

HOW TO FILL YOUR DATA INTO THE LOCAL GOVERNMENT INFORMATION MODEL

Jeremy Williams | City of Clearwater
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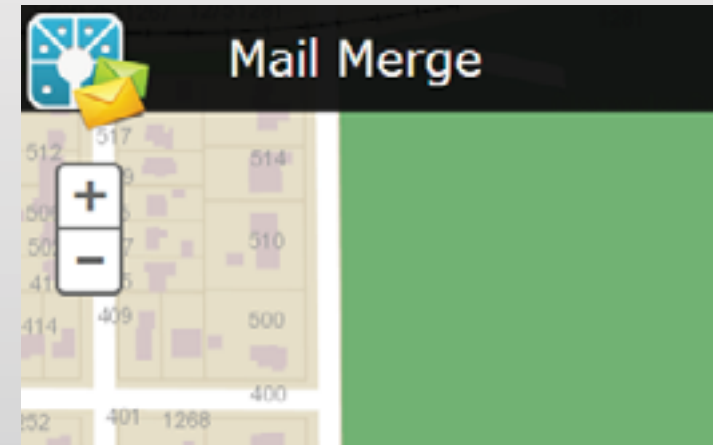


WHAT IS THE LOCAL GOVERNMENT INFORMATION MODEL?

- “LGIM” for short
- Data model (schema) used for quicker web application development
- ESRI supplied, connects to preconfigured applications also provided by ESRI that can be found in the local government gallery
- Introduced at version 10

WHY USE THE LGIM?

- Reduces application development time
- QA/QC already done for you
- Reduces deployment time
- Easily supported, one data store to deal with



WHY I THOUGHT THIS WOULD BE WORTHWHILE TO PRESENT

- Looked like the LGIM was going to be an overwhelming or daunting process to implement
 - Turned out to be very simplistic
- We thought we needed a 1for1 data representation to take advantage of the LGIM
- We thought we had to fill in EVERYTHING the LGIM had in order to use it
 - Only use what you need
- Thought we had to use the LGIM basemaps (see above)
 - You can use any basemap

OUR FIRST LGIM BASED APPLICATION

- Version 1: was a custom Microsoft COM object based on early IMS which ran in MS Word
- Version 2: Another custom application written in FLEX using ArcGIS Server 9.3 took over the label generation utilizing Crystal Reports
- ESRI's released "Public Notification" late in version 10
- Once version 10.1 was released we moved our 9.3 custom version to the LGIM version.

DEVELOPMENT TIME

- **ArcGIS Server 9.3 using Crystal Reports**
- 6 months of development, 2 staff members
- Written in Adobe FLEX
- Constant battle keeping it running
- Disjointed process of creating labels
- **ArcGIS Server 10.1** (First production version)
 - 2-3 days to load data, build the automation for the data updates, publish the services, and train the users
- **ArcGIS Server 10.2**
 - One afternoon to test for functionality, and to make sure the users were not disturbed during the upgrade. No additional user training needed.










































WHERE IS YOUR DATA STORED NOW?

- SDE
 - Shapefiles
 - Geodatabase
-
- Keep your data in its original format and location
 - Utilize Python Scripting to move and update your data as needed

WHERE DOES THE DATA GO?

- Geodatabase
- SDE

GETTING STARTED:

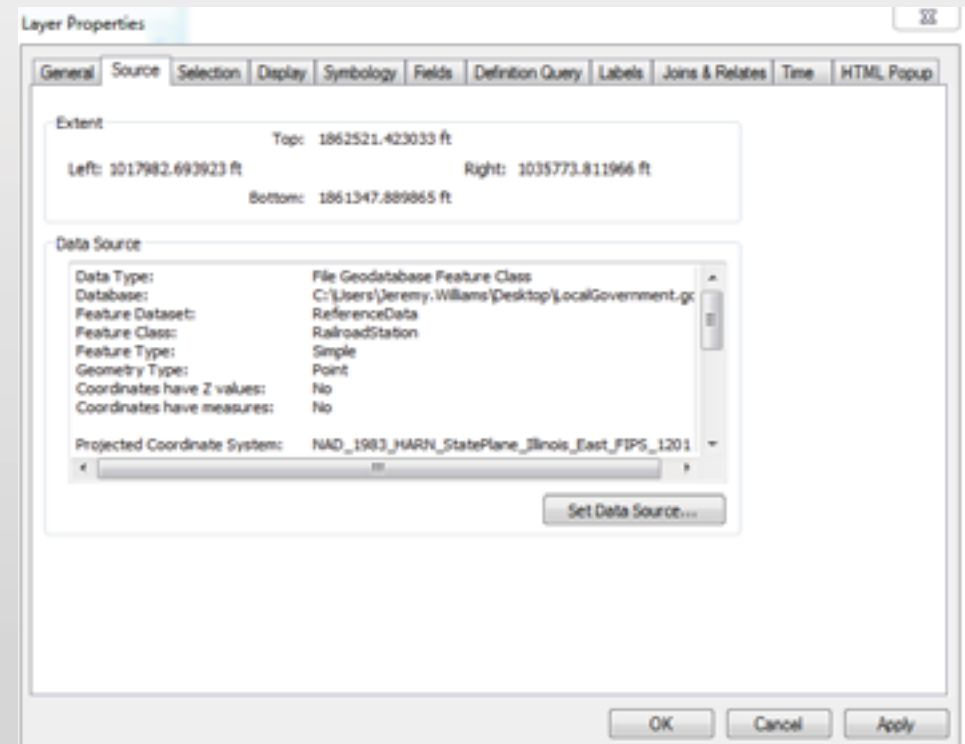
 Composite	Locator
 DualRange	Locator
 PlaceName	Locator
 SiteAddress	Locator
 StreetName	Locator
 Address	File Geodatabase Feature Dataset
 AdministrativeArea	File Geodatabase Feature Dataset
 AssessmentInformation	File Geodatabase Feature Dataset
 CadastralReference	File Geodatabase Feature Dataset
 CapitalPlanning	File Geodatabase Feature Dataset
 CitizenService	File Geodatabase Feature Dataset
 Demography	File Geodatabase Feature Dataset
 ElectionAdministration	File Geodatabase Feature Dataset
 ElectionResults	File Geodatabase Feature Dataset
 Elevation	File Geodatabase Feature Dataset
 EmergencyOperations	File Geodatabase Feature Dataset
 ExecutiveReporting	File Geodatabase Feature Dataset
 FacilitiesStreets	File Geodatabase Feature Dataset
 FieldCrew	File Geodatabase Feature Dataset
 FireServiceOperations	File Geodatabase Feature Dataset
 InfrastructureOperations	File Geodatabase Feature Dataset
 LandUseOperations	File Geodatabase Feature Dataset
 LandUsePlanning	File Geodatabase Feature Dataset
 LawEnforcementOperations	File Geodatabase Feature Dataset
 ParcelEditing	File Geodatabase Feature Dataset
 ParcelPublishing	File Geodatabase Feature Dataset
 PublicSafetyPlanning	File Geodatabase Feature Dataset
 ReferenceData	File Geodatabase Feature Dataset
 SewerStormwater	File Geodatabase Feature Dataset
 Stormwater	File Geodatabase Feature Dataset
 Telemetry	File Geodatabase Feature Dataset
 WaterDistribution	File Geodatabase Feature Dataset
 AED_ATTACH	File Geodatabase Table
 AED_ATTACHREL	File Geodatabase Relationship Class
 AnimalComplaints	File Geodatabase Raster Dataset
 BuildingFloor_ATTACH	File Geodatabase Table
 BuildingFloor_ATTACHREL	File Geodatabase Relationship Class
 BuildingPhotoLoc_ATTACH	File Geodatabase Table
 BuildingPhotoLoc_ATTACHREL	File Geodatabase Relationship Class
 Census2010SummaryFile1	File Geodatabase Table
 CitizenContactInfo	File Geodatabase Table

WHAT APPLICATION TO START WITH?

- Download the application that most interests you
 - Depending on the work that you do, one of the applications from the Gallery may stand out to you more than another
- Sample applications will include the application code, MXD's, cache settings, and a sample GDB already setup in the LGIM
 - The "MapsandGeodatabase" directory is usually where the MXD's and GDB are located
 - The sample code is located in the "Application" directory

OPEN ONE OF THE MAP FILES FOR THE SAMPLE APPLICATION

- One or more MXD's will be the basemaps for the application (ie. Basemap and Imagery), the others will be the working MXD's that control the way the applications query the data
- The working or query MXD's are where the LGIM pays off, and where your data starts to come into the picture
- Open one of the working/query MXD's and follow the data paths into the provided GDB



MAKE A LAYER LIST

- This is where you start deciding what data you will need to move to the LGIM
- The working/query MXD's give you a good idea of where to start, but they are not the final word
- You can add or remove data from the sample applications by simply adding additional data, or removing data from the MXD

EXAMPLE: MY GOVERNMENT SERVICES

- Included Layers include:
 - Railroad
 - Recycling Facility
 - Department of Public Works
 - Museum Community Center
 - Post Offices
 - Libraries
 - Police Stations
 - Fire Stations
 - Trash Pickups
 - Recycling Pickups
 - Street Cleaning
 - Yard Waste Pickup
- You could have
 - Recycle Drop Off Location
 - Natural Gas Filling Station
 - Refuse Collection Days

LGIM APPLICATION CUSTOMIZATION

- Publishing the sample application is a great way to see how the application works and behaves
- Its also helpful to see how the data is handled inside the application
 - To publish: follow the directions provided with the application
- With the sample application published, you can start to manipulate the config.js file and see how the application reacts to your customizations within a “controlled” environment

SAMPLE CODE TELLS THE STORY

- After the application is running on your ArcGIS Server you can start dissecting how the application actually works
- The sample code in the config.js file will paint a picture of how much of your data is actually needed to make the application work for you

```
RecyclingPickup: {
  Name: "Recycling Pickup",
  Image: "images/recycling.png",
  HasRendererImage: false,
  ServiceURL: "http://test.gis.ohio.gov/arcgis/rest/services/ArcGISWebServices/GovernmentServices/RecServer/1",
  FieldNames: [
    {
      ServiceAvailability: [
        {
          FieldName: "WEDNESDAY",
          DisplayText: "Wed"
        },
        {
          FieldName: "THURSDAY",
          DisplayText: "Thu"
        },
        {
          FieldName: "FRIDAY",
          DisplayText: "Fri"
        },
        {
          FieldName: "SATURDAY",
          DisplayText: "Sat"
        },
        {
          FieldName: "SUNDAY",
          DisplayText: "Sun"
        }
      ]
    },
    {
      Field: "Agency = ${AGENCY}"
    },
    {
      Field: "Contact = ${CONTACT}"
    },
    {
      Field: "Phone = ${PHONE}"
    },
    {
      Links: [
        {
          DisplayText: "Website",
          FieldName: "AGENCYURL",
          type: "web"
        },
        {
          DisplayText: "Email",
          FieldName: "EMAIL",
          type: "mail"
        }
      ]
    }
  ],
  Color: "#0000FF",
  IsRendererColor: true,
  LayerVisibility: true
},
```

LOOK AT THE SERVICES REFERENCED IN THE CONFIG.JS

ServiceUrl:

".../GovernmentServices/MapServer/4"

- The REST service directory tells you layer 4 in this case is the garbage route layer
- The FieldNames listed below the service directly reference the LGIM fields
- You can change these fields

```
FieldNames: [{
  ServiceAvailability: [{
    FileName: "MONDAY",
    DisplayText: "Mon"
  }, {
    FileName: "TUESDAY",
    DisplayText: "Tue"
  }, {
    FileName: "WEDNESDAY",
    DisplayText: "Wed"
  }, {
    FileName: "THURSDAY",
    DisplayText: "Thu"
  }, {
    FileName: "FRIDAY",
    DisplayText: "Fri"
  }, {
    FileName: "SATURDAY",
    DisplayText: "Sat"
  }, {
    FileName: "SUNDAY",
    DisplayText: "Sun"
  }
  ]
}, {
  Field: "Agency : ${AGENCY}"
}, {
  Field: "Contact : ${CONTACT}"
}, {
  Field: "Phone: ${PHONE}"
}, {
  Links: [{
    DisplayText: "Website",
    FileName: "AGENCYURL",
    type: "web"
  }, {
    DisplayText: "Email",
    FileName: "EMAIL"
  }
  ]
}
```


PREPARE TO MOVE YOUR DATA

- Now that you've gone through the MXD's and decided what layers you want to use
 - You'll have a greater understanding of how you can make the application work for you
 - Need to start preparing your own LGIM
 - Your existing data will not share the schema with the LGIM
- You'll have to decide how often your data need to be updated:
 - Static
 - Dynamic

X-RAY FOR ARCCATALOG

- ESRI makes a tool called X-Ray for ArcCatalog
- X-Ray can build you a NEW BLANK LGIM GDB in your datum of choice
- Download the sample LGIM GDB from the Local Government Gallery, use it to import the schema for a new blank LGIM



X-Ray for Geodatabases

STATIC DATA

- Static data is classified as data that isn't constantly changing
 - Examples:
 - Survey Markers
 - Lighthouses
 - Parking garages
- Static data can be filled into the LGIM once and left alone after the initial load

DYNAMIC DATA

- Data that changes frequently, either on a schedule or as needed.
 - Examples:
 - Trees
 - Utility data
 - Parcel data
- Needs to be connected to the main data source so that it can be routinely updated

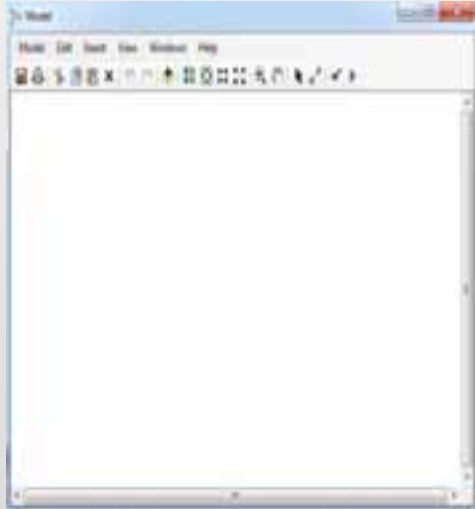
STATIC DATA LOADING

- Since the schema will not match between your data source and the LGIM:
 - Join the LGIM feature to your data so the LGIM schema is appended to your data as empty fields
- Use Field Calculator to calculate each field of the LGIM that you'd like to utilize
 - Field Calculator can calculate values for the LGIM data that you may not have in your data, such as urls, contact info or operating hours
- Once the LGIM fields are filled out to your satisfaction:
 - Append your new LGIM'd data to the empty LGIM you created with X-Ray
 - make sure to use the "NO TEST" switch on the Append tool

DYNAMIC DATA LOADING

- Similar to static data, you'll need the LGIM schema joined to your data so you have access to the fields of the LGIM
- Utilize ModelBuilder to help map the data that you are loading to the LGIM
- By using ModelBuilder, you can create repeatable steps that can be scheduled to run automatically
 - This allows for a mostly hands off approach to updating your dynamic data
- Once the LGIM fields are filled out to your satisfaction:
 - Append your new LGIM'd data to the empty LGIM you created with X-Ray
 - Use the "NO TEST" switch on the Append tool
 - Appending can be part of your model

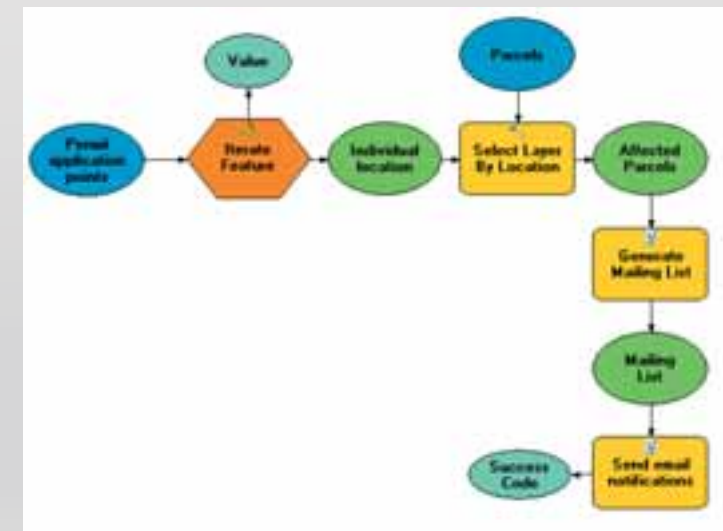
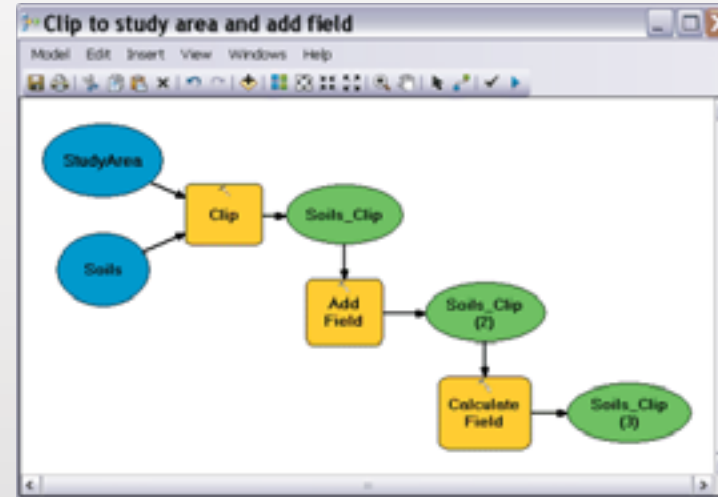
MODEL BUILDER



ModelBuilder allows the user to see a graphical representation of the processes being built

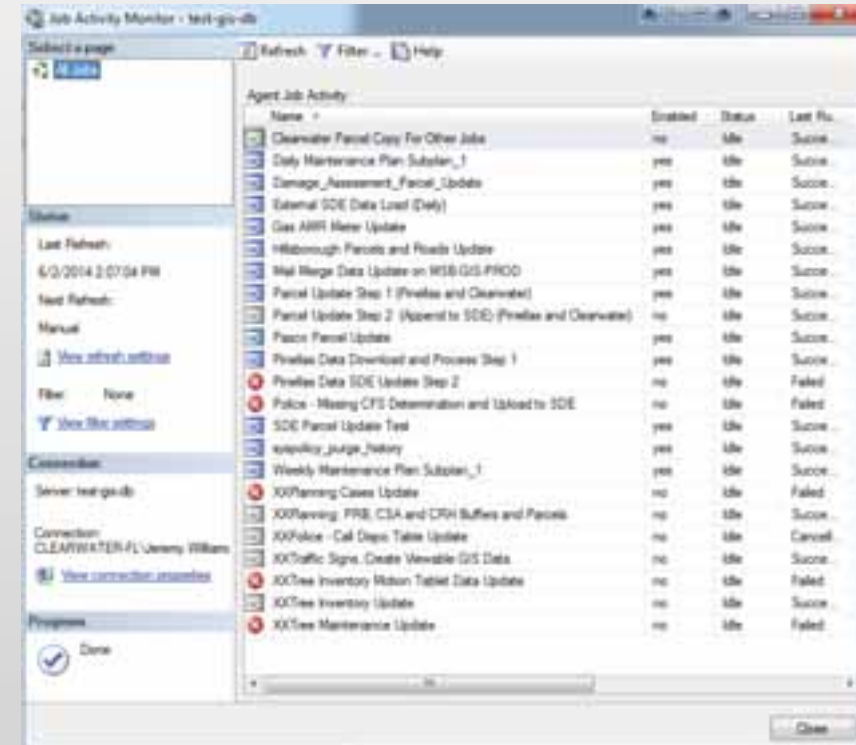
MODELBUILDER

- Almost everything you can do in ArcMap you can do in ModelBuilder
- Search for the tools you need in ArcToolbox and drag them into your blank model work space
- Drag data, tables or features into the model
- Connect the data and the tools together to create processes that are repeatable



AUTOMATING DATA LOADS

- Once the model is working, and tested, it can be exported to Python Script
- Python Scripts can be added to Windows Task Manager or a task scheduler like SQL Job manager



The screenshot shows the 'Job Activity Monitor' window for a server named 'test-go-06'. The window displays a list of jobs under the 'Agent Job Activity' section. The jobs are listed in a table with columns for Name, Enabled, Status, and Last Run. The status of each job is indicated by a small icon: a green checkmark for 'Success', a red 'X' for 'Failed', and a grey 'X' for 'Cancelled'.

Name	Enabled	Status	Last Run
Clearwater Parcel Copy For Other Jobs	no	idle	Success
Daily Maintenance Plan Subtask_1	yes	idle	Success
Damage_Assessment_Parcel_Update	yes	idle	Success
External SDE Data Load (Daily)	yes	idle	Success
Gas AMR Meter Update	yes	idle	Success
Hillsborough Parcels and Roads Update	yes	idle	Success
Met Wages Data Update on WIS GIS PROD	yes	idle	Success
Parcel Update Step 1 (Pinelake and Clearwater)	yes	idle	Success
Parcel Update Step 2 (Append to SDE) (Pinelake and Clearwater)	no	idle	Success
Parcel Parcel Update	yes	idle	Success
Pinelake Data Download and Process Step 1	yes	idle	Success
Pinelake Data SDE Update Step 2	no	idle	Failed
Police - Missing CFS Determination and Upload to SDE	no	idle	Failed
SDE Parcel Update Test	yes	idle	Success
specific_judge_history	yes	idle	Success
Weekly Maintenance Plan Subtask_1	yes	idle	Success
XXPlanning Cases Update	no	idle	Failed
XXPlanning FRB, CSA and CRH Buffers and Parcels	no	idle	Success
XXPolice - Cal Dept Table Update	no	idle	Cancelled
XXTraffic Signs, Create Viewable GIS Data	no	idle	Success
XXTree Inventory Motion Tablet Data Update	no	idle	Failed
XXTree Inventory Update	no	idle	Success
XXTree Maintenance Update	no	idle	Failed

CAN I ADD FIELDS NOT ALREADY IN THE LGIM?

- You can add fields to any of the LGIM layers
- For instance, you may need a “Truck Type” field added to the “piBoundary” layer
 - Solid Waste workers would be able to query what kind of truck a certain route needs
- If you add a field to the model, the field can be referenced in the config.js file
 - Whatever data you add can be queried by the applications you publish
- Include these new fields in your data loads to keep them up to date

LAST STEPS

- Update the data sources in the MXD's to reflect your data, and save as new files
 - You can name the MXD's whatever you want
- Publish the NEW map services from the MXD's you created
- Copy the new application to the internet host and configure as directed in the help files
- Configure the config.js file to point to your NEW map services
- Test and configure as necessary

```
#recyclingPickup: {
  Name: "Recycling Pickup",
  Image: "images/recycling.png",
  HasRendererImage: false,
  ServiceURL: "http://test.gis.ohio.gov/arcgis/rest/services/ArcticWebServices/GovernmentServices/RecServer/0",
  FieldNames: [
    {
      ServiceAvailability: [
        {
          FieldName: "WEDNESDAY",
          DisplayText: "Wed"
        }
      ],
      FieldName: "TUESDAY",
      DisplayText: "Tue"
    },
    {
      FieldName: "WEDNESDAY",
      DisplayText: "Wed"
    },
    {
      FieldName: "THURSDAY",
      DisplayText: "Thu"
    },
    {
      FieldName: "FRIDAY",
      DisplayText: "Fri"
    },
    {
      FieldName: "SATURDAY",
      DisplayText: "Sat"
    },
    {
      FieldName: "SUNDAY",
      DisplayText: "Sun"
    }
  ]
}, {
  Field: "Agency = ${AGENCY}"
}, {
  Field: "Contact = ${CONTACT}"
}, {
  Field: "Phone = ${PHONE}"
}, {
  Links: [
    {
      DisplayText: "Website",
      FieldName: "AGENCYURL",
      type: "web"
    },
    {
      DisplayText: "Email",
      FieldName: "EMAIL",
      type: "mail"
    }
  ]
}
},
Color: "#0000FF",
IsRendererColor: true,
LayerVisibility: true
},
```

THANK YOU

Jeremy Williams

Information Technology
Manager

City of Clearwater

Jeremy.Williams@myClearwater.com

Chris Melone

GIS Technician

City of Clearwater

Chris.Melone@myClearwater.com

