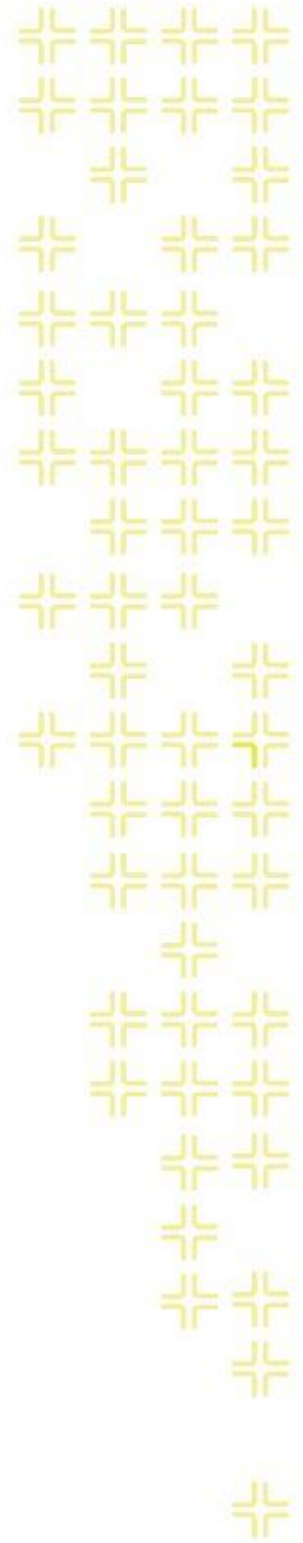




TRAINING GUIDE

What's New in Lucity GIS for 2014 and 2014r2



What's New in Lucity GIS for 2014 and 2014r2

In this session, we'll introduce you to new Lucity GIS tools available since ACT 2013

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Overall Changes in Lucity GIS

Highlights for version 2014

- New GIS enabled modules:
 - Facility: Equipment Plant
 - Storm: Weirs, BMP Asset Items, MACP Inspections*, Sampling*
 - Sewer: MACP Inspections*, Overflows*, Structure Inspections*
 - Water: Hydrant Flow Tests*, Hydrant Inspections*, Losses*, System Valve Inspections*
- *Lucity inspection modules can now be linked to a feature class
 - Inspection modules require a custom synchronization that can be defined in the Lucity Geodatabase Configuration tool
 - v2014 only supports Lucity to GIS synchronization
- Improved compatibility with Esri's date data type.
 - GIS field that contains both a date and time component can now be successfully synchronized to both a Lucity Date and a Lucity Time field.
- Lucity Spatial - Lucity now stores work request and work order geometric information (address, x/y, assets locations) directly in the Lucity database. This change allows the system to display that information directly in the map.
 - As work orders are created, updated, deleted a new service, Lucity Spatial Updater, processes the changes and writes the spatial information directly into the Lucity database.
 - The Lucity Work Viewer tool in ArcMap allows users to create custom views to these new spatial tables allowing for display of live work data in the various Lucity GIS solutions (ArcMap, Lucity Web Map, etc).

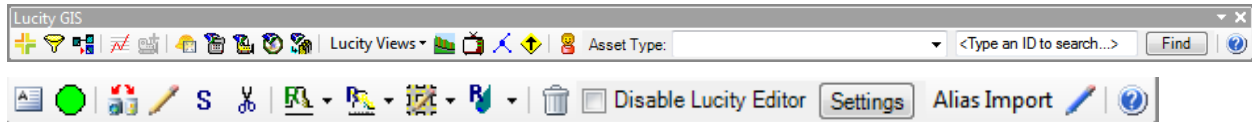
Highlights for version 2014r2

- New GIS enabled modules:
 - General: Parcels
 - Facility: Irrigation Valves, Irrigation Nodes, Irrigation Pipes, Irrigation Controllers
 - Park: Art, Irrigation Nodes, Irrigation Pipes
 - Water: Access Roads, Water Gates
 - Raw Water: Service Manifolds, Service Boxes, Spills, Gauges, Structures, Checks, Culverts
- Lucity now has a parcel module
 - May require some redesign of Lucity GIS configuration for clients that have both a parcel and address point feature class. Previously, these feature classes could only be linked to the Customer Address module.
- Inspection feature classes now support two-way synchronization
 - Inspection modules require a custom synchronization that can be defined in the Lucity Geodatabase Configuration tool






- New alternative to Lucity’s SOE for ArcGIS for Server
 - GIS updates from Lucity can now be accomplished via feature services. With this option, you no longer have to install and enable the Lucity SOE on ArcGIS Server map services. Instead you would just need to publish a map service that has the Feature Access capability enabled on it. When edits are made in Lucity the related feature is updated in the feature service using the ArcGIS REST API.
- GIS Scheduled Tasks
 - Scheduled Tasks were introduced in v2014 and were solely used for one way synchronization to inspection feature classes (Lucity to GIS)
 - 2014r2 includes support for GIS to Lucity synchronization. This functionality is available for all GIS enabled modules (inventory and inspection)
 - Scheduled Tasks can now be, as the name implies, scheduled. A new service, GIS Task Runner, will process any Scheduled Task that is due based upon the user defined frequency and other criteria.
 - This functionality greatly expands the Lucity and GIS integration capabilities with use of feature services. No longer are you bound to an ArcMap edit session for syncing simple* GIS edits to Lucity. Edits to the feature service, regardless of who did it and what environment they did it in, will now be picked up by Lucity. Some potential examples:
 - Collector for ArcGIS (iOS & Android)- including disconnected editing
 - Lucity Web Map
 - ArcGIS.com map viewer
 - Any other 3rd party apps that support feature service editing-
http://resources.arcgis.com/en/help/main/10.2/index.html#/Using_feature_services_in_a_client_application/015400005sq000000/
 - *Merges, Splits, Renumbers, and Deletes must still be done in an ArcMap editing environment with the Lucity extension enabled in order for the Lucity inspection, construction, and work history to be properly updated.
- Editing now available in Lucity Web Map
- The values entered into the Lucity Last Sync Date field in GIS will now be in UTC
 - This is to support the new Scheduled GIS Tasks processing and Esri’s sync enabled feature services.

Notes: _____

ArcMap Changes





Tools added or modified for 2014

Button	Name	Description
	Create Lucy Work Layers	New tool to create both Live and Static views of Work Orders, Requests, Master Projects, and PM/Templates.
	User Specific Settings	Default symbology template supports new Live Lucy work layers.
	Sewer Renumber Sewer Split Sewer Merge	<ul style="list-style-type: none"> Now provides warning to user if ID for merged pipe already exists. The asset description fields for the associated pipe(s) are now updated when doing a split/merge/renumber.
	Storm Renumber Storm Split Storm Merge	<ul style="list-style-type: none"> Now provides warning to user if ID for merged pipe already exists. The asset description fields for the associated pipe(s) are now updated when doing a split/merge/renumber.
	Lucy Editor Extension	Storm Discharge points can now be used as a to/from node for storm conduits.

- New tools added:
 - Create Lucy Work Layers
- Synch Process now supports GIS composite datetime fields.
 - Composite datetime fields are GIS fields that store both a date and time value. Typically, Lucy stores date and time values in separate fields. You can now map a single GIS field that stores both a date and time value to both the Lucy date field and the Lucy time field.

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Tools added or modified for 2014r2

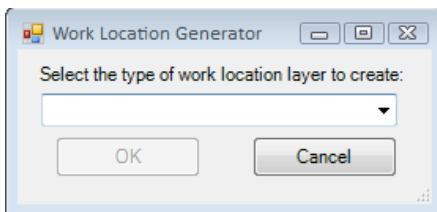
Button	Name	Description
	Update Spatial Relationships	New hardcoded spatial relationship for maintaining Parcel and Address feature relationships.
	Lucy Editor Extension	<ul style="list-style-type: none"> Lucy Last Sync Date field in feature class will now be populated with datetime in UTC instead of local. Park and Facility Irrigation Pipe feature classes are processed like Sewer, Storm, Water pipes where the to/from node information is calculated automatically. New Raw Water Pipe to/from node types have been added to include: Culverts, Checks, Structures, Gauges, Spills, Service Boxes, Service Manifolds.

- The Lucy Last Sync Date field will now be populated with the current datetime in UTC format instead of local.
 - This is to support the new GIS Tasks processing and Esri's sync enabled feature services.
- Endpoints for Park and Facility Irrigation Pipes are automatically managed by Lucy extension.
- Parcel and Address relationships are automatically managed by Lucy extension
- Raw Water Pipe to/from node types can now include: Culverts, Checks, Structures, Gauges, Spills, Service Boxes, and Service Manifolds

Create Lucy Work Layers

The Create Lucy Work Layers allows users to create special layers within the map that display information about Work Orders, Work Requests, Master Projects, and PM/Templates. This tool launches the various Work Location tools allowing users to create layers of work locations. After a work location layer is added to the map the individual tools also used to interact with the layers. This tool allows users to continue to add additional work location layers to the map

- Click on the  button in the toolbar. The following pop-up will appear:



- Select the type of work location you would like to create from the drop down list and Click OK.

Available Views

Requests	This creates temporary static layers of work request locations based on Dates, Categories, Filters, and Spatial Filters.
Requests (Live)	This creates dynamic (live) views of work request data based on a filter.
Work Orders	This creates temporary static layers of work order locations based on Dates, Categories, Filters, and Spatial Filters.
Work Orders (Live)	This creates dynamic (live) views of work order data based on a filter.
PM/Routine	This creates temporary static layers of Master Projects based on a filter.
Master Projects	This creates temporary static layers of PM/Routine locations based on a Dates, Categories, Filters, and Spatial Filters.

- The associated tool will appear allowing you to provide further details specific to the type of work.

Lucity Live Work Layers

The Create Lucity Work Layers allows users to create special layers within the map that display information about Work Orders.

Select a filter option	Provides several ways for users to select a set of work requests to display.
Select an existing filter	Allows users to select a filter that was previously created and saved in the Requests module.
Specify advanced filter	Allows users to manually enter a filter using SQL.
No filter (load all records)	Displays all requests that have spatial information.
Search Criteria	These fields allow users to select or add a filter depending on their previous selection
Select a Filter	Displays all filters that were previously created and saved in the <i>Requests module</i> . Check the My Filters Only box to show only the filters created by the current user.
Manually enter WHERE clause	Type in a filter for the request module using SQL. Start with WHERE....
Time Options	These allow users to enable time functions within the layer. This allows users to use the ESRI Time functions within ArcMap.
Enable Time on Layers	This enables the time function for the request layers.
Start Time Field	These are the pre-configured fields that the time functions will use.
End Time Field	
Time Step Interval	Fill out the number of days/weeks/ months that the time functions should group the requests into. Note: This can be changed in the layer properties after the layer is created.
Misc Options	These allow users to control the results in several other ways.
Do not plot addresses for requests with assets...	This option causes the results to not plot the address of the work request if there is an associated asset. If this is turned off the work request will plot both.
Do not plot addresses for work request locations with X/Y Coordinates	This option causes the results to not plot the address of the request if there is an X/Y coordinate set. If this is turned off the request will plot both.
Select which fields should be included in the resulting layer(s)	The results produced by this tool will plot the location of different requests and will contain attribute information from the Request module in the Attribute table. Check this option to open another section of the tool to change which fields from the Request module show up in the Attribute table.
Alias name for layer	The name that will appear in the table of contents.
Layer description	The description that will appear in the layer's properties.

ArcCatalog Changes

Tools added or modified for 2014

Name	Description
Add Feature Class	Now provides option to map to select Lucity inspection modules
Scheduled Tasks	New tool to push inspection data from Lucity into feature class.
Edit Map Service	Now provides ability to specify a feature service at the feature class level. This setting is used for the Spatial Updater service and Scheduled Tasks
Field Configuration	Now supports mapping GIS composite DateTime fields to Lucity.

- New tools added:
 - Scheduled Tasks
- Ability to map a feature class to the following inspection/testing modules:
 - Storm MACP Inspections, Storm Sampling, Sewer MACP Inspections, Sewer Overflows, Sewer Structure Inspections, Water Hydrant Flow Tests, Water Hydrant Inspections, Water Losses, Water System Valve Inspections
- Composite DateTime support- You can now map a single datetime field in GIS to Lucity, where the date and time components are stored in separate Lucity fields.
 - For example, inspection date and inspection times are typically stored separately in Lucity. In GIS you can store both the date and time component in a single field and map that field to both the Lucity date field and Lucity time field. The Lucity editor extension will properly handle populating Lucity date and time fields with the appropriate value.
- Edit Map Service- You can now specify a map service at the feature class level.
 - Prior to v2014, the entire geodatabase had to be configured to use the same map service. With v2014 there are two new processes, Scheduled GIS Tasks and Spatial Updater service, that will use the map service defined at the feature class level first; otherwise, it defaults to the service defined at the geodatabase level.

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Tools added or modified for 2014r2

Name	Description
Edit Map Service	Services configured at the feature class level must now be defined in UI Admin Map Services module.
Update Feature Class Services	New tool to associate map and feature services to multiple feature classes
Connection Properties	<ul style="list-style-type: none"> The edit map service that is associated to the geodatabase can now be edited from the connection properties tab. A new Test Connection button is available with the edit map service, which will validate the map service connection.
Validate Workspace Validate Feature Class	The validation results will now include testing of the map and feature service associated to the feature class.
Scheduled Tasks	<ul style="list-style-type: none"> Added new task type “Sync- GIS to Lucity” in addition to the “Sync- Lucity to GIS” Enabled the ability to schedule the GIS Task Provides processing log details
Copy GIS Task	New tool that can be used to copy a GIS Task template to other feature classes
Update Street Name Domains	Adds ability to create a text domain for composite street name fields. In addition, each of the street component domains will now get applied to all feature class fields that are assigned to the corresponding street component field.
Update Work Category Domain	New tool to create a domain for work category component fields. In addition, the domain will get applied to all feature class fields that are assigned to a work category component field.

- New tools added:
 - Update Feature Class Services
 - Scheduled GIS Tasks- “Sync GIS to Lucity”
 - Copy GIS Tasks
 - Update Work Category Domain
- Edit Map Service- To facilitate the management and configuration of map services with Lucity the services configured at the feature class level must first be defined in UI Admin Map Services module.

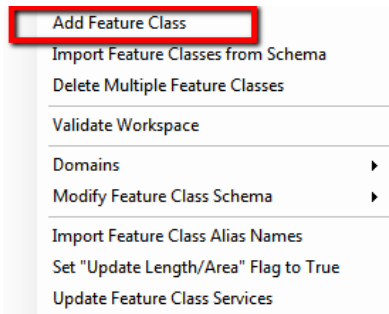
Link a feature class to a Lucy Inspection module

Starting with v2014, there are a few select inspection modules that you can link directly to a feature class. With v2014, only Lucy to GIS synchronization is supported with these inspection feature classes. Using the new GIS Scheduled Tasks you can transfer Lucy inspection data into the feature class. The primary purpose of this functionality is to support Esri's Local Government Maps and Apps that utilize displaying various inspection/testing data.

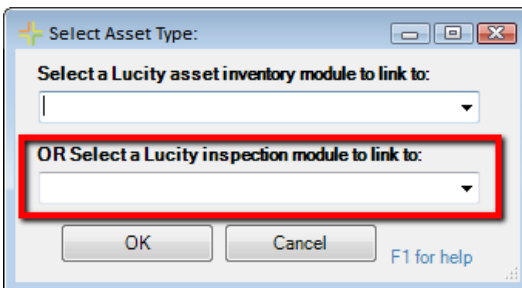
With v2014r2, we added support for GIS to Lucy synchronization; however, this is only supported with Scheduled Tasks it is not supported when directly editing in an ArcMap edit session. With this added support you can now take advantage of data collection outside of an ArcMap edit session, such as using Esri's Collector for ArcGIS to obtain inspection/testing results and have the information imported into Lucy using a Scheduled Task.

To configure an inspection feature class with Lucy:

1. In the Lucy Geodatabase Configuration tool, Right-click on the geodatabase connection node that contains the feature class you wish add and click "Add Feature Class".

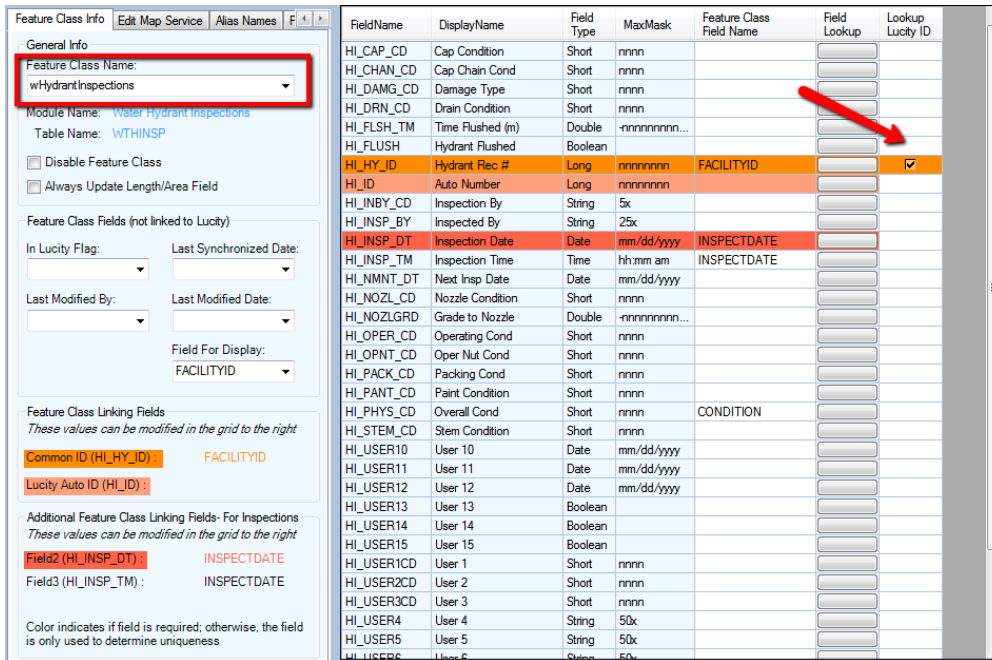


2. The following form will appear:



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3. In the second drop down list select the inspection/testing module. Click OK.



4. The Geodatabase Configuration will be updated to indicate the new inspection type. The name of the feature class must be entered before this new feature class configuration will be saved. Either enter the feature class name directly, or select it from the drop down list of feature classes the tool found in the database.

- Unlike inventory modules, which have just one required field that determines a record uniqueness, inspection modules may have a combination of fields that determine the record's uniqueness and these fields aren't necessarily required. The fields that determine a records uniqueness and if they are required or not will be displayed in the Additional Feature Class Linking Fields section.
- In the feature class fields grid there is a new column for v2014, Lookup Lucy ID. This column is only enabled for inspection feature classes. All inspection modules are considered a child of some asset inventory module. The inspection feature class must contain a field that indicates what asset it is related to. For example, a Hydrant Inspection feature must have a field that indicates the Hydrant Number. In Lucy, this relationship is maintained using the LucyID (the ID assigned to the hydrant record via the DBMS); however, instead of requiring this arbitrary ID in the inspection feature class you can map a field that stores the asset common ID. When the GIS field contains the asset common ID, just check the Lookup Lucy ID checkbox for that mapping.

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Scheduled Tasks

Scheduled Tasks were introduced in v2014. Starting with v2014, scheduled tasks were designed to push inspection data from Lucity into the related GIS feature class. Although the name implies they could be scheduled, with v2014 they had to be run manually via the Run GIS Task tool in Lucity Geodatabase Configuration tool.

With v2014r2, we added support for GIS to Lucity synchronization. We also released a new service, Lucity GIS Task Runner, which automates the processing of Scheduled Tasks.

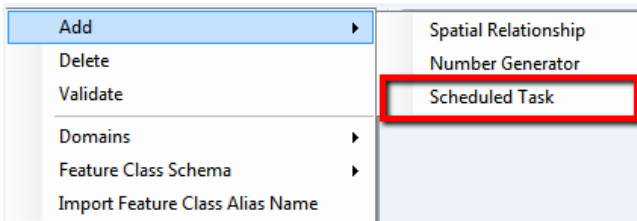
Note:

- **Merges, Splits, Renumbers, and Deletes must still be done in an ArcMap editing environment with the Lucity extension enabled in order for the Lucity inspection, construction, and work history to be properly updated.**
- Number generators, spatial relationships, and any other Lucity GIS extension functionality (as found with the ArcMap editing environment) is **not** performed when Scheduled Tasks synchronize features with Lucity.
- Features must meet the Lucity module requirements in order for them to be synchronized. For example, required fields such as the Lucity common ID must be populated with a unique value.
- Scheduled Tasks interact with the feature class via map and/or feature services. Before setting up a Scheduled Task you should make sure there is a map service defined at either the feature class or geodatabase level.

Creating a new Scheduled Task

To setup a new Scheduled Task for a feature class:

1. In the Lucity Geodatabase Configuration tool, right-click on the feature class node and click Add>>Scheduled Task.



Notes:

2. The following form will appear:

3. Under General Info- select the desired Task Type from the drop down menu. For v2014r2, the options are: “Sync- Lucity to GIS” and “Sync- GIS to Lucity”.

a. Note: The Disabled checkbox will prevent the Scheduled Task from being processed by the GIS Task Runner service.

4. Filter Options: Select whether the task will process all records (default) or process a filtered set.

a. If using a Filtered Set- the Select Filter button will only be enabled for task types of “Sync- Lucity to GIS”.

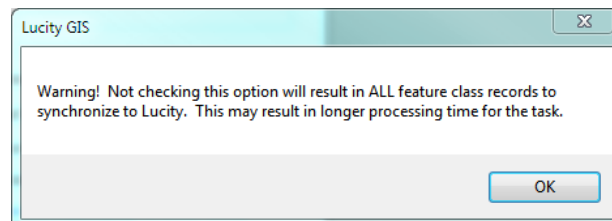
b. If manually entering the Where Clause, it must pass validation of the underlying data source.

5. Options: Adjust any additional settings as needed:

a. **Only process records modified since last run**- This option checks through the records that were selected for processing and only processes those records that were edited since the last time the scheduled task processed.

i. Note: If this option is checked and the Task Type is “Sync- GIS to Lucity” then you must also provide the Last Edited DateTime Field. If the Task Type is “Sync-Lucity to GIS”, then the Lucity Last Mod Date and Time fields will be used.

ii. Not checking this option will result in the following prompt. Click OK to proceed.



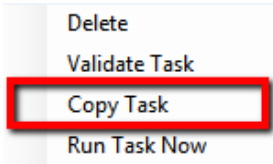
b. **Last Edited Date Time Field**- This option is only enabled if the “Only Process records modified since last run” is checked and the task type is “Sync- GIS to Lucity”.

- c. **Insert record if it doesn't already exist**- Allows for new records to be inserted into the GIS feature class or Lucity module depending on the task type.
 - d. **Update existing record**- Allows updates to existing records in the GIS feature class or Lucity module depending on the task type.
 - e. **Delete previous inspection(s) for asset**- This option is only enabled if the task type is "Sync- Lucity to GIS". This option causes the task to delete any inspection in the feature class that isn't the most recent inspection for an asset. The purpose of enabling this option is if you want the feature class to only contain the most recent inspection for each feature.
6. **Scheduling Info:** This section can be configured so the task is processed by the GIS Task Runner service.
- a. **Units**- Enter a numeric value that indicates how often the process should run. This value is used in conjunction with the Frequency. For example, if Units = 3 and Frequency = Hours then the Scheduled Task would run every 3 hours.
 - b. **Frequency**- Select the desired frequency from the drop down. The options are Minute, Hours, Days, or Months.
 - c. **Last Run**- This is disabled by default, showing the last time the scheduled task ran. For new scheduled tasks this will be blank.
 - d. **Override**- For new scheduled tasks, or you wish to reset the last run date to trigger the scheduled task to get processed again, then you can check the Override checkbox which will enable the Last Run text box.
 - e. **Next Run**- This indicates the next time the scheduled task should be processed. The GIS Task Runner service uses this value to determine which scheduled tasks to process.
 - f. **Recalc**- If the Units, Frequency, or Last Run information was updated then the Recalc button will update the next run date field based upon the new settings.
7. **History:** This section is read-only and shows when the Scheduled Task was last picked up, when the sync process started and when it last finished.
8. **Process log:** This section is also read-only and shows all logging related to the previous processing of the scheduled tasks. When a scheduled task is processed either manually or via the GIS Task Runner service, logging entries are recorded in GBAComm.CMGISTASKLOG. Entries are removed after 30 days.
- a. **TimeStamp**- The time the entry was inserted
 - b. **Status**- Various descriptions to indicate the processing status
 - c. **Edit**- 1=Inserts, 2=Edits, 3=Deletes
 - d. **Error**-1=TransactionalDetails, 2=ValidationFailed, 3=ProcessFailed, 4=ServiceIssue, 5=BusinessObjectIssue, 6=MissingData
 - e. **ErrorDescription**- Further details regarding the edit or error
 - f. **ErrorException**- Further details regarding error
 - g. **GUID**- The processing batch GUID
 - h. **ModID**- The Lucity Module ID
 - i. **LucityID**- The Lucity Record ID
 - j. **GISID**- The GIS feature's ObjectID
 - k. **Syntax**- The syntax used for either retrieving, updating, inserting or deleting

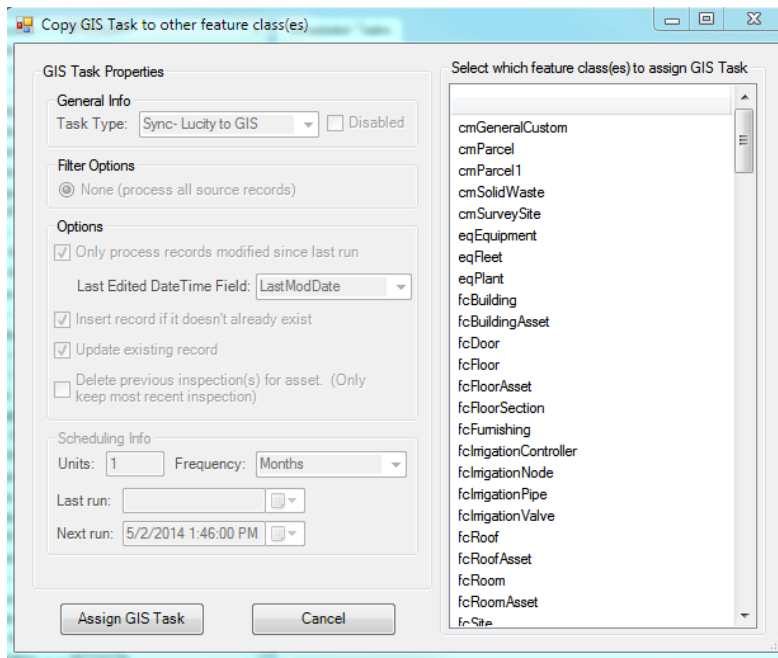
Copying a Scheduled Task

To facilitate the process of setting up scheduled tasks for multiple feature classes, you can use the Copy GIS Task tool to create a new scheduled task for multiple feature classes:

1. In the Lucity Geodatabase Configuration tool, right-click on the existing Scheduled Task and click Copy Task.



2. The following form will appear:

A screenshot of a dialog box titled 'Copy GIS Task to other feature class(es)'. The dialog is divided into two main sections. The left section, 'GIS Task Properties', contains several sub-sections: 'General Info' with a 'Task Type' dropdown set to 'Sync- Lucity to GIS' and a 'Disabled' checkbox; 'Filter Options' with a radio button selected for 'None (process all source records)'; 'Options' with checkboxes for 'Only process records modified since last run', 'Insert record if it doesn't already exist', 'Update existing record', and 'Delete previous inspection(s) for asset. (Only keep most recent inspection)'; and 'Scheduling Info' with 'Units' set to '1', 'Frequency' set to 'Months', and 'Next run' set to '5/2/2014 1:46:00 PM'. The right section, 'Select which feature class(es) to assign GIS Task', contains a list of feature classes including 'cmGeneralCustom', 'cmParcel', 'cmParcel 1', 'cmSolidWaste', 'cmSurveySite', 'eqEquipment', 'eqFleet', 'eqPlant', 'fcBuilding', 'fcBuildingAsset', 'fcDoor', 'fcFloor', 'fcFloorAsset', 'fcFloorSection', 'fcFurnishing', 'fcIrrigationController', 'fcIrrigationNode', 'fcIrrigationPipe', 'fcIrrigationValve', 'fcRoof', 'fcRoofAsset', 'fcRoom', 'fcRoomAsset', and 'fcSite'. At the bottom of the dialog are 'Assign GIS Task' and 'Cancel' buttons.

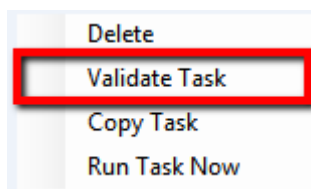
- a. Note: GIS Task Properties are all read-only. Any item needs to be altered can be done on an individual basis after the Copy GIS Task is complete.
3. On the form select the feature class(es) you wish to create a new Scheduled Task for using the existing scheduled task properties. Once the feature classes have been selected click the Assign GIS Task to complete the process.

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Validate a Scheduled Task

A validation tool is available for scheduled tasks that will run the following checks. Note: these same checks are also performed when running the scheduled tasks:

- Verifies at least one option has been set: insert, update, delete.
 - Verifies there are feature classes linked to parent module (for inspections only)
 - Validates Lucity to GIS field mappings
 - Validates list of fields used to determine record uniqueness
 - Tests connection to map service for feature class
 - Validates feature class exists in the service
 - Export Validations
 - Confirms feature class is an inspection feature class
 - Tests connection to parent feature class service(s)
 - If Use Last Sync Date option is true- verifies the Lucity module contains a Last Mod Dt field
 - If Delete option is true- verifies that the Lucity module has a Most Recent Inspection flag
 - Tests the SQL syntax used to obtain the list of Lucity records
 - Import Validations
 - If Use Last Sync Date option is true- confirms that a GIS Date Time Field is defined and exists in the layer in service
 - Confirms that the Scheduled Task's Last Sync Date Time is populated
 - If feature class configuration contains the Lucity Last Sync Date field- confirm it exists in layer in service
 - Confirms that the Lucity module contains a Last Mod Dt field
 - Tests the SQL syntax used to obtain the list of GIS records from service
1. To run the validations, in the Lucity Geodatabase Configuration tool, right-click on the existing Scheduled Task and click Validate Task.

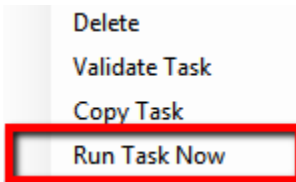


2. The validation will start, once complete you will receive a prompt indicating if the validation passed with or without errors. Any errors or tests that failed validation should be reported in the process log results.

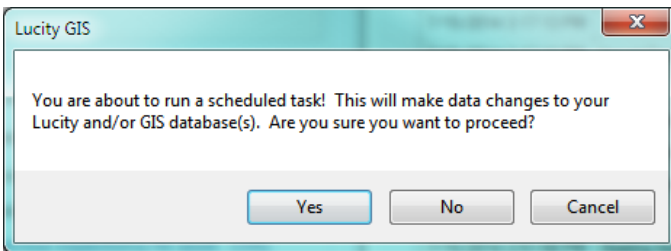
Manually Run a Scheduled Task

With v2014r2 we released a Lucity GIS Task Runner service that, by default, kicks off every min determining if any Scheduled Task is due to run. There may be different situations in which the Scheduled Task needs to be run manually.

1. In the Lucity Geodatabase Configuration tool, right-click on the existing Scheduled Task and click Run Task Now.



2. The following confirmation prompt will appear. Click Yes if you want to proceed with the process.

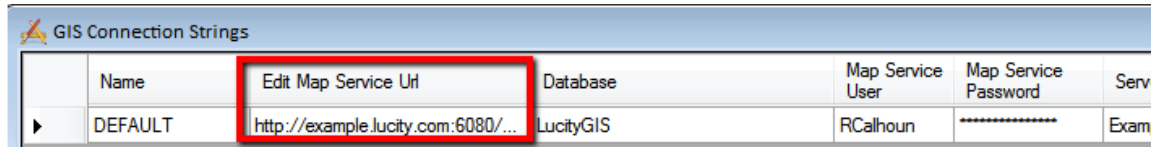


3. Once complete you will receive a prompt indicating if the task completed with our without errors. Any errors or other processing details will be reported in the process log results.

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Edit Map Service

Prior to v2014, an Edit Map Service was defined at the workspace level within GIS Connection Strings in UI Admin. This setting was primarily used for the Lucy SOE to push edits from Lucy to GIS.



Name	Edit Map Service Url	Database	Map Service User	Map Service Password	Serv
DEFAULT	http://example.lucity.com:6080/...	LucityGIS	RCalloun	*****	Exam

With v2014, two new Lucy GIS concepts were added that expanded the need to define a map service on a feature class level in addition to the workspace/geodatabase level. The Lucy Spatial Updater and Lucy GIS Task Scheduler are new tools introduced in v2014 that interact with map and feature services defined at the feature class level. In v2014r2 we expanded on this concept with the option to push edits from Lucy to GIS directly to a feature services without the need for the Lucy SOE.

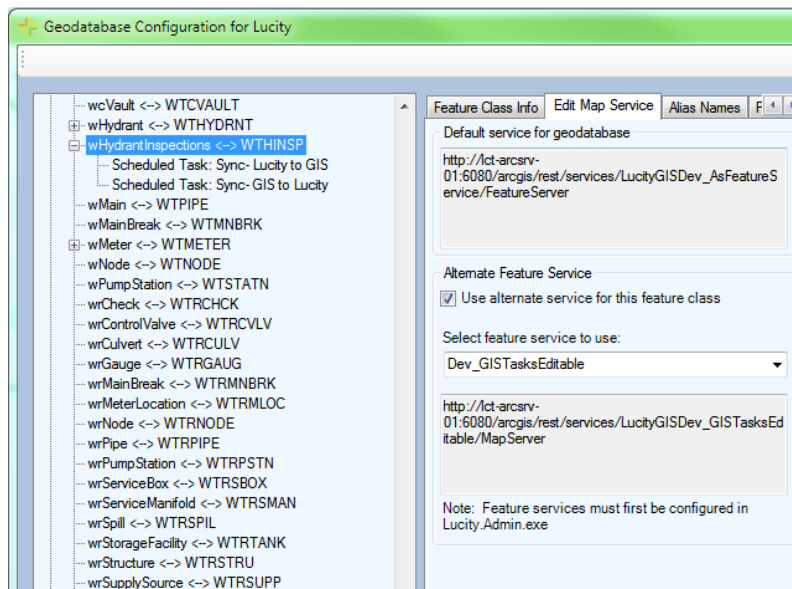
Prerequisites: v2014r2 requires that all map and feature services first be configured in UI Admin Map Services module before they are available for use in the Geodatabase Configuration tool.

Note: If an edit map service is not defined at the feature class level the one defined at the geodatabase level will be used.

Associate a Feature Service to a Feature Class

To define an edit map service at the feature class level:

1. In the Lucy Geodatabase Configuration tool, select the feature class node and click on the Edit Map Service tab.

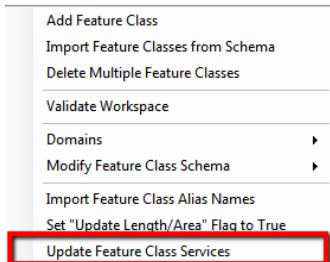


2. The Edit Map Service tab will show the URL for the service defined at the geodatabase level. To use a different service, check the *Use alternate service for this feature class* checkbox. This will enable the drop down list of available feature services. Select the service you wish to use. Changes are saved automatically once you navigate to a different node in the tree view.

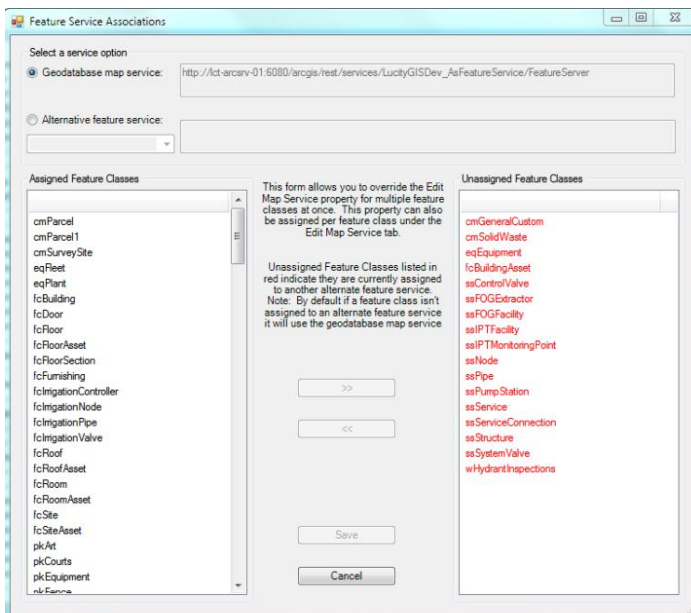
Update Feature Class Services

To facilitate the process of defining feature class level services a tool was provided in 2014r2 that will assign a service to more than one feature class at a time:

1. In the Lucity Geodatabase Configuration tool, right-click on the geodatabase node that contains the feature classes in which you want to associate to a service and select Update Feature Class Services.



2. The following dialog will appear.



3. Select either the Geodatabase map service or an Alternative feature service.
 - a. Note: the Alternative feature service drop down will only contain services defined as editable in UI Admin Map Services module.
 - b. The Assigned Feature Classes list will show the feature classes currently assigned to the selected service.
 - c. The Unassigned Feature Classes list will show the feature classes currently not assigned to the selected service. Items in red indicate the feature class has another service defined at the feature class level.
4. Select the feature class(es) from the Unassigned Feature Classes list that you would like to associate to the selected service.
 - a. Alternatively, you could select feature class(es) from the Assigned Feature Classes list to disassociate them from the selected service.
5. Use the << and >> to associate and disassociate the selected feature classes. Once done, click the Save button.

Composite DateTime fields

Numerous date and time formats are valid using Esri's Date data type. For example, all of the following are acceptable values for an Esri's Date field:

- 7/24/2014
- 7/24/2014 12:32 PM
- 12:32 PM

In Lucity however date and time values are stored in separate fields. Starting with v2014 you can now map an Esri's Date field to multiple Lucity fields. The Lucity sync process will extract either the date or time portion out of the GIS field value based upon the Lucity field type.

FieldName	DisplayName	Field Type	MaxMask	Feature Class Field Name	Field Lookup	Lookup Lucity ID
HI_CAP_CD	Cap Condition	Short	nnnn		<input type="text"/>	
HI_CHAN_CD	Cap Chain Cond	Short	nnnn		<input type="text"/>	
HI_DAMG_CD	Damage Type	Short	nnnn		<input type="text"/>	
HI_DRN_CD	Drain Condition	Short	nnnn		<input type="text"/>	
HI_FLSH_TM	Time Flushed (m)	Double	-nnnnnnnn...		<input type="text"/>	
HI_FLUSH	Hydrant Flushed	Boolean			<input type="text"/>	
HI_HY_ID	Hydrant Rec #	Long	nnnnnnnn	FACILITYID	<input type="text"/>	<input checked="" type="checkbox"/>
HI_ID	Auto Number	Long	nnnnnnnn		<input type="text"/>	
HI_INBY_CD	Inspection By	String	5x		<input type="text"/>	
HI_INSP_BY	Inspected By	String	25x		<input type="text"/>	
HI_INSP_DT	Inspection Date	Date	mm/dd/yyyy	INSPECTDATE	<input type="text"/>	
HI_INSP_TM	Inspection Time	Time	hh:mm am	INSPECTDATE	<input type="text"/>	
HI_NMNT_DT	Next Insp Date	Date	mm/dd/yyyy		<input type="text"/>	
HI_NOZI_CD	Noise Condition	Short	nnnn		<input type="text"/>	

In the above example the GIS field, INSPECTDATE, is mapped to both the Hydrant Inspection Date field (HI_INSP_DT) and the Hydrant Inspection Time field (HI_INSP_TM). The following are examples on how the Lucity synchronization would process the information:

- INSPECTDATE = "7/24/2014"
 - HI_INSP_DT = 7/24/2014 and HI_INSP_TM = null
- INSPECTDATE = "7/24/2014 12:32 PM"
 - HI_INSP_DT = 7/24/2014 and HI_INSP_TM = 12:32 PM
- INSPECTDATE = "12:32 PM"
 - HI_INSP_DT = null and HI_INSP_TM = 12:32 PM

The same concept is followed for edits going from Lucity to GIS.

Validations

Starting with v2014r2, validations in the Lucity Geodatabase Configuration tool now include checks against map and feature services.

Connection Properties | Version Setup

Workspace Type: SDE

Personal Geodatabase Connection Properties

File Geodatabase Connection Properties

Enterprise Geodatabase Connection Properties

Server: LCT-ARCSRV-01

Service: sde.sqlserver:LCT-ARCSRV-01:SQLEXPRES

Database: LucityGISDev

Database Authentication

Username: GISEditor

Password:

Operating System Authentication

Version: dbo.DEFAULT

Test Connection

Edit Map Service

http://lct-arcsrv-01:6080/arcgis/rest/services/LucityGISDev_AsFeatureService/FeatureServer

UserName:

Password:

Test Connection

Update From Lucity Replica Geodatabase

One way to validate a service is to run the Test Connections button found in the Edit Map Service section of the Connection Properties tab for the geodatabase. This test will:

- Validate a connection can be made to the service with the URL and credentials provided
- Analyze each layer within the service to determine if it has a connection to Lucity.
- Results including any errors are reported in the validation results form. An example of the results are shown below.

Validation Results

Testing Service Connection...

Validating Web Service

Testing connection to http://lct-arcsrv-01:6080/arcgis/rest/services/LucityGISDev_AsFeatureService/FeatureServer with username [] and password []

Layer Index: Lucity Module Description (Feature Class Name) - LH

0:	Water Hydrant Inspections (wHydrantInspections) - http://lct-arcsrv-01:6080/arcgis/rest/services/LucityGISDev_AsFeatureService/FeatureServer/0
1:	General Custom (cmGeneralCustom) - http://lct-arcsrv-01:6080/arcgis/rest/services/LucityGISDev_AsFeatureService/FeatureServer/1
2:	Solid Waste (cmSolidWaste) - http://lct-arcsrv-01:6080/arcgis/rest/services/LucityGISDev_AsFeatureService/FeatureServer/2
3:	Survey Sites (cmSurveySite) - http://lct-arcsrv-01:6080/arcgis/rest/services/LucityGISDev_AsFeatureService/FeatureServer/3
4:	Fleet (eqFleet) - http://lct-arcsrv-01:6080/arcgis/rest/services/LucityGISDev_AsFeatureService/FeatureServer/4
5:	Equipment (eqEquipment) - http://lct-arcsrv-01:6080/arcgis/rest/services/LucityGISDev_AsFeatureService/FeatureServer/5
6:	Facility Door (fcDoor) - http://lct-arcsrv-01:6080/arcgis/rest/services/LucityGISDev_AsFeatureService/FeatureServer/6
7:	Facility Building Asset (fcBuildingAsset) - http://lct-arcsrv-01:6080/arcgis/rest/services/LucityGISDev_AsFeatureService/FeatureServer/7
8:	Facility Floor Asset (fcFloorAsset) - http://lct-arcsrv-01:6080/arcgis/rest/services/LucityGISDev_AsFeatureService/FeatureServer/8
9:	Facility Roof Asset (fcRoofAsset) - http://lct-arcsrv-01:6080/arcgis/rest/services/LucityGISDev_AsFeatureService/FeatureServer/9
10:	Facility Room Asset (fcRoomAsset) - http://lct-arcsrv-01:6080/arcgis/rest/services/LucityGISDev_AsFeatureService/FeatureServer/10
11:	Facility Furnishings (fcFurnishings) - http://lct-arcsrv-01:6080/arcgis/rest/services/LucityGISDev_AsFeatureService/FeatureServer/11

The other map and feature service tests occur as part of the Validation tools that are available in the geodatabase and feature class menus.

Add Feature Class

Import Feature Classes from Schema

Delete Multiple Feature Classes

Validate Workspace

Domains

Modify Feature Class Schema

Import Feature Class Alias Names

Set "Update Length/Area" Flag to True

Update Feature Class Services

Add

Delete

Validate

Domains

Feature Class Schema

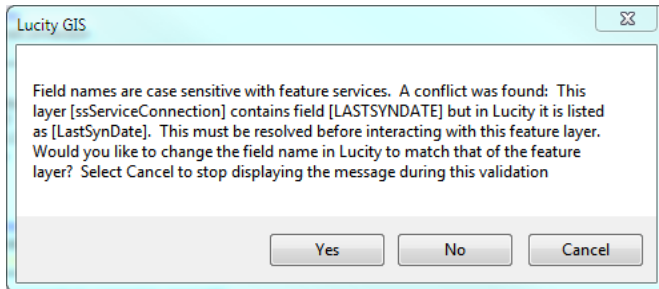
Import Feature Class Alias Name

There are three parts of this validation:

1. Validates setup in Lucity. This part checks to make sure required fields are populated, and Lucity fields are valid.
2. Validates setup in geodatabase. This includes testing the connection to the geodatabase. Validates that the feature class exists, fields exist, data types are compatible, etc.
3. Validates setup in map service. **This test is skipped if both the "Use Feature Service For Updates" and "Enable Lucity Spatial" system settings are FALSE.** This section will validate the following:
 - a. A connection can be made to the service.

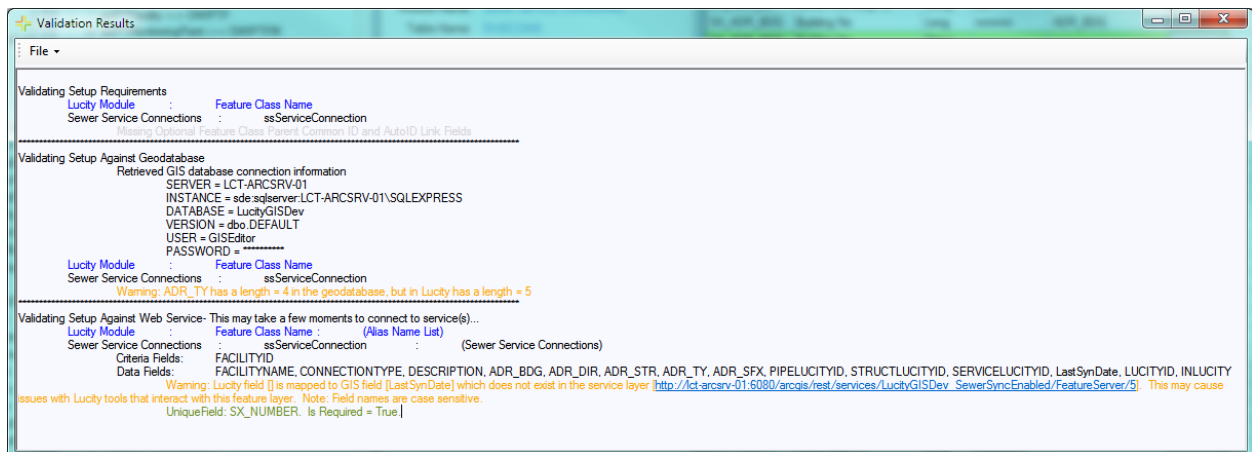
- b. The feature class exists in the service
- c. The feature class fields exist in the service and validates a sample payload

Part of the service validation is to verify the service layer fields exist. The Lucity tools interact with services using the Esri REST API, which field names are case sensitive. If a conflict in case is found during the validation a prompt similar to the following will appear:



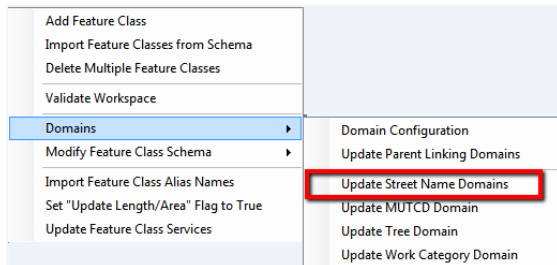
- Yes- will update the case in Lucity.
- No- no changes will be made. Note- this may cause failure when attempting to read or update that field via the map service.
- Cancel- no changes will be made and further case conflicts will be ignored for this validation run.

Once the validation process is complete you will receive a prompt indicating if the validation passed or not. Refer to the validation results window for specifics. The following is an example of the validation results:



Update Street Name Domains

A new domain has been added when running the Update Street Name Domains tool. This domain is for composite street name fields. Lucy breaks out street address information into the following fields: Building number, building suffix, street direction, street prefix, street name, street type, and street suffix. With version 7.6 we supported mapping composite address fields to Lucy. Now with v2014r2 you can create a domain against these composite fields using the Lucy street name list.



All street name domains are created using the values as they are defined in the Lucy Street Name List. The following shows an example of what is created for each domain:

- Street Direction (Lucy.StreetNameDirection)
 - Note: this domain will automatically get associated to all fields linked to a Lucy street direction field (typically *_ADR_DIR)

Coded Values:

Code	Description
E	E
N	N
NE	NE
NW	NW
S	S

- Street Prefix Type (Lucy.StreetNamePrefixType)
 - Note: this domain will automatically get associated to all fields linked to a Lucy street prefix direction field (typically *_ADR_PT)

Coded Values:

Code	Description
Ave	Ave
Calle	Calle
East	East

- Street Name (Lucy.StreetNameName)
 - Note: this domain will automatically get associated to all fields linked to a Lucy street name field (typically *_ADR_STR)

Coded Values:

Code	Description
114TH	114TH
130TH	130TH
131ST	131ST
132ND	132ND
134TH	134TH

- Street Type (Lucity.StreetNameType)
 - Note: this domain will automatically get associated to all fields linked to a Lucity street type field (typically *_ADR_TY)

Coded Values:

Code	Description
ALWY	ALWY
ALY	ALY
ARC	ARC
AVCT	AVCT
AVN	AVN

- Street Suffix (Lucity.StreetNameSuffix)
 - Note: this domain will automatically get associated to all fields linked to a Lucity street suffix field (typically *_ADR_SFX)

Coded Values:

Code	Description
E	E
N	N
NB	NB
NE	NE
NW	NW

- Street Name Composite (Lucity.StreetNameComposite)
 - Note: this domain will automatically get associated to all GIS composite street name fields. These are GIS fields that have been mapped to Lucity using the composite option (green line shown below)

SV_ADR_DIR	Street Direction	String	2x		
SV_ADR_PT	Street Prefix Type	String	5x		
SV_ADR_SFX	Street Suffix	String	5x		
SV_ADR_STR	Street Name	String	50x		
SV_ADR_STR	Street Name	String		FULLADDRESS	
SV_ADR_TY	Street Type	String	4x		

Coded Values:

Code	Description
S 114TH ST	S 114TH ST
S 130TH ST	S 130TH ST
S 131ST ST	S 131ST ST
S 132ND ST	S 132ND ST
S 134TH PI	S 134TH PI

- Street Name List (Lucity.StreetNameList)
 - Note: this domain will automatically get associated to all fields linked to a Lucity street list field (typically *_ADR_ID)

Coded Values:

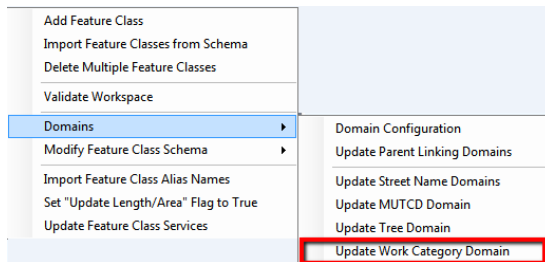
Code	Description
1135	S 114TH ST
1136	S 130TH ST
1137	S 131ST ST
1138	S 132ND ST
1139	S 134TH PI

Update Work Category Domain

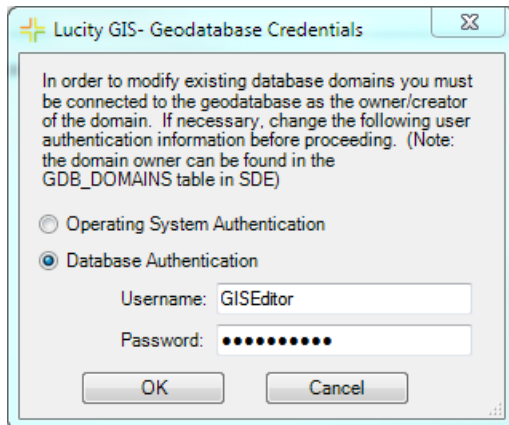
A new domain tool has been added for creating a domain for GIS fields linked to the Lucity default work category field (*_BR_CD). This field is used to assign a default work order category, so when a work order/request is created against the asset it will automatically be assigned to that category of work. Since this field is not a typical code/type picklist the standard Domain configuration tool will not work for this field and requires the use of this new Update Work Category Domain tool.

To update work category domains:

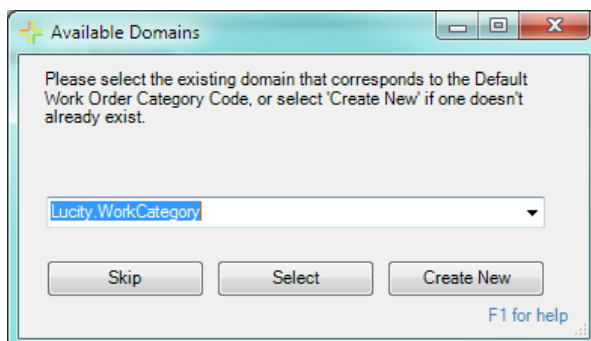
1. In the Lucity Geodatabase Configuration tool, right-click on the geodatabase node and select Domains>>Update Work Category Domain.



2. The following dialog will appear:



3. The dialog is prompting for domain owner credentials. Domains within a geodatabase can only be edited by the original creator (domain owner). Enter the proper credentials and click OK
4. The following message will appear asking for the domain that corresponds to the default work order category code. If this is the first time the tool has been ran and you currently don't have a domain created, click the Create New button; otherwise select the existing domain and click Select.



- Once complete a prompt will appear and you can view details regarding the process in the results window. The following shows an example a `Lucity.WorkCategory` domain created by the tool:

Domain Name	Description
<code>Lucity.StreetNameList</code>	<code>Lucity.StreetNameList</code>
<code>Lucity.StreetNameName</code>	<code>Lucity.StreetNameName</code>
<code>Lucity.StreetNamePrefix</code>	<code>Lucity.StreetNamePrefixType</code>
<code>Lucity.StreetNameSuffix</code>	<code>Lucity.StreetNameSuffix</code>
<code>Lucity.StreetNameType</code>	<code>Lucity.StreetNameType</code>
<code>Lucity.TreeCommonName</code>	<code>Lucity.TreeCommonName</code>
<code>Lucity.WorkCategory</code>	<code>Lucity.WorkCategory</code>
<code>PKART AB STAT CD</code>	<code>Status</code>

Domain Properties:

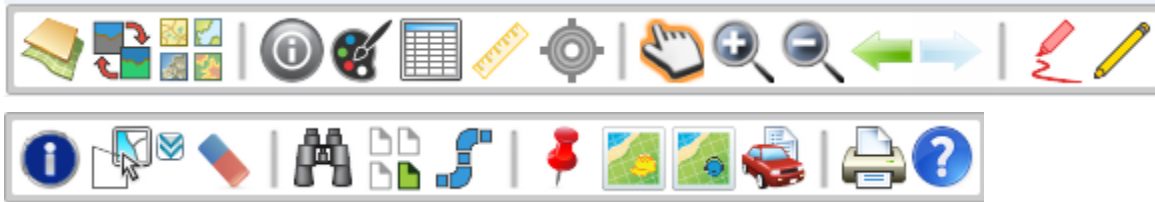
Field Type	Text
Domain Type	Coded Values
Split policy	Duplicate
Merge policy	Default Value

Coded Values:


Code	Description
01000	01000 - Admin
02000	02000 - Call Center
03000	03000 - Technology Services
10000	10000 - Public Works Department
11000	11000 - Storm Division

Notes: _____









Lucity Web Map Changes



Tools added or modified for 2014

Button	Name	Description
	Relationships	Tool has been updated to support the live work order layers


Tools added or modified for 2014r2

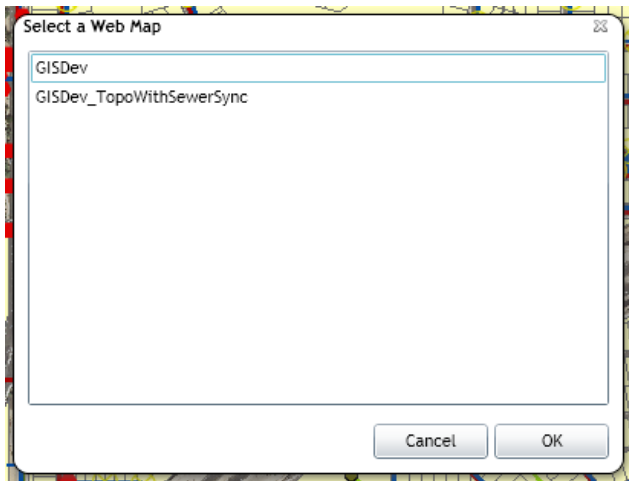
Button	Name	Description
	TOC tools	A new zoom to layer tool has been added in the Table of Contents
	Swap Web Map	A new tool has been added to allow loading of different web maps
	Geolocate	A new tool has been added to show current location
	Edit Tools	New tool that provides editing capabilities for feature services in map
	Selection Tools	<ul style="list-style-type: none"> A new select by rectangle tool is available New button to switch between selection options (select by rectangle, select by polygon, select by point). Last used selection option is now a saved setting
	Water Isolation Valve Trace	A new tool that provides an isolation valve pipe trace
	Property Viewer	A new property viewer tool is now available in the feature data grid and identify results windows
	Create Inspection	A Create inspection tool is now available in the feature data grid and identify results windows

Swap Web Map

A new tool has been added allowing users to switch between web maps that are defined in the UI Admin Map Setup module. The tool essentially removes all layers and properties of the current map and loads the ones associated with the new map. This tool also changes the user's default web map to be that of the new map, so the next time the Lucity web map is launched the last web map loaded will be used.

To swap out the web map:

1. On the Lucity toolbar, click the Swap Web Map tool . The following dialog will appear:



Note: This tool is disabled if there is an active edit session.

2. Simply select the web map you wish to load and click OK. The new web map will load. Note: you may receive prompts for credentials if the new web map has any secured services.


Notes: _____

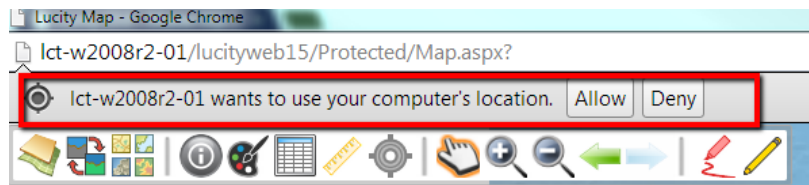
Geolocate

A new tool has been added allowing users to show their current location on the map. This tool uses the W3C Geolocation API (<http://www.w3.org/TR/geolocation-API/>).

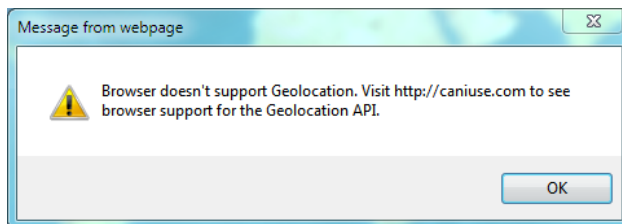
- Enabling this tool will cause the web page to try and access the user's location information. Since this could compromise a user's privacy, permission must be obtained before the web map can gain access. Each browser has its own policies and methods for requesting the user's permission.
- The API is unaware of the underlying location information source. Common sources of location include GPS and location derived from network signals such as IP address, RFID, Wi-Fi and Bluetooth MAC addresses, and GSM/CDMA cell IDs.

To show your current location on the webmap:

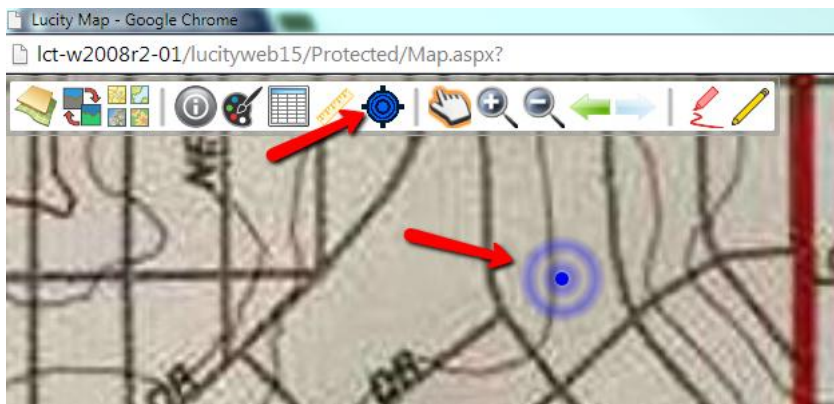
1. On the Lucy toolbar, click the Geolocate tool .
2. Depending on your browser settings you may receive a prompt requesting permission to access your location information. You will need to grant permission in order for the tool to function.



- Example:
- Note: This tool will not work with all browsers. In the event that your browser isn't supported a prompt similar to the following will appear:



3. Once location tracking has been enabled, the map will zoom to your location which will be shown using a blue flashing dot. The Geolocate tool will also change to blue to indicate the tool has been activated. To turn off location tracking simply click the Geolocate tool again.



Edit Tools

A new toolset has been provided to allow for basic editing of feature services in the map. Editing capabilities are only available for web maps that contain map services that have been configured to allow editing. New options in the UI Admin Map Services and Map Setup modules must be configured to allow editing.

- The edit toolset can be configured to work with any map service that has feature access enabled.
- The edit toolset can work on both Lucity linked and non-Lucity data.
- If editing Lucity linked data:
 - Lucity is not directly aware of the edits being made. **The Lucity database is not updated when you save your edits.** In order for Lucity to be updated with the edits made in the web map you **must do one** of the following:
 - Setup a GIS Scheduled Task (new functionality available with 2014r2) against the underlying feature classes.

or

 - In ArcMap, using the Lucity Editor Extension run the Force Sync tool on the features that have been edited.
 - Only basic editing tasks supported. Due to the nature of maintaining inspection and work history along with feature relationships the following edits are not supported and should be avoided in the web map:
 - Renumber (changing the FacilityID/CommonID value for an existing feature)
 - Delete (deleting an existing feature)
 - Split (splitting a sewer pipe, storm conduit, water pipe, or a street segment/subsegment/supersegment)
 - Merge (merging sewer pipes, storm conduits, water pipes, or street segments/subsegments/supersegments)
- The edit toolset found in the Lucity web map is an Esri out-of-the-box edit toolset. We currently haven't implemented any custom code or modifications to these tools.
- Note: When the Edit Toolset is active, the Lucity tools (Identify, Select, etc.) will not function on the edit layers.

Notes: _____

Configure editing in Lucity Web Map

To setup a web map for editing:

1. You first need to indicate that the service has feature access enabled. In the Lucity Admin tool, open the Map Services module.

Name	Url	Order	Opacity	Base Map?	Tiled?	Has Feature Service?	Disable Local Caching	Require Logon?	UserName
LucityGISDev_AllLayers	http://lct-arcsrv-01.6080/arccgis/rest/services/LucityGISDev_AsFeatureService/MapServer	2		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LucityGISDev_GISTasks	http://lct-arcsrv-01.6080/arccgis/rest/services/LucityGISDev_GISTasksEditable/MapServer	4		<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
LucityGISDev_Redlining	http://lct-arcsrv-01.6080/arccgis/rest/services/LucityGISDev_MarkupSecure/FeatureServer	4		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

2. There is a new column in the map services grid that indicates if the map service has an associated feature service. Either update the existing service record, or create a new record and place a check in the “Has Feature Service?” column.
 - The URL column should contain the URL to the MapServer not the FeatureServer!
 - i. When you publish a map service with feature access capabilities essentially a map service and a feature service are created; however, due to the limitations of supported operations for feature services (i.e. Identify, Find) we will load the map service into the Web Map and only reference the feature service when the editing toolset is active.
 - ii. Note: Once the “Has Feature Service?” been checked editing will be enabled in all web maps that are configured to use that service. If there are specific web maps in which the editing should be disabled refer to step #3.
3. Once you have defined which of your services can be edited, you can then override the editing capabilities for specific web maps. In Lucity Admin tool, open the Web Map module. Edit each of the available maps that you wish to disable editing. On the GIS Map Edit form there is a new checkbox in the services grid, “Disable Edits”, place a check in the column for the services you wish to disable edits on.

GIS Map Edit

Name: Use as Default Map Enable Local Services

Geocoding

Default Geocoding Url:

Geocoding Url # different than default:

Redlining

Select the feature service that contains the redlining layers: Enter the feature layer index for the three redlining layers: Point index: Polyline index: Polygon index:

Available Web Services

- LucityGISDev_AllLayers
- LucityGISDev_Parcel
- LucityGISDev_SewerWaterStorm
- LucityGISDev_Park
- LucityGISDev_Imagery
- East Topo
- LiveOpenWorkOrders

Available Editable Services

- LucityGISDev_GISTasks
- LucityGISDev_SewerSyncEnabled

Available Local Services


Services to Display in Map

Name	Url	Order	Disable Identify	Disable Edits	Order Override
LucityGISDev_Imagery	http://lct-arcsrv-01.6080/arccgis/rest/services/LucityGISDev_ImageService/ImageServer	0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
LucityGISDev_Parcel	http://lct-arcsrv-01.6080/arccgis/rest/services/LucityGISDev_Parcel/MapServer	1	<input type="checkbox"/>	<input type="checkbox"/>	
LucityGISDev_SewerWater...	http://lct-arcsrv-01.6080/arccgis/rest/services/LucityGISDev_SewerWaterStorm/MapServer	2	<input type="checkbox"/>	<input type="checkbox"/>	
LucityGISDev_GISTasks	http://lct-arcsrv-01.6080/arccgis/rest/services/LucityGISDev_GISTasksEditable/MapServer	4	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Close

Using the Editing Toolset

To edit layers in the web map:









1. On the Lucity toolbar click the Edit Tools button . A floatable edit toolset similar to the following will appear.




- If there are no services in the map that have been configured to allow editing the edit toolset will be empty.




2. The top toolbar shows all the feature templates published with each of the feature services in the map. Clicking on one of these buttons allow for creation of new features for the associated layer.
3. The bottom toolbar is the standard Esri editing toolset. These tools have the following functionality:

	New Selection	Gives the user a selection pointer, allows them draw a selection box in the map, and automatically unselects any previously selected records..
	Add to Selection	Allows users to draw a selection box in the map. Any selected drawings are added to the current selection.
	Remove from Selection	Allows users to draw a selection box in the map. Any selected drawings are removed from the current selection.
	Clear selection	Unselects all drawings.
	Delete selected features	Deletes any selected drawings
	Edit Geometry	Allows users to click on a drawing and then modify the shape of the drawing.
	Save Edits	Saves any edits made to the drawings. Note: Edits maybe saved automatically based on a system setting.
	Display attributes	Displays the attributes for the currently selected drawing.
...	Add options	Expands to show the following options.
	Freehand draw	Allows users to draw free hand. They can click at a spot and the line will begin to draw wherever the mouse pointer goes.
	Autocomplete	Marking this causes polygons to automatically be completed.

- Tip- If you are looking to update existing attribute data for a feature. First, click the Display Attributes button  then click on the feature you wish to update.
- Tip- On the edit attribute window, the button next to Ok is **not** cancel it is **DELETE!!!**

The edit toolset used in the Lucity web map is an out-of-the-box Esri toolset, which we have limited control over.



- There is an option in system settings that controls if edits are saved automatically or the user must click the Save button . Due to the previous tip I would recommend that saves are **not** automatic.




Hydrant Number	5470
Hydrant Type	Dry-Barrel
Elevation (ft)	
Owner	City
Pressure Zone	Pressure Zone 2
Color Code	Yellow (500-1000gpm)
Inlet Size	5
GPS Located	
Hydrant AutoID	190
In Lucity Database?	1
Last Modified By	GBA
Last Modified date	7/21/2006 3:26:21 AM
Last Synchronized Date	7/29/2014 12:00:58 PM
GlobalID	{698A2EE6-F24E-442F-88C2-5F831217-017}
created_user	
created_date	

Selection Tools

A few changes have been made to the selection tools in the Lucity web map for 2014r2. In addition to the polygon and point selection modes there is now a rectangle selection mode. Changing the selection mode is now accomplished using a new button. The last used selection mode is now a setting that is saved locally.

To select features in the web map:

1. On the Lucity toolbar, click the Lucity selection tool  .
2. If you want to change the selection mode, click the dropdown button  . The following are the different selection modes available:

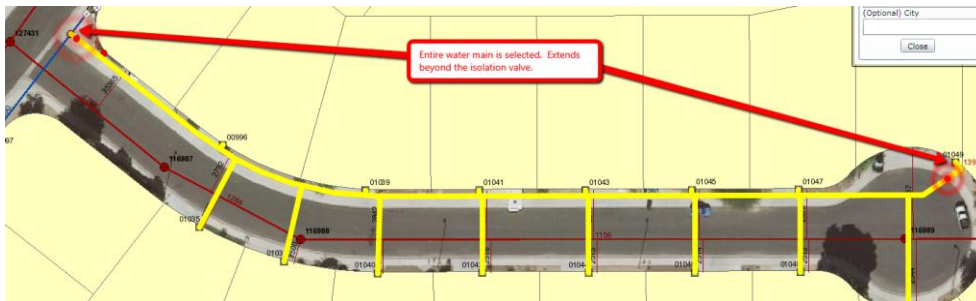
-  Select by rectangle
-  Select by polygon
-  Select by point

Notes: _____

Water Isolation Valve Trace

A new tool has been added allowing users to perform a trace on their water main network showing locations of the nearest operational isolation valves. This tool could help determine which valves need to be closed in response to water main breaks and other leaks.

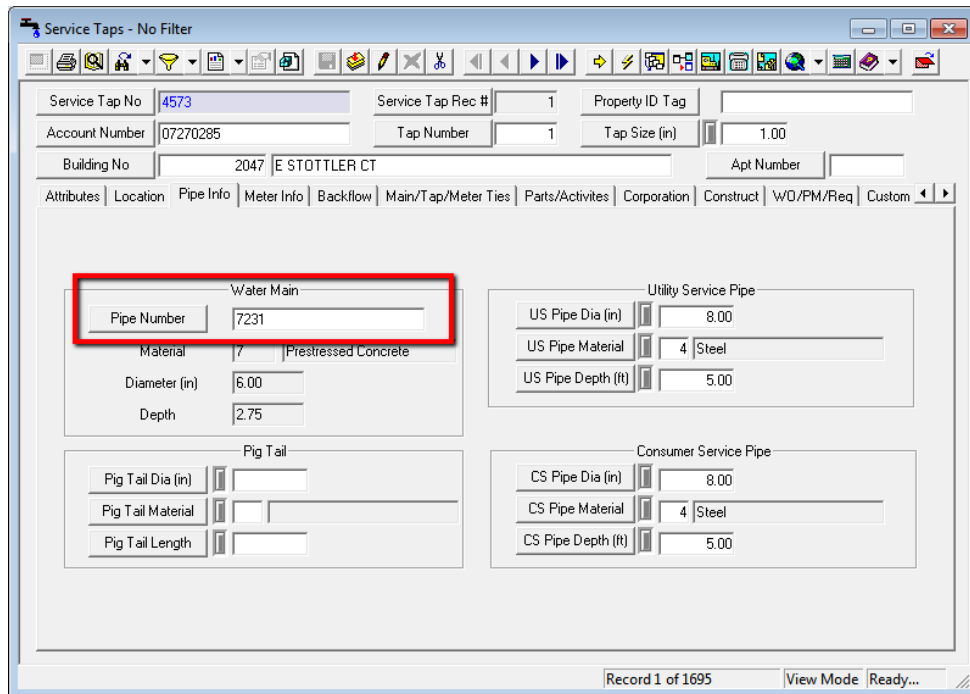
- This tool does not use the GIS environment to perform the trace, instead it performs the trace based upon the relationships between mains, valves, hydrants, and service laterals as they are defined in the Lucity database.
- For best results- water mains should be split at all isolation valves. If mains are not broken at isolation valves, the trace will still work, it is just that the entire main will be shown selected, extending the selection past the isolation valve.



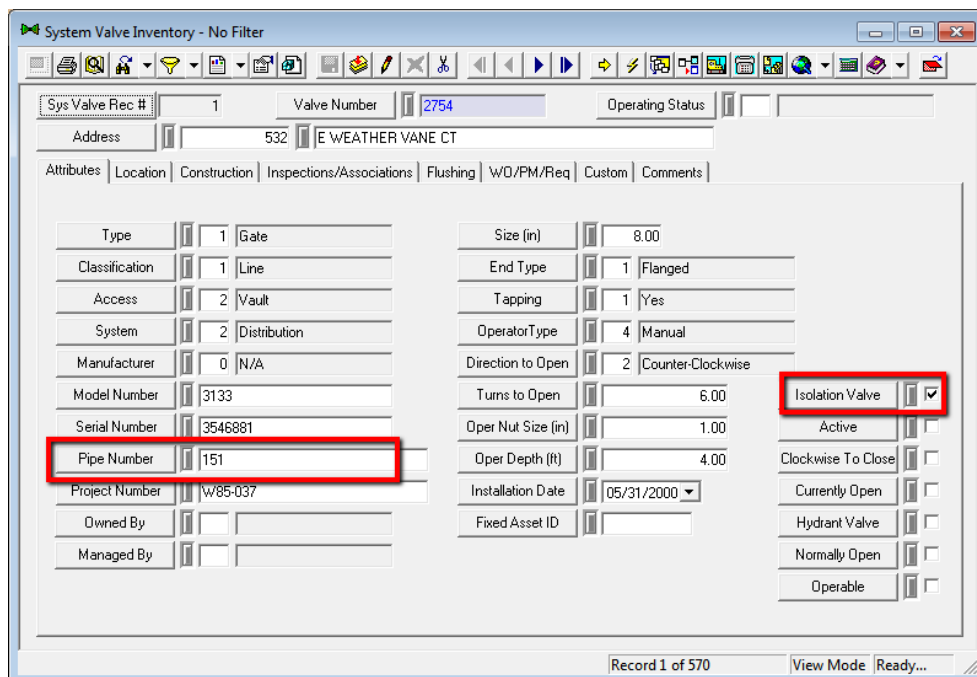
- Sample logic behind trace:
 - Add starting pipe to selection (the pipe the user clicked to start trace).
 - Add all hydrants to selection that are related to pipe. The following shows how the tool determines the related pipe:

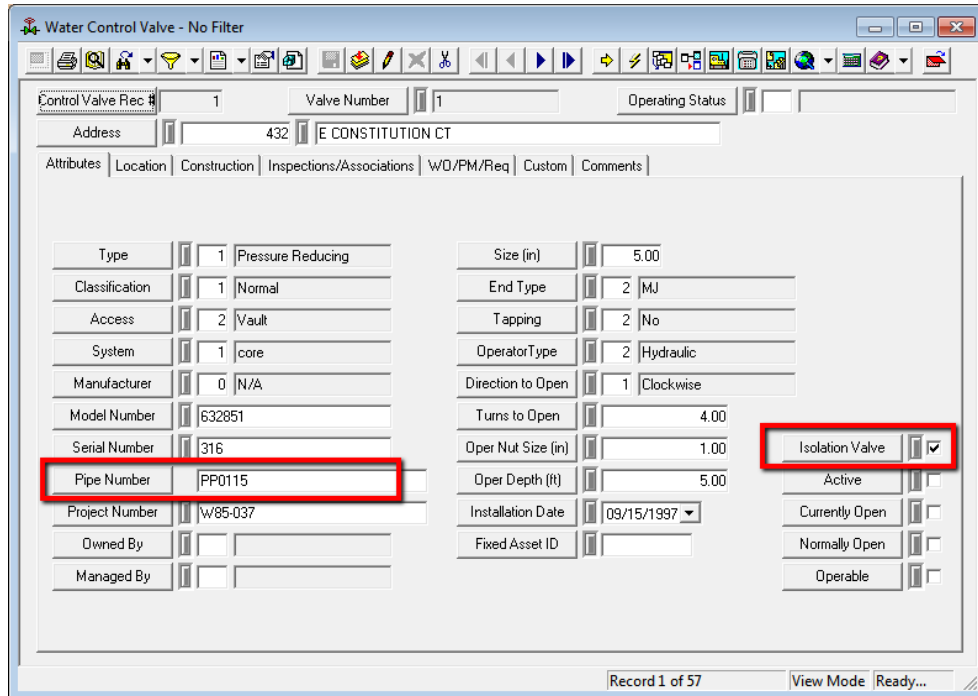
Hydrant Inventory - No Filter	
Hydrant Rec #	1
Hydrant Number	544
Valve Rec #	28
Address	754 S 135TH PL
Valve Number	2782
Attributes Location Construction Flow Tests Inspections/Associations Flushing WD/PM/Req Custom Comments	
Manufacturer	1 Clow Medation
Model Number	1212
Serial Number	651
Hydrant Type	1 Dry-Barrel
Connection Type	1 MJ
Nozzles	4 3.00 4.00 4.00
Inlet Size	6.00 Hyd Valve Size 3.00
Pressure Zone	1 Pressure Zone 1
System	2 Distribution
Owner	1 City
Managed By	
Installation Date	08/11/1990
Account Number	65465
Operating Status	2 Good
Dir to Open	2 Counter Clockwise
Turns to Open	4.00
Traffic Model	1 Yes
Freeze Proof	1 Yes
Color Code	2 Yellow (500-1000gpm)
Feed Length	4.00 Fixed Asset ID
Feed Diam	6.00
Feed Material	1 Ductile Iron
Project Number	W45-078
Pipe Number	123423
Main Dia	11.00
Flow Rate (gpm)	
Active	<input type="checkbox"/>
Operable Flag	<input type="checkbox"/>

- Add all service taps to the selection that are related to the pipe. The following shows how the tool determines the related pipe:

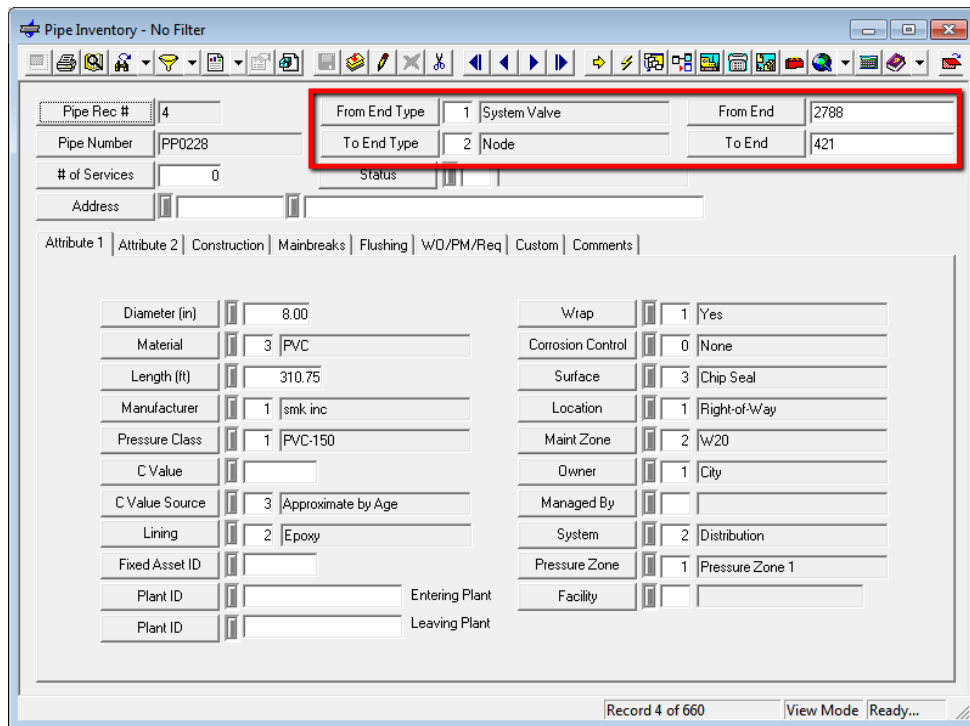


- Check if any system or control valves are associated to pipe and are marked as isolation. The following are screenshots showing what information is being checked:






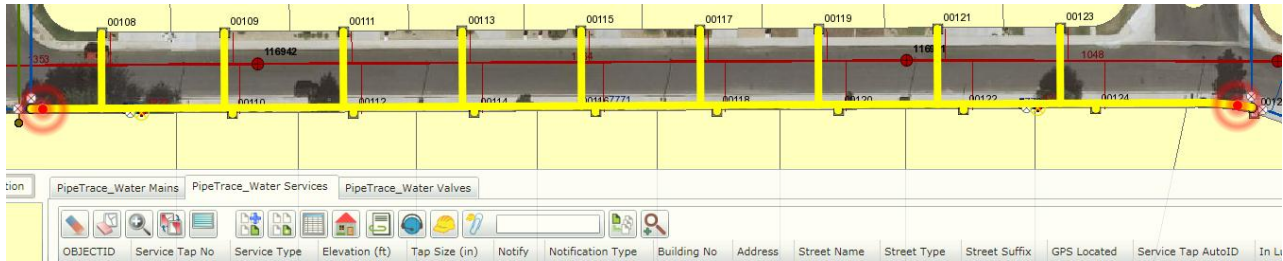
- Note: If the first pipe has two isolation valves on it, the trace is stopped. Since we don't know the spatial location along the main of the isolation valves we will assume the trace can stop.
- If the first pipe doesn't have two isolation valves on it, then the trace looks to the from/to node information. The following shows what information is examined in this step:



- If the from and to nodes are isolation valves the trace is stopped. If one of the endpoints is an isolation valve it stops the trace on that end and continues the trace on the other end by repeating the above process for all pipes that share the same from/to node.
- The process stops once all directions of the trace have encountered an isolation valve.

To perform an isolation valve trace:

1. On the Lucity toolbar, click the Water Trace tool .
2. With the trace tool active, click on a water main feature in the map where you want the trace to start.
3. When the trace has been completed, all associated hydrant, service taps, and water mains will be selected. The isolation valves will be shown using a red flashing symbol. You will also notice that the data grid will load showing a summary of all the selected features with each tab with a prefix of PipeTrace.




Notes: _____

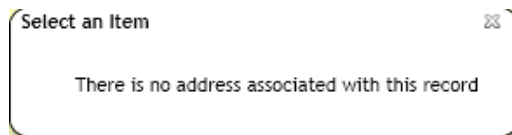
Property Viewer

The Property Viewer tool will show all related module records based upon an address. This tool is available in the data grid toolbar and in the identify window within the web map.

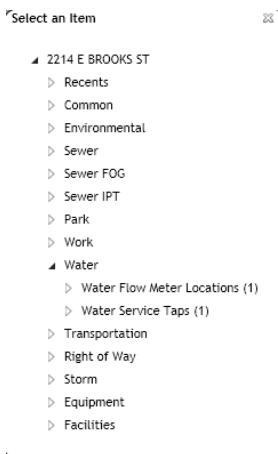
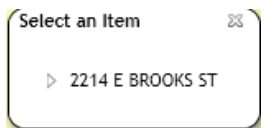
To view related records based upon an address:

1. Either in the Identify Results window or on the feature data grid toolbar select the Property Viewer tool .

- Note: In the feature data grid toolbar, if there is more than one record in the grid, you must select a record before using the Property Viewer tool.
- You will receive the following dialog if there is not an address associated to the record:



2. If an address is found a dialog similar to the following will appear. Click the arrow next to the address to expand the results.




3. By selecting an item, the record will open in the web.



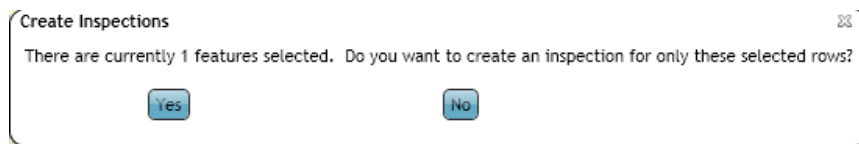
Create Inspection Tool

A tool has been added to the feature data grid toolbar and the identify results window of the web map that will create an inspection for the selected feature.

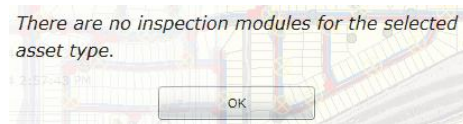
To create a Lucity inspection record from the web map:

1. Either in the Identify Results window or on the feature data grid toolbar select the Create Inspection tool .

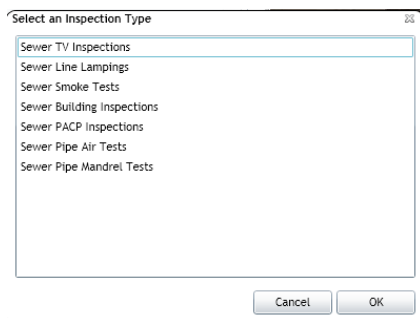
- Note: In the feature data grid toolbar, if there is more than one selected record, you will receive the following prompt. Select Yes to create an inspection just for the selected features; otherwise, selecting No will create an inspection for every record in the data grid.



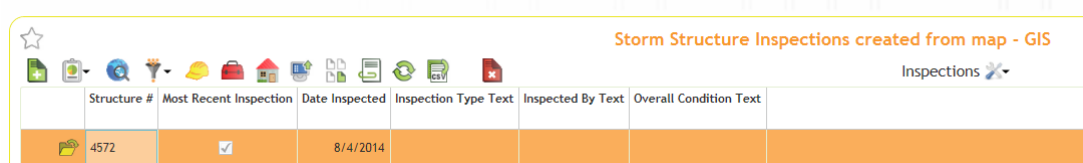
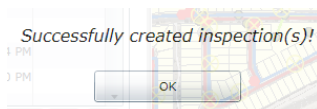
- Note: Not all asset types have inspections. If you attempt to use the Create Inspection tool on an asset that doesn't have any associated inspection modules the following prompt will appear:



2. If there is more than one inspection type for the asset, a prompt will appear allowing you to specify the type of inspection that should be created. Select the inspection type and click OK.



3. Once complete, you will receive a prompt indicating if the creation was successful. If successful, the web form will open to the newly created inspection(s).



Storm Structure Inspections created from map - GIS

Inspections

Structure #	Most Recent Inspection	Date Inspected	Inspection Type Text	Inspected By Text	Overall Condition Text
4572	✓	8/4/2014			