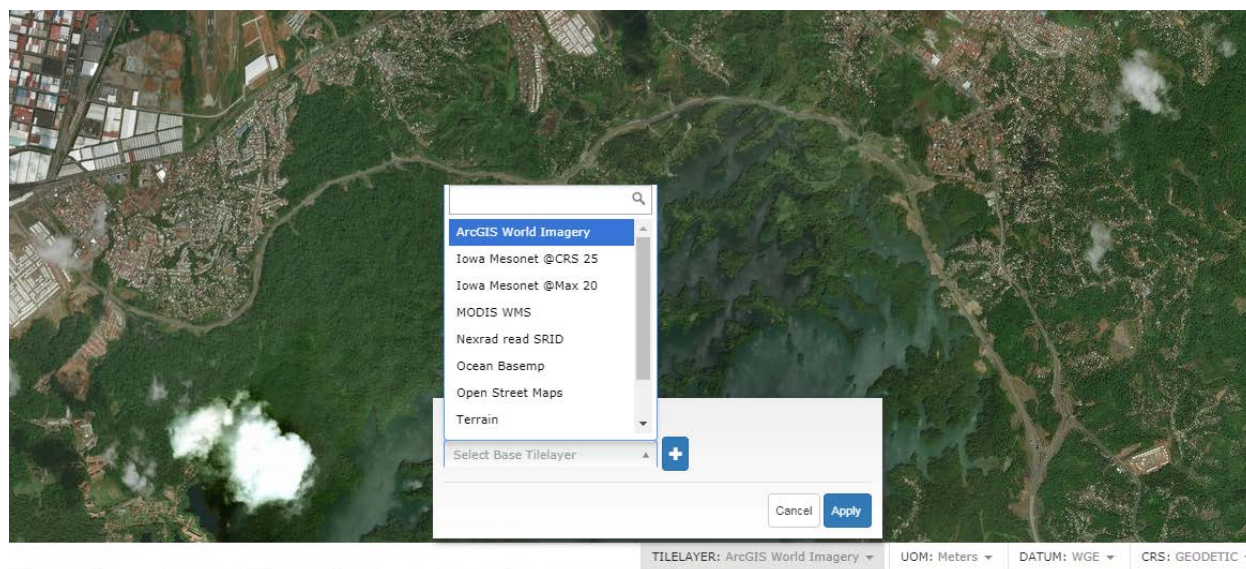
FIGURE 37: BASE TILE LAYER SELECTION

Unit of Measure (UOM) Settings

Clicking the down-arrow next to the UOM: tool, displays Change Unit of Measure Dialog. Use this dialog to change all Unit of Measure displays to a desired unit from the drop-down list. Select exact or rounded conversions. The default setting is Meters.
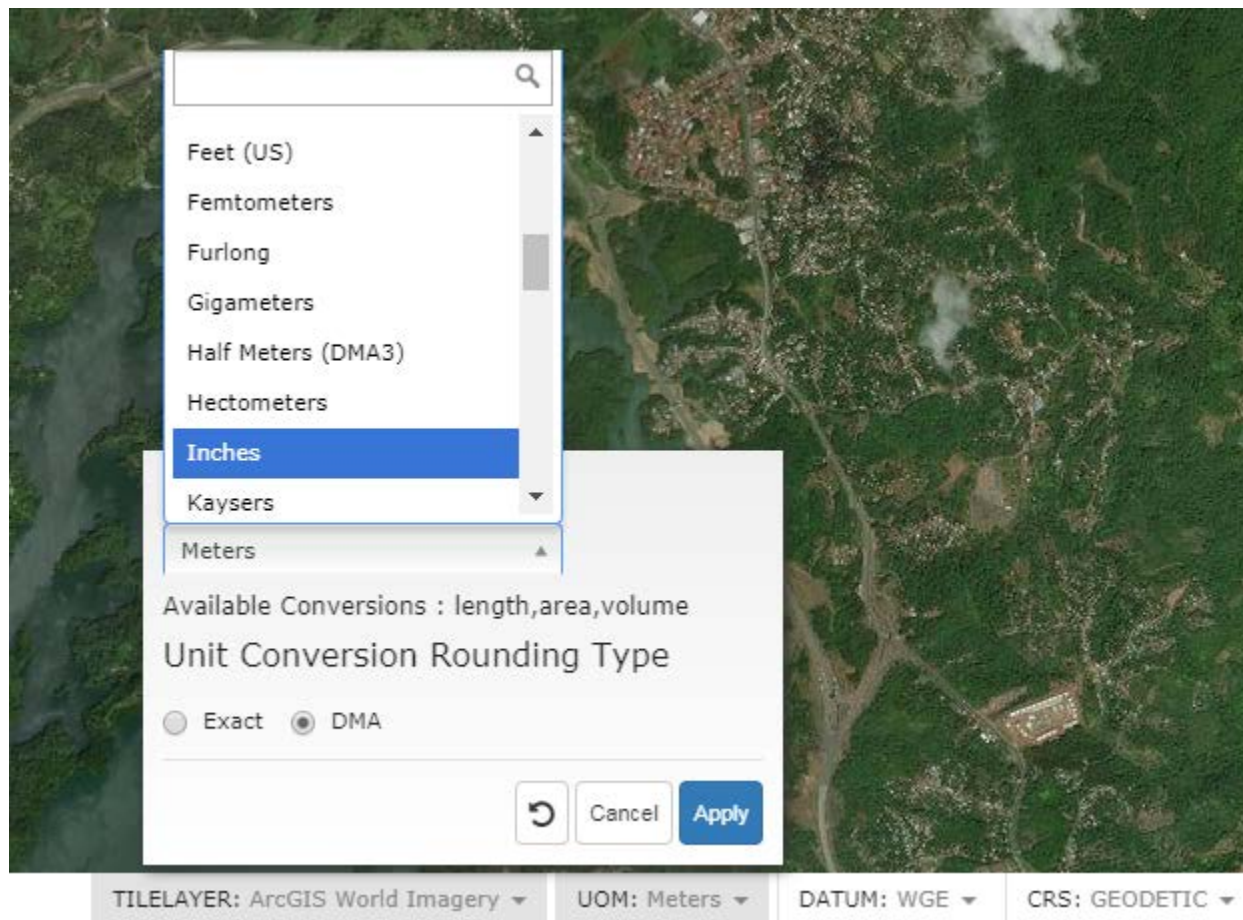
FIGURE 38: CHANGE UNIT OF MEASURE DIALOG

DATUM Settings

Clicking the down-arrow next to the DATUM: tool, displays the Datum settings Dialog. Use this dialog to change all Datum displays to a desired unit from the drop-down list. The default setting is WGE.
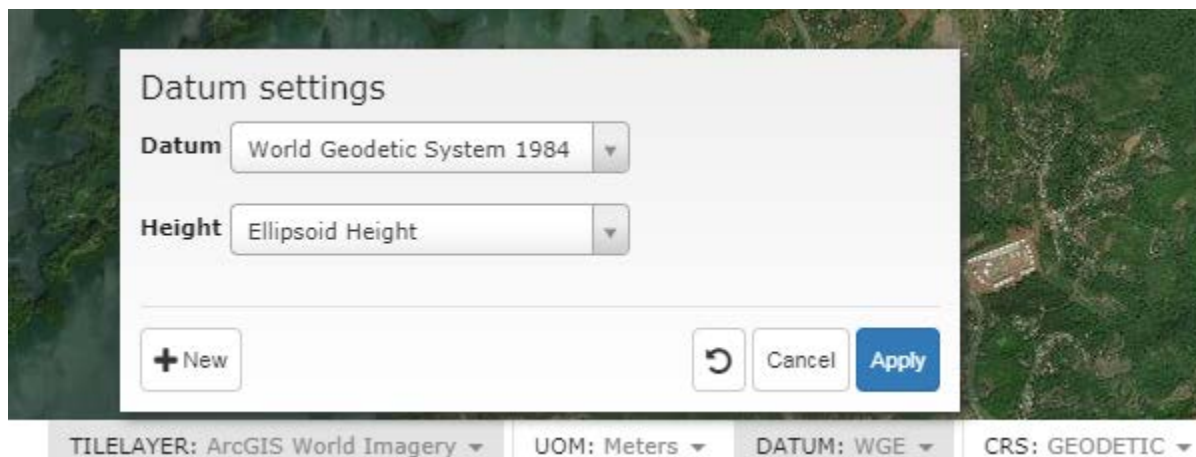
Coordinate Reference System (CRS) Settings

Clicking the down-arrow next to the CRS: tool, displays the Coordinate Reference System Dialog. Use this dialog to change all Coordinate Reference System displays to a desired unit from the drop-down list. The default setting is GEODETIC.
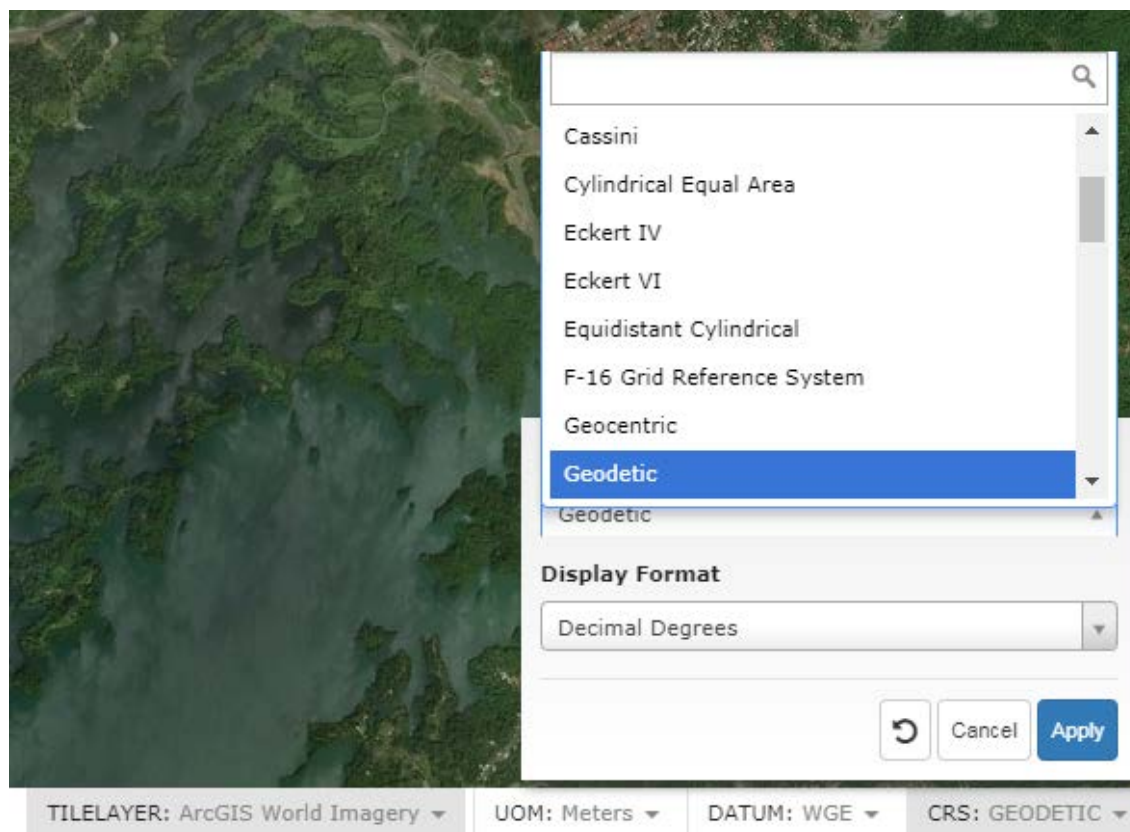
FIGURE 40: COORDINATE REFERENCE SYSTEM DIALOG

Well-Known Text (WKT)

Well-known text (WKT) is a text markup language for representing vector geometry objects on a map, spatial reference systems of spatial objects, and transformations between spatial reference systems.

The following geometry types may be represented by WKT in the 1O1T database:

- Points
- Lines
- Polygons

The table below provides examples for representing each geometry type using WKT.
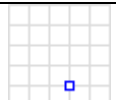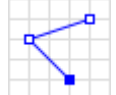
Geometry Types	
Type	**Examples**
Point	POINT (30 10)
Line	LINESTRING (30 10, 10 30, 40 40)
Polygon	POLYGON ((30 10, 40 40, 20 40, 10 20, 30 10))
	POLYGON ((35 10, 45 45, 15 40, 10 20, 35 10), (20 30, 35 35, 30 20, 20 30))

TABLE 1: WKT EXAMPLES

Data Assimilation

Data Assimilation includes the activities involved in loading data into and manipulating data in the 1O1T database as illustrated in the figure below:
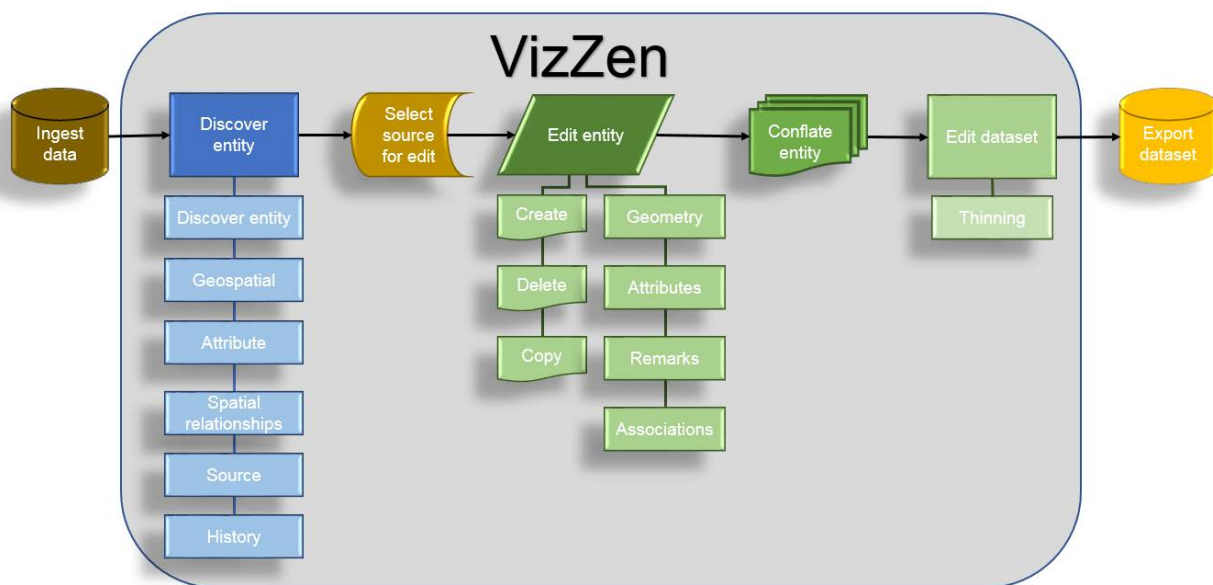
Ingest Data: Involves getting external digital file(s) into the 1O1T database.

- **Discover Entity**: Involves searching for entities in the 1O1T database by a variety of search methods.
- **Select Source for Edit**: Involves identifying an authoritative source for edits; this is required before all edits.
- **Edit Entity**: Involves creating, deleting, copying, or changing geometry, attributes, remarks, or associations related to entities in the 1O1T database.
- **Conflation**: Involves selecting the desired attributes from multiple instances of the same entity to create an authoritative data store.
- **Edit Dataset**: Involves applying unique attributes to a defined set of entities before exporting that set (dataset).
- **Export Dataset**: Involves extracting digital files(s) from the 1O1T database.

Discover Entity

The entity discovery tools execute various custom searches for entities in the 1F1T database. Search for entities within various user-defined criteria as shown in the figure below:

Finds entities within a defined dataset.

Finds entities within a defined geographic area.

Finds entities based on a user-defined set of attributes.

Finds entities based on spatial modifiers, gaps and slivers or distance tolerances.

Finds entities within an approved source of entity edits.

Finds entities within a user-defined time window associated with entity edits.
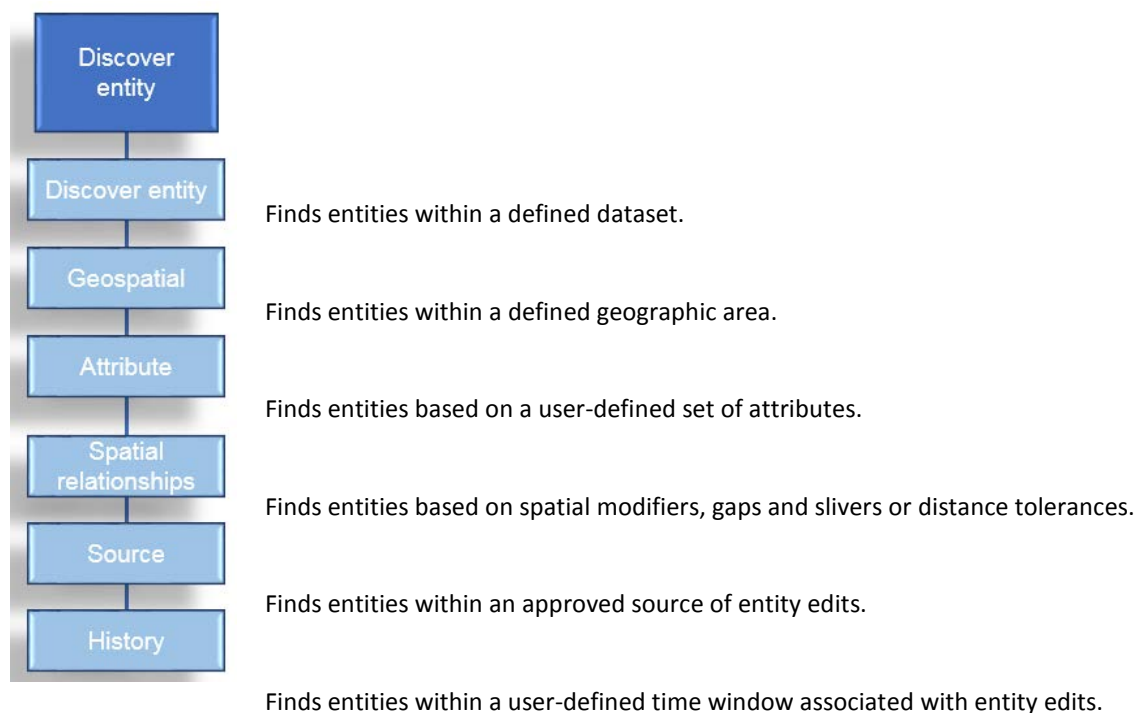
FIGURE 42: METHODS TO DISCOVER ENTITIES

Search by Dataset

Use the Advanced Query Tool to create a custom search for entities within a dataset, or use the Editing Environment Window to limit the 1O1T database view to a defined dataset.

To use the Advanced Query Tool, follow the procedure below.

1. Select the Advanced Query Tool. The Advanced Query: Dialog opens.
2. Select the Entity tab in the Advanced Query: Dialog. The Entity tab opens.
3. Select Dataset from the Select entity drop-down field.
4. Use the Select attribute drop-down and fields to define dataset search parameters.
5. Execute the query using the Search button in the Advanced Query: Dialog.
6. View results in the Results Window.
7. If desired, save the query by selecting the Save icon in the Advanced Query: Dialog, then follow the prompts to name and save the query for future use.

To use the Editing Environment Window, follow this procedure:

1. Select the Set Editing Environment Tool. The Editing Environment Window opens.
2. Select a dataset from the Dataset tab, then select Save in the Editing Environment Window.
3. The dataset appears in the View: field in the upper-right corner of the screen.

Search by Geospatial Area

To perform a geospatial search:

1. If desired, identify the entity type in the Entity Type Field.
2. Use the Map Mover Tool to move to a desired area on the Map Display.
3. Use the Circle Search Tool or Polygon Search Tool to specify a search area.
4. Execute the search using the Start Search Tool.
5. View results in the Results Window.

Search by Entity Attributes (Advanced Query)

To perform an entity attributes query, use the procedure below.

1. If desired, use the Map Mover Tool to move to a desired area on the Map Display.
2. If desired, use the Circle Search Tool or Polygon Search Tool to specify a search area.
3. Select the Advanced Query Tool. The Advanced Query: Dialog opens.
4. Create a new query using the Advanced Query: Dialog.
5. Execute the query using the Search button in the Advanced Query: Dialog.
6. View results in the Results Window.
7. If desired, save the query by selecting the Save icon in the Advanced Query: Dialog, then following the prompts to name and save the query for future use.

To access a Saved Query, follow this procedure:

1. Select the Advanced Query Tool. The Advanced Query: Dialog opens.
2. Click the Open query icon in the Advanced Query: Dialog. The Choose saved query field appears.
3. Use the drop-down menu in the Choose saved query field to select the desired query.
4. Click the Load button to load the chosen query into the Advanced Query: Dialog.
5. Execute the query using the Search button in the Advanced Query: Dialog.
6. View results in the Results Window.

Search for Entities with Spatial Relationships

There are three methods for searching data using spatial relationships.

Spatial Modifiers

Perform a geographic search using the following procedure.

1. Use the Map Mover Tool to move to a desired area on the Map Display.
2. If desired, identify the entity type in the Entity Type Field.
3. Use the Circle Search Tool or Polygon Search Tool to specify a search area.
4. Define Spatial Modifiers.
5. Execute the search using the Start Search Tool.
6. View results in the Results Window.
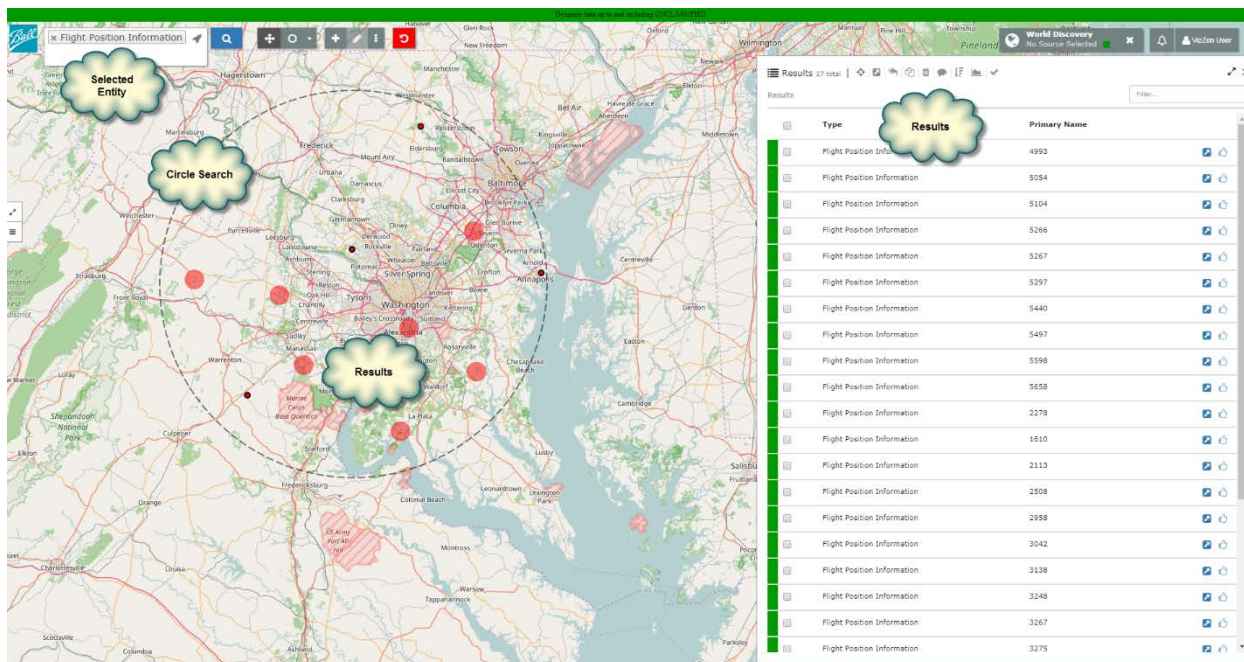
Gaps and Slivers

Search two entity sets based on their proximity or overlap using this procedure.

1. Use the Map Mover Tool to move to a desired area on the Map Display.
2. If desired, identify the entity type in the Entity Type Field.
3. Use the Circle Search Tool or Polygon Search Tool to specify a search area.
4. Define Gaps and Slivers.
5. Execute the search using the Start Search Tool.
6. View results in the Results Window.

Distance Tolerances

Search for proximal entities using the procedure below.

1. Use the Map Mover Tool to move to a desired area on the Map Display.
2. If desired, identify the entity type in the Entity Type Field.
3. Use the Circle Search Tool or Polygon Search Tool to specify a search area.
4. Define Entity Tolerances.
5. Execute the search using the Start Search Tool.
6. View results in the Results Window.

Search by Source

Search a dataset by source using the procedure below.

1. Select the Advanced Query Tool. The Advanced Query: Dialog opens.
2. Click the Source tab in the Advanced Query: Dialog. The Source tab displays.
3. Select Find sources.
4. The Source Selection Window displays. The Source Selection window is the same as the Source tab in the Select Editing Environment Tool.
5. Enter search criteria in the provided fields.
6. Select Search. A list of sources appears in the Source Selection window.
7. Click on each desired source. A check mark displays next to each selected source.
8. Click OK. The Source Selection window closes and "X Sources Selected" appears in the Advanced Query: Dialog, Source tab.
9. If desired, add attribute selections to narrow search criteria in the Source tab.
10. Click Search.
11. Results are listed in the Results Window.

Search by History

Select Source for Edit

A source must be selected before editing entities in the 1O1T database. To select a source:

1. Select the Set Editing Environment Tool. The Editing Environment Window opens.
2. Select a source and define classification settings in the Editing Environment Window.
3. If desired, select a dataset from the Dataset tab in the Editing Environment Window.
4. Select Save. The Editing Environment Window closes and the source, security, and dataset (if selected) appear in the upper-right corner of the screen.

Saving Search Results

VizZen search results display in a unique web browser page. You may bookmark a search results page and instantly access the results without the need to re-create the search.

Edit Entity

The entity editing tools become available in the 1O1T database when a source is selected. Editing options are highlighted in the figure below:

Create	Add an entity to the 1O1T database.
Delete	Remove an entity from the 1O1T database.
Copy	Duplicate an entity in the 1O1T database.
Geometry	Change & create alternate geometries.
Attributes	Change entity attributes.
Remarks	Change entity remarks.
Associations	Change entity relationships to other entities.
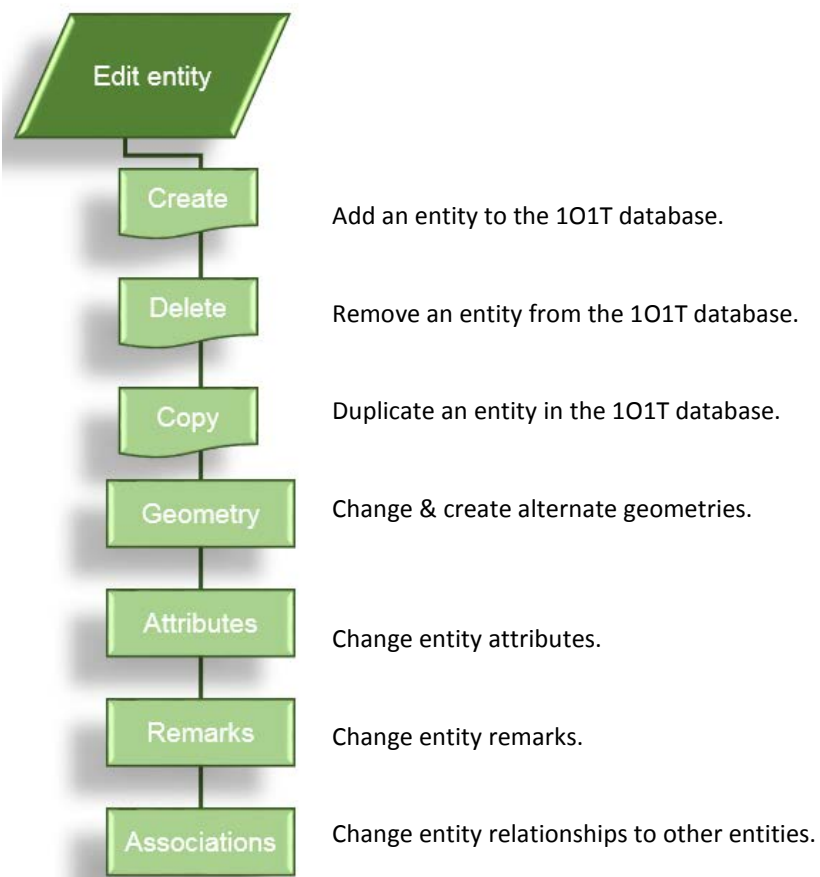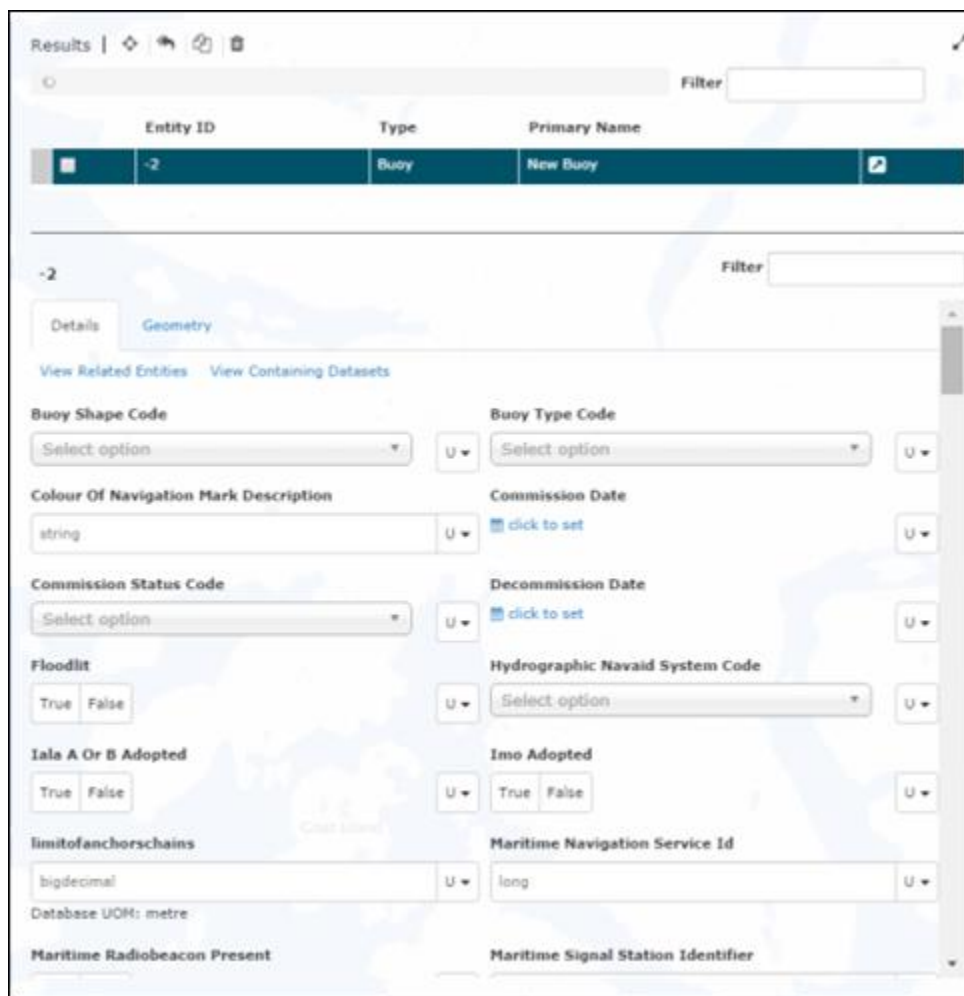
FIGURE 43: METHODS TO EDIT ENTITIES

Create an Entity

To create a new entity in the 1O1T database:

1. Ensure a source is selected.
2. Select the Create Entity tool. The Choose Entity Type Dialog displays.
3. Select an entity type from the Choose Entity Type: field and click the Create button.
4. A Results Window opens showing the new entity.

FIGURE 44: RESULTS WINDOW FOR NEW ENTITY

5. Enter all desired attributes for the new entity in the Details tab.
6. Enter the entity geometry in the Geometry tab.
7. Add remarks using the Add Remarks tool in the Results Window.
8. Click Save in the Pending Changes window at the bottom-right corner of the screen.
9. After confirming the save, the new entity is stored in the 1O1T database.

Delete Entity

To delete a new entity in the 1O1T database:

1. Ensure a source is selected.
2. Search for the desired entity.
3. In the Results Window, click to place a checkmark in the checkbox for entity to be deleted.
4. Select Delete selected entity from the Results Window Toolbar. A Confirm Delete window appears.
5. Click Yes to confirm or No to cancel the deletion.

Copy Entity

To copy an entity from the 1O1T database:

1. Ensure a source is selected.
2. Search for the desired entity.
3. In the Results Window, click to place a checkmark in the checkbox for entity to be copied.
4. Select Copy selected entity from the Results Window Toolbar. The duplicate entity is added to the database and appears in the Results Window immediately below the entity copied.

Edit Geometry

Entity geometry may be edited by moving points directly on the entity polygon, or by editing point settings in the Entity Details Window Geometry Tab.

To Edit Geometry Points:

1. Ensure a source is selected.
2. Search for the desired entity.
3. Select the Edit Geometry Tool.
4. In the Map Display, click directly on the polygon representing the entity to be edited. The entity points are highlighted shown in the figure below.

FIGURE 45: FEATURE SELECTED FOR EDITING

5. Using the left mouse button, click on the point to be edited, then drag the point to the desired location as shown in the figure below.

FIGURE 46: CLICKING AND DRAGGING POINTS ON AN ENTITY

6. Click Save to confirm or Discard to undo the edits from the Pending Changes box in the lower-right corner of the screen. Upon entries, a Pending Changes window appears in the lower-right corner of the screen.

7. Select Save in the Pending Changes Window. A Change Summary Window displays as shown in the figure below.

Change Summary

Total of 1 pending change(s):

411008

Attributes

Field:	Action:	Previous Value:	New Value:
Best Geometry	Updated	POLYGON ((-133.46113 55.29845 0.0, -133.45721 55.29502 0.0, -133.4562 55.29225 0.0, -133.45593 55.29153 0.0, -133.44844 55.28886 0.0, -133.43681 55.28527 0.0, -133.42535 55.28495 0.0, -133.41146 55.28744 0.0, -133.40809 55.28647 0.0, -133.41485 55.28216 0.0, -133.42172 55.27595 0.0, -133.42671 55.2717 0.0, -133.42872 55.27101 0.0, -133.43382 55.27003 0.0, -133.44696 55.27538 0.0, -133.45254 55.27411 0.0, -133.45671 55.27049 0.0, -133.46342 55.27225 0.0, -133.46833 55.27455 0.0, -133.46865 55.2747 0.0, -133.46888 55.27485 0.0, -133.46948 55.27246 0.0, -133.47286 55.26787 0.0, -133.47068 55.26392 0.0, -133.46958 55.26043 0.0, -133.47358 55.25554 0.0, -133.47193 55.24752 0.0, -133.46784 55.24088 0.0, -133.46412 55.23641 0.0, -133.46255 55.23143 0.0, -133.45968 55.22806 0.0, -133.45767 55.22337 0.0, -133.45631 55.22173 0.0, -133.45378 55.21849 0.0, -133.44761 55.21564 0.0, -133.44107 55.21165 0.0, -133.44033 55.21164 0.0, -133.43138 55.21155 0.0, -133.42286 55.21065 0.0, -133.41525 55.21215 0.0, -133.40449	POLYGON ((-133.46113 55.299047706373338 0, -133.45721 55.29561765324303 0, -133.4562 55.292847610322085 0, -133.45593 55.29212759916369 0, -133.44844 55.289457557777254 0, -133.43680999999998 55.28586750211211 0, -133.42535 55.285547497149295 0, -133.41146 55.288037535761795 0, -133.40809 55.28706752072118 0, -133.41484999999997 55.28275745387274 0, -133.42172 55.27654735750208 0, -133.42671 55.272297291511826 0, -133.42872 55.271607280795344 0, -133.43382 55.27062726557349 0, -133.44696 55.27597734865331 0, -133.45254 55.274470732893577 0, -133.45671 55.271087272718646 0, -133.46341999999999 55.27284730005338 0, -133.46833 55.27514733576734 0, -133.46865 55.275297338089622 0, -133.46888 55.275447340425075 0, -133.46948 55.27305730331458 0, -133.47286 55.26846723201783 0, -133.47068 55.26451717063488 0, -133.46958 55.26102711637924 0, -133.47358 55.25613704032593 0, -133.47193 55.248116915508334 0, -133.46784 55.24147681208916 0, -133.46412 55.2370067424279 0, -133.46255 55.23202666478058 0, -133.45968 55.228656612213285 0, -133.45767 55.22396653902529 0, -133.45631 55.222326513424484 0, -133.45377999999997 55.2190864628345 0, -133.44761 55.21623641832001 0, -133.44107 55.212246355977605 0, -133.44033

FIGURE 47: CHANGE SUMMARY WINDOW

8. Evaluate the geometry changes, scroll to the bottom of the Change Summary window, and click Save to confirm the change.

To Edit Geometry in the Geometry Tab:

1. Ensure a source is selected.
2. Search for the desired entity.
3. In the Results Window, click on the desired entity.
4. Click the Geometry Tab in the Entity Details Window.
5. Edit Latitude, Longitude, and/or Elevation settings in the Coordinates table, or switch to WKT view to edit well-known text. Upon entries, a Pending Changes window appears in the lower-right corner of the screen.
6. Select Save in the Pending Changes window. A Change Summary Window displays.
7. Evaluate the geometry changes, scroll to the bottom of the Change Summary window, and click Save to confirm the change.

Create Alternate Geometry

Alternate geometries of the same entity may be created and saved. To create an alternate geometry:

1. Ensure a source is selected.
2. Search for the desired entity.
3. In the Results Window, click on the desired entity.
4. Click the Geometry Tab in the Entity Details Window.
5. Edit Latitude, Longitude, and/or Elevation settings in the Coordinates table, or switch to WKT view to edit well-known text.
6. Click the Create Alt Geometry button (plus sign) in the lower-left corner of the Geometry Tab. An Add Geometry Window opens.
7. In the Add Geometry Window, enter a name in the Primary Name field, then select Add.
8. The alternate geometry appears as a selection in View drop-down in the Results Window.

Edit Entity Attributes

1. Ensure a source is selected.
2. Search for the desired entity.
3. In the Results Window, click on the desired entity.
4. Click the Details Tab in the Entity Details Window.
5. Change entity details as desired. Upon entries, a Pending Changes window appears in the lower-right corner of the screen.
6. Select Save in the Pending Changes window. A Change Summary Window displays.
7. Evaluate the geometry changes, scroll to the bottom of the Change Summary window, and click Save to confirm the change.

Edit Entity Remarks

1. Ensure a source is selected.
2. Search for the desired entity.
3. In the Results Window, click on the checkbox next to the desired entity. A checkmark appears in the checkbox
4. Click the Add Remarks tool in the Results Window Toolbar. The Apply Remarks Window appears.
5. In the Apply Remarks Window, enter a subject in the Subject field, select a reason from Chart Note Reason drop-down, and enter a remark in the Remark field.
6. Click Save. The new remark appears in the Entity Details Window Remarks Tab.

Add Entity Associations to Dataset

1. Ensure a source and dataset are selected from the [Editing Environment Window](#).
2. Search for the desired entity.
3. In the Results Window, click on the checkbox next to the desired entity. A checkmark appears in the checkbox
4. Click the Associate to active dataset tool in the Results Window Toolbar. A confirmation window appears in the upper-right corner of the screen and the entity is associated to the current dataset.

Conflation

When two or more entities (Features, Event, Actor, Information) share similar characteristics (geometry, attributes, etc.), they must be merged into a single identity or duplication of the entity previously represented.

Entities require conflation for several reasons including:

- Geometry differences:
  - Geometry is extracted at different scales.
  - Geometry is inserted as different vector types (e.g., a building added to database as a point and then added as a polygon or line vs. multi-line).
- Geographical differences
  - Feature is extracted from a larger scale.
  - Feature is extracted from imagery with different horizontal/vertical datums.
- Attribute differences.

The figure below illustrates an example of a conflation need:
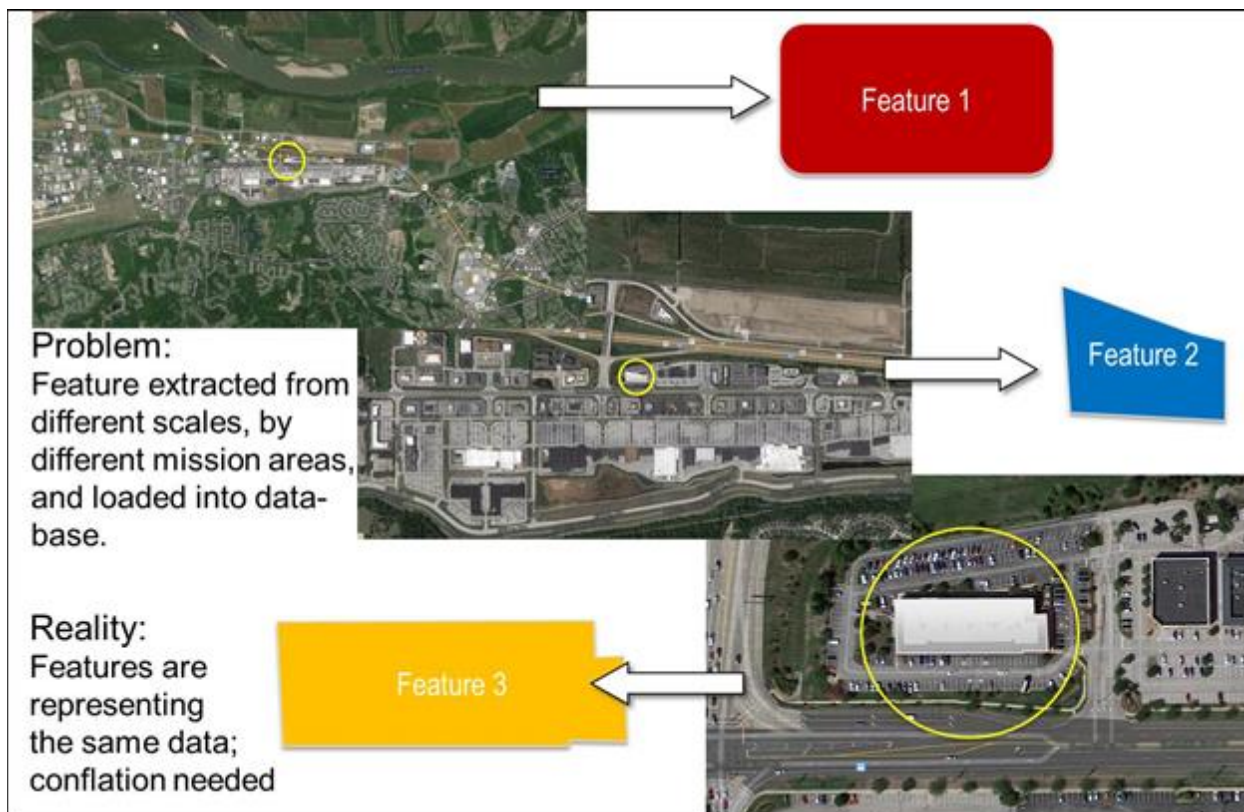

FIGURE 48: CONFLATION EXAMPLE

Conflation involves matching the features from these various entities to create one authoritative record.

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Perform Conflation

To conflate entities in the database, use the following procedure.

1. Ensure a source is selected.
2. Search for the desired entity.
3. In the Results Window, click on the Conflate Feature button for the desired entity. The Conflation Dialog opens.
4. In the Conflation Dialog, review and select desired attributes as follows:
   a. Click on an attribute from a candidate in the Sort window. The attribute is moved to the conflation entity in the Create window.
   b. When all desired attributes are selected, click Conflate. A Conflation Results Window appears showing a draft of the conflated entity.
5. Click Save in the Conflation Results Window to create the new gold record. The record is promoted to production.

Glossary

The following terms, have distinct definitions when used within the context of VizZen:

Term	Definition
Entity	A managed item within VizZen
Event	Entity type. A data-related activity relating to entities stored in VizZen.
Actor	Entity type. A person or organization relating to entities stored in VizZen.
Service	Entity type. An organization providing entity-related information.
Feature	Entity type. A physical attribute that resides on the earth.
Information	Entity type. A set of entities, such as a dataset.
1 Object 1 Time	One instance of source data that provides products across multiple domains.
Conflation	Merging and matching attributes from multiple representations of the same entity to create an authoritative data source.