TRAINING GUIDE

Lucity Web Map

Lucity Web Map

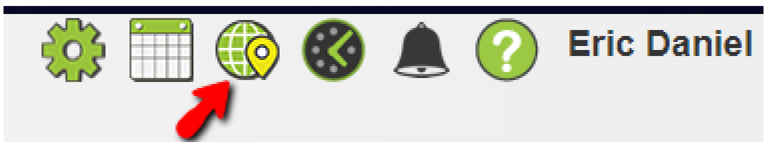
The Lucity Web Map provides a way for users to see and work with their asset and work data. This allows them to see relationships between objects and plan work accordingly. The web map is made up of a map display that has multiple toolbars. This guide will go through the various tools, and how to use them.

Table of Contents

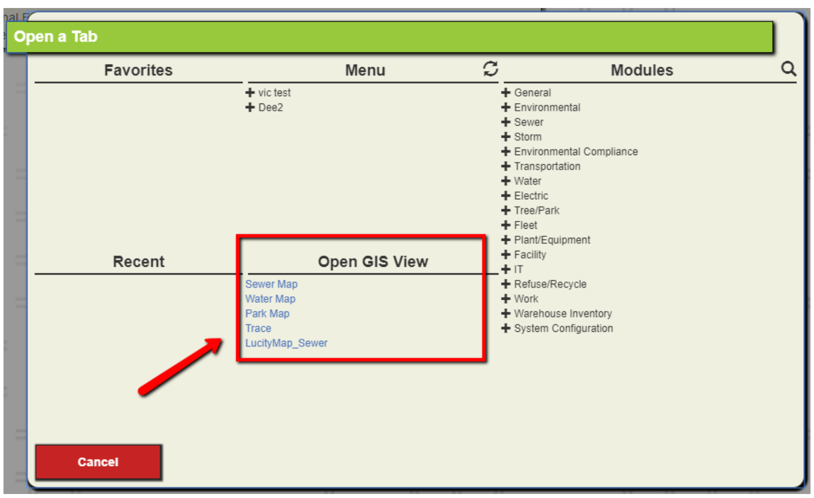
Launching the Web Map

The web map is primarily launched by clicking the Web Map button  on the Home menu toolbar. The web map can also be launched from different modules using the Show in map button. Accessing the map in this way will bring up the map, and then zoom to the assets, or Work Orders/Requests selected when the button was clicked.

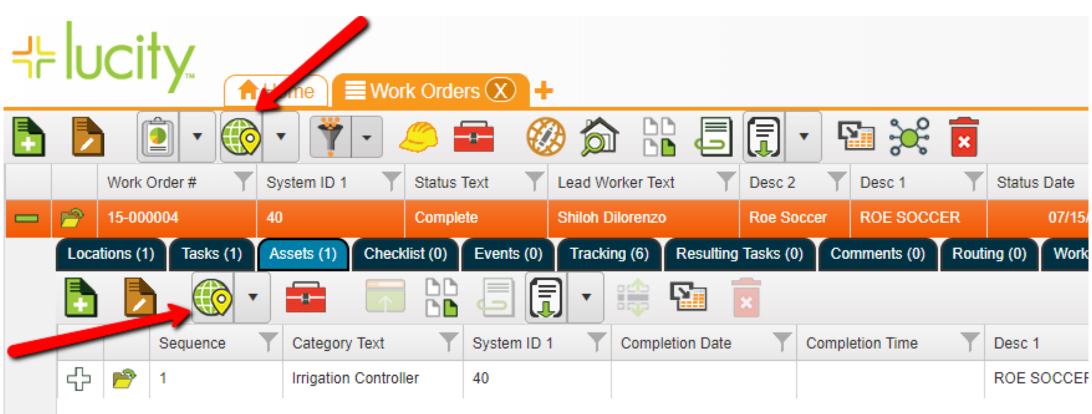
From the *Application Toolbar*:



From the *Open a Tab* menu:



From a Lucity Module View toolbar:



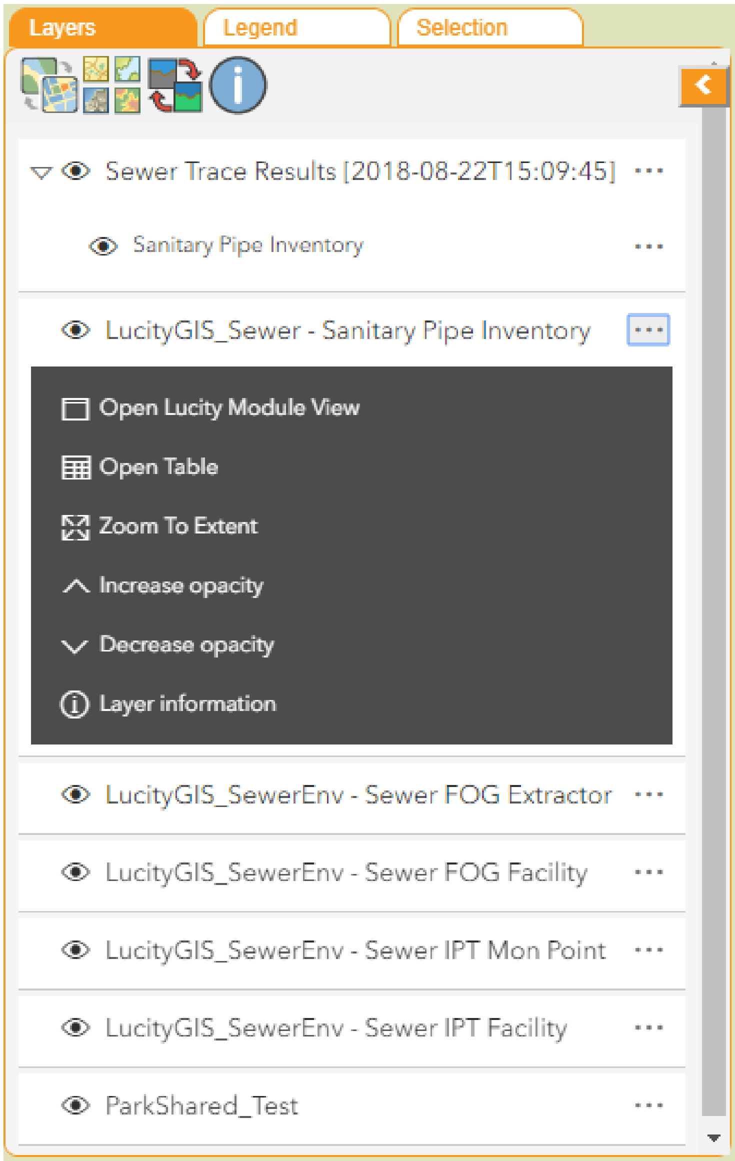
Map Management toolbar

In the top left corner are the map management tools. They allow you to view information about what is in the map and perform standard navigation.

	Table of Contents	Enables users to switch maps, switch base maps, turn layers off and on, open a layer's data table, among other things.
	Zoom	Enables the user to narrow the focus of the map. Select the tool then click in the map and drag the cursor to form a box.
	Zoom In	Zooms into the map at the current location.
	Zoom Out	Zooms out from the map at the current location.
	Zoom Previous	Zooms to the previous extent.
	Zoom Next	Zooms to the next extent. Only available once the zoom previous button is clicked.
	Pan	Enables users to move around the map. If no other tool is selected, this one is selected by default.
	Go Home	Returns the map to the default extent
	Bookmarks	Bookmarks are saved map extents. With this tool you can zoom to previously saved extents, create new extents to share with other Lucity users, and edit saved extents.
	Show Current Location	Displays the user's current location. Click this tool to activate it. When activated, the tool is highlighted in blue, and the map centers on the user's current location. A dot appears, and the map shifts to follow the user's movements.
	Measure Tools	Opens a toolset used for measuring of linear and polygon features.
	Redlining Tools	Opens a toolset used for adding, editing, and deleting redlining features.

Table of Contents


The Table of Contents provides information on the current map content. It also provides numerous tools to modify the layer display and selectability.



Expand – Used to expand the node in the table of contents. This is shown when the layer or service has multiple sub-items.

• • • ***Open*** – This indicates there are multiple actions available for this layer. Clicking this button will expand the menu showing all tools available for the layer.

Visibility – Used to toggle visibility of the item (service, group layer, layer).

Open Lucity Module View – This will open the Lucity Module View for the layer. No filter will be applied, so all records for the module will be included in the results. Additional tools are available on the data grid. Note: This is only available for layers that are linked to a Lucity module.

Open Table – This will open the attribute table for the layer in a data grid. All records of the layer will be shown in the data grid, along with the currently selected items. Additional tools are available on the data grid.

Zoom to Extent – This will zoom to the extent of the layer.

Increase Opacity – This will increase the opacity of the layer.

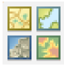
Decrease Opacity – This will decrease the opacity of the layer.

Layer Information – This will open the layer's metadata in a new browser window.

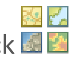
Remove Layer – This will remove the item (service or layer) from the map. Note: This is only available for layers added to the map because of a tool output.

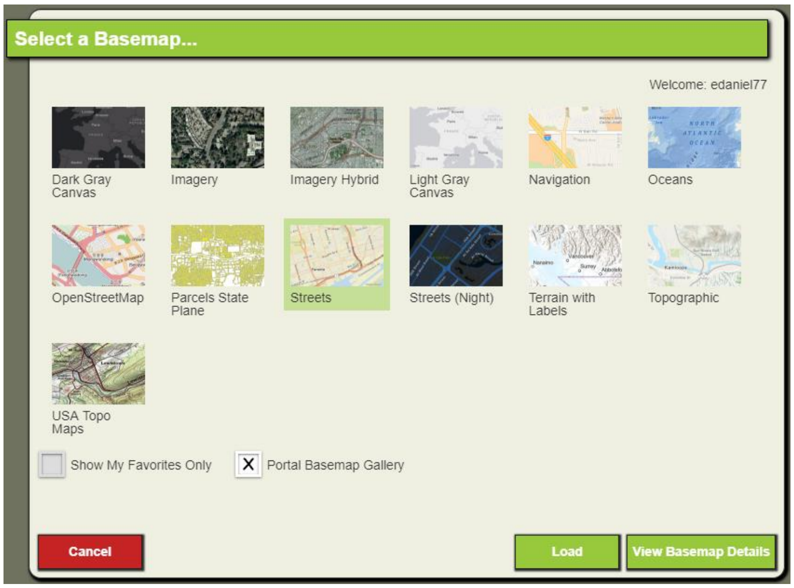
	Swap Base map	Provides a list of base maps to choose from. Only one base map can be viewed at a time.
	Swap Web Map	Allows user to load a different portal web map.
	Swap Lucity Map or Lucity Base map	Allows user to load a different Lucity defined base map or web map.
	Map Info	Provides a summary of settings and configurations for the current GIS View and its content.

Swap Base map

Base maps are layers of data that is useful to see, but you don't need to select or identify. Your organization can setup several kinds of base maps including road maps and aerial photographs.

The Lucity Web map has a tool that allows you to switch between the different base maps that your organization has.

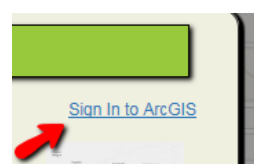
1. To change the base map click  and the following pop-up will appear.



2. Select a new base map
3. Click Load
4. The map will be refreshed, and your base map will be visible.

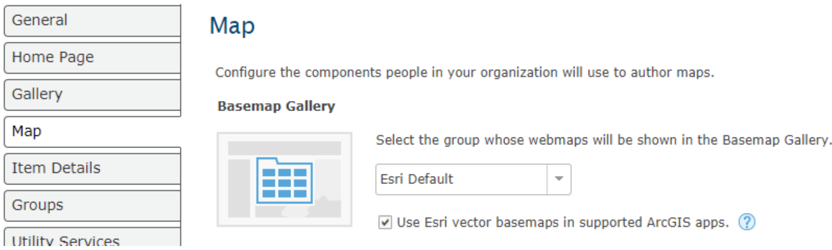
<u>Additional notes</u>

- You must be signed into your portal to see all base maps available to you. If you aren't signed into your portal you will only have access to content from your portal that has been shared to everyone. Click the Sign In to ArcGIS link in the top right of the form to sign in to your portal.

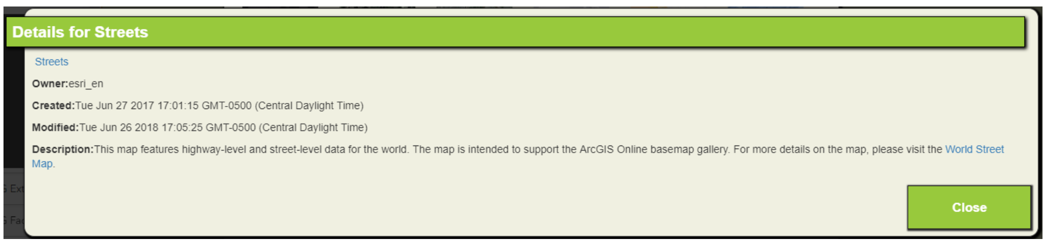


- **Show My Favorites Only-** Check this option to limit the results to only include your portal items that you have previously marked as a favorite

- **Portal Base map Gallery**- This option is checked by default. This will limit the results to only include the portal items that had been marked to show up in the Base map Gallery. The following shows where in your portal this is configured:



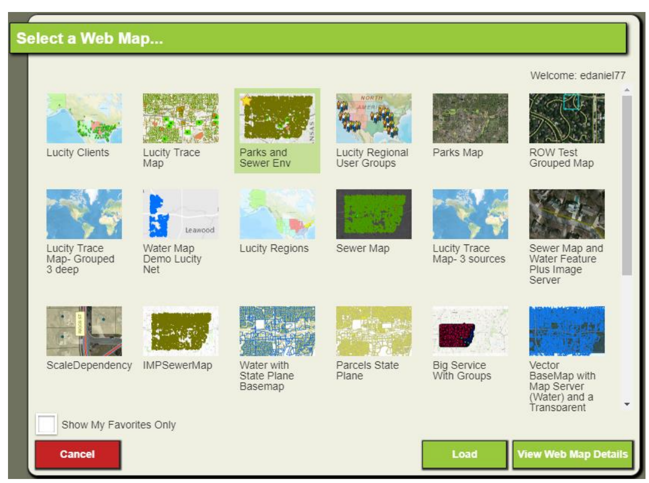
- **View Base map Details**- This button will display additional details for the selected base map. For example:



Swap Web Map

Web maps consist of a base map, optional data layers, and an extent. Web maps are created and shared within your portal. The Swap Web Map tool allows you to switch between different web maps your organization has.

1. To change the web map, click  and the following pop-up will appear.



2. Select a new web map
3. Click Load
4. The map will reload with the selected web map.

Additional notes

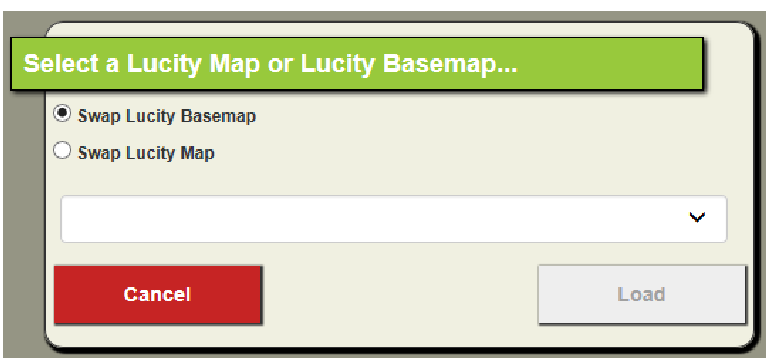
- You must be signed into your portal to see all web maps available to you. If you aren't signed into your portal you will only have access to content from your portal that has been shared to everyone. Click the Sign In to ArcGIS link in the top right of the form to sign in to your portal.
- **Show My Favorites Only-** Check this option to limit the results to only include your portal items that you have previously marked as a favorite

- **View Web Map Details**- This button will display additional details for the selected web map.   For example:

Swap Lucity Map or Base map

 A user may have more than one Web Map assigned, defined in Lucity Administration. The Web Map Selection tool allows you to switch between available maps, essentially removing all layers and properties of the current map and loading the ones associated with the new map.

1. Click  and the following dialog will appear:



2. Choose either the Swap Lucity Base map or Swap Lucity Map option. The dropdown will update to show a list of maps or base maps defined in Lucity.
3. Select the item you wish to load and click OK. The map will reload with the selected content added to the map. *Note:* You may receive a prompt for credentials if the new web map has any secured services.

Map Info

The Map Info tool provides information about the services and layers currently used in the map. It also provides some validations on system settings and other configurations that can impact the performance of various tools used within the map.

1. Click and a new tab will appear at the bottom of the map with the Map Validation Results:

2. The Map Validation Results contains information on the following components:

    a. **Lucity GIS View**- Provides information on the current GIS View, indicates if it is using a Lucity Legacy Web map or a Portal Web map, if popups are auto-generated, and a list of excluded/included tools

    b. **Portal**- Lists information related to the Portal of the currently signed in user

    c. **Web map**- Provides information on the current Esri or Lucity Webmap and extents

    d. **Geometry Service**- The URL of the geometry service used with the map

    e. **Geocoding Service**- The URL and other properties of the geocoding service used in the map

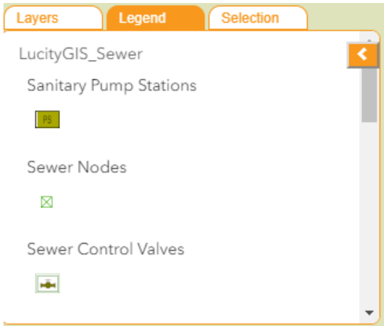
    f. **Printing Service**- The URL of the printing service used in the map

    g. **Layer**- Provides details on each of the layers in the current map. This includes properties such as if the layer is linked to Lucity, what Lucity module it is linked to, layer URL, and other layer details.

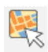
3. Click the Save as PDF button to download the results as a .pdf.

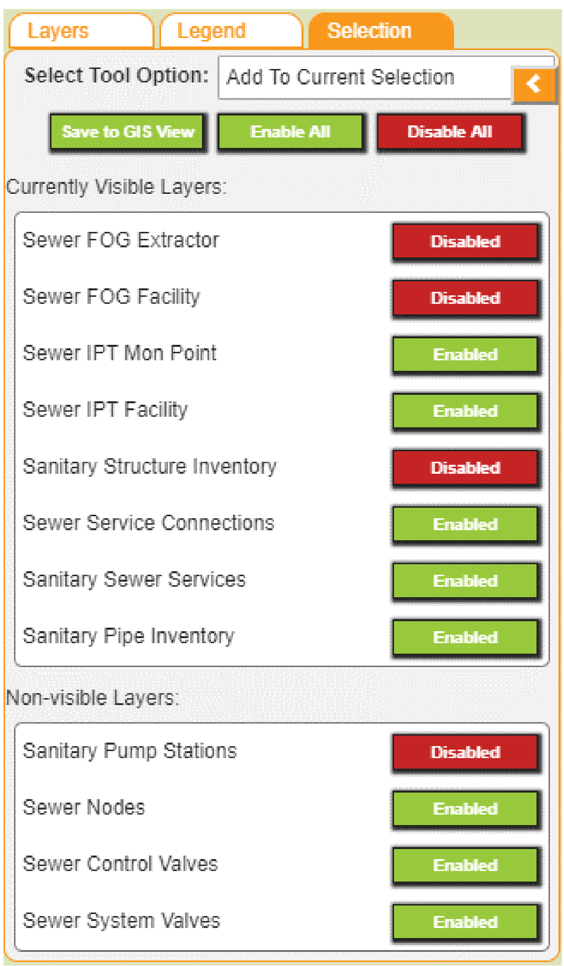
Legend

The Legend tab of the Table of Contents shows the symbology for the current visible layers in the map.



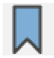
Selection

The Selection tab of the Table of Contents controls which layers in the map are selectable and how the map selection tool  should work with the selection.

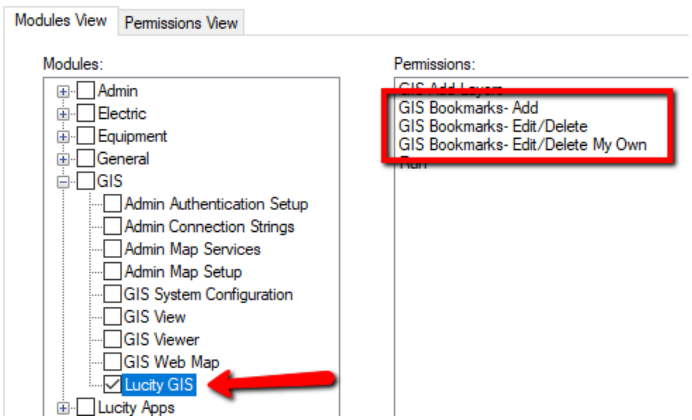


- **Select Tool Options**- These options control what the map selection tool does.
- **Currently Visible/Non-Visible Layers-** These lists contain the layers in the map and indicate their selection status.
  - **Disabled**- This indicates the layer is not selectable, thus features in this layer will not be selected when using the Map Selection Tool.
  - **Enabled**- This indicates the layer is selectable, so features in this layer will be selected when using the Map Selection Tool.
- **Save to GIS View**- This button will save the current selectability of each layer with the GIS View. This will make it so the next time the GIS View is loaded it will default the selectability of each layer to its saved setting.
- **Enable All**- This is a quick way to mark all layers in the map as selectable
- **Disable All**- This is a quick way to disable the selectability to all layers in the map.

Bookmarks

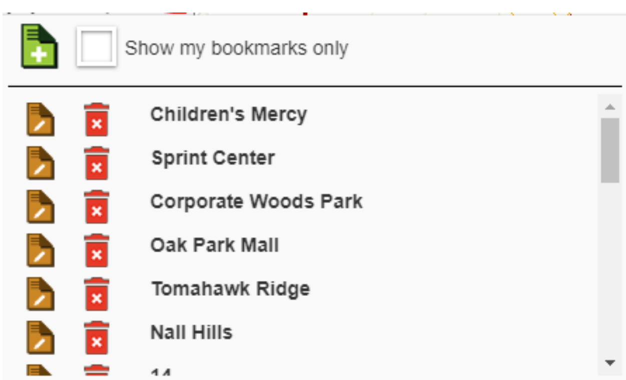
 Bookmarks are essentially saved areas of interest as a map extent (xmin, ymin, xmax, ymax, wkid). Bookmarks are saved to the Lucity database and can be shared among users within the Lucity web map and ArcGIS Pro add-in. Future releases may expand the sharing capabilities with Lucity mobile.

There are a new set of permissions that control if a user can create, edit, and delete bookmarks. These permissions are found under the Lucity GIS grouping.



To view an existing bookmark:

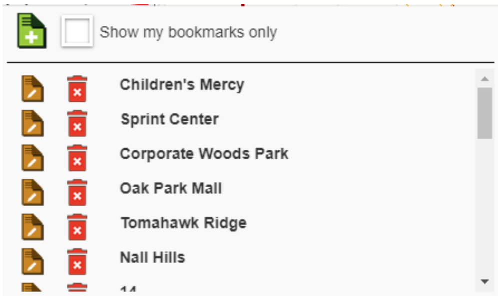
1. Click on the Bookmark tool , the bookmark widget will appear listing all existing bookmarks:



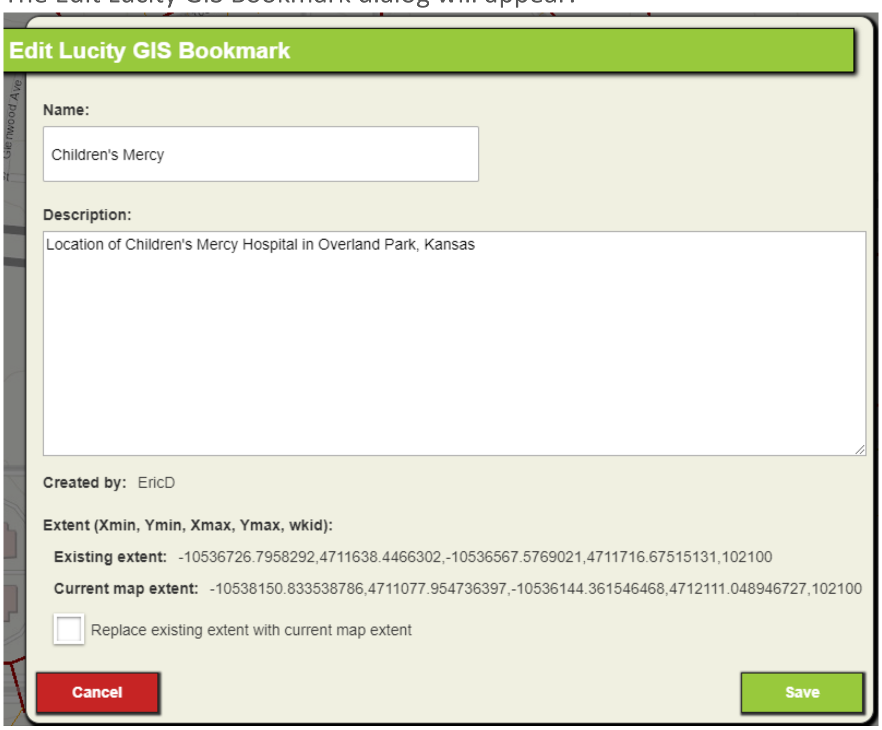
2. To zoom to the location of a bookmark, simply click on the bookmark title, and the map will zoom to that bookmark's extent.
    a. Note: Check the *Show my bookmarks only* option to limit the list to only bookmarks created by the current user.

To edit an existing bookmark:

1. Click on the Bookmark tool , the bookmark widget will appear listing all existing bookmarks:



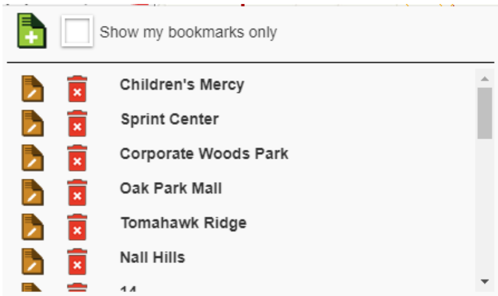
2. Click on the edit button for the bookmark you wish to edit.
    a. Note: Access to the edit button is based on user permissions.
3. The Edit Lucity GIS Bookmark dialog will appear:



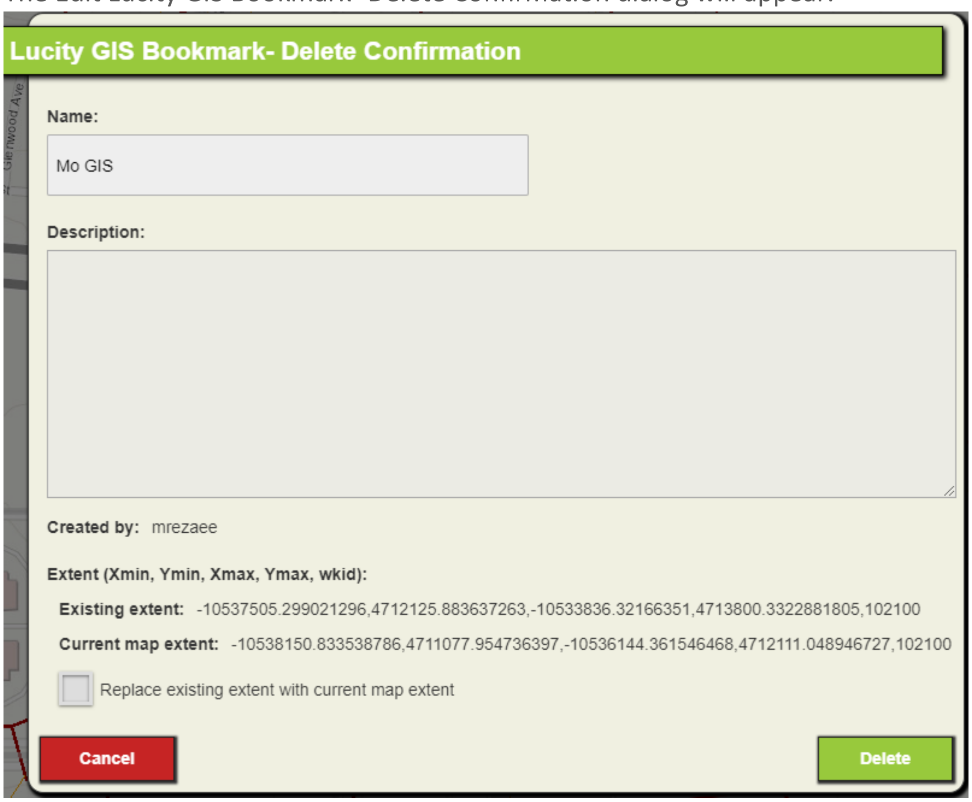
4. You have the option to change the name and/or description of the bookmark. You can also change the actual extent associated with the bookmark, by checking the *Replace existing extent with current map extent* option.
5. Make the desired changed and click Save.

To delete a bookmark:

1. Click on the Bookmark tool, the bookmark widget will appear listing all existing bookmarks:



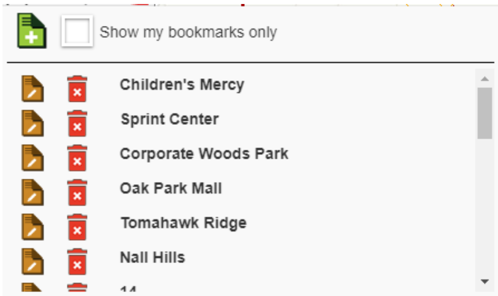
2. Click on the delete button for the bookmark you wish to delete.
   a. Note: Access to the delete button is based on user permissions
3. The Edit Lucity GIS Bookmark- Delete Confirmation dialog will appear.



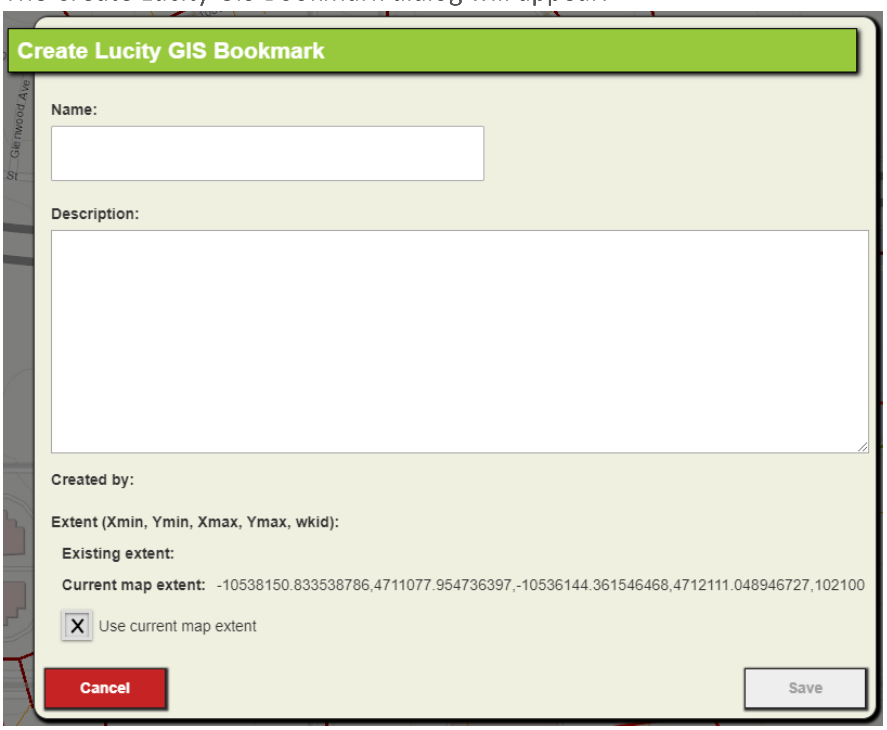
4. Click Delete to proceed with the deletion; otherwise, click Cancel.

To create a new bookmark:

1. Click on the Bookmark tool, the bookmark widget will appear listing all existing bookmarks:

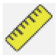


2. Click on the Add button at the top of the widget.
    a. Note: Access to the add button is based on user permissions
3. The Create Lucity GIS Bookmark dialog will appear.



4. Provide a name and description for the bookmark. Click Save once done.

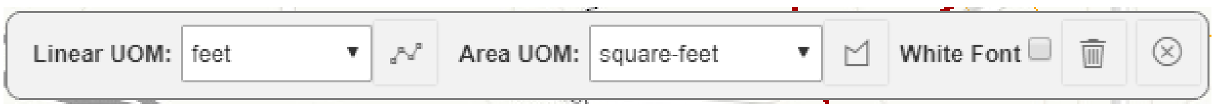
Measure

 The Measure is a set of tools used for calculating lengths and areas in the map. It allows users to draw linear and polygon features in the map while displaying the length and area of the drawn features.

Note: The measure tool is disabled during an active redlining session. Close the redlining toolbar to enable the measure tool.

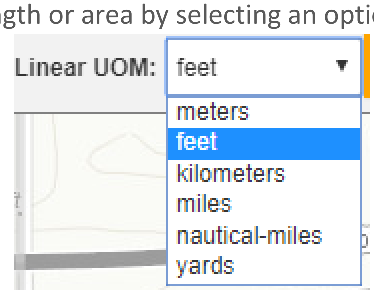
To use the measure tools:

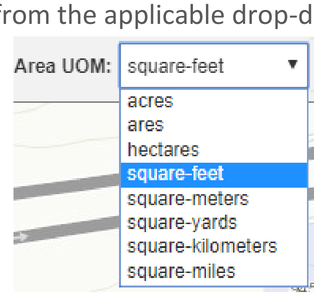
1. Click on the Measure tool , the measure toolbar will appear:



2. To draw a linear feature, click the line button , to draw a polygon feature click polygon button 
3. Using the mouse start drawing the feature. As you draw the length/area will be updating.

4. Before or during the drawing of a feature you can change the *Unit of Measure* for either the length or area by selecting an option from the applicable drop-down.

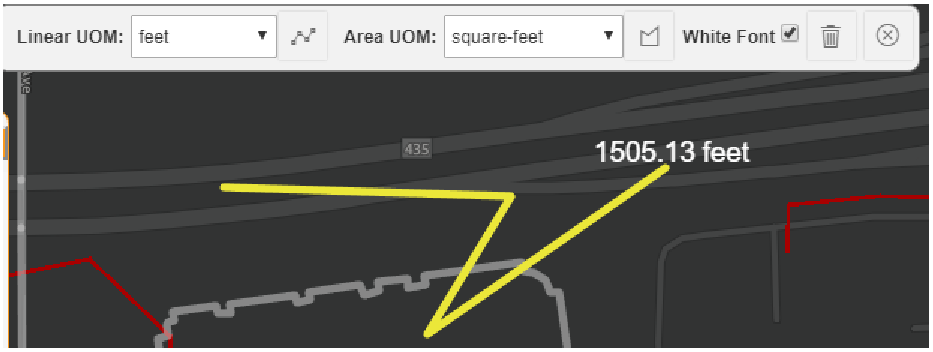




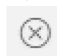
5. Double-click to finish drawing the feature
   a. The feature will remain until either the measure toolbar is closed, OR the Clear Graphics tool is selected.

6. Depending on the background of your map view, it may be necessary to have the font of the length/area be white, so it is visible against the background. This must be done prior to drawing the feature. To enable white text for linear UOM, check the *White Font* checkbox 

, then draw your line.



7. To clear the existing measure graphics, click the Clear Graphics tool 

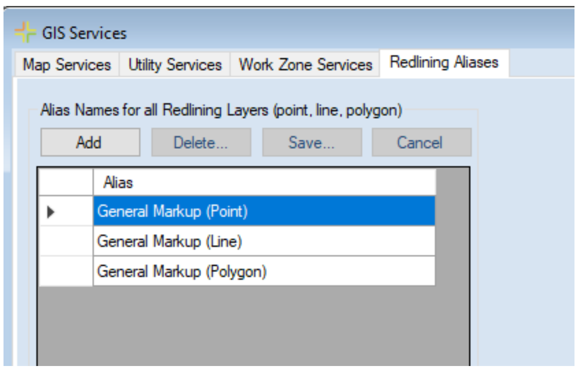
8. Use the Cancel/Stop Measuring tool  to close the measure toolbar.

Notes:

Redlining

 Redlining is a set of tools used for creating, editing, and deleting point, line, and polygon redlining features.

The redlining tool is enabled when there is at least one layer in the map that has an alias that is listed in the Redlining Alias List found in GIS Services of the Lucity Administration Tool.

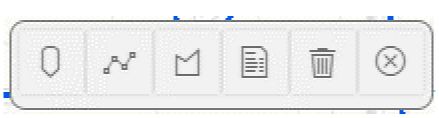


Note:

- When the redlining session initiates, the visibility for all redlining layers in the map will automatically be turned on.
- Only one redlining layer of each type (point, line, polygon) is allowed in the map at one time.
- The redlining tool is disabled during an active measuring session. Close the measure toolbar to enable the redlining tool.

To use the redlining tools:

- Click on the Redlining tool , the measure toolbar will appear:



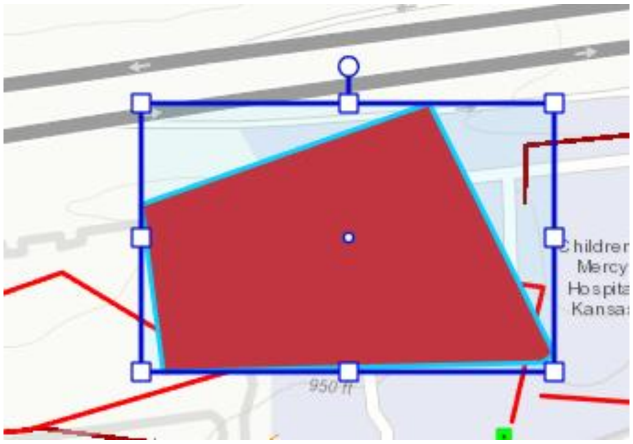
To create a new feature:

1. Select either the select either the Point , Line , or Polygon  draw tool.
    a. The drawing of a point feature simply completes as soon as you click a location in the map. The drawing of a linear or polygon feature completes when you double-click the mouse or press C. https://developers.arcgis.com/javascript/latest/api-reference/esri-views-2d-draw-Draw.html
2. Once the redlining feature is complete the Attribute Editor window will automatically appear.
    a. The feature has already been created and saved to the redlining layer prior to the Attribute Editor window from appearing. Clicking Cancel will simply not make any updates to the attributes of the newly created feature.

3. Populate any desired fields in the Attribute Editor and click Save.
    a. Cancel will close the Attribute Editor without making any updates to the attributes of the feature.
    b. The current release has the following limitations. These will be addressed in a future version:
        i. Validation is not performed on values entered. For example, entering a text value into a numeric field will not throw an error; however, the edit will not be saved.
        ii. Domain dropdowns are not available. Users must enter the domain value directly. For example: If the field has a domain value of 1 for PVC, the user must enter the value of 1 in the field.
        iii. Date values are shown in Unix format. For example: 7/12/18 will be shown as 1531353600000.

Edit the geometry of an existing features:

1. First make sure there are no active tools on the redlining toolbar.
2. Click on the point, line, or polygon feature that you wish to edit.
3. The feature will be highlighted in blue surrounded by a blue box. You can then update the feature by moving, rotating, scaling the whole geometry, or move one or more vertices.



   a. Note: More information on the types of actions that can be performed on the geometry can be found under the Updating Graphics section of: https://developers.arcgis.com/javascript/latest/api-reference/esri-widgets-Sketch-SketchViewModel.html

4. To complete the edits to the existing feature's geometry, left-click off of the feature.

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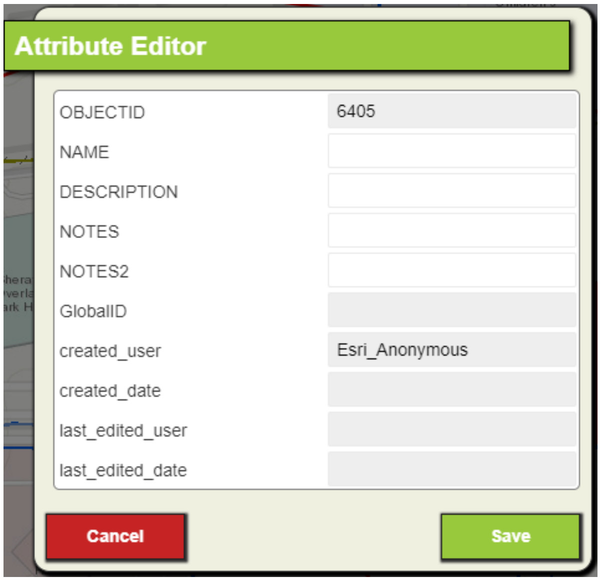
Edit the attributes of an existing features:

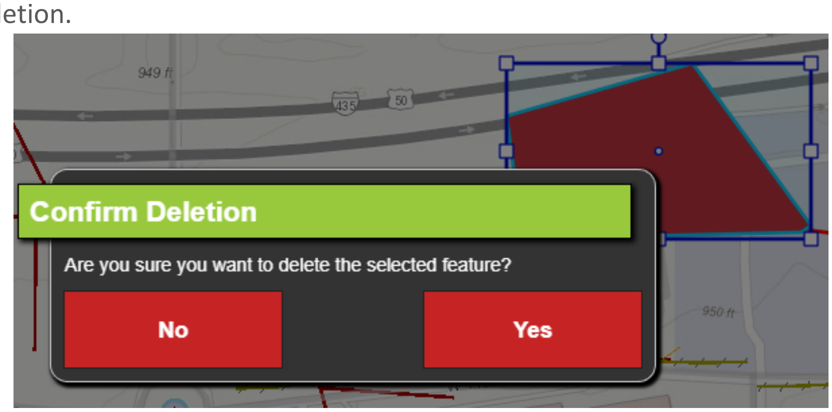
1. Click on the Edit Attributes button on the redlining toolbar.
2. Click on the point, line, or polygon feature that you wish to edit.
3. The Attribute Editor dialog will appear.



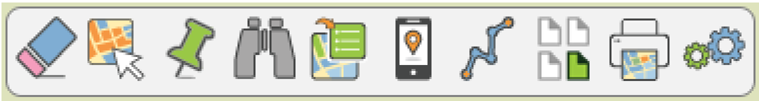
4. Update the desired attributes and click Save to complete.

Delete an existing feature:

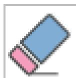
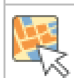
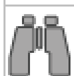
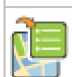
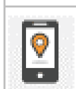
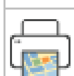
1. To delete an existing redlining feature, click on the Delete Feature button on the redlining toolbar.
2. Click on the point, line, or polygon feature that you wish to delete.
3. A prompt will appear confirming you wish to delete the feature. Click Yes to proceed with the deletion.



Analyst Toolbar



In the top right corner are the map analyst tools. They allow you to find features in the map, get information out of the map, and interact with the related information. It consists of the following tools.

	***Clear All Selections***	Deselects any selected items.
	***Selection***	Selects features in the map. This automatically opens the selection toolbar.
	***Point Location Tool***	Creates a point in the map and records its x/y, lat/long, and reverse geocoded address. This can be used to add an X/Y point to a ***Work Order*** or ***Request***.
	***Find***	Searches for ***Addresses***, ***Lat/Long***, ***Assets based on FacilityID***, ***Assets based on an Attribute Query***, and ***Customers*** using criteria the user enters.
	***Module Spatial Data***	Displays ***Work Order, request, pm/template, and other spatially enabled module*** locations based on selected criteria.
	***Device Locations***	Shows the locations of mobile devices configured with Lucity.
	***Trace***	Allows users to perform sewer, storm, and water network traces.
	***Load Subsets***	Loads subsets in the map as feature selections
	***Print***	Exports the current map extent in a format that can be saved and/or printed.
	***Design Mode***	Opens the GIS View designer.

Clear All Selections Tool

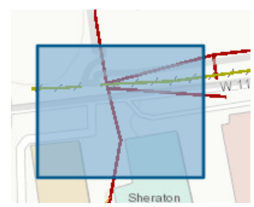
 The clear selection tool will clear all selected feature in the map. It will also remove any temporary graphics that may have been added because of another tool.

1. Select the Point Location Tool 
2. All selected feature in the map will be de-selected and any temporary graphics will be deleted. You will also notice that the Selection Toolbar will automatically disappear since there is no longer a map selection.

Selection

 The map selection tool will perform various actions in the map based on the current selection option.

1. Select the Selection Tool 
2. When activated the Selection tool will act as either a Point or Polygon selection tool.
    a. If you simply left click a location in the map, it will act as a point select, and perform the selection option on all features that intersect the location of the mouse click.
    b. If you hold down the left mouse button and drag the mouse it will act as a polygon and will perform the selection option on all features that intersect the box defined by the mouse click.



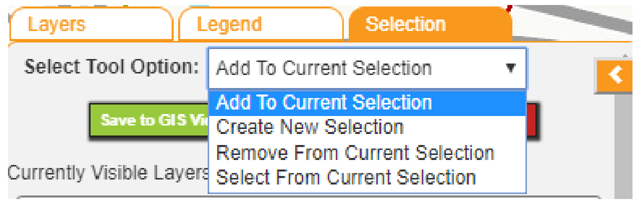
3. Once a feature has been selected a couple of things will occur:
    a. The features will appear selected in the map. The default map selection color is orange, but this is a system setting that can be changed by the user.

    b. The Selection Toolbar will appear:

4. Continue to use the mouse selection tool as needed, once done, you would want to click on another tool such as the Pan tool .

Selection Options

The Selection tab of the Table of Contents controls which layers in the map are selectable and how the map selection tool  should work with the selection. Note: The default selection option is *Add to Current Selection*, so if you are simply looking to select features in the map then you don't need to change the selection option.

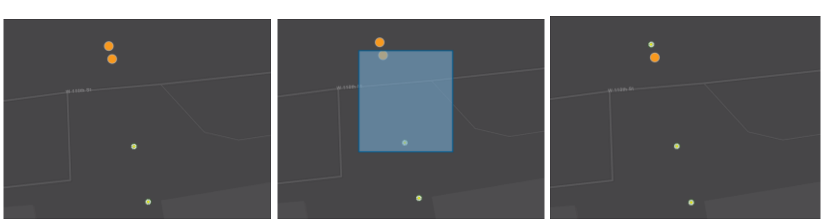


- **Add to Current Selection**- (Default). This option will take the results of the map selection tool and add them to the current map selection. Each time you use the selection tool the results will be added to the existing map selection.

- **Create New Selection**- This option will clear the current map selection and create a new selection based on the map selection tool results.

- **Remove From Current Selection**- This option will take the results of the map selection tool, and if any of those features are currently selected in the map, will remove the feature from the map selection.

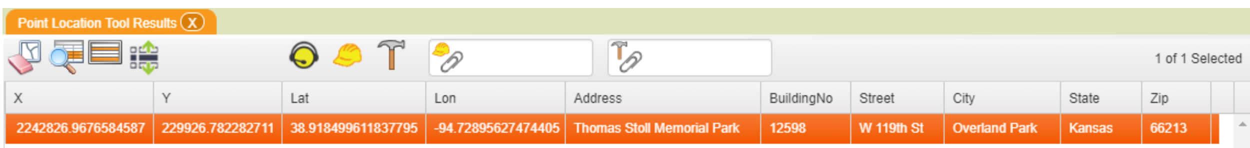
- **Select From Current Selection** -This option will take the results of the map selection tool, and if any of those features are currently selected in the map, will maintain their selection while all other features will be removed from the map selection.



Point Location Tool

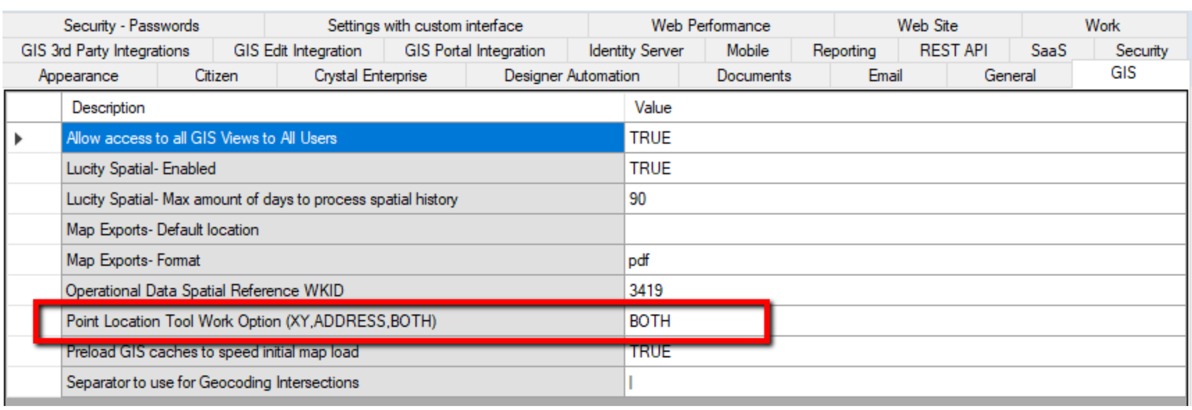
 The point location tool records the x/y, lat/long, and the reverse geocoded address for a point on the map. The x/y values and/or reverse geocoded address can later be attached to a request, work order, or pm/work template.

1. Select the Point Location Tool 
2. Click on a location in the map.
3. A green pin will be selected at the map location. A Lucity Point Locations Tool layer will be added to the map and available in the Table of Contents, and the layer will be available in the Selection Toolbar layer dropdown list.
4. Further actions are available using the Selection Toolbar and by viewing the data table for the Lucity Point Locations Tool.

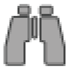


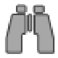
Note: The Lucity Point Locations Tool layer will have the following fields: X, Y, Lat, Long, Address, BuildingNo, Street, City, State, Zip

Starting with 2018r2 there is a system setting that indicates if the XY, Address, or both should be used when adding the point location to a request, work order, and/or pm/template.

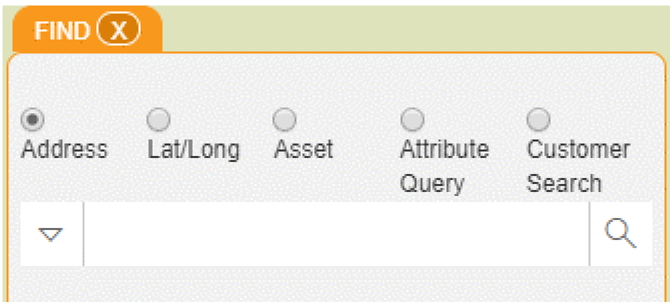


Find Tool

 The Find Tool is used to search for ***Addresses***, ***Lat/Long***, ***Assets based on FacilityID***, ***Assets based on an Attribute Query,*** and ***Customers*** using criteria the user enters.

1. Select the Find Tool . The find dialog will appear. See below for further instructions on each find option.

Address



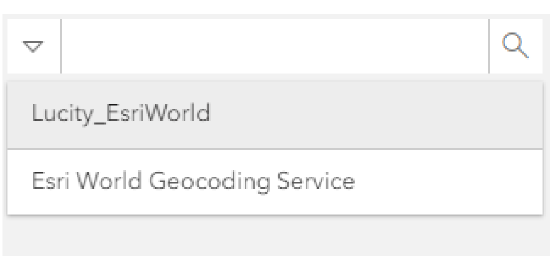
1. Start entering the address (or place search if supported by locator). As you type the program will attempt to provide a list of possible matches.

2. Press enter or click  to search for the selected address.

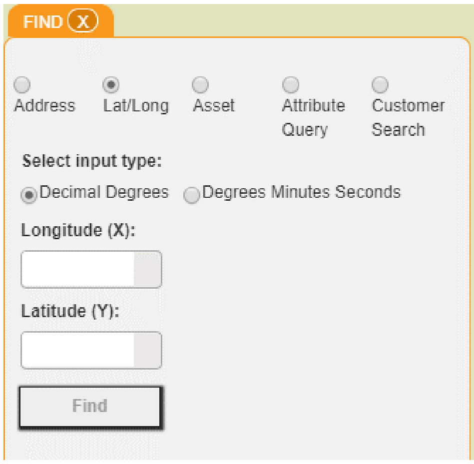
3. The map will zoom to the selected address and a popup will appear listing the results.

This tool will default to use the Lucity default geocoding service configured in the Lucity Administration tool.

However, you may switch and use the Esri World Geocoding Service by clicking the dropdown to the left of the input box:

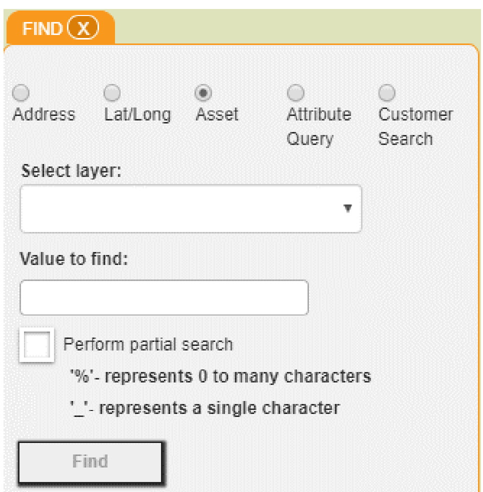


Lat/Long



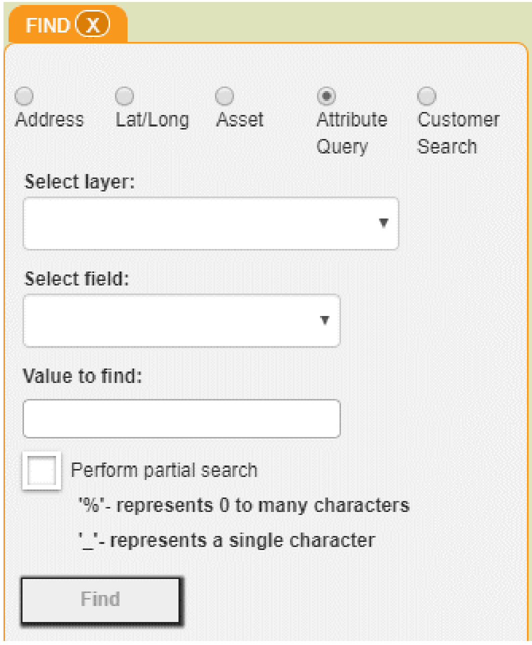
1. Select a degree format.
2. Enter the coordinates in the Longitude and Latitude fields
3. Click Find
4. A green pin appears on the map at the coordinates.

Asset



1. Select a layer from the drop-down list.
    a. Note: Only layers that have been recognized as being linked to Lucity will appear in the drop-down list
2. Enter the asset's ID number (this is also typically referred to as the asset's commonID or FacilityID; the user-defined unique number for each asset).
3. Click Find.
4. The assets matching the criteria will be selected in the map.

Attribute Query



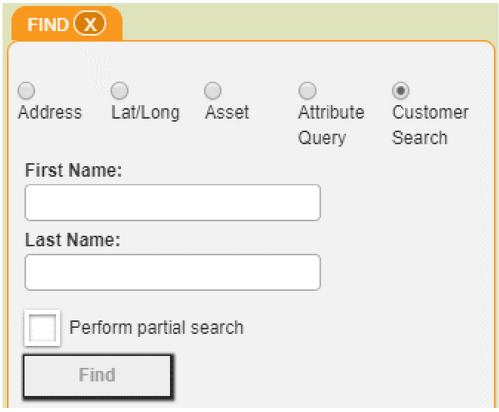
1. Select a layer from the drop-down list.
2. Select a field that you wish to query.
3. Enter a value you wish to query for.
    a. Note: If the GIS field value is numeric you can also use <, >, <=, or >= in the field value. For example, if you want to find all pipes with a diameter 12 or greater, you would enter >=12
4. Click Find
5. The assets matching the criteria will be selected in the map.

The *perform partial search* option can be used to help include results that fall within a range for example:

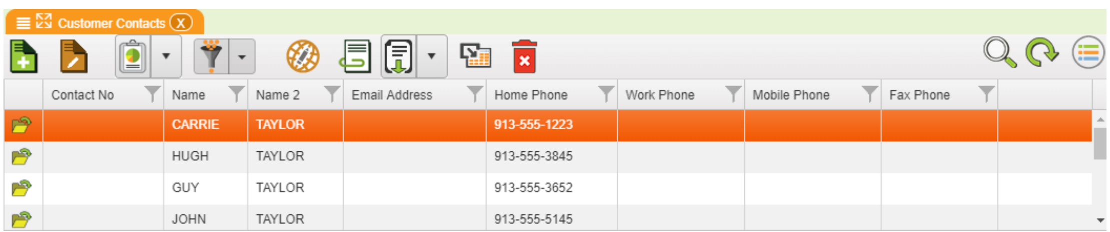
- 5%0 would return 50, 500, 56430, 5st0, etc.
- 5_0 would return 500, 5s0, 550, etc.

Customer Search

The customer search tool will open the Lucity Module View for the Customer module filtered based upon the first and/or last name specified by the user.



1. Enter a first and/or last name.
2. Check the perform partial search if you want to search for similar names.
3. The results will appear in a new tab of the map data grid.

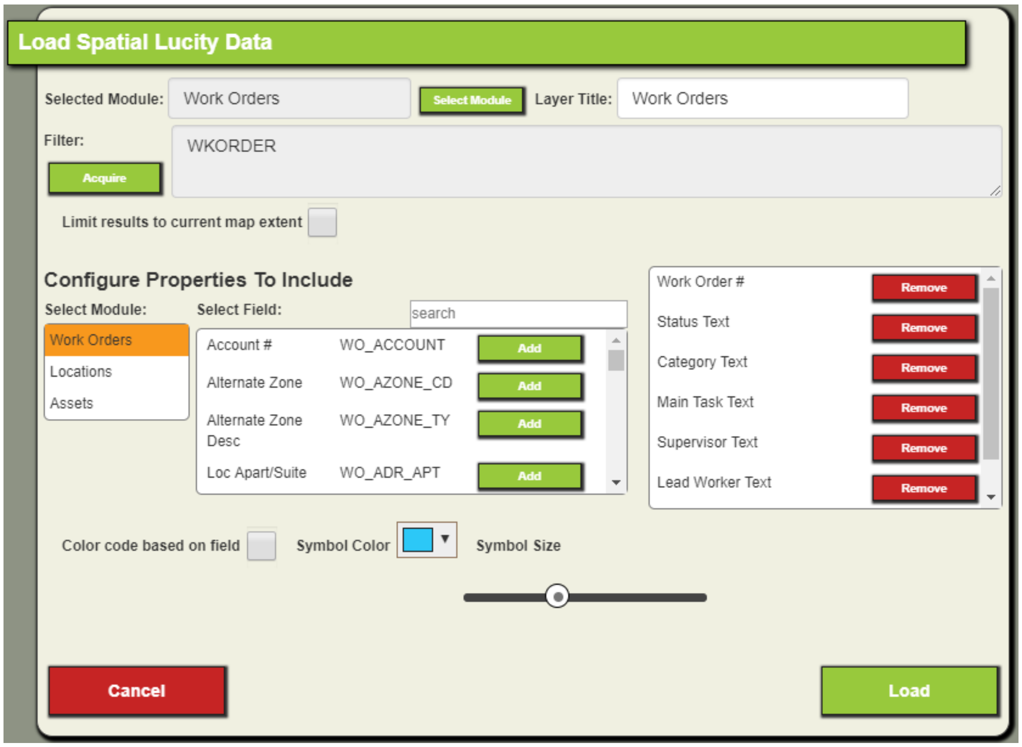


4. You can further interact with the results and show the individual customer contact locations in the map, by using the Sync with Map icon on the tab. Enabling this will show the location of the currently selected customer.

Notes:____

Module Spatial Data

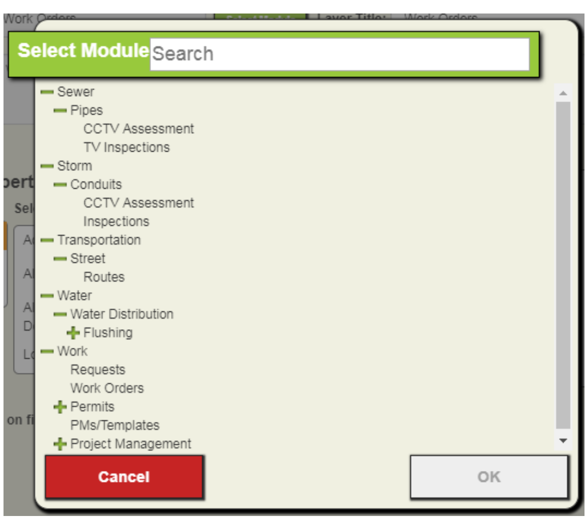
 The Module Spatial Data tool enables users to display Lucity Work data and some Lucity inspection data in the map. The layers that are loaded are a live view of the information in the Lucity database.



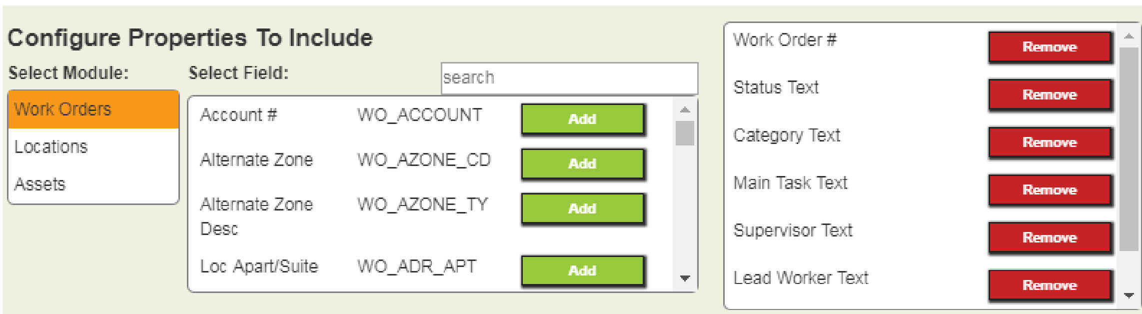
Note: The use of this tool requires that Lucity Spatial has been enabled and the service is running.

1. Click the Module Spatial Data tool 

2. On the Load Spatial Lucity Data form, click the Select Module button.



3. Select a module and click OK.
4. Enter the Layer Title that you would like to sue for the layer this tool will create.
5. Click the Acquire button to select a filter.
6. Check the *Limit results to current map extent* option if you wish to show only those results that are in the current map extent.
7. In the Configure Properties to Include section, select any additional fields that you would like to include in the results.



8. Set a symbol color and size

9. If you want to use the color code based on field option, select a field and color palette.
10. Click Load
11. The spatial data will be loaded in the map once done processing.

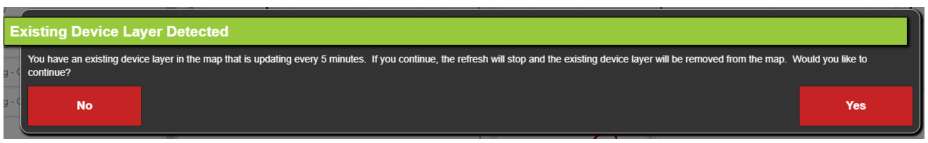
Notes:____

Mobile Device Locations

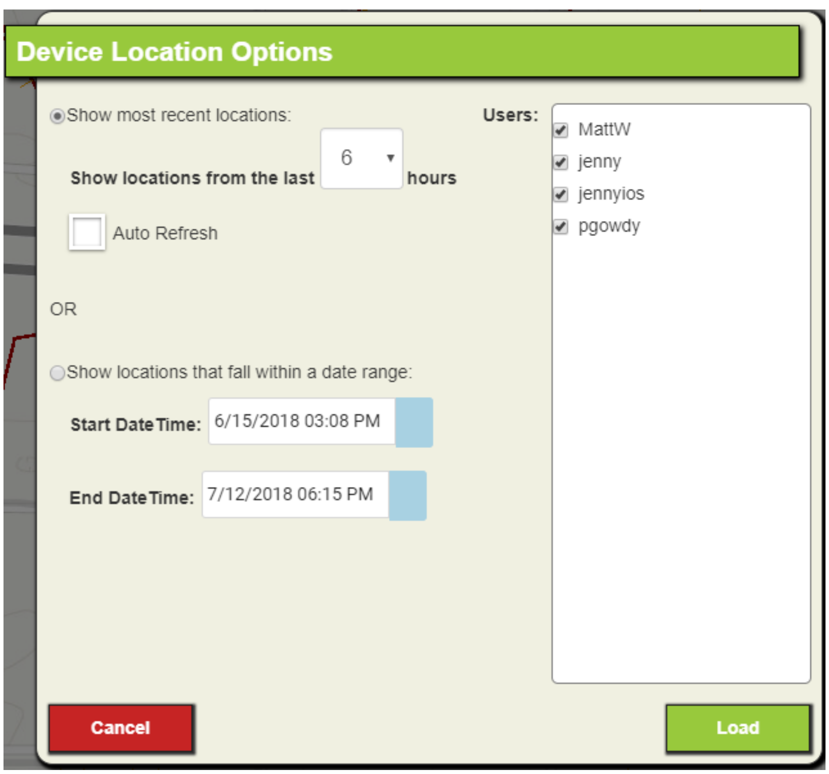
 The Device Locations tool enables users to view the current and previous locations of Lucity mobile devices.

Note: Only one Mobile Device locations result is allowed in the map at once. If you run the Mobile Device Locations tool a second time, the previous results will be overwritten.

1. Click the Mobile Device Locations tool 
    a. If you had previously ran the Device Locations tool in the current map session with the option to auto-refresh then you will receive the following prompt:



2. The Device Location Options dialog will appear:



3. Choose an option:
    a. Show most recent locations

i. Adjust the number of previous hours you want included in the results (1-24 hours)

ii. Auto-Refresh: select this option if you wish for the resulting layer to be automatically updated every 5mins with the latest device location data.

b. Show locations that fall within a date range

i. The default start and end dates automatically default to the earliest and latest datetimes found in the device history for all users.

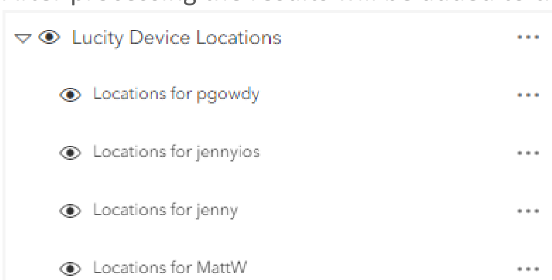
ii. Override the default dates, to target the date range you are interested in viewing

4. Select the users to include in the results:

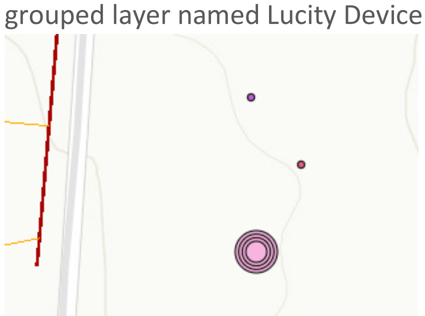
c. By default, all users that have locations in the device history are shown and included in the results

5. After you specified the options, click the Load button.

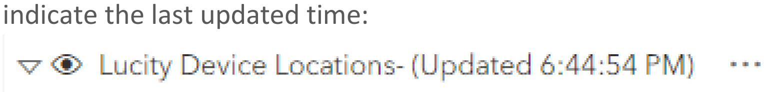
6. After processing the results will be added to the map.



d. Each user will have their own layer with distinct color and all layers will be under a grouped layer named Lucity Device Locations.

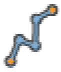


e. If you selected the option to auto-refresh then the grouped layer in the map will also indicate the last updated time:



f. The 5 most recent locations will be displayed with a larger point symbol. The largest point indicates the most recent location, older locations will all be the smaller standard size.

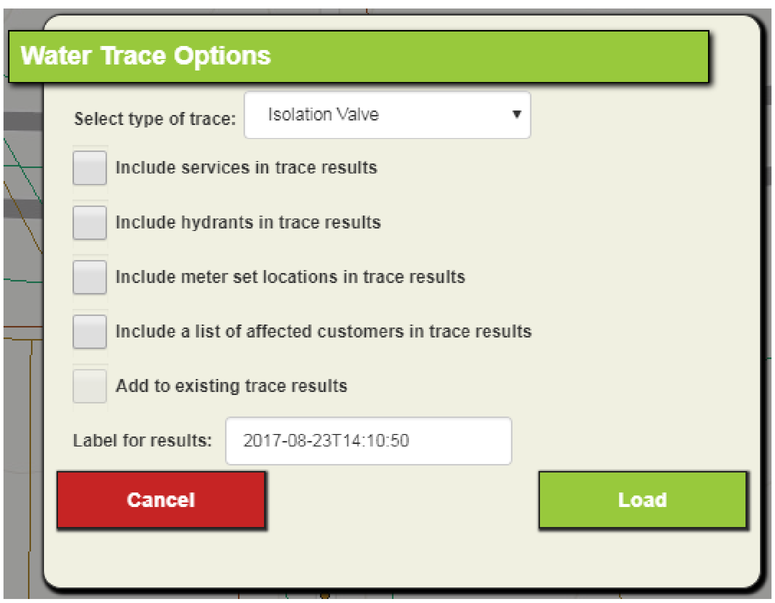
Trace Tool

 The Trace tool is designed to quickly find out information about a sewer, storm, or water network. It traces the desired network and generates a temporary layer in the map showing the results.

Note: The trace is performed based on the relationships defined within Lucity. It does not select assets in the map based on any sort of spatial relationships or proximity.

1. Select the Trace Tool 
2. Click on a pipe feature where you want to start the trace.
    a. Note: The tool will determine what type of asset you clicked on. Currently, the trace tool will only work on sewer pipe, storm conduit, or water pipe assets.
3. Follow the instructions below for the given trace type:

Water Trace

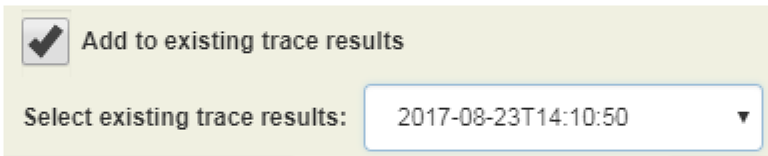


1. Use the drop down to select the type of water trace to run.
    a. **Isolation Valve**- Traces water pipes outward from the location the user clicked on and stops each direction when a water isolation valve is encountered.
2. Choose to enable/disable the following options:
    a. **Include services in trace results**- All service laterals that are related to the traced pipes will be included in the results
    b. **Include hydrants in trace results**- All water hydrants that are related to the traced pipes will be included in the results

c. **Include meter set locations in results**- All meter locations that are related to the traced pipes will be included in the results.

d. **Include a list of affected customers in results**- This option will include a list of customers that are at the addresses associated to the resulting pipes, hydrants, service lateral, and meter locations.

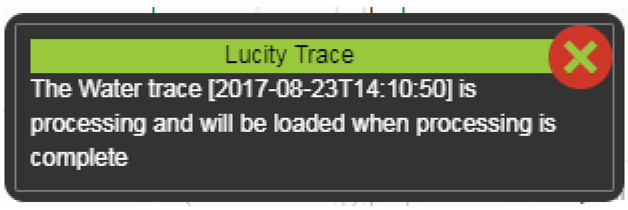
e. **Add to existing trace results-** This option is only enabled if the tool has determined that there are previous water trace result layers in the map. If you select this option, you will then need to specify the existing trace layer you want to add the results to.



3. In the **Label for results** field, enter the name to be assigned to the resulting trace result layer.

    a. Note: This option is not available if you selected the *Add to existing trace results* option

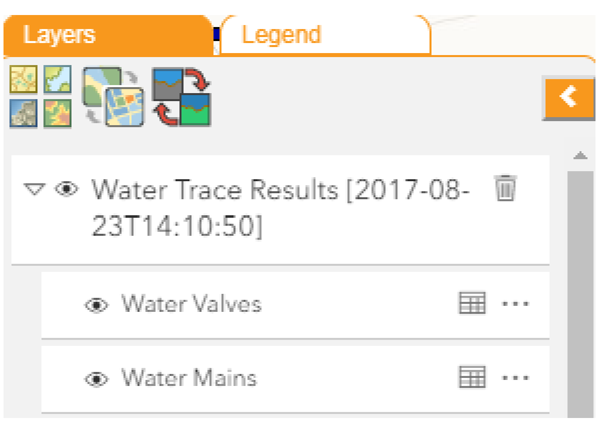
4. Click Load to begin the trace.



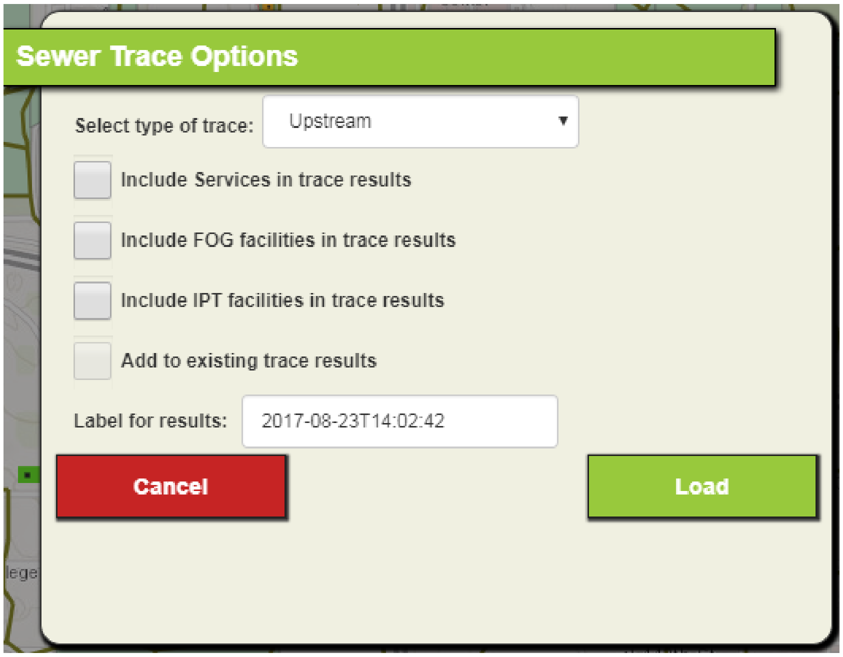
Note: A notification will appear letting you know when the processing has started and is completed.

5. The tool automatically begins to trace outward from that pipe. It continues to trace water pipes until it comes to a valve that has been marked as an isolation valve in Lucity.

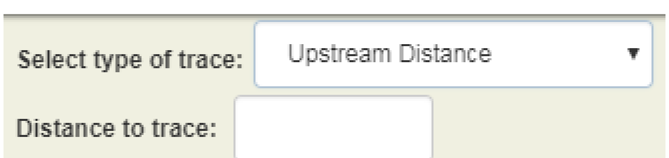
6. Once completed, the trace result layer will be added to the map and available in the Table of Contents, where you can open the data table to view further details on the individual items.



Sewer Trace



1. Use the drop down to select the type of sewer trace to run.
    a. **Upstream**- Traces all pipes upstream of the selected pipe.
    b. **Upstream Distance**- Traces all pipes within a specified distance upstream of the selected point.
    c. **Upstream Segment**- Traces the specified number of pipes upstream from the selected pipe.
    d. **Downstream**- Traces all pipes downstream of the selected pipe.
    e. **Downstream Distance**- Traces all pipes within a specified distance downstream of the selected point.
    f. **Downstream Segment**- Traces the specified number of pipes downstream from the selected pipe.
2. If you chose a distance or segment trace, you need to specify the units.



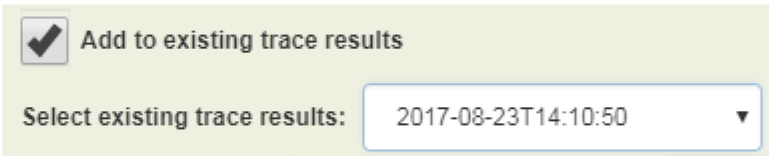
3. Choose to enable/disable the following options:

    a. **Include services in trace results**- All service laterals that are related to the traced pipes will be included in the results

    b. **Include FOG facilities in trace results**- All FOG facilities that are related to the traced pipes will be included in the results

    c. **Include IPT facilities results**- All IPT facilities that are related to the traced pipes will be included in the results.

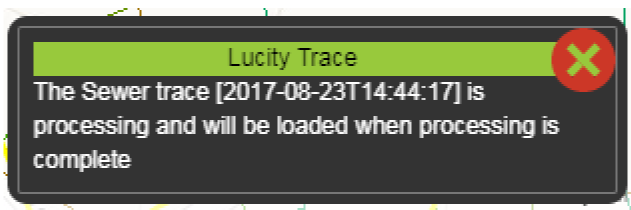
    d. Add to existing trace results- This option is only enabled if the tool has determined that there are previous sewer trace result layers in the map. If you select this option, you will then need to specify the existing trace layer you want to add the results to.



4. In the **Label for results** field, enter the name to be assigned to the resulting trace result layer.

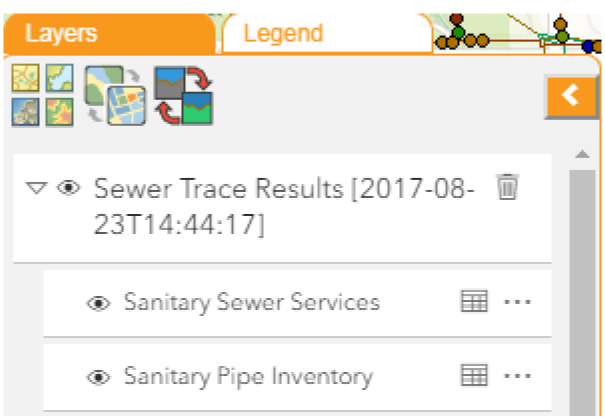
    a. Note: This option is not available if you selected the *Add to existing trace results* option

5. Click Load to begin the trace.

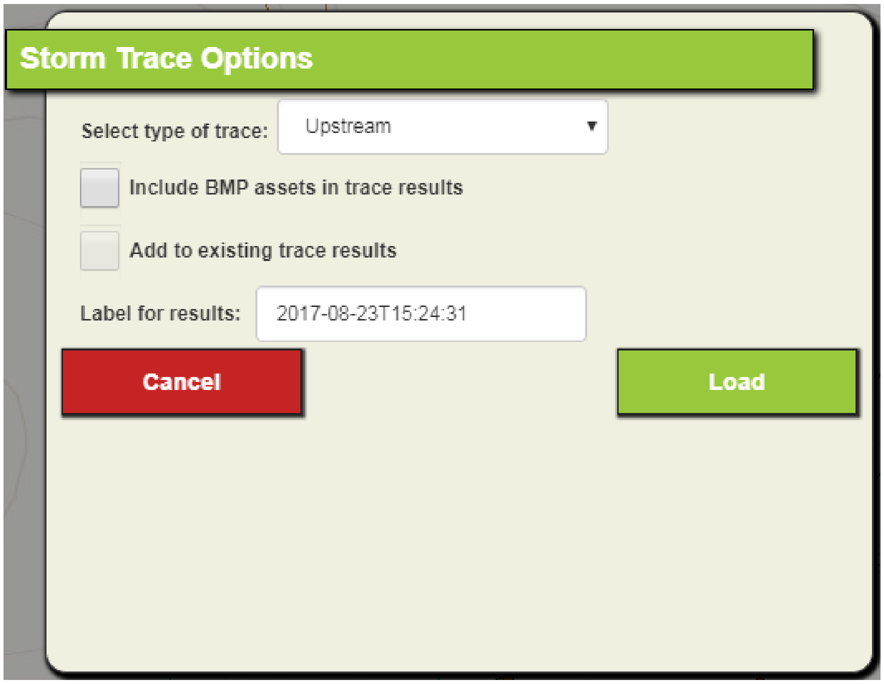


Note: A notification will appear letting you know when the processing has started and is completed.

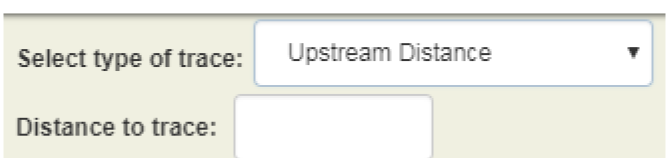
6. Once completed, the trace result layer will be added to the map and available in the Table of Contents, where you can open the data table to view further details on the individual items.



Storm Trace



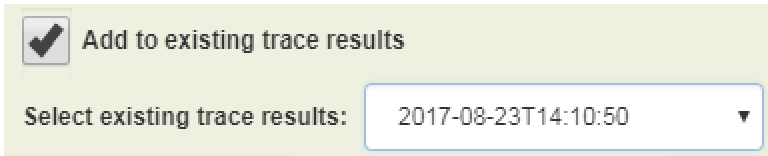
1. Use the drop down to select the type of storm trace to run.
    a. **Upstream**- Traces all pipes upstream of the selected pipe.
    b. **Upstream Distance**- Traces all pipes within a specified distance upstream of the selected point.
    c. **Upstream Segment**- Traces the specified number of pipes upstream from the selected pipe.
    d. **Downstream**- Traces all pipes downstream of the selected pipe.
    e. **Downstream Distance**- Traces all pipes within a specified distance downstream of the selected point.
    f. **Downstream Segment**- Traces the specified number of pipes downstream from the selected pipe.
2. If you chose a distance or segment trace, you need to specify the units.



3. Choose to enable/disable the following options:

    a. **Include BMP assets in trace results**- All BMP assets that are related to the traced pipes will be included in the results.

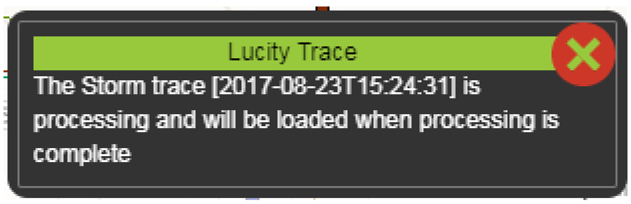
    b. **Add to existing trace results-** This option is only enabled if the tool has determined that there are previous storm trace result layers in the map. If you select this option, you will then need to specify the existing trace layer you want to add the results to.



4. In the **Label for results** field, enter the name to be assigned to the resulting trace result layer.

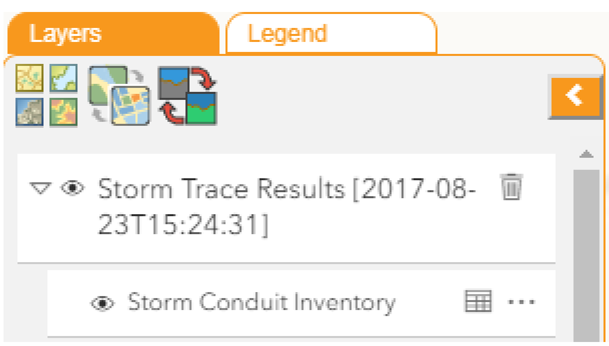
    a. Note: This option is not available if you selected the *Add to existing trace results* option

5. Click Load to begin the trace.



Note: A notification will appear letting you know when the processing has started and is completed.

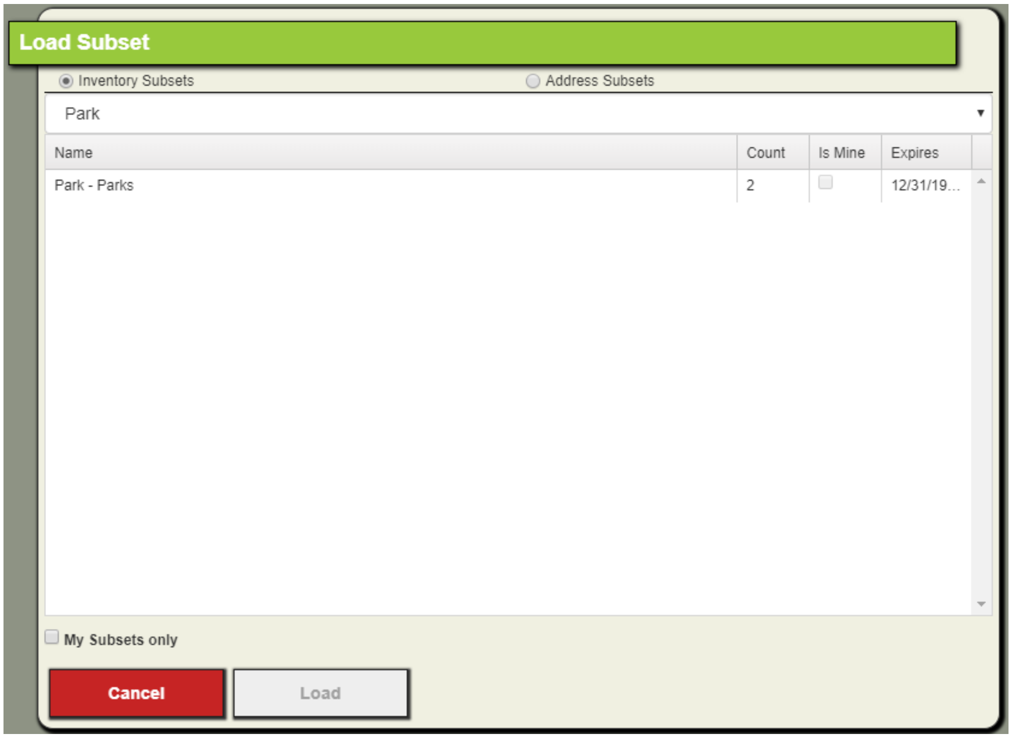
6. Once completed, the trace result layer will be added to the map and available in the Table of Contents, where you can open the data table to view further details on the individual items.



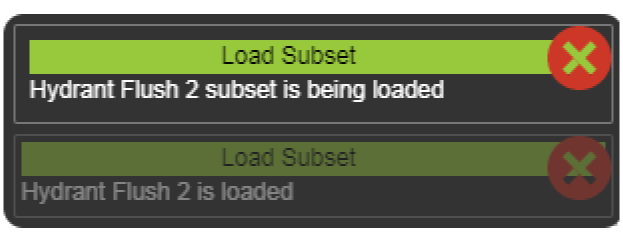
Load Subsets

The Load Subset tool loads a subset of records in the map.

1. Select the Load Subset Tool on the analyst toolbar. The following dialog appears:



2. Choose if you want to load an asset inventory subset or an address subset.
3. If you selected the Inventory Subset option, then choose an asset type from the drop down.
    a. Note: Only asset types that are currently in the map will be available.
4. Select a subset from the list to load. Check My Subsets Only to display only subsets created by the currently logged in user.
5. Click Load.



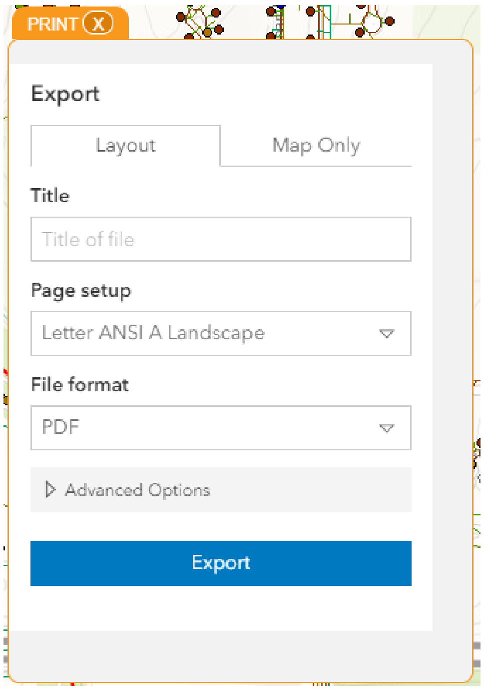
6. Once complete, the assets will be selected in the map. Further action can be taken with the selected assets by using the tools in the Selection toolbar or the associated data table.

Print

 The Print tool allows users to export the current map view into a file format that can also be used to print.

1. Navigate to extent of the map that you would like to print.

2. Select the Print Tool  on the analyst toolbar. The following dialog appears:

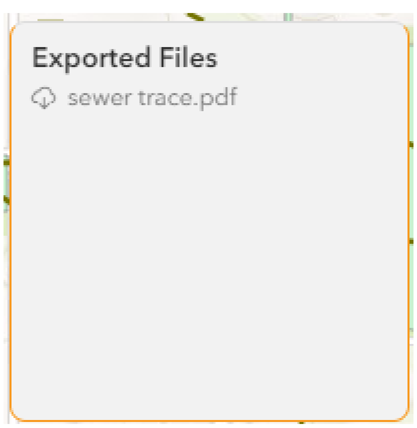


3. Select whether the export should include the Map Only or a full Layout

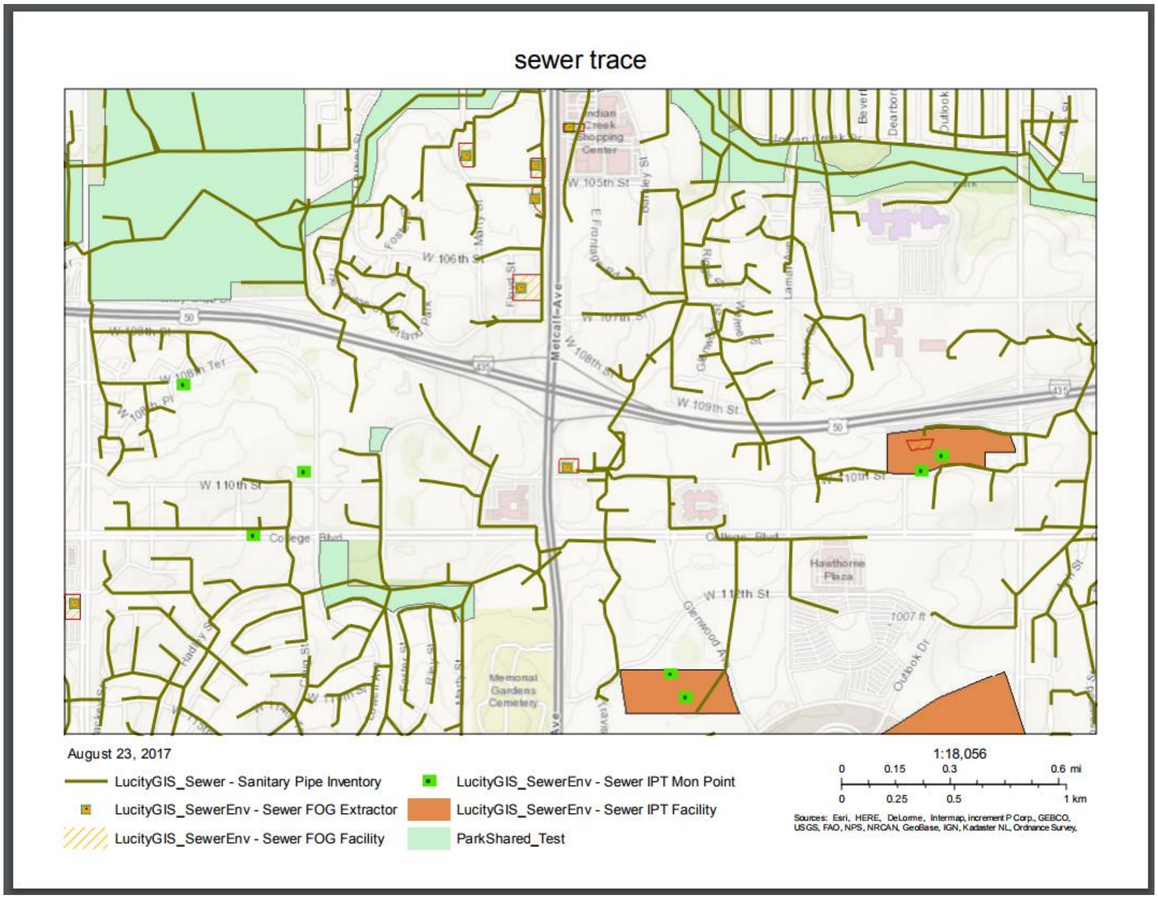
4. Enter the Title or File Name.

5. Fill out other information as needed.

6. Click the Export button. Once completed the file name will appear in the Exported Files dialog.



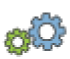
7. Click on the file to view it.



8. You can then save or print it.

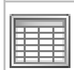
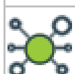
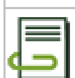
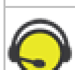
Note: The server hosting the printing service must have access to all layers in the map. If there is a layer in the map that is inaccessible by the server, then the export will fail.

Design Mode

 The Design Mode tool opens the GIS View designer allowing you to make customizations to the current GIS View. Additional information is available online or in the Lucity GIS Web Map Administration session handout.

Selection Toolbar

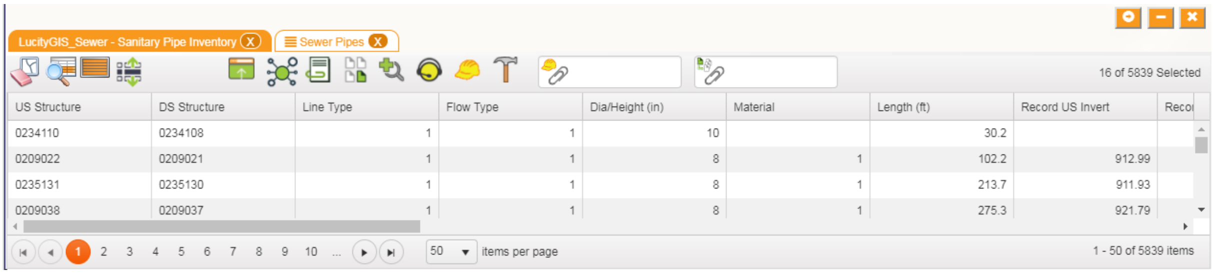
Whenever there are one or more selected features in the map, the Selection Toolbar will appear in the top center of the map display. This toolbar enables users to perform additional functionality against the selected features. The tools on the selection toolbar are also available within the data table for each of the map layers.

	***Zoom to Selection***	Zooms to the features indicated in the Selection Dropdown.
	***Open Data Table***	Opens the Data Grid and displays the layer attributes for the currently selected records. Each layer will be opened in another tab.
	***Open Lucity Record****	Opens the associated Lucity record
	***Open Module View***	Opens the Data Grid and displays the Lucity Module View for the currently selected records. Each layer will be opened in another tab.
	***Relationships ****	Displays a list of modules with records related to the selected record in the grid.
	***Property Viewer ****	Displays a list of modules with records related to the address associated with the selected record
	***Documents***	Enables users to add, view, edit, and delete documents attached to the currently selected records.
	***Manage Subsets ****	Enables users to add, edit, and delete ***Subsets***, which are specific groups of records.
	***Create Inspection ****	Creates an ***Inspection*** for the currently selected asset.
	***Create Request***	Creates a ***Request*** for the currently selected records.
	***Create Work Order***	Creates a ***Work Order*** for the currently selected records.
	***Create PM/Template***	Produces a new ***PM/Template*** for the currently selected records.
	***Attach to Work Order***	Attaches the currently selected records to an existing **Work Order.**
	***Attach to PM/Template***	Attaches the currently selected records to an existing PM as a PM Asset.

***Only appears when a single asset type is selected**

Data Grid

The Data Grid is a tabbed control in the map that enables users to see information about and interact with GIS and Lucity data.



Opening the Data Grid

The data grid is opened when either of the following tools are used:

Tool		Description	Appears in
	Open Data Table	Displays the layer's attribute data from the GIS System.	Table of Contents, Selection Toolbar
	Open Module View	Displays the Lucity Module View from the Lucity System.	Identify pop-up, Selection Toolbar, Data Table

Tabs

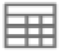
While both the Data Table and Lucity Module View may be showing the same record, one is displaying the GIS record while the other is displaying the Lucity record. The title of tabs containing Lucity Module Views will be proceeded with the icon.

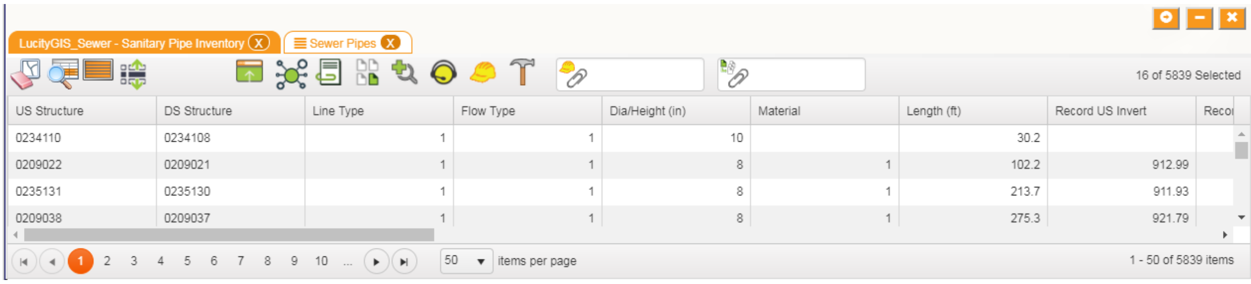
Display Controls

Above the data grid, on the right, are buttons that control the data grid's appearance.

	Dock Right **Dock Bottom**	Docks the data grid to the right side of the screen. Docks the data grid to the bottom of the screen.
	Collapse **Expand**	Collapses the data grid providing a larger view of the map. Expands the data grid to display the table.
	Close All	Closes the data grid but does not clear the current selection.
	Resize Grid	Hover the cursor over the edge of the data grid for a resize control. Click and drag to change the data grid size.

Data Table

 The Data Table displays the GIS layer's attribute data. This tool is available from the Table of Contents and Selection Toolbar.



Selection

Selected features are displayed in orange. To add records to the selection, hold down CTRL while selecting additional records in the grid.

Selection Controls

The selection controls are used to manipulate the current feature selection.

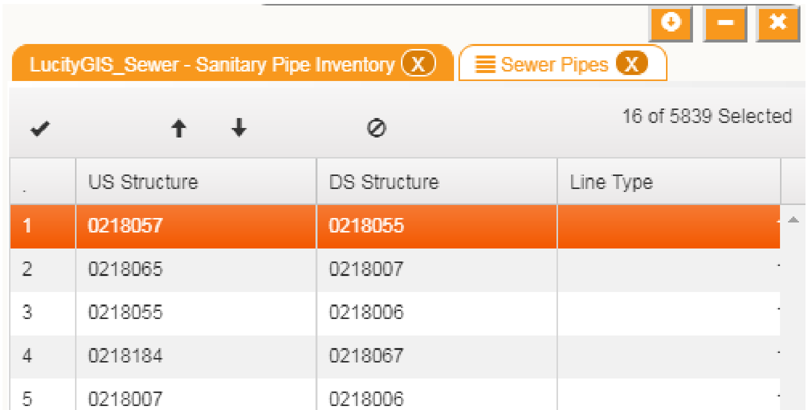
	***Clear Selection***	Unselects all records currently selected on the tab.
	***Zoom and Flash Highlight***	Zooms to the features highlighted in the table.
 	***Show only Selected*** ***Show All***	Displays only the records that are currently selected. Displays all records.
	***Reorder Selection***	Allows you to change the order that the selected records appear in the grid. • The order of the assets is carried over to subsets, work orders, etc... • Only appears if more than one record is selected.

Reorder Selection

1. Select features in the map or directly from the table.

2. Click the Reorder Selection tool

3. The data table will change to show only the selected records.



4. Click on a record in the selection set

   a. Use the up and down buttons to move the feature up and down the list.

   b. Use the remove item button to remove the feature from the list

5. When done making the reorder changes, click the save button.

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Lucity Tools

The Lucity Tools enable users to perform Lucity operations against features in the map. These tools only appear when the layer is linked to Lucity and at least one asset is selected.

Open Lucity Record*	Opens the associated Lucity record
Open Module View	Opens the data grid and displays the Lucity Module View for the currently selected records. Each layer will be opened in another tab.
Relationships	Displays a list of modules with records related to the selected record in the grid.
Property Viewer*	Displays a list of modules with records related to the address associated with the selected record
Documents	Enables users to view, add, edit, and delete documents attached to the currently selected records.
Manage Subsets	Enables users to add, edit, and delete ***Subsets***, which are specific groups of records.
Create Inspection	Creates an ***Inspection*** for the currently selected records.
Create Request	Creates a ***Request*** for the currently selected records.
Create Work Order	Creates a ***Work Order*** for the currently selected records.
Create PM/Template	Produces a new ***PM/Template*** for the selected records.
Attach to Work Order	Attaches selected records to an existing **Work Order.**
Attach to PM/Template	Attaches selected records to an existing PM as a PM Asset.

***Only appears when a single feature is selected**

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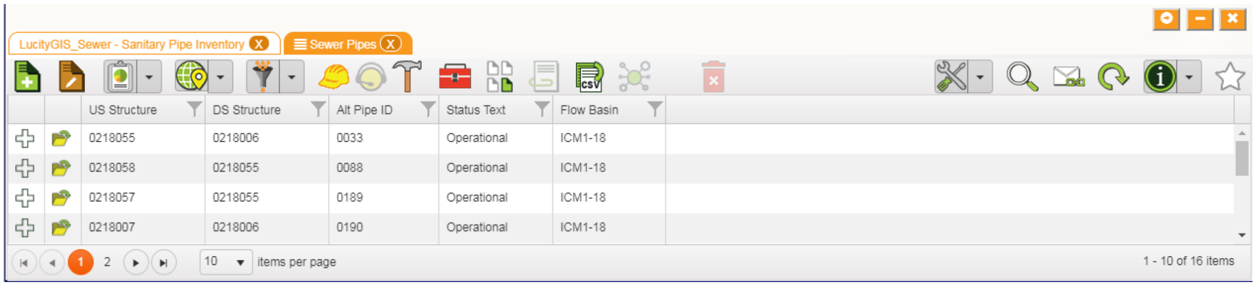
Lucity Module View

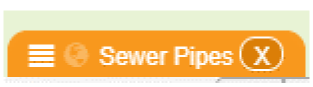
The Lucity Module View displays the Lucity representation of data. This tool is available from the Identify, Table of Contents, and Selection Toolbar.



Note: This tab contains the same tools and information as a user would get when opening a Lucity Module via the Lucity Web. More information on the tools available with the Lucity Module View can be found online.

View and Map Sync

When using the Lucity Module View in the map, there are 3 different ways that the view can interact with the map. The icons for these tools appear on the tab for the module view. Clicking on the icon will cycle through the various options:

- 

  - **Default**- The view displays the records that were selected when the view was open. Clicking on records in the view does not modify the map selection.
- 

  - **Sync With Map**- Clicking on records in the view changes the selection in the map.
- 

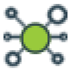
  - **Sync And Zoom**- Clicking on records in the view changes the selection in the map and zooms to the selected record(s).

Open Lucity Record


The Open Lucity Record tool will open the form for the Lucity related record. The form will appear in a new Lucity web tab.

If more than one form is available for the asset type, then the tool will attempt to open the form that is assigned to the Lucity Module View that has been associated to the current GIS View. Otherwise, a prompt will appear asking the user which Module View to open.

View Relationships


The View Relationship tool allows users to view all the Lucity related records for the selected feature(s). The tool with open the Lucity Module View filtered to only show the related records.

1. Select one or more asset either directly in the map or from the data table.
2. Click the Relationships Tool from either the Selection Toolbar or the Data Grid.

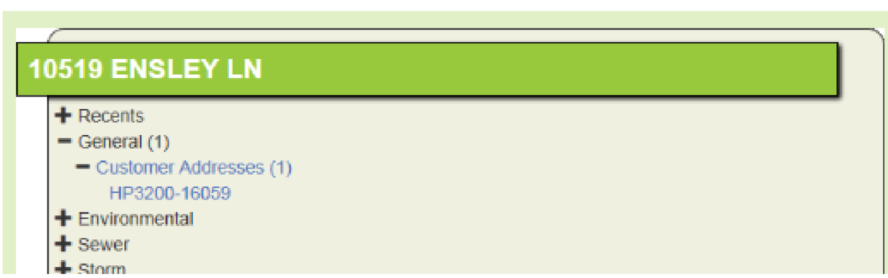
3. On the Relationship dialog, click on the relationship that you are interested in.
   a. All related modules will appear on the form, followed by the number of related records.
4. A new tab in the map's Data Grid will appear displaying the Lucity Module View for the relationship you selected.

Property Viewer

 The Property Viewer tool displays a list of related modules based upon the address associated with the selected asset.

1. Select one asset either directly in the map or from the data table.
2. Click the Property Viewer Tool  from either the Selection Toolbar or the Data Grid. The following popup appears, with the address from the current record:

3. Click on the + next to a section to find the desired module.

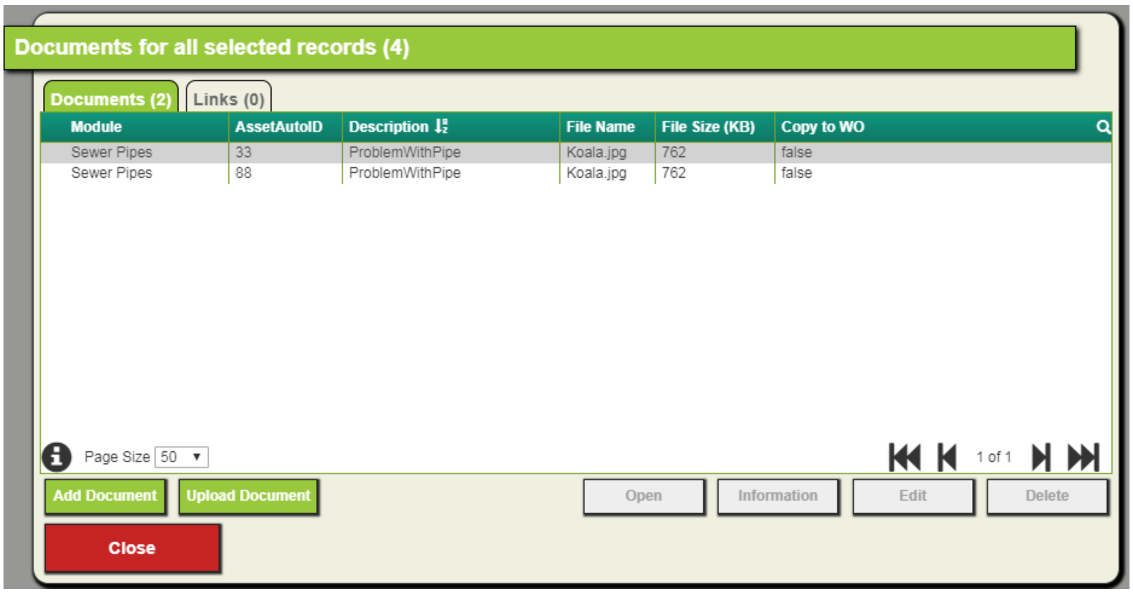


4. Click on the desired module. A list of related records appears.
5. Click on a record to open. A new tab in the map's Data Grid will appear displaying the Lucity Module View for the record you selected.

Manage Documents

 The Manage Documents tool allows users to view, add, edit, delete documents associated to the selected feature(s).

1. Select one or more asset either directly in the map or from the data table.
2. Click the Manage Documents Tool  from either the Selection Toolbar or the Data Grid. The following dialog will appear:



How to open a document

1. Select a document from the list and click the Open button.
   a. If the document can be opened in the browser, the system launches it in a Use the drop down to select the type of sewer trace to run.
   b. If the document cannot be opened in the browser, the system launches the computer's default program for the file type.
   c. If the Always Open Document Directly option is enabled, or, if the document exceeds the file size limit (set in system settings), the following pop-up appears:

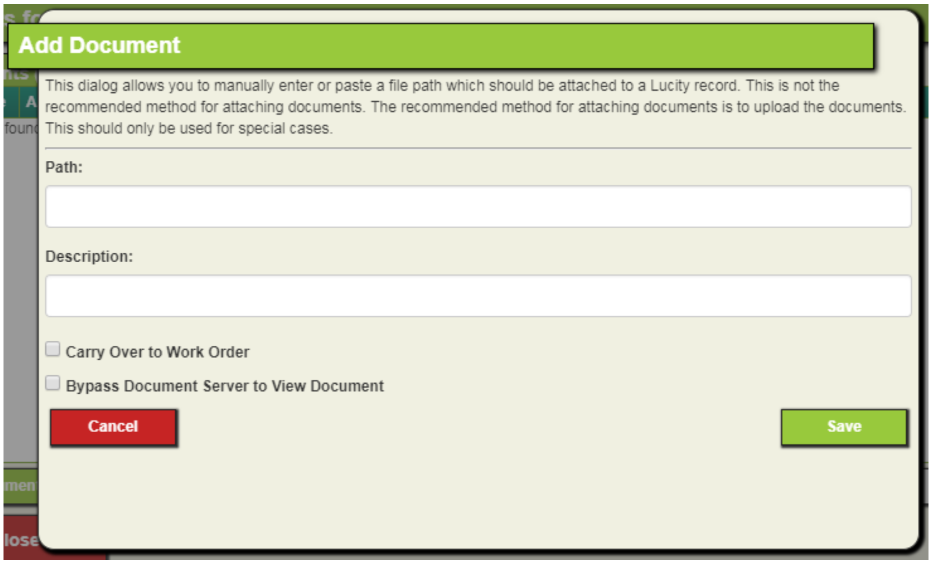
i. Click the Copy Path button to copy the path, which can then be pasted into the computer's File Explorer

ii. OR Click the Open File button to attempt to open the file.

1. Note: Very large files will likely slow the system significantly.

How to add a document

1. Click the Add Document button. The following dialog will appear:



2. Type or paste in the path to the document.

   a. Note: The Add Document option only links the existing document to the Lucity record. Users must have access to the location of the existing document in order to view it.

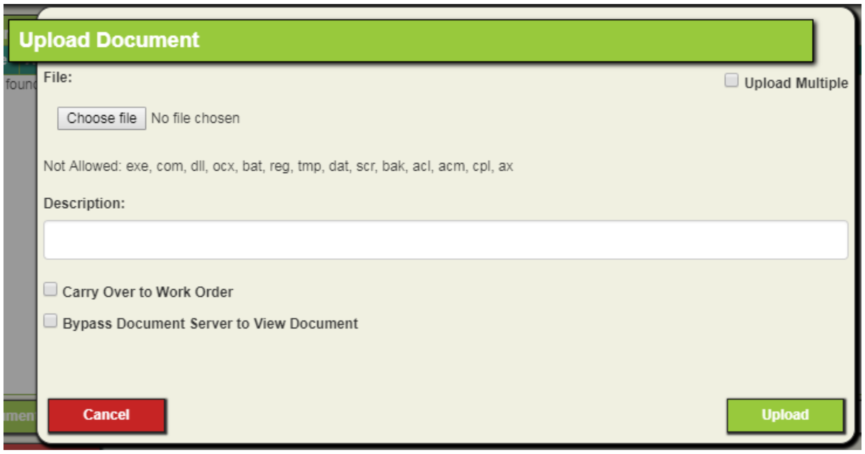
3. Describe the document in the Description field

4. Enable the Carry Over to Work Order or Always Open Document Directly options as needed

5. Click Save

How to upload a document

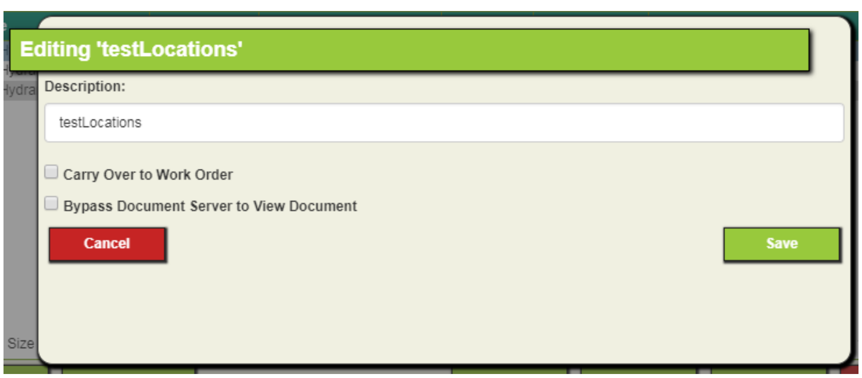
1. Click the Upload Document button. The following dialog will appear:



2. Click the Choose file button to select the file to upload.
    a. Check the Upload Multiple box before clicking Choose file if you want to select more than one.
3. Provide a description
    a. If you upload multiple documents the description will be applied to all documents with a number suffix to differentiate the files
4. Enable the Carry Over to Work Order or Always Open Document Directly options as needed
5. Click Upload. The system copies the file to the document server specified by Lucity administrators. The copied file is then attached to the Lucity record(s).

How to edit document properties

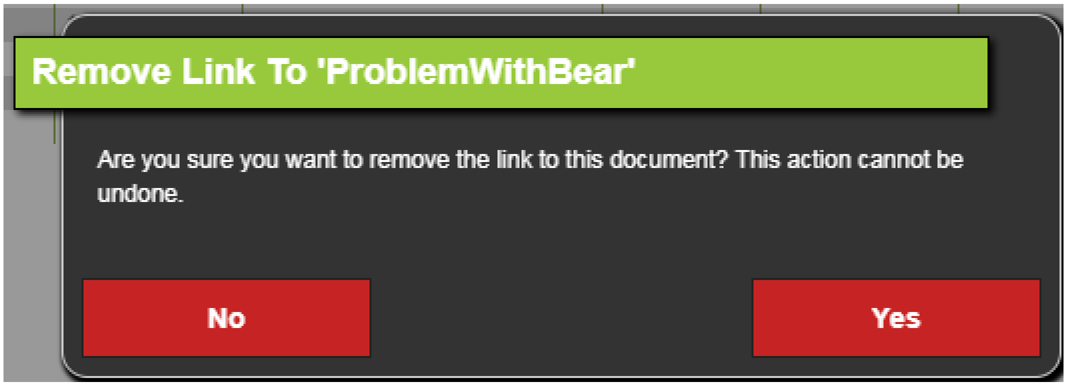
1. Select a document in the list and click Edit. The following dialog will appear:



2. Edit the desired fields
3. Click Save

How to delete a document

1. Select a document in the list and click Delete. The following prompt will appear:



2. Click Yes

   a. If a document was attached through a network connection, Lucity deletes the link to the file, but retains the file on the network

   b. If the file was uploaded to the document server and attached to the record one of the following actions occur:

      i. If the user does not have the Images/Movies/Documents- Delete file permission, the link to the file is deleted, but the file remains on the document server.

      ii. If the user does have the Images/Movies/Documents- Delete file permission AND if the document isn't associated to any other Lucity records, the system will prompt the user if they would like to delete the file from the document server.

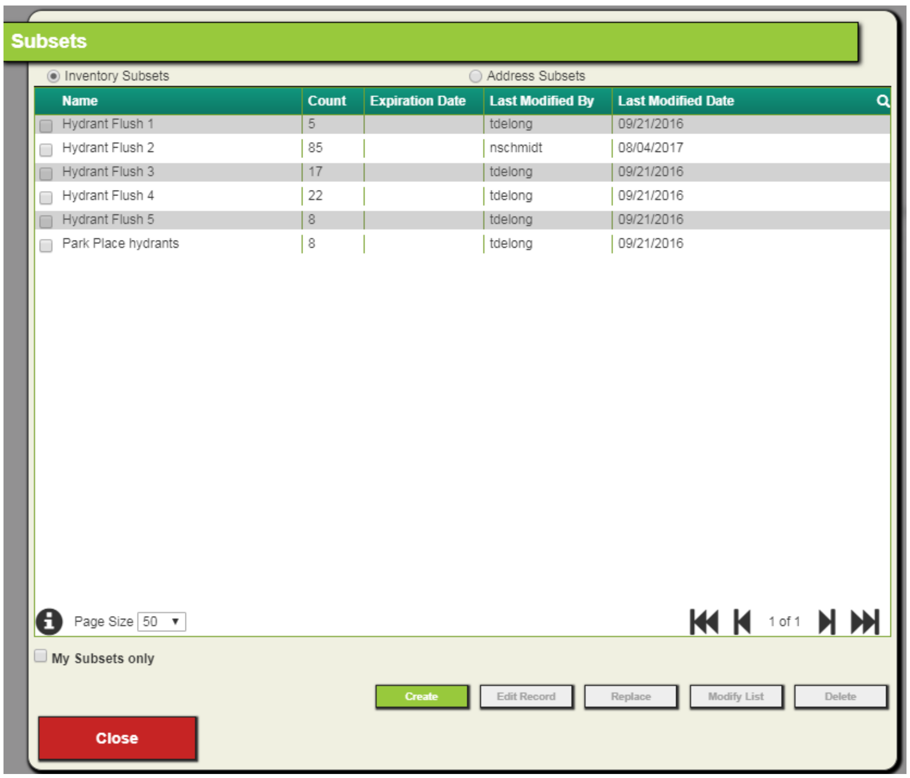
      iii. Click Yes to delete the uploaded file from the document server

      iv. Click No to keep the uploaded file on the document server. The document will still be unassociated to the Lucity record.

Manage Subsets

The Manage Subsets tool allows users to create new subsets, edit existing subsets, and delete subsets. Subsets enable users to group selected assets and save them for later use, such as easily adding the items to a work order or pm.

1. Select one or more asset either directly in the map or from the data table.
2. Click the Manage Subsets button from either the Selection Toolbar or the data table. The following dialog will appear:



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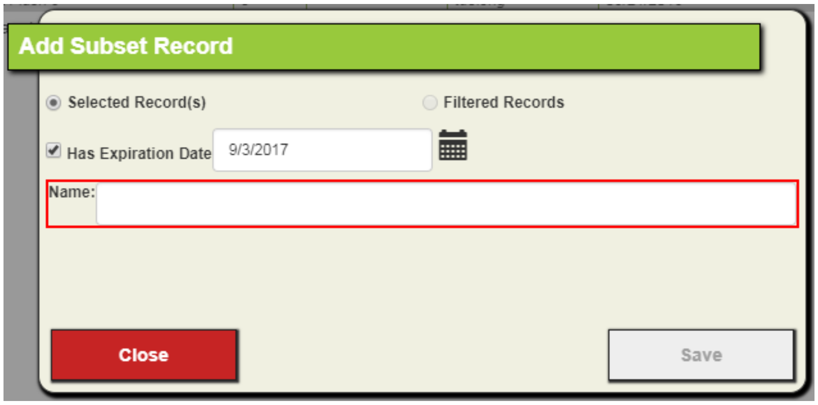
How to create a subset

1. Click the Create button. The following dialog appears:



    a. Note: The Filtered Records option will not be enabled for subsets created from the web map.

2. Decide how long the subset will remain in the Lucity system.

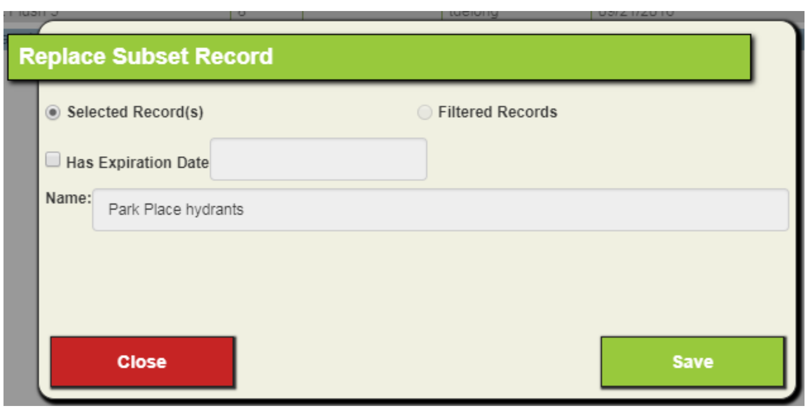
    a. Enter an expiration date or uncheck the Has Expiration Date if you wish to retain the subset indefinitely.

3. Enter a name for the subset

4. Click Save

How to replace a subset

1. Select a subset from the list and then click the Replace button. The following dialog appears:



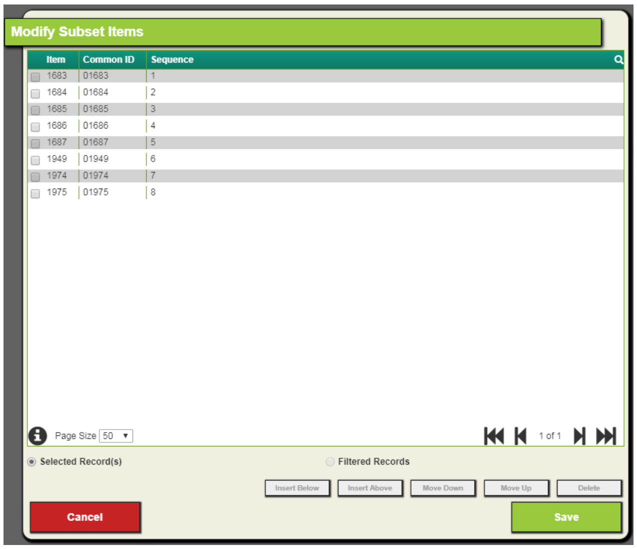
    a. Note: The Filtered Records option will not be enabled for subsets created from the web map.

    b. The replace option will simply remove all remove all existing records comprised of this subset and replace them with the selected record(s).

2. Decide how long the subset will remain in the Lucity system.
    a. Enter an expiration date or uncheck the Has Expiration Date if you wish to retain the subset indefinitely.
3. Click Save.

How to add items to a subset

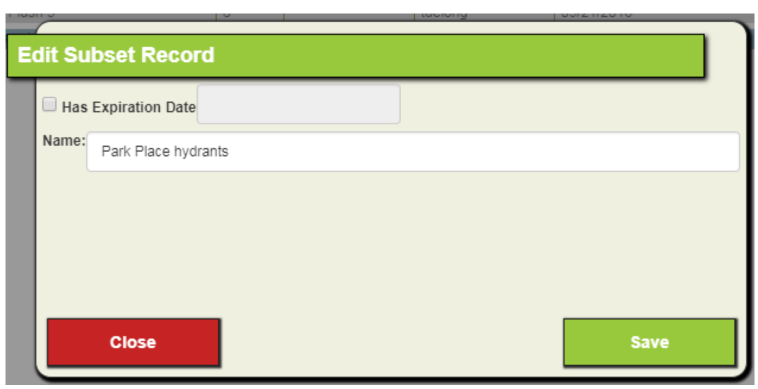
1. Select a subset from the list and then click the Modify List button. The following dialog appears:



    a. Note: The Filtered Records option will not be enabled for subsets created from the web map.
2. Select an item in the subset
3. Use the Insert Above or Insert Below button to insert the selected record(s) into the existing list.
4. Click Save.

How to edit a subset

1. Select a subset from the list then click the Click the Edit Record button. The following dialog appears:

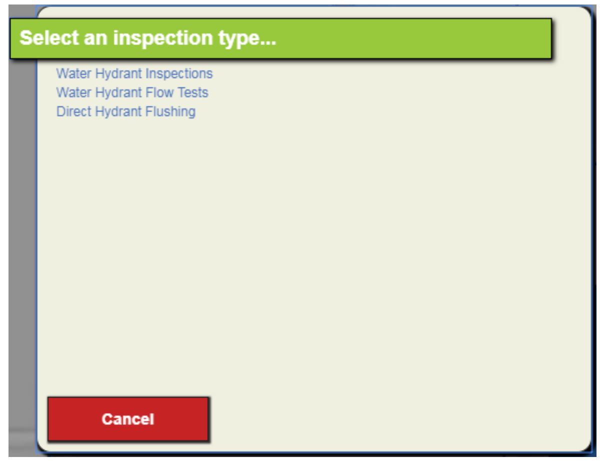


2. Change the desired item
3. Click Save.

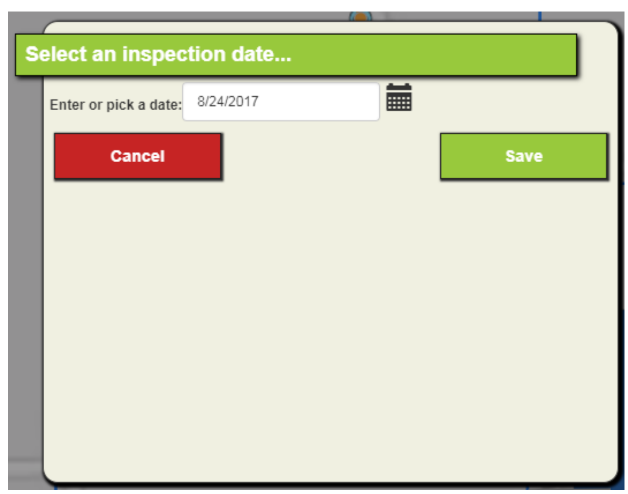
Create Inspection

The Create Inspection tool allows users to create an inspection for each of the selected assets.

1. Select one or more asset either directly in the map or from the data table.
2. Click the Create Inspection button from either the Selection Toolbar or the data table.
3. If there is more than one type of inspection for the selected asset type, a dialog like the following will appear prompting the user to select the type of inspection to create:



4. If a single asset was selected a blank inspection form will open in a new Lucity tab.
    a. Enter the inspection details and save the inspection.
    b. Note: The inspection has not been created until the required information has been entered and the record is saved.
5. If more than one asset was selected the following prompt will appear:

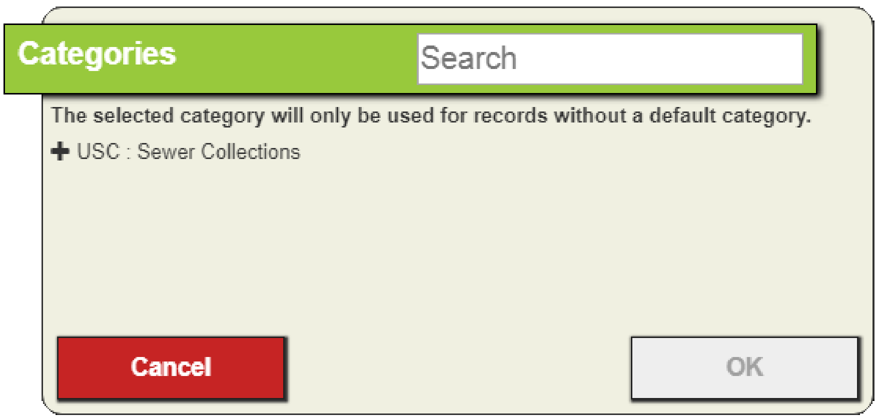


6. Enter the inspection date and click Save.
    a. An inspection will be created for each selected asset
    b. The Lucity Module View will be opened to display the newly created inspections.

Create Request

 The Create Request tool allows users to create a request based on an asset.

1. Select one or more asset either directly in the map or from the data table.
2. Click the Create Request  button from either the Selection Toolbar or the data table.
3. If the selected assets do not have a default work category assigned, the user will receive a dialog like the following prompting the user to select a work category.



   a. Only categories associated with the selected asset appear.

4. Select a Category and click OK.
5. A request will automatically be created for each asset. A Lucity request module view will be opened in a new tab with the newly created request(s).

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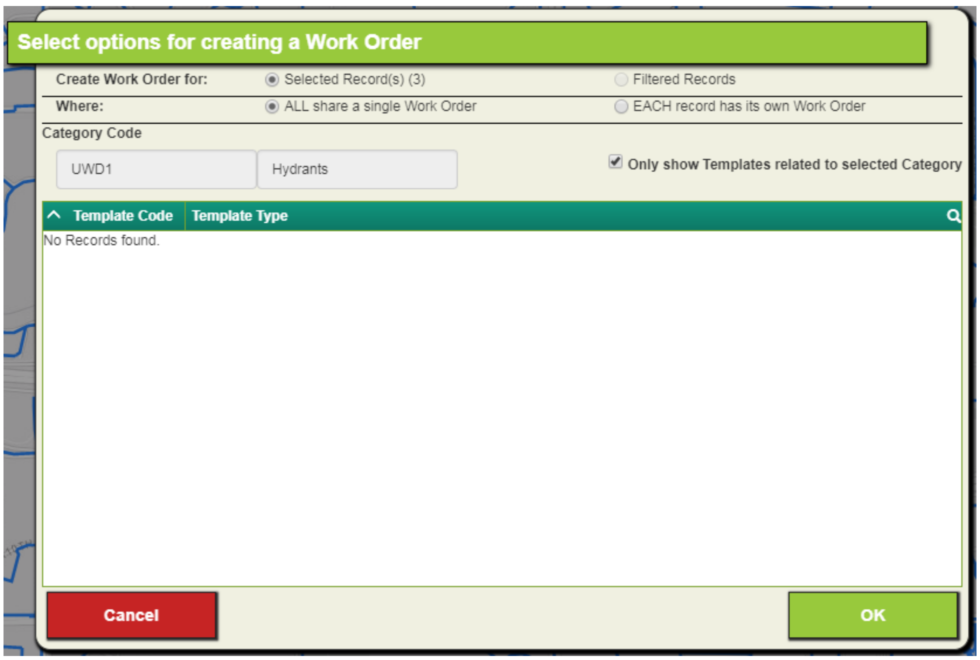
Create Work Order

The Create Work Order tool allows users to create a work order on one or more assets in the map.

1. Select one or more asset either directly in the map or from the data table.
2. Click the Create Work Order button from either the Selection Toolbar or the data table. The following dialog will appear:

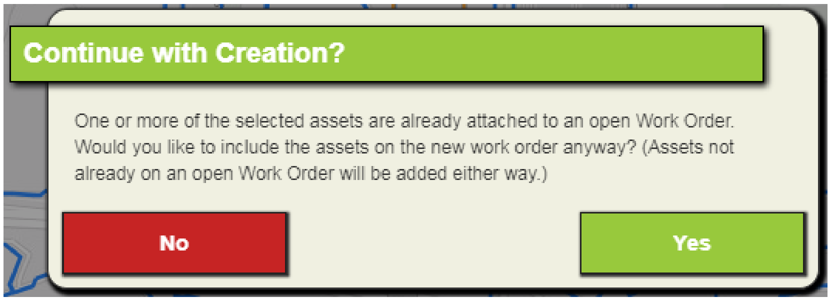


   a. The Filtered Records option is not enabled when creating work orders from the map
   b. The where options will only appear if more than one record is selected

3. If more than one asset was selected, choose if you want to create one work order with all the selected assets attached, or create a separate work order for each asset.
4. Select the Category Code to use. If there is a Default Work Order Category assigned to the assets, this will automatically be filled out.
5. Under Select Template is a list of templates form the PM/Templates module with a category that matches the work order. Select a template if you would like to use it for the work order.

6. Click OK.

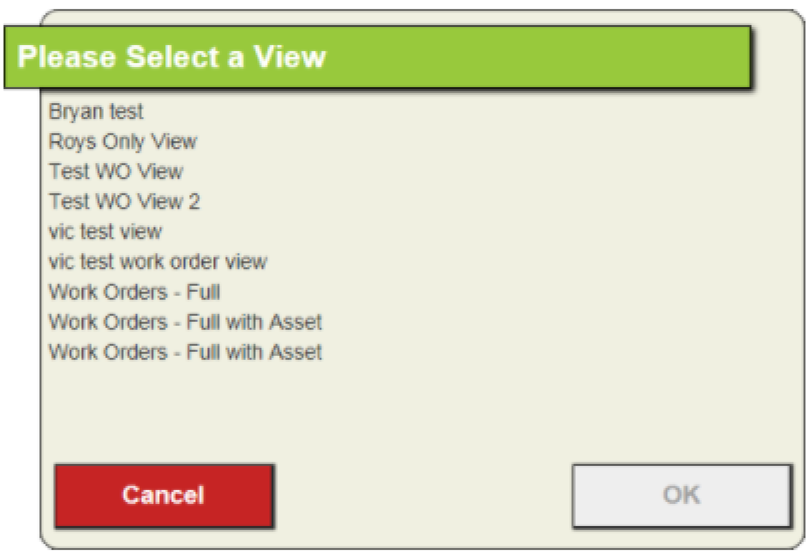
    a. Note: If there are open work orders on any of the selected assets, a prompt will appear asking the user if they want to proceed to create the work order.



    b. Note: This prompt only appears if the *Notify user when Asset is already attached to an open Work Order* work option is enabled.

    c. Click Yes to continue

7. A work order module view will open in a new tab with the newly created work order(s). If more than one work order view exists, the user will receive a prompt asking which work order view they want to open.



    a. Note: This prompt only appears if more than one work order view exists and if the *Show user a popup of choices to open Work Orders with* system setting is set to TRUE.

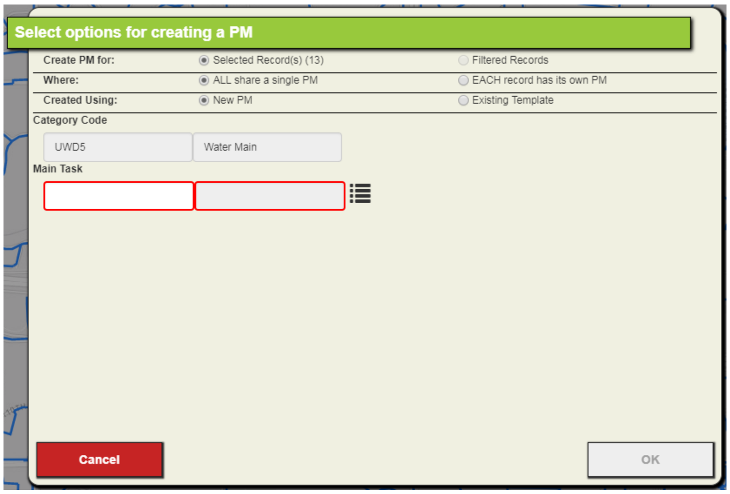
    b. Select a view and click OK.

8. A request will automatically be created for each asset. The Lucity Module View will be opened in a new tab with the newly created request(s).

Create PM/Template

The Create PM/Template tool allows users to create a pm/template on one or more assets in the map.

1. Select one or more asset either directly in the map or from the data table.
2. Click the Create PM/Template button from either the Selection Toolbar or the data table. The following dialog will appear:



   a. The Filtered Records option is not enabled when creating pm/templates from the map
   b. The where options will only appear if more than one record is selected
3. Update the Where option.
   a. If more than one asset was selected, choose if you want to create one work order with all of the selected assets attached, or create a separate work order for each asset.
4. Update the Create Using option.
   a. If you want to create a new pm/template using an existing pm/template, mark the Existing Template and then select which template you would like to use.
5. Select the Category Code to use.
   a. If there is a Default Work Order Category assigned to the assets, this will automatically be filled out
6. Select a Main Task.
   a. A main task is required to create a PM/Template from the map. Click the button to get a list of valid tasks to choose from.
7. Click OK.
8. A pm/template module view will open in a new tab with the newly created pm/template(s).

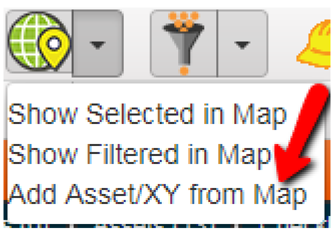
Attach to Work Order

The Attach to Work Order tool allows users to attach assets and/or xy locations to a pre-existing work order.

1. Select one or more assets and/or point locations either directly in the map or from the data table.

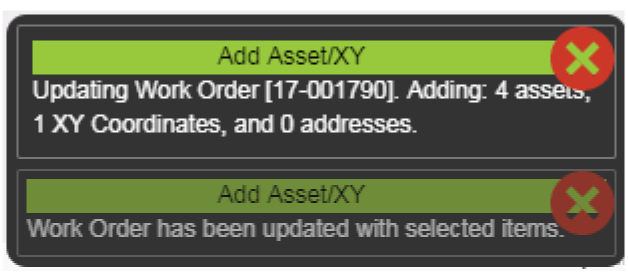
2. Click in the field next to the Attach to Work Order button from either the Selection Toolbar or the data table and type in a valid work order number.

    a. Note: If you had clicked the *Add Asset/XY from Map* Show in Map option from the work order module view, then the work order number would automatically have been populated in the Attach to Work Order field.



3. Click Go next to the Attach To Work Order button 

4. The assets and/or point locations will be added to the work order, you will receive a notification when the items have successfully been added.



    a. Assets will be added to the asset grid of the work order

    b. The xy and address of the point location will be added to the locations grid of the work order.

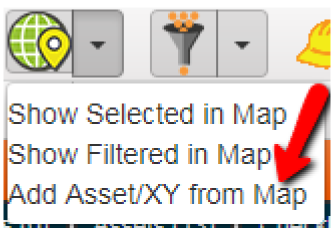
Attach to PM/Template

The Attach to PM/Template tool allows users to attach assets and/or xy locations to a pre-existing pm/template.

1. Select one or more assets and/or point locations either directly in the map or from the data table.

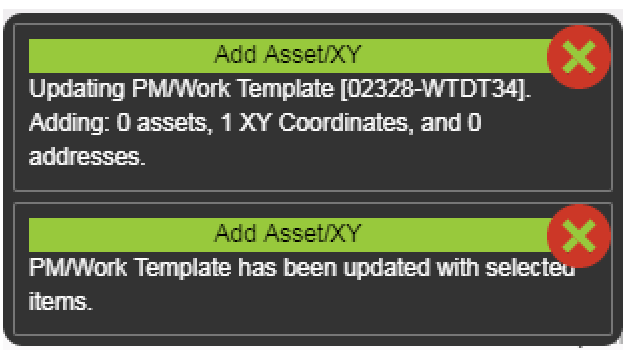
2. Click in the field next to the Attach to PM/Template button from either the Selection Toolbar or the data table and type in a valid work order number.

   a. Note: If you had clicked the *Add Asset/XY from Map* Show in Map option from the pm/template module view, then the pm/template number would automatically have been populated in the Attach to PM/Template field.



3. Click Go next to the Attach To PM/Template button 

4. The assets and/or point locations will be added to the pm/template, you will receive a notification when the items have successfully been added.



   a. Assets will be added to the asset grid of the pm/template

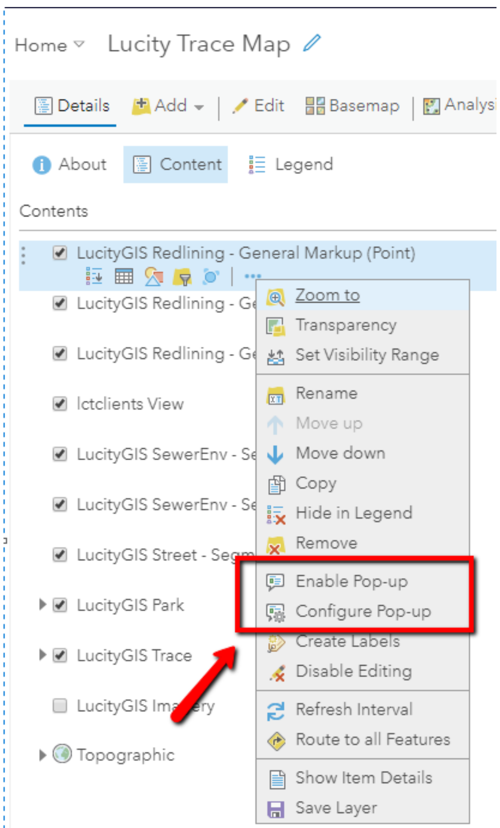
   b. The xy and address of the point location will be added to the locations grid of the pm/template.

Identify

The Pan tool is enabled by default when the map first opens. When the Pan tool is active the default action for a mouse click is to identify features in the map at the location of the mouse click. The action will result in displaying a popup for the feature(s) that intersect the mouse location.

Defining Popups

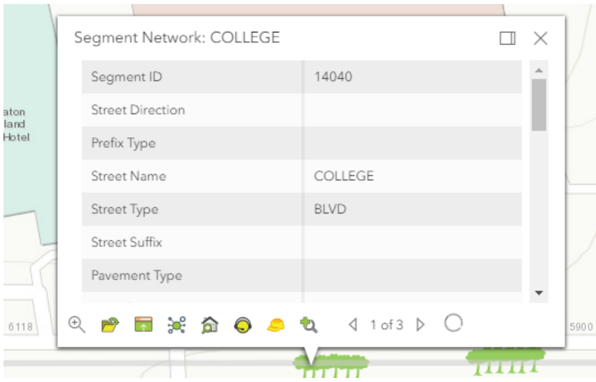
Popup Templates are defined on a per layer basis. There may be some layers in which you don't want popups to appear when users click on its features, for those layers you simply would not enable a popup. For Esri web maps, popup templates are configured in the map and saved with the web map.



For Lucity legacy maps, or Esri web maps that contain layers that don't have a popup template defined, the Lucity web map will create a default popup template for each layer automatically only if the auto-generate setting is enabled with the GIS View:

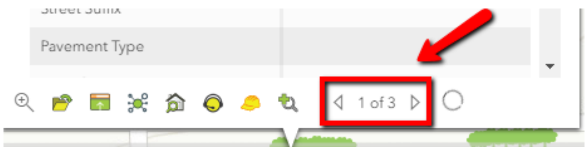
Popup Example

The following is an example of a popup that would appear when clicking on a feature in the map:

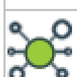
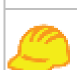


Note:

- The tool only identifies features that are currently visible in the map
- If more than one feature exists at the location of the mouse click, then there will be navigation arrows to switch between the details of each feature.



- The system checks if the selected feature is linked to Lucity, and if so, it will display the following Lucity tools:

	***Open Lucity Record***	Opens the associated Lucity record
	***Open Module View***	Opens the Data Grid and displays the Lucity Module View for the currently selected records. Each layer will be opened in another tab.
	***Relationships***	Displays a list of modules with records related to the selected record in the grid.
	***Property Viewer***	Displays a list of modules with records related to the address associated with the selected record
	***Create Request***	Creates a ***Request*** for the currently selected records.
	***Create Work Order***	Creates a ***Work Order*** for the currently selected records.
	***Create Inspection***	Creates an ***Inspection*** for the currently selected asset.