# lucity™

# Geodatabase Configuration Tool Overview

# Geodatabase Configuration Tool Overview

In this session, we'll introduce you to the Geodatabase Configuration tool for ArcGIS 10x.  We'll give you information about the synchronization setup, synchronization process and database connection.

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# Geodatabase Configuration

Once you have created the geodatabase connections with the Lucity Administration tool you can use the Lucity Geodatabase Configuration tool in ArcCatalog to perform all other configurations.

> *Note: Users must have the following Lucity Security permissions to use this tool*
>
> - GIS > GIS System Configuration > Run
> - GIS > GIS Admin Connection Strings > Edit

In ArcCatalog, Click on Lucity GIS Tools>>Geodatabase Configuration.
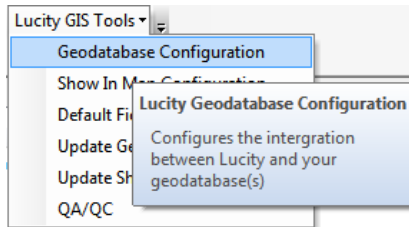


The following dialog will appear:
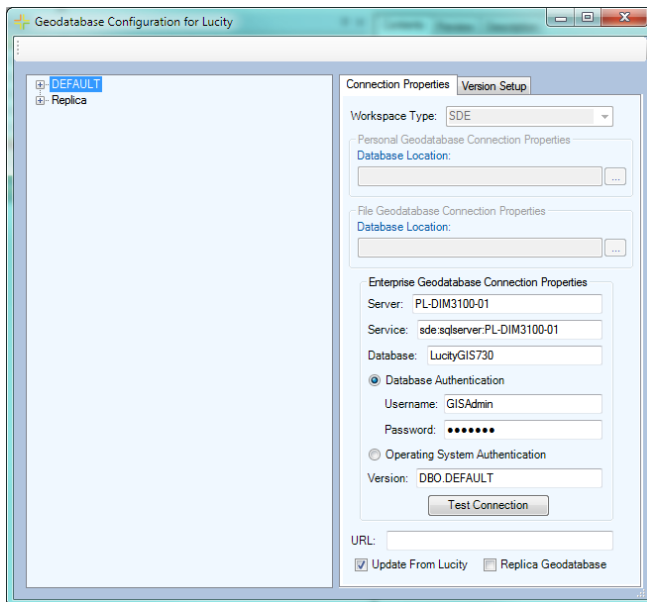


The left side of the form lists all the geodatabase connections that are currently configured with Lucity. Note: If there are no connections configured you will need to use the Lucity Administration Tool to create a new connection prior to using this tool.

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Expanding the nodes on the left side of the form shows the various components of the geodatabase. The form will be updated to show data applicable to the selected node type.  The nodes can represent 4 types of data:



1. **Geodatabase:**  At a minimum you will have at least one geodatabase connection and it will be called DEFAULT.  Selecting this type of node will let you modify the connection information and version setup for the geodatabase.  You will also get the following context menu when the node is right-clicked.

2. **Feature Class:**  This will be listed in the format of "feature class name <-> Lucity table name.  For the image above, 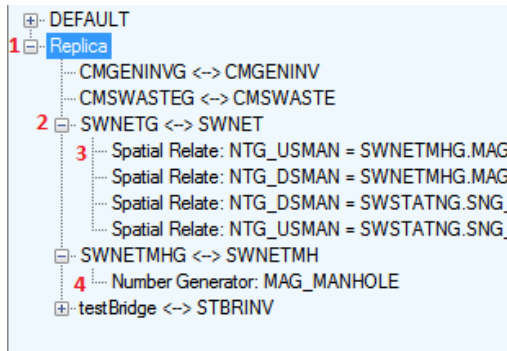SWNETG is the feature class name and that feature class is mapped to the Lucity SWNET table.  Selecting this type of node will let you modify the properties for the feature class and its fields.

3. **Spatial Relate:** This will start with the word "Spatial Relate" and will then list the feature class field name that is updated.  Select this node to modify the spatial relationship properties.

4. **Number Generator:**  This will start with the word "Number Generator" and will then list the feature class field name that is configured.  Select this node to modify the number generator properties.

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# Connection Properties

The Connection Properties tab shows you the geodatabase connection information.

- To setup a Personal or File geodatabase browse to the database location.
- ArcSDE setup is as follows:

## SDE Setup

1. **Server:** This must contain the name of the machine where ArcSDE is installed

2. **Service:** The only thing that will differ between an ArcSDE spatial connection and a direct connection is the information stored in this field.

   o **Spatial Connect:** This field should contain the port where ArcSDE is installed. By default this is typically 5151. Do not include the /tcp identifier; enter only the number for the port.

   o **Direct Connect:** Enter the name of the direct connect driver and the name of the "sde:sqlserver:GIS_SERVER\DATA."

3. **Database:** This must contain the name of your SQL Server geodatabase. The database listed in this field is not the SDE repository database. Instead, it is the geodatabase that contains the infrastructure data that you want to integrate with the desktop. **For Oracle geodatabases this must be blank**.

4. **Authentication type:** Used by Lucity to connect to the geodatabase. If you specify DB you must also populate the UserName and Password fields.

   o **UserName:** If using DB authentication type you must specify a user. This user must have permission to ALL feature classes linked to Lucity.

   o **Password:** If using DB authentication type you must also specify a password for the user.

5. **Version:** This information is always required; it designates the name of the ArcSDE version that Lucity will use when connecting to the geodatabase. For Oracle, the Version is case sensitive.
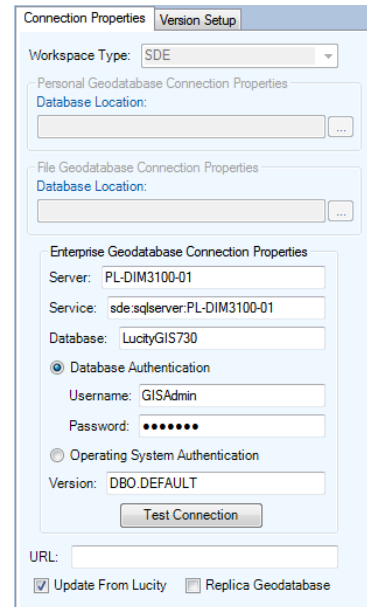
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The connection properties tab also contains the following fields.
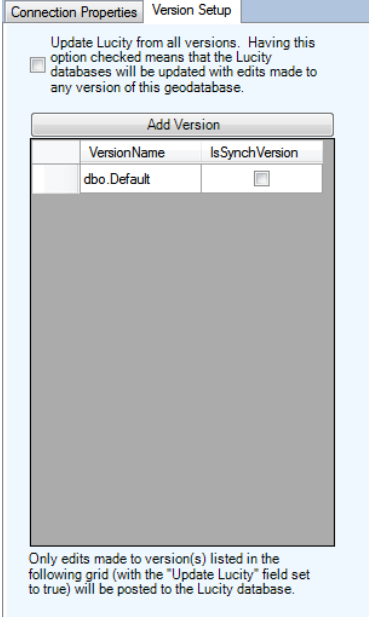
URL: [                    ]
☑ Update From Lucity    ☐ Replica Geodatabase

1. **URL:** (Optional) The map service used to push edits to the geodatabase using the Lucity Data Update SOE

2. **Update From Lucity:** This indicates if the geodatabase should be updated with edits made in the Lucity desktop and web interfaces

3. **Replica Geodatabase:** This indicates if the geodatabase is a replica geodatabase. If this is checked, functionality with the configuration tool will change preventing some actions (such as deleting feature classes) and enable other actions (such as associating feature classes)

## Version Setup

Clients using an enterprise geodatabase (ArcSDE) can indicate which versions of their geodatabase are "Lucity versions". This gives users the ability to selectively choose which versions should update the Lucity database when they are edited in ArcMap.

*Note: If "Update Lucity from all Versions" is checked then the information listed in the grid is ignored as edits to ALL versions of the geodatabase will be posted to the desktop application. If that option is not checked, then edits made to only those versions listed in the grid with the 'IsSyncVersion' option checked will update Lucity.*

| Connection Properties | Version Setup |
|---|---|

☐ Update Lucity from all versions. Having this option checked means that the Lucity databases will be updated with edits made to any version of this geodatabase.

| Add Version | |
|---|---|
| VersionName | IsSynchVersion |
| dbo.Default | ☐ |

Only edits made to version(s) listed in the following grid (with the "Update Lucity" field set to true) will be posted to the Lucity database.

# Add/Delete a Version

To add a version:

1. Click on the Add Version button.
2. A new line will be added to the version grid. Fill in the version name and check "IsSyncVersion' if you want to update the version. Note: For Oracle geodatabases this information is case-sensitive.

To delete a version:

1. Right-click on the version you want to delete and choose Delete.
2. The version will be removed from the grid.

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# Delete Multiple Feature Classes

Lucity versions prior to 7.5 were populated with the Lucity geodatabase schema.  You may find that you are not using the Lucity default geodatabase schema or you may only be implementing a few of the feature classes.  Instead of deleting these feature classes one by one, you can use the Delete Multiple Feature Classes tool to perform a mass delete.

1. From the tree on the left of the Geodatabase Configuration Form, right-click on the geodatabase node that contain the feature class mappings you wish to delete and select Delete Multiple Feature Classes.



*Note:  This option is not available for replica geodatabases, instead refer to the Disassociate Feature Class(es) tool.*
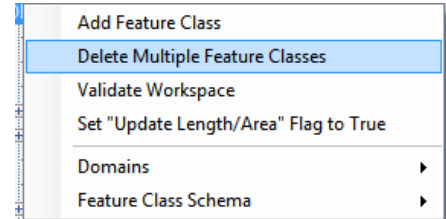
2. The following dialog will appear, check all products you wish to delete the feature classes for.
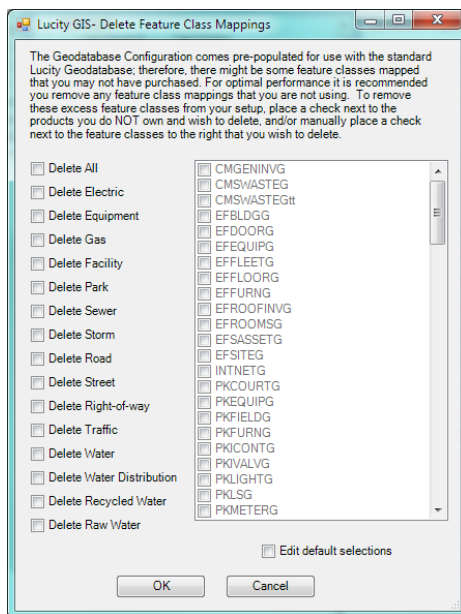


3. In the grid on the right, the program automatically checks all feature classes that are associated to the selected product type.  If you wish to over-ride the default selections check the Edit default selection checkbox.

4. Click OK to delete the marked feature class configurations.

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## Set "Update Length/Area" Flag to True

By default, when you add a new feature class the Update Length/Area flag is set to false. This property determines if the feature class's field linked to the Lucity length/area field should be updated with the Esri shape length/area if the geometry is modified in the map. You may wish to ensure that all feature class configurations have this property set to true. Instead of inspecting each feature class configuration individually to check this value, you can run this tool to set the value to true for all feature classes.

1. From the tree on the left of the Geodatabase Configuration Form, right-click on the geodatabase node that contain the feature class configurations you wish to update and select the Set Update Length/Area Flag to True. Note: This option is not available for replica geodatabases
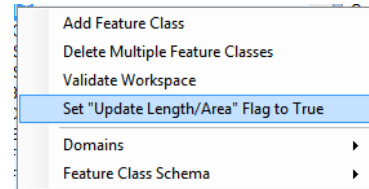
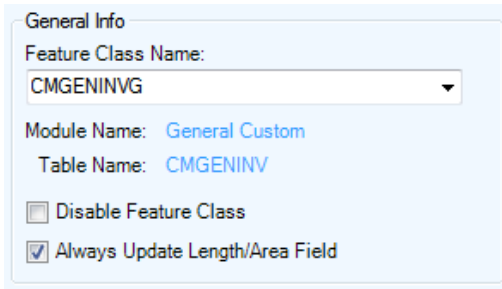2. The following dialog will appear for confirmation:
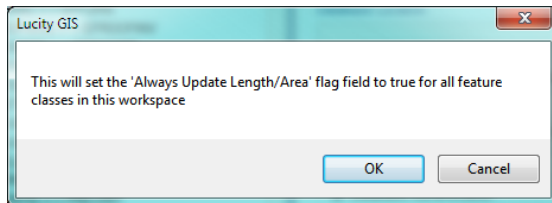
## Feature Class Configuration

To view feature class configurations, expand the correct database node from the grid on the left. A list of all feature class mappings will be displayed. Select the feature class node to view its configuration.

# Feature Class Information Tab

## General Form Information



- Feature Class Name:  This is the name of the feature class.  This is NOT the alias name.  If the owner of the feature class is not dbo, then you must specify the owner in the format of owner.featureClassName.  Click the dropdown to see a list of current feature classes that are associated to the geodatabase.  Note:  The feature class dropdown list will be empty if a connection to the geodatabase fails.

- Module Name:  This field is read-only for existing items in the feature class list.  This is the name of the *Lucity* module to which the geodatabase feature class is related.

- Table Name:  This field is read-only and shows the Lucity table name that corresponds to the selected Lucity module.

- Disable Feature Class: This flag allows you to disable a feature class that you are not using, but do not want to delete from the setup. It is recommended to disable any feature class that you are not using; it will speed up your processing time.

- Always Update Length/Area:  This flag indicates whether or not the Lucity GIS Extension should update the feature class field linked to the Lucity's length/area field when the shape of a feature has changed.  If checked, the program will update the field in the feature class mapped to the *Lucity* length/area field.   It updates the values in this field based on the shape.length and shape.area fields.  If this option is left unchecked, the Length/Area fields will only be populated when the feature is first created.

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## Feature Class Fields (Not linked to Lucity)



- In Lucity Flag Field- (Optional) This field is controlled by *Lucity* to indicate to users whether or not each record in the feature class has been synchronized with *Lucity*. This should be a short integer field and should be assigned a domain that classifies 0=No or False and 1= Yes or true. This domain will make it easier for end users to understand the values that will be stored in the field.

- Last Modified By - (Optional) This field is controlled by *Lucity* to indicate which user last modified the record from an edit session in the map.

- Last Modified Date - (Optional) This field is controlled by *Lucity* to indicate what date the record was last modified from an edit session in the map.

- Last Synchronized Date - (Optional) This field is controlled by *Lucity* to indicate the date when the record was last synchronized with *Lucity*.

- Field for Display - This is the field name that will be displayed with the various Lucity GIS tools. By default, this field will be set to the common ID of the feature class.

## Feature Class Linking Fields



- Common Link Field 1- (Required) The unique identifier assigned by the user for this asset. The value for this field cannot be directly modified; it is automatically populated based on the field mappings from the grid at the right of the page. Every module has one field that defines the asset as unique.  These fields are highlighted in red in the grid to the right. To enter a value in this field, find the corresponding red highlighted field and type the field name into the Feature Class Field Name column. This should be a string field in the geodatabase, not a numeric field.

- Lucity AutoID Link- (Strongly Recommended) This field is used by *Lucity* to store an indexed long integer link between the records in the feature class and the records in the *Lucity* inventory table. This field must be long integer.  The value for this field name is not editable; to update this value, use the grid to populate all of the red highlighted (required) fields.  Note:  Starting with version 7.1 this field is no longer required; although, we still strongly recommend you have it.  Not having this field will impact the performance of some of the Lucity GIS tools as additional resources will be used to determine the AutoID value based upon the common ID.

# Alias Names Tab

Aliases are alternate names for feature classes that provide a unique identity. They are used by the Lucity Webmap, Lucity Viewer, Lucity Data Update SOE, and the Lucity Mobile for Android to identify which feature classes are linked to Lucity. These Lucity mapping applications check the feature classes loaded into them and check the display names of those feature classes against the aliases names listed in the Geodatabase Configuration.

The Alias Names tab has two grids. The Associated Aliases grid is a list of all the aliases assigned to the feature class.

- Right-click on an existing record to get a menu with options to Add, Edit, Delete, or Disassociate.

- Disassociating a record in this grid will detach it from the selected feature class and move it to the Available Aliases grid.

- Whenever a feature class appears in the Lucity Viewer, Webmap, or Mobile for Android with a name from this list, Lucity will connect it to the associated module.

The Available Aliases grid is a list of aliases already added but aren't associated to any feature class.

- Right-click on an existing record to get a menu with options to Add, Edit, Delete, or Associate.

- Associating a record in this grid will attach it to the selected feature class, remove it from this grid, and add it to the Associated Aliases grid for the selected feature class.
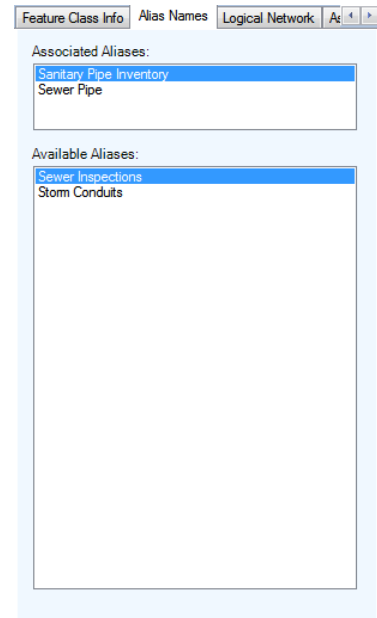
# Parent Record Linking Tab

Some feature classes have parent relationships. Some relationships are required where others are not. For example, A Park Furniture feature can be associated to a Park feature but it isn't a requirement. On the other hand, a Facility Site Asset feature must be associated to a Facility Site asset. These associations are maintained via a linking field in the child table. This field is typically a long integer field that stores the parent record's autoID (the ID assigned by the database). In order for Lucity to acknowledge this relationship this field must be included in the feature class mappings.

The Parent Linking tab will assist you in populating the GIS field linked to the parent's autoID. If using this functionality, a user would just need to populate the parent's common ID field and the Lucity GIS extension will handle the rest.

- *Lucity* Parent Tables: This is a read only field. This lists the table(s) that can have a relationship to the current feature class.

- *Lucity* Parent Common ID Field: This is a read only field. These are the field(s) in the parent table(s). This is typically the same field that is used as the Common ID for the parent Table.
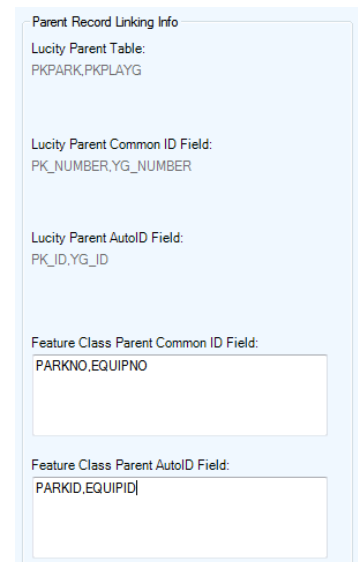
- *Lucity* Parent Auto ID Field: This is a read only field. These are the auto ID field(s) in the parent table(s).

- Feature Class Parent Common ID Field: This is a field in the feature class that contains the string unique identifier that links the feature to the parent feature class or table. For example, if a Park Furniture feature class is being set up, this field will be the Park Number field.  Separate multiple fields by commas. This field should correspond with the fields in the *Lucity* Parent Common ID field. Include the comma even if no field is to be used.

- Feature Class Parent Auto ID Field: This is a field in the feature class that contains the auto ID of the parent feature class or table. For example, if a Park Furniture feature class is being set up, this field will be the Park AutoID field.  Separate multiple fields by commas. This field should correspond with the fields in the *Lucity* Parent AutoID field. Include the comma even if no field is to be used.

# Logical Network Tab
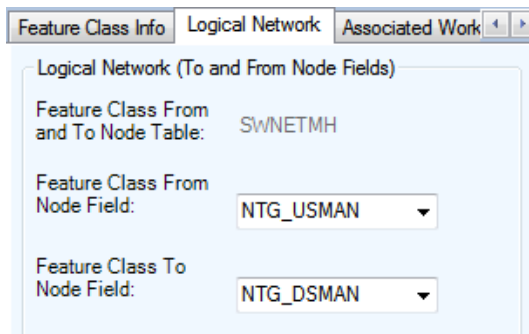


- Feature Class From and To Node Table: This is read only. It shows which table the to and from nodes will be stored. The feature class(es) that contains the to and from node point features should be configured to synch to this *Lucity* table

- Feature Class From Node Field: This field stores the name of the string field that will store the upstream or from node identifier. For street segments, this is the from intersection and is optional, unless the *Accident* module is being used, in which case it is required. This field should be a text or character field.

- Feature Class To Node Field:          This field stores the name of the string field that will store the downstream or to node identifier.  For street segments, this is the to intersection and is optional, *unless the Accident* module *i*s being used, in which case it is required. This field should be a text or character field.


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## Associated Workspaces Tab

A feature class configuration can be associated between multiple geodatabase connections.  For example, a client has a feature class named SewerPipe that exists in both a parent and replica geodatabase.  Instead of having to create a feature class mapping for both geodatabases, the feature class mapping only has to be created against the parent geodatabase connection, and then the feature class mapping can be associated to the replica geodatabase connection.

- The Associated Workspaces grid shows all the geodatabases that this feature class is associated to.  This grid is read-only.  To associate/disassociate a feature class there is a right-click context menu when you select the replica geodatabase node that gives you these options.

- Default Workspace- Each feature class is required to have a default workspace connection.  The default workspace for a feature class is the workspace it is associated to that isn't marked as a replica workspace.  Note:  A feature class is not able to be associated to more than one non-replica geodatabase.

## Feature Class Fields Grid

The feature class fields grid allows you to manage the feature class fields are mapped to Lucity fields.  A mapping between the two enables the Lucity application to update the feature class when the data is updated in the Lucity desktop or web application.  A mapping also enables the Lucity extension in ArcMap to update the Lucity database when the data is updated in the feature class during an ArcMap edit session.

| FieldName | DisplayName | Field Type | MaxMask | Feature Class Field Name | Field Lookup |
|-----------|-------------|------------|---------|--------------------------|--------------|
| NT_DS_STA | DS Station | Double | -nnnnnnnn... | | |
| NT_DSID | DS Struc Rec # | N/A | | | |
| NT_DSINVO | Record DS Invert | Double | -nnnnnnnn... | | |
| NT_DSMAN | DS Structure | String | 25x | DSSTRUCT | |
| NT_DSRIMO | Record DS Rim | Double | -nnnnnnnn... | | |
| NT_DT_CONS | Date Constructed | Date | mm/dd/yyyy | | |

- FieldName- The field name in the Lucity table.

- DisplayName- The field caption in Lucity.

- Field Type- The type of data stored in the field

- MaxMask- The data format.  A numeric value followed by an "x" indicates the number of characters allowed.

- Feature Class Field Name- This is the name of the field in the feature class.  This is NOT the alias field name.  If you are unsure of the field name use the Field Lookup button.

- Field Lookup- This button column displays a list of the feature class fields.  Note:  If a connection to the geodatabase was unsuccessful then no fields will be listed.

## Lucity Code/Type fields

Only the Lucity code fields are displayed in the Feature Class Fields grid.  The Domain Configuration tool can be used to further define the mapping between a GIS field to a Lucity picklist field.  We support mapping a text GIS domain to Lucity numeric picklist and vice versa.

## Lucity Composite Address fields

Lucity breaks out street address information into the following fields: Building number, building suffix, street direction, street prefix, street name, street type, and street suffix.  Each of these fields that you use in Lucity need to have a matching field in the feature class.  Alternatively you can use the composite address fields in the feature class fields grid to map a field in your feature class that contains the entire building number or the entire street name.  Note:  If you map to a composite field you should NOT map to the individual building or street component fields.

## Color Coding

| BA_ALTID | Alt ID | String | 20x | FACILITYID | |
|---|---|---|---|---|---|

- Red- **Required Field**.  This is the Common ID (FacilityID) field for the asset inventory module.

| BA_BL_ID | Building Rec # | Long | nnnnnnnn | BUILDINGLUCITYID | |
|---|---|---|---|---|---|

- Orange- Required Field.  Stores the required ID number of related features (the parent record number)

| TR_PG_ID | Parking Lot Rec # | Long | nnnnnnnn | | |
|---|---|---|---|---|---|

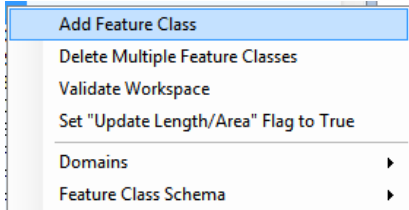- Yellow- These are considered parent linking fields.  They typically store the ID of the related feature.

| SV_ADR_BDG | Address | String | | | |
|---|---|---|---|---|---|

- Green- Building and Address composite field.
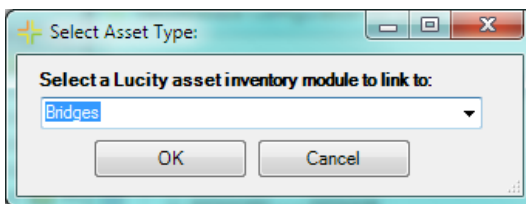

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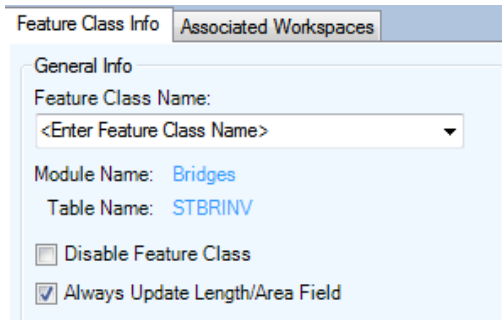
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# Add a Feature Class Configuration

1. To add a new feature class configuration, in the tree on the left of the Geodatabase Configuration Form, right-click on the geodatabase node to which the feature class resides and select Add Feature Class. Note: This option is not available for replica geodatabases; instead refer to the Associate Feature Class(es) tool.

> Add Feature Class
> Delete Multiple Feature Classes
> Validate Workspace
> Set "Update Length/Area" Flag to True
>
> Domains                          ▶
> Feature Class Schema             ▶

2. The following dialog will appear. Select the asset type for which this new feature class will be linked to.

> **Select Asset Type:**
>
> Select a Lucity asset inventory module to link to:
>
> Bridges ▼
>
> OK          Cancel

3. The Geodatabase Configuration Form will be updated to indicate the new feature type. You must enter the name of the feature class before this new feature class configuration will be saved. Either enter the feature class name directly, or select it from the drop down list:
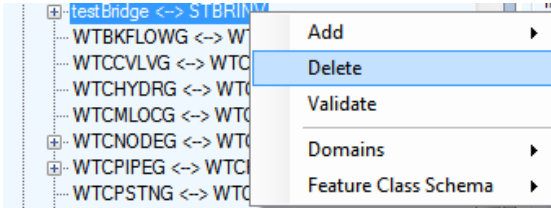
> Feature Class Info | Associated Workspaces
>
> General Info
> Feature Class Name:
> <Enter Feature Class Name>     ▼
>
> Module Name:  Bridges
>   Table Name:  STBRINV
>
> ☐ Disable Feature Class
> ☑ Always Update Length/Area Field

4. Fill out the remainder of the feature class and field mapping configuration. To save, simply exit the tool, or click on another node.

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# Delete a Feature Class Configuration

1.  To delete a feature class configuration, in the tree on the left of the Geodatabase Configuration Form, right-click on the feature class node that you wish to delete and select Delete.  Note:  This option is not available for replica geodatabases; instead refer to the Disassociate Feature Class(es) tool.



2.  One of following dialogs will appear confirming that you wish to delete the feature class
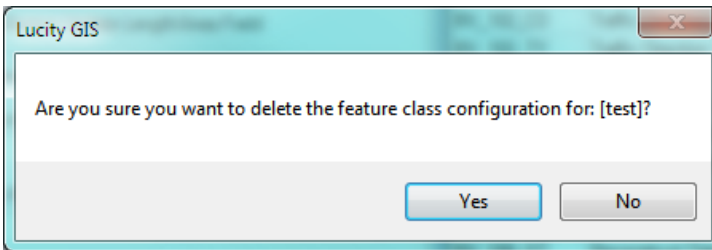


3.  If the feature class is associated to multiple workspaces you will receive the following message:
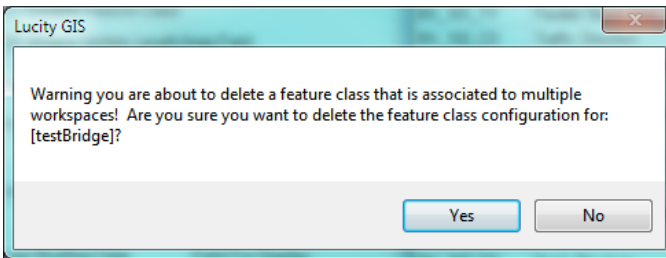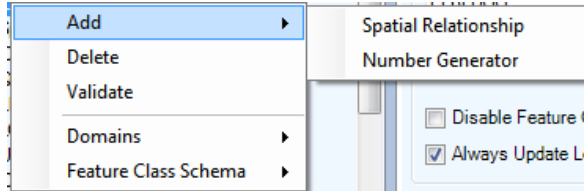


# Spatial Relationships

Spatial relationships automatically update features based on their location relative to other features to help aid general editing and maintaining these relationships in ArcMap.

There are three ways in which spatial relationships are triggered:

1.  Within an ArcMap edit session, when a feature is created or when an existing feature's shape is changed.

2.  Within an ArcMap edit session using the "Update Spatial Relationships" tool on the Lucity GIS Edit toolbar. This tool is typically used if the data was imported using a non-Lucity import tool or was added during a non-Lucity edit session.

3.  When the Lucity Data Loader is used.

# Adding Spatial Relationships

1. To add a spatial relationship, right-click on the feature class to which you want to add the relationship from the tree on the left of the Geodatabase Configuration Form.

2. Click Add>>Spatial Relationship.

3. The Add Spatial Relationship tab will be displayed

4. Populate the Field to Update.

   o Required. This is the field name in the selected feature class that you would like to have automatically updated. Use the drop down list to choose from a list of fields for the feature class.

5. Populate the Related Feature Class.

   o Required. This is the feature class name of the other feature class that will participate in this spatial relationship. This feature class does not have to be set up to synchronize with the desktop but it must exist in the same geodatabase.

6. Populate the FC Field Name.

   o Required. This is the field name in the Related Feature Class that contains the value you would like propagated to the field defined in the "Field Name" Field.

7. Populate the Relationship Type.

   o Required. This is a drop down pick list defining the relationship type. The available relationship types are defined below:

      ▪ From Intersect: Finds any features in the Related Feature Class that intersect the from point of the feature in the selected feature class. This relationship only works for polyline, edge, or complex edge features.

      ▪ To Intersect: Finds any features in the Related Feature Class that intersect the To Point of the feature in the selected feature class. This relationship only works for polyline, edge, or complex edge features.

      ▪ Is Contained by: Finds any features in the selected feature class that are contained by features in the related feature class. The related feature class must be a polygon feature class.

      ▪ Intersects: Finds the first feature in the related feature class that intersects the feature in the selected feature class.

      ▪ US Intersect Distance: Finds the first feature in the related feature class that intersects the feature in the selected feature class and then calculates the distance along the line that the intersection occurs (from the to point). The selected feature class must be a polyline, edge, or complex edge feature class.

- Midpoint Intersect: Finds any feature in the related feature class that intersects the midpoint of the feature in the selected feature class. This relationship is designed for polyline, edge, or complex edge features as the selected feature class, and a polygon feature for the related feature class.

- Force Related Feature to Self-Update: This relationship finds any features that intersect the feature in the selected feature class and adds them to the edit cache so that they are synched to the desktop even if the records have not changed. This is used primarily for the street segment feature class (as selected feature class) and the street intersection feature class (as related feature class). This forces the intersections to automatically recalculate the intersection configurations for the diagram in the desktop Intersection module when street segments are changed.

- Is Within Distance of: Finds all features in the related feature class that are with a specified distance of the feature in the selected feature class.

8. Populate the Distance Value.

   o Required only if the relationship type "Is Within Distance Of" has been selected. The field is used to specify a distance for this relationship type.

9. Never Overwrite a Non-Null Value.

   o Optional. Check this box to ensure that data populated in the "Field Name" field of the selected feature class is never overwritten if a value already exists.

10. Update Value to Null if No Relationship is Found.

    o Optional. Check this box to allow the "Field Name" field to be set to null if no relationship is found.

11. This information will be saved when the selected feature class node loses focus or you close the form.


## Deleting Spatial Relationships

1. To delete a spatial relationship from a feature class, select the spatial relationship listed under the feature class from the tree on the Geodatabase Configuration form.

2. Right-Click on the spatial relationship and choose Delete.
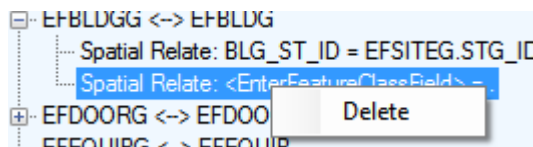


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# Number Generator

Fields in a feature class can be set up so that the Lucity extension will attempt to populate the field with a unique value. Use this tool to add new number generating fields or edit an existing number generating field.

When features are synched during an ArcMap edit session (feature are synched when they are created or modified), if the field configured with the number generator doesn't contain a value the Lucity GIS extension will populate this field with the next incremental value.

## Add a Number Generating Field

1. To create a number generator field, select the feature class that contains the field you wish to auto-number from the tree on the left hand side of the Geodatabase Configuration form.

2. Right-Click on the Feature Class and select Add>>Number Generator.
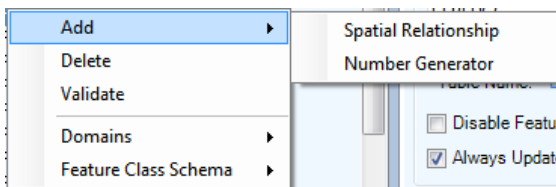
3. The Number Generator tab will be displayed:

4. Populate the Field to AutoNumber

   o Required. This field is the field that will contain the new auto number. This should be a text field, large enough to support the numbers that will be generated based on your settings in this dialog.

5. Populate the Buffered Number Length

   o Optional. If you want the auto-number to contain buffered zeros, enter how many characters you want the entire number to be. For example, if a buffered length of 5 is entered, and if the auto-number generated is 985, the resulting auto number that will be populated is 00985. This may allow for easier number sorting.

6. Include Prefix Settings.

   o None: This will be marked by default. If this button remains marked, you will be unable to include a Prefix for this AutoNumber field.

   o Use Set Prefix: This will allow you to specify a prefix in the next number gird and allow you to specify a separator character.

7. Click the  Generate Next Number  to set the correct start number.

   o If the prefix setting option is set to None or Use Set Prefix then only one next number record is allowed in the grid.

   o If the prefix setting option is set to Use a Polygon Feature Class then you can add an unlimited number of next numbers. In theory, you would want a record for each feature in your polygon feature class with the prefix value for that feature.

8. This information will be saved when you click on a different feature class.
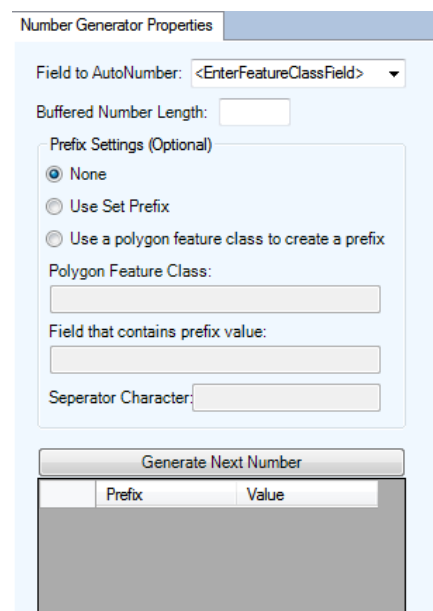
## Remove an Auto-Numbering Field

1. To delete the number generator from a feature class, select the number generator listed under the feature class from the tree on the Geodatabase Configuration form.

2. Right-Click on the number generator and choose Delete.
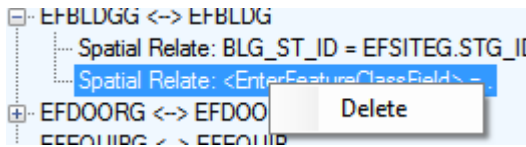


# Domain Tools

## Domain Configuration

Fields in the geodatabase that are linked to a Lucity Code/Type field (pick list) should contain a geodatabase domain. A domain provides the same functions in ArcMap that a picklist provides inside of Lucity. Domains ensure data integrity and help with data population during an edit session. To ensure data integrity between Lucity and the Geodatabase the picklist values should match up to the domain values. The Domain Configuration Tool in the Geodatabase configuration allows users to quickly compare domains to picklists and fix and differences between the two.

1. To access the Domain Configuration screen, right-click on either a geodatabase or feature class node in the tree located on the left-hand side of the Geodatabase Configuration browser.
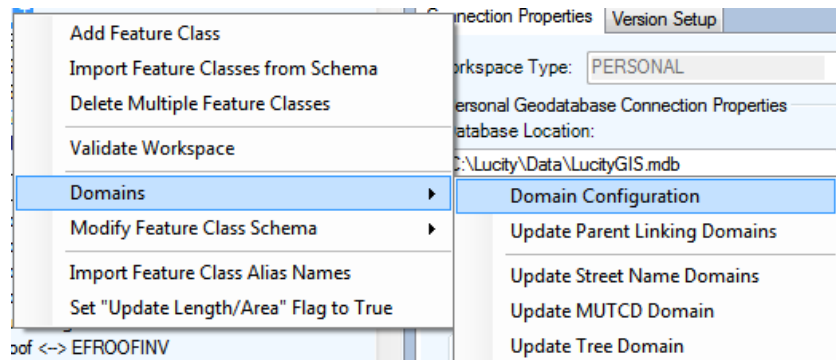


2. If you are integrated with an enterprise geodatabase you will be prompted with the following:
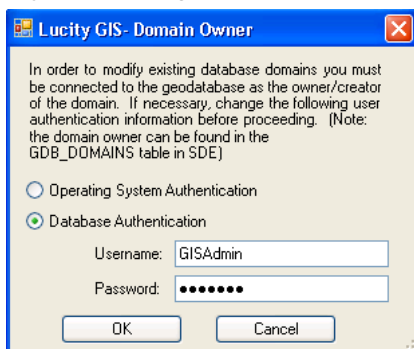
This screen is asking the user to login as the Domain Owner. Domains within a geodatabase can only be edited by the original creator (domain owner). Often, not even system admin accounts can edit a domain if they weren't used to create it. Make an authentication choice and enter if username and password if needed. Click OK.

3. When this tool is run it validates the Lucity picklists and GIS domains for all fields mapped between the two systems. The validation process is tracked and displayed in the resulting dialog:
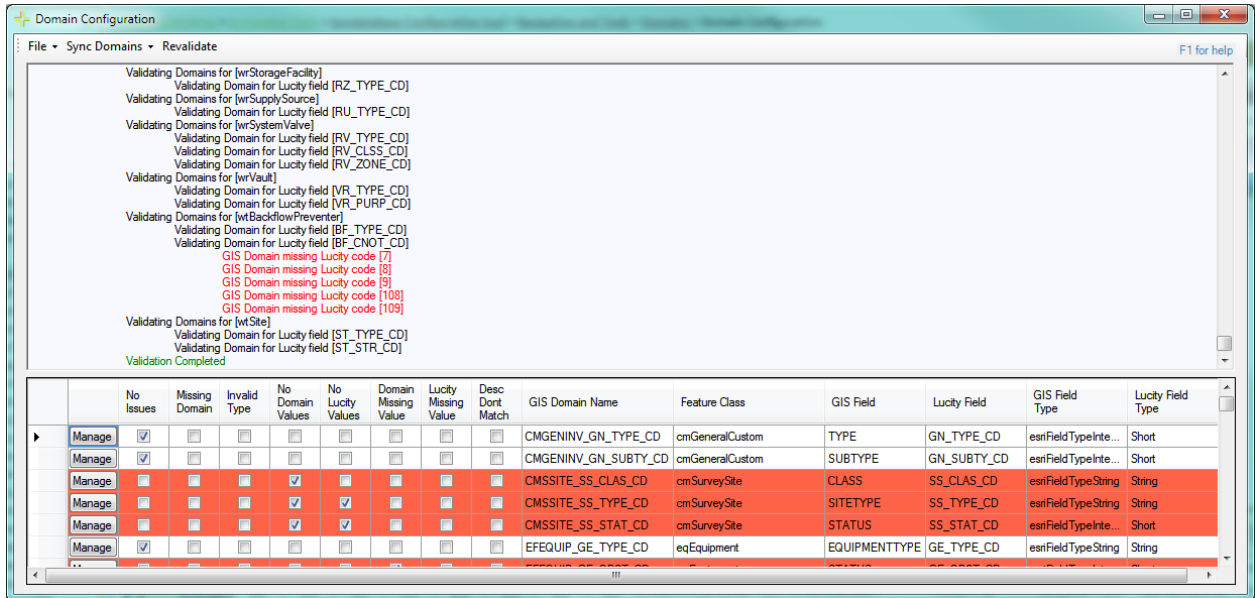


4. The top section shows the validation progress and can be reviewed by using the scroll on the right. The bottom section provides the results in a tabular format allowing you to easily review and resolve any conflicts.

5. Click the Manage button to assist with the resolution of any conflicts.

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## Resolve Domain Discrepancies

1. After clicking the Manage button on the Domain Configuration grid results the following form will appear:
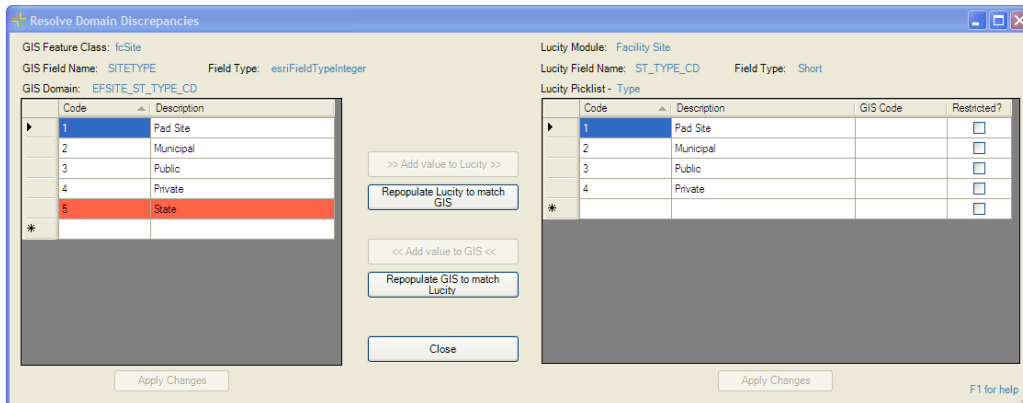


- o The grid on the left shows the GIS domain values. The grid on the right shows the Lucity picklist values. Discrepancies are shown in red.

- o Within this window you can: add/edit/delete GIS domain values, add/edit/delete Lucity picklist values, repopulate the GIS domain values to match Lucity, and repopulate the Lucity picklist values to match the GIS domain.

- o The GIS Code field is used to link a Lucity Value to a Domain value with a different code. This is used when neither the picklist nor domain values can be changed. It can also be used to link together number picklists/domains to alpha-numeric ones.

2. After making changes you must click "Apply Changes" button at the bottom of the grid for the changes to save.

3. Click Close when you are finished. You will be returned to the Domain Configuration results form.

*Note: The domain you just modified will still be listed as having a discrepancy. You must click the Revalidate button on the top menu if you wish to have the form refreshed.*

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## Update GIS Domains to match Lucity picklists

You can perform a mass update that will overwrite all the GIS domains with values from the related Lucity picklists.

- If a domain doesn't exist for a field, it is created in the geodatabase and linked to the feature class field.  By default the domain name is given the Lucity table name and Lucity field name.  For example, if a GIS field is mapped to sewer pipe's material field the assigned domain name will be SWNET_NT_MAT_CD.

- If multiple feature classes are mapped to the same field and there isn't already a GIS domain assigned to these fields this tool will only create one domain and assign it to all GIS fields linked to the Lucity field.

- If the GIS field type doesn't match the Lucity field type (GIS field is text, Lucity is numeric or vice versa), the Lucity GIS Code is required before the GIS domain can be updated.


1. From the Domain Configuration Results form, click Sync Domains>>Update GIS domains to match Lucity picklists.
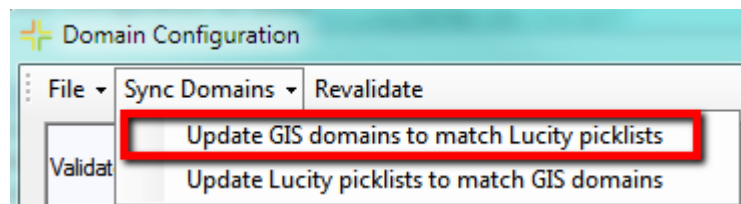


2. The tool will start processing the GIS domains, results are shown in the upper section of the Domain Configuration window.  Please refer to the results for any issues.

## Update Lucity picklists to match GIS Domains

You can perform a mass update that will overwrite all the Lucity picklists with values from the related GIS domains.

- If a Lucity picklist value is hardcoded (unable to be altered) the tool will attempt to find the equivalent GIS domain code using the description. If it finds the matching GIS domain value it uses the Lucity GIS code field to store the corresponding GIS domain code.

- If the GIS field type doesn't match the Lucity field type (GIS field is text, Lucity is numeric or vice versa), the Lucity GIS Code will be used to store the corresponding GIS domain code. The Lucity picklist code will be automatically assigned a sequential number.

1. From the Domain Configuration Results form, click Sync Domains>>Update Lucity picklists to match GIS domains
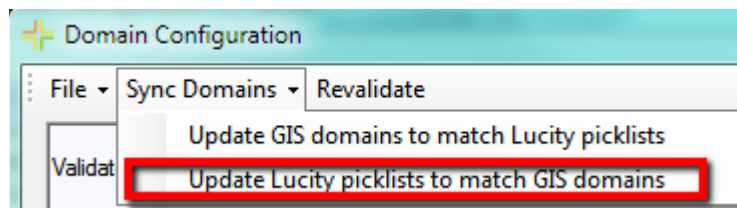


2. The following prompt will appear. Select Yes, if you want to delete Lucity picklist values that aren't in the GIS domain.
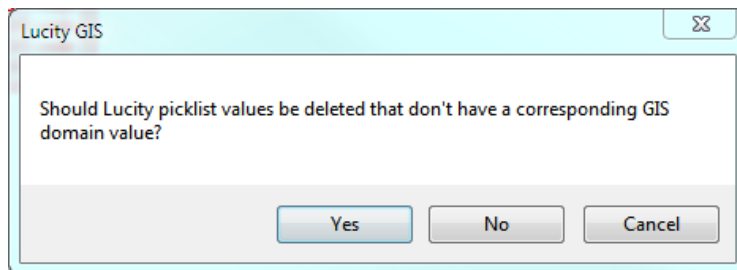


3. The tool will start processing the Lucity picklists, results are shown in the upper section of the Domain Configuration window. Please refer to the results for any issues.
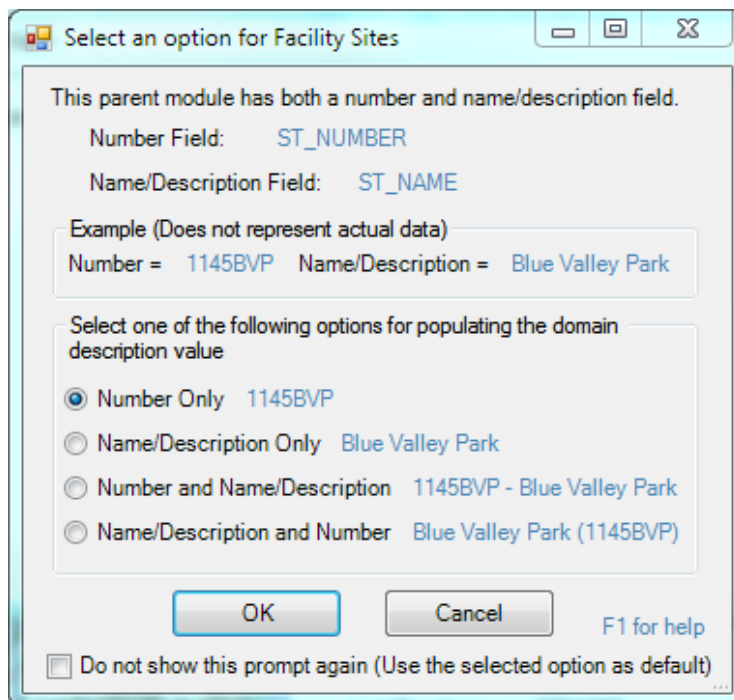
# Update Parent Linking Domains

In many feature classes there will be fields that link a feature to a related feature in another feature class. It does this by storing the related feature's LucityID. For example, a park bench might store the ID of the Park that it is in. This provides important connection information for Lucity, but is less useful to users because it just displays a number. The Update Parent Linking Domains tool creates user-friendly domains for these fields. While the field will still store the linking ID, the domain could display parent records: Facility ID number, Name/Description, Facility ID and Name/Description, or Name/Description and Facility ID.

1. To update parent linking domains, right-click on either a geodatabase or feature class node in the tree located on the left-hand side of the Geodatabase Configuration browser and select "Update Parent Linking Domains"
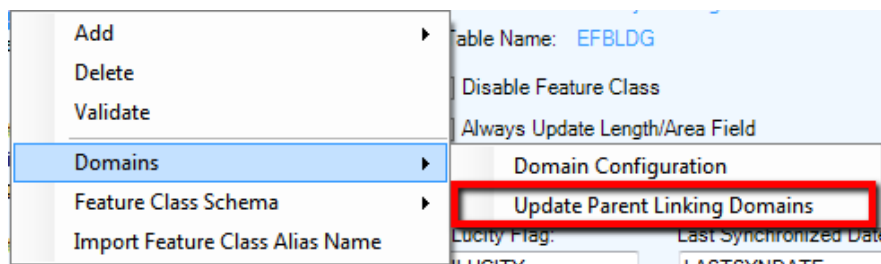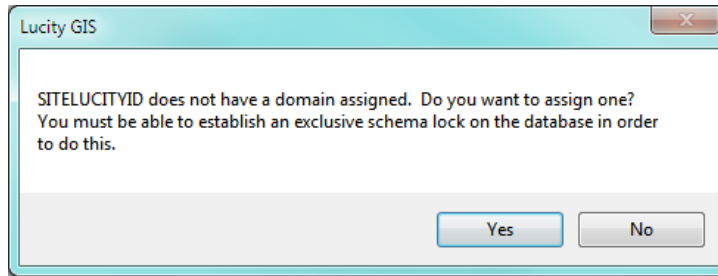


2. A prompt following prompt will appear.



3. Select the description option and click OK.

*Note: When the "Do not show this prompt again…" option is checked any additional parent linking domains needing proceed will use the same option.*

4. If there currently is not a domain assigned to the GIS field the following prompt will appear. Click Yes.



5. The domain will be created and/or updated. The process will be updated in the Validation Results window.
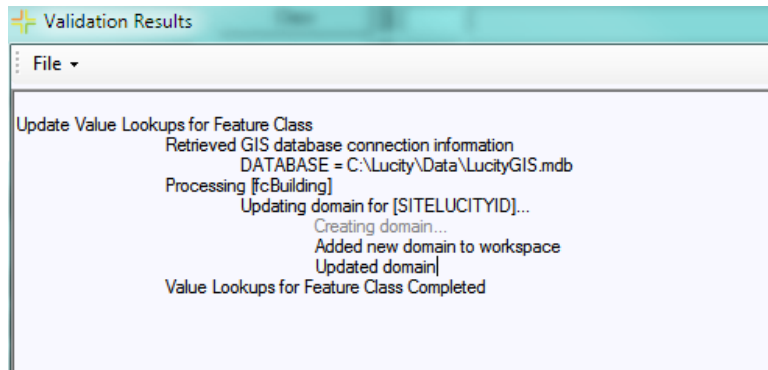


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# Update Street Name, MUTCD, and Tree Domains

Fields in the geodatabase that are linked to Lucity fields storing the following information should have a special domain assigned:

- Address information such as street direction, street prefix type, street name, street type, and street suffix

- Street sign codes (MUTCD)

- Tree codes

These fields in Lucity are associated to a "library" which requires them to be handled a little differently than a typical Lucity picklist. To ensure data integrity it is highly recommended that you configure a GIS domain for these fields that match the corresponding Lucity picklist.

1. Right click on your geodatabase node in the tree located on the left-hand side of the Geodatabase Configuration browser and select Domains>>Update Street Name Domains (or MUTCD or Tree)
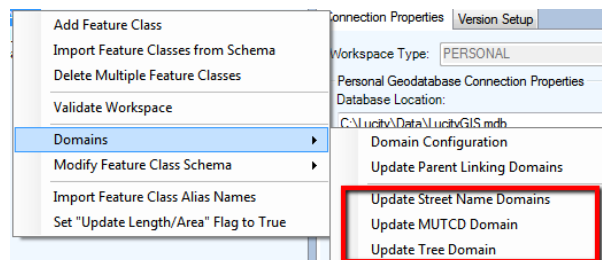


2. After you click Update Street Name Domains, you will be prompted to choose the domain owner.
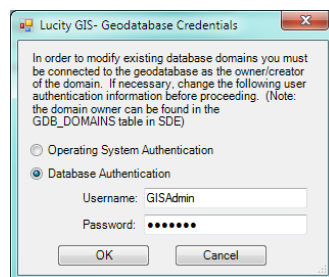


3. Chose a domain option and click *OK*. A series of messages similar to the following will appear:
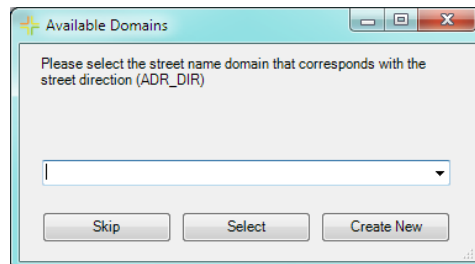


*Note: If you are updating Street Name Domains you will be prompted multiple times for each street name component: Street Direction, Street Prefix, Street Name, Street Type, Street Suffix, and Street Name ID.*

4. Click Skip, Select, or Create New to navigate through each dialog.

   o If the domain doesn't already exist, you can choose the Create New option for the tool to create the domain. The following is the hardcoded domain names used by this tool:

   o Lucity.StreetNameDirection, Lucity.StreetNamePrefixType, Lucity.StreetNameName, Lucity.StreetNameType, Lucity.StreetNameSuffix, Lucity.StreetNameList

   o Lucity.MUTCD

   o Lucity.TreeCommonName

5. When you click Select on the last dialog, the validation results will be generated.
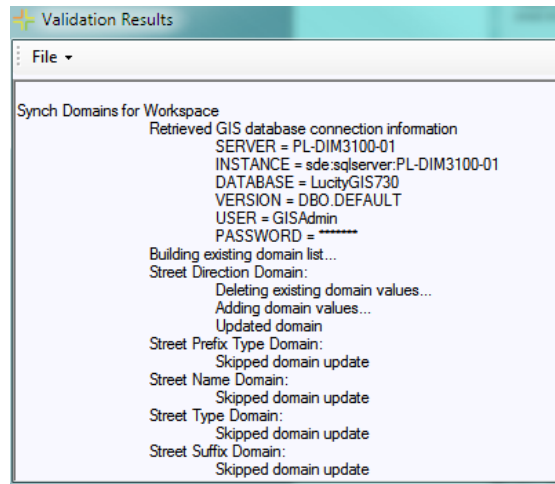


# Feature Class Schema

There are various tools available that can be applied on individual feature classes or all feature classes in a geodatabase connection that alter the feature class schema. To use any of these tools you will be prompted to enter geodatabase credentials that will have the necessary permissions to make schema changes and you must be able to acquire an exclusive lock on the feature class.
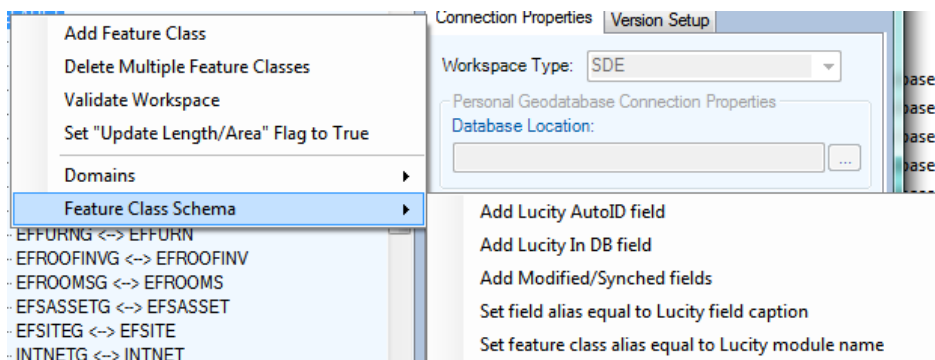
## Add Lucity AutoID Field

Starting with version 7.1, this field is no longer required; however, for best performance it is strongly recommend this field exists in each feature class. Once the field is added and mapped to Lucity, the Lucity extension will maintain it. It requires no data input from the user. Use this tool to create this field in your feature class(es) and map it to Lucity.

## Add Lucity 'In DB' Field

Starting with version 7.1, this field is no longer required. It is a simple Boolean field that indicates if there is an associated feature in the Lucity database. Once the field is added and mapped to Lucity, the Lucity extension will maintain it. It requires no data input from the user. Use this tool to create this field in your feature class(es) and map it to Lucity.

## Add Modified/Synched Fields

This tool can be used to create 3 fields in your feature class(es): Last Modified Date, Last Modified By, and Last Synch Date. Once these fields are added and mapped to Lucity, the Lucity extension will maintain them. It requires no data input from the user.

## Set Field Alias Equal to Lucity Field Captions

This tool can be used to update the alias name for the feature class fields linked to Lucity. The alias names will be updated to match the Lucity field captions.

## Set Feature Class Alias Equal to Lucity Module Name

This tool can be used to update the alias name for the feature class linked to Lucity. The alias names will be updated to match the Lucity module name. For example, a feature class linked to the Sanitary Structure Inventory module will have its alias updated to "Sanitary Structure".

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# Import Feature Classes from Schema

The Import Feature Classes from Schema tool provides a quick way to configure Lucity to work with specific pre-configured geodatabases. This tool has stored configurations based on linking Lucity to the Esri Local Government Information Model and Lucity geodatabase schemas.

- This tool does not create the feature classes in the geodatabase. It simply creates configuration records in the Lucity geodatabase configuration to recognize feature classes and fields based on one of these standardized schemas.

- This tool does not create or update any Domains. This must be done after the import using the Domain Configuration tool.

To import feature class configurations from a default schema:

1. Right-click on the geodatabase connection node that contains the feature classes you wish to load the mappings for and click "Import Feature Classes from Schema".
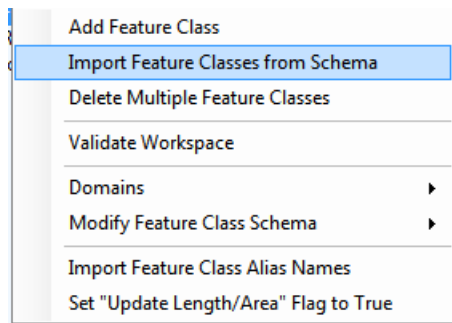


2. The following form will appear:
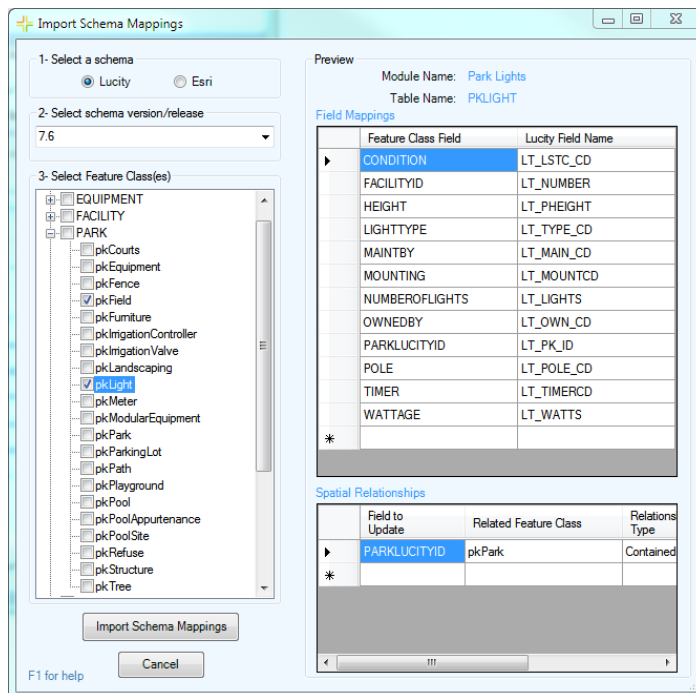


3. Select a schema.

   o You can either select a Lucity geodatabase schema or an Esri's Local Government Information Model schema.

4. Select the schema version/release.
   o For Lucity, this will be the Lucity version number (7.4, 7.5, 7.6, etc.)
   o For Esri, this will be the version followed by the release date.  For example, there have been two releases of the 10.1 Local Government Information Model, one on 7/12/12 and 11/5/12, these will be listed as 10.1_071212 and 10.1_110512.
5. Select the feature class(es) you would like to load the schema mappings for.
6. Preview by selecting a specific feature class on the left side.
   o The Field Mappings grid will show which fields in the feature class will be mapped to which fields in Lucity
   o The Spatial Relationships grid will show the default spatial relationships for the feature class
   o Note: You are unable to modify the defaults at this time.  However, once you import the schema, you can then modify the feature class configuration just like any other feature class.
7. Click the Import Schema Mappings button once you are ready to import the settings
8. The Validation results window will appear and provide feedback on the import process.
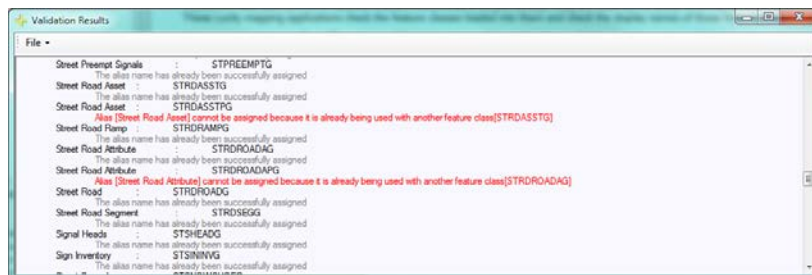
# Import Feature Class Alias Names

Aliases are alternate names for feature classes that provide a unique identity.  They are used by the Lucity Webmap, Lucity Viewer, and Lucity Mobile for Android to identify which feature classes are linked to Lucity.  These Lucity mapping applications check the feature classes loaded into them and check the display names of those feature classes against the aliases names listed in the Geodatabase Configuration.

Aliases can be setup in a few different ways.  This tool is designed to update the geodatabase configuration with the default alias names for the geodatabase connection as listed in ArcCatalog.

1. Select the geodatabase connection or the feature class node
2. Right click on the selected node and select the Import Feature Class Alias Name(s) tool
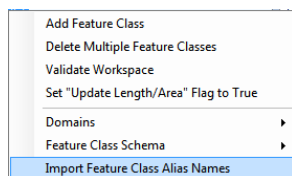


3. The import will start immediately and a log screen will appear that provides additional information including import errors.

*Note: An alias name can only be associated to one feature class; therefore, prior to associating an alias to a feature class the import verifies the alias name is not currently being used. If it is being used, the alias name will not get associated and the warning will be logged.*

# Validating the Geodatabase Configuration

Once a geodatabase is configured it is good idea to check to make sure that there are no problems with links between Lucity and the geodatabase. This helps insure that all the expected data will be transferred. To run a check there is a Validate tool within the geodatabase configuration. This tool can either be run against the entire geodatabase or an individual feature class. This tool can also be run against a replica geodatabase, or feature class. However, any errors detected on the replica should be fixed in the DEFAULT geodatabase's configuration.

There are two parts to the geodatabase verification. The first is a verification of the geodatabase setup based on Lucity requirements. If no critical errors are encountered during that verification it will continue to the verification. The second part checks the geodatabase to ensure that the setup is valid based on the geodatabase data structure. It checks feature class names, field names, and field types.

1. Select the geodatabase connection, OR the feature class to be checked

2. Right-click on the selected geodatabase OR feature class and select the Validation tool

   - If it is a geodatabase the tool will be *Validate Workspace*

   - If it is a replica geodatabase the tool will be *Validate Replica Workspace*

   - If it is a feature class the tool will be *Validate*

3. The tool will immediately begin to run the first part of the validation and results will be displayed in a validation window.
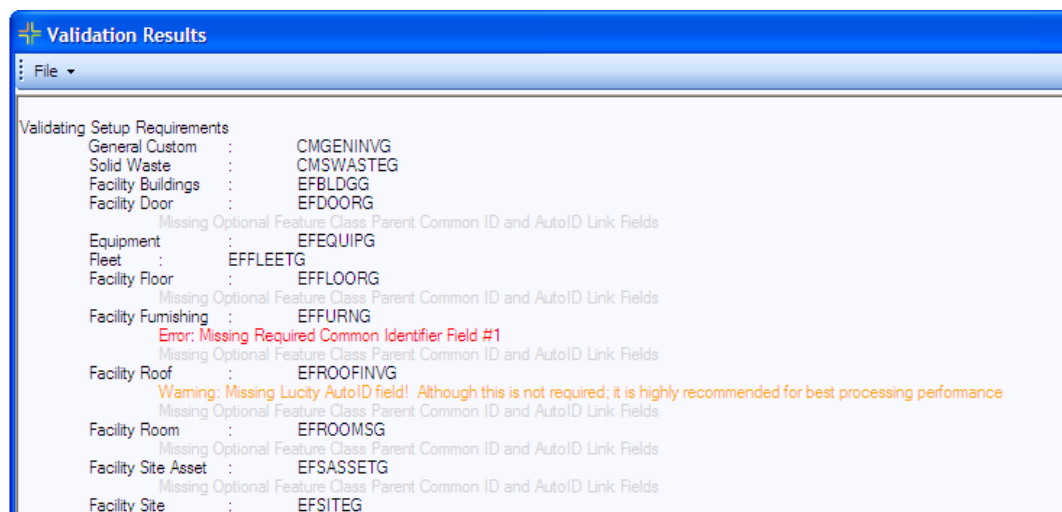


   - The first part of the validation is checking the setup against Lucity requirements it checks to make sure the Required and Optional linking fields are all filled out.

   - The results display the *Lucity Module name: Feature Class Name*. Any messages for a feature class are displayed below.
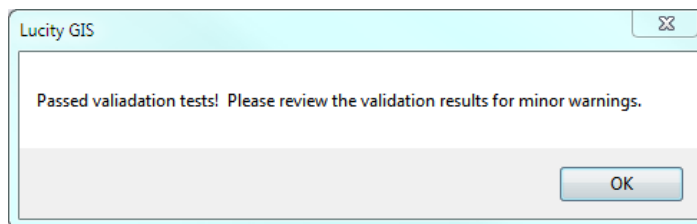
- Suggestions are displayed in Light Gray, Warnings in Orange and Errors in Red.
- If an Error is detected the Validation will NOT continue on to check the geodatabase. The feature class with the error will NOT be able to sync with Lucity. The following message will be displayed
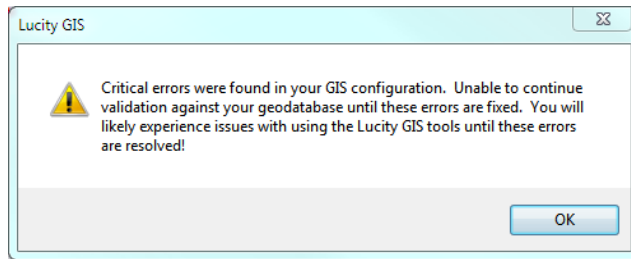


4. If the first part of the validation passes the second part of the validation will immediately start and the results will be shown in the same validation window.

- The second part is checking the configuration between the geodatabase and Lucity it is checking to make sure the specified fields exist in the geodatabase and that the data types and field masks match.

- The results display the *Lucity Module Name: Feature Class Name*.

- Warnings are displayed in Orange, and Errors in Red.

- If an error is detected the following message will be displayed
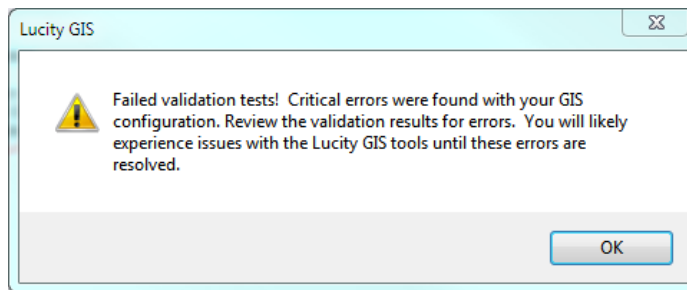


- If it was successful the following would be displayed:



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