Automate your data setup and enhance work management processes with indoor mapping

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FMMUG
FACILITIES MANAGEMENT & MAINTENANCE USERS GROUP

IBM

Speakers

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Topics

What is Esri ArcGIS Indoors Maps?

What is Maximo Spatial?

Benefits of Maximo with ArcGIS Indoors Maps

Demo: Indoor Maps in Maximo Manage

Demo: Indoor Maps in Maximo Mobile

How to automate location and asset data set-up

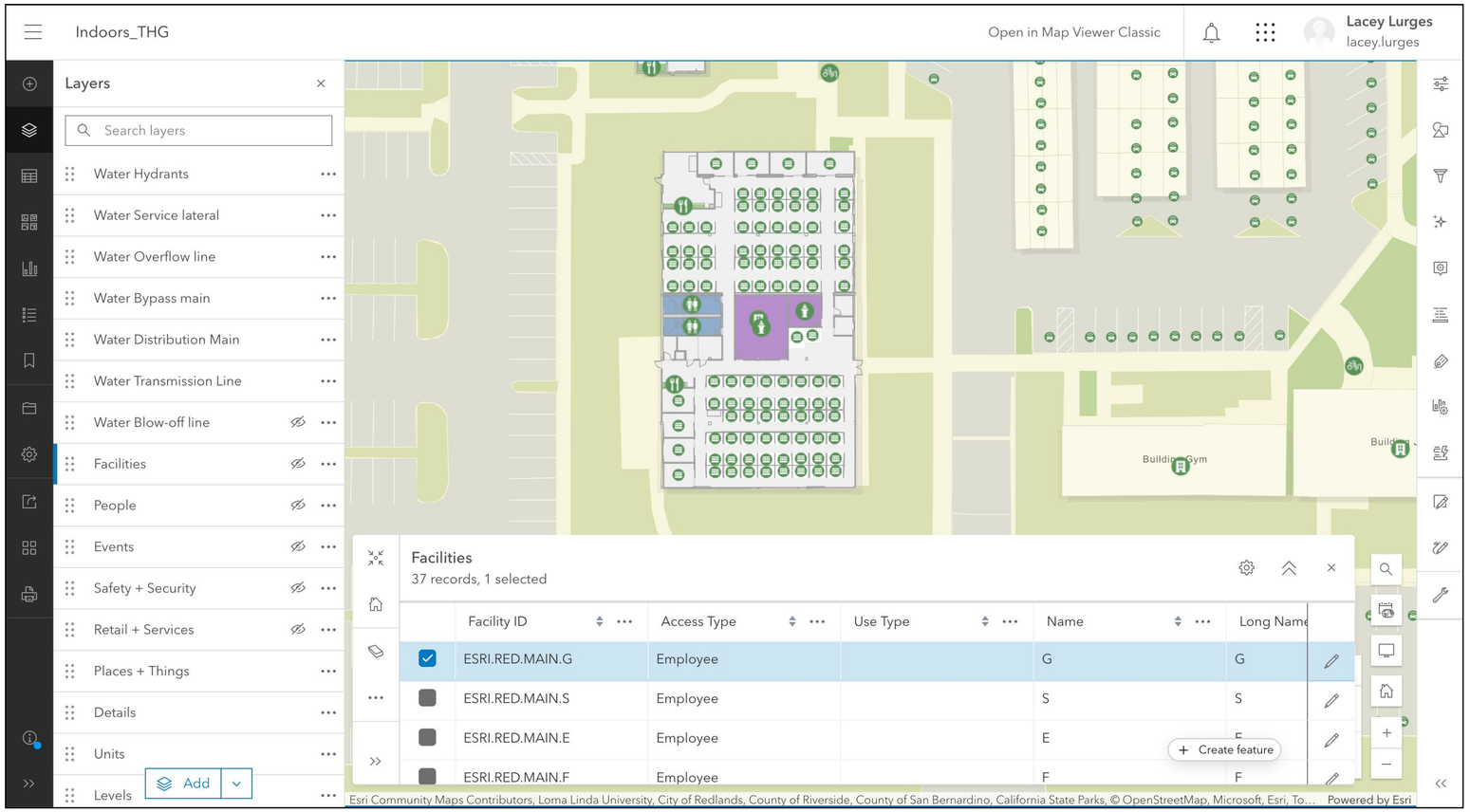
Licensing of Esri Indoors with the Maximo Application Suite

What is Esri ArcGIS Indoors Maps?

Combine your source CAD and BIM data into a single geospatial system of record using ArcGIS Indoors

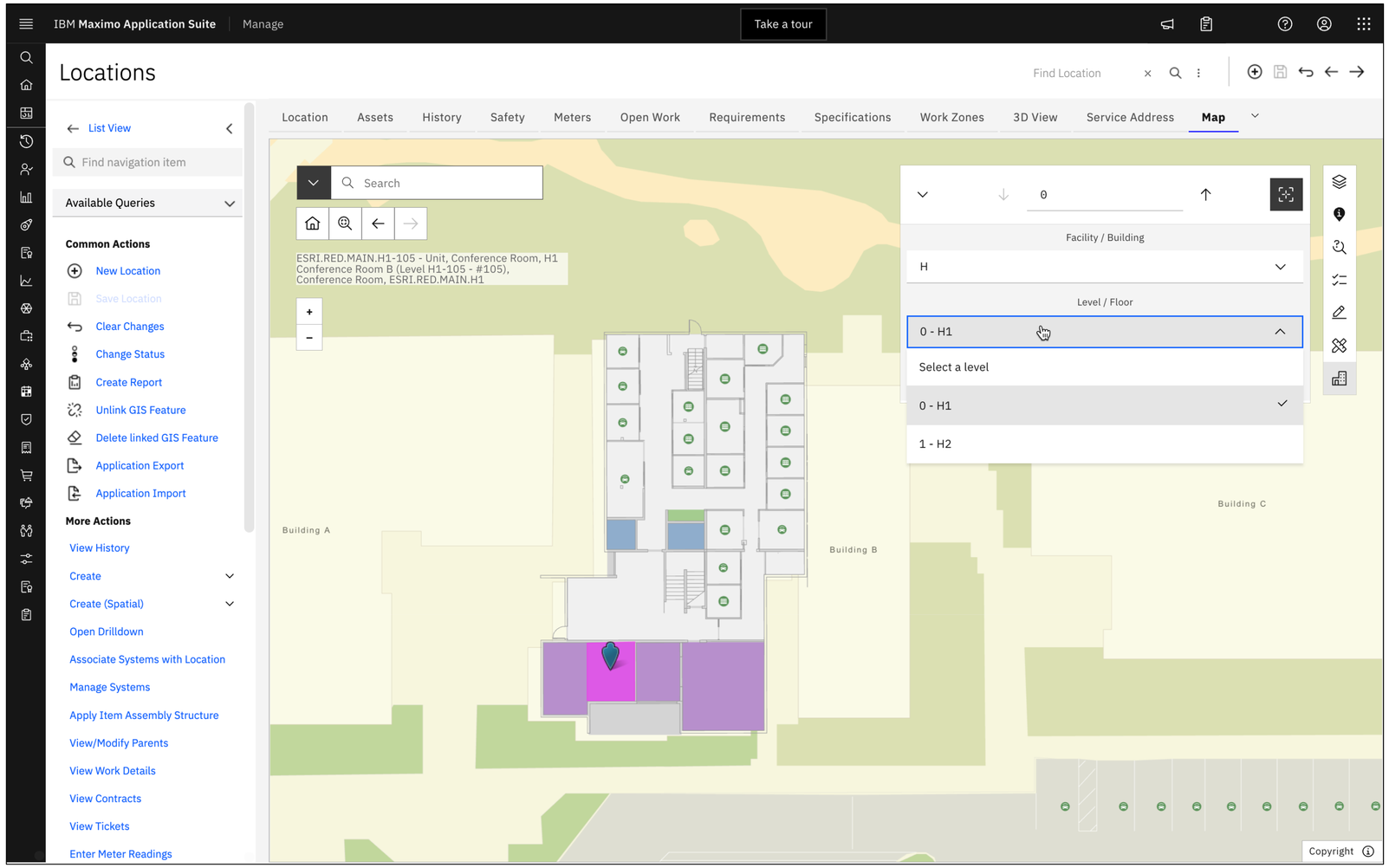
Visualize all your indoor data within a digital indoor map

See points of interest, meeting rooms, assets and equipment, and space usage



What is Maximo Spatial?

- Includes a toolset to enable bidirectional integration between ArcGIS and Maximo Manage
- Embeds maps with tools in Maximo Manage, Mobile, Scheduler and Health
- Supplements the tabular based navigation and understanding of your data with a spatial navigation and understanding which enables new use cases like map-based trending and querying assets nearby
- Leverage the Geocoder, Layers, Identify, Query, Results, Edit, Sketch, **Indoors**, Related, Print tools to navigate and interact with the map to enable spatial use cases



Benefits of Maximo with ArcGIS Indoors Maps

Automate the set up of your Location Hierarchy in Maximo Manage

Keep your Location Hierarchy updated and in synch as construction changes result in modified layouts in ArcGIS

Create point asset records in Maximo and publish to ArcGIS to create linked features for visualization on the map

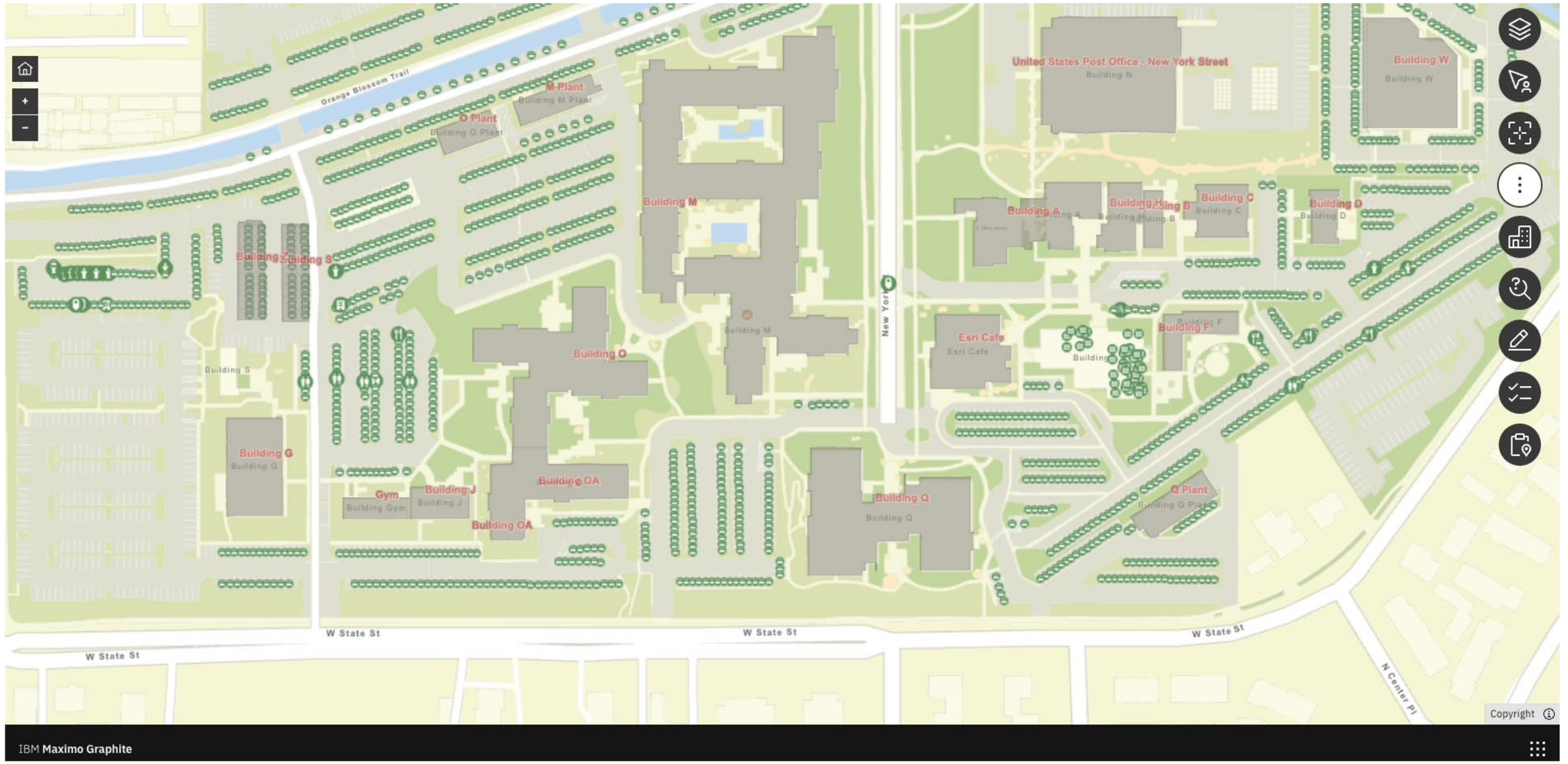
Create work orders against assets or locations and visualize where work orders are on the map in Maximo Mobile for easy locating and completion of the work

Publish work orders to a layer in ArcGIS for map-based visualization in other systems (e.g. a web map to inform students of ongoing construction projects) and trending based on a work order attribute such as status

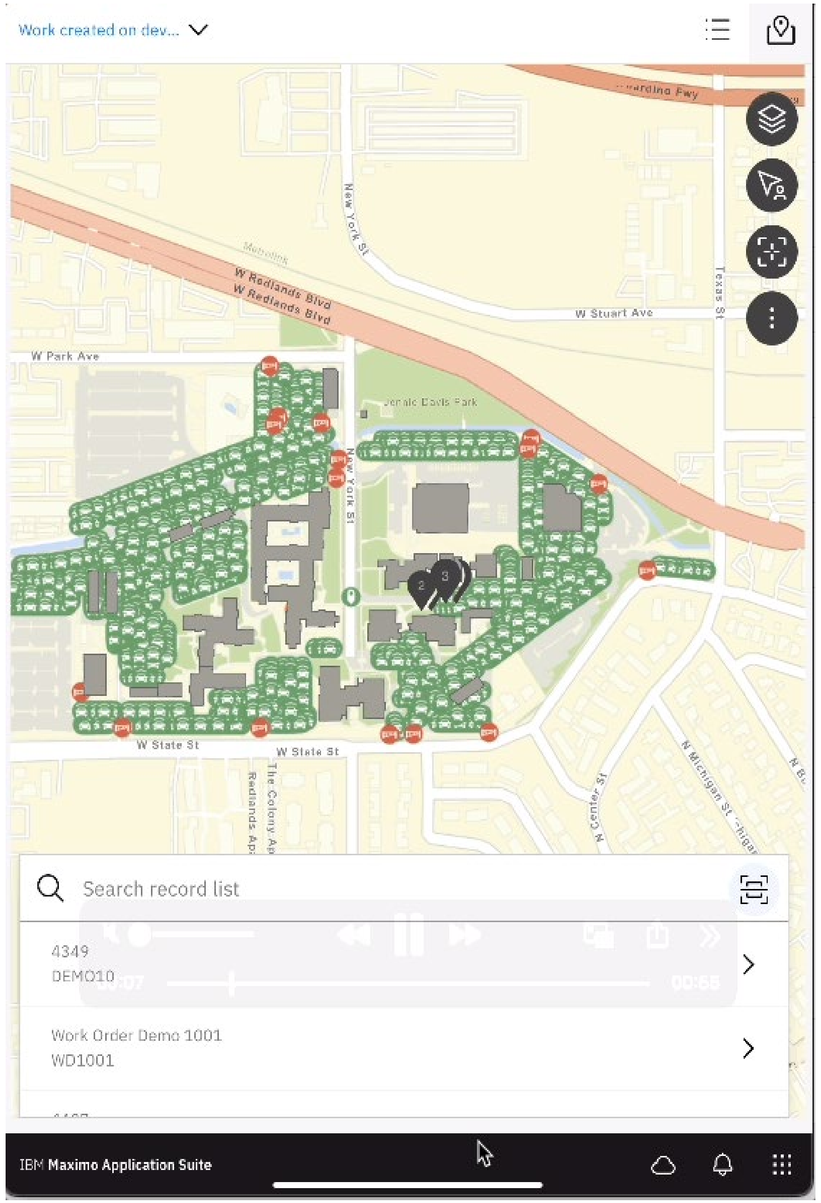
Enable map-based search capabilities, e.g. search for all fire hydrants in a hallway by drawing a polygon on the map and quickly create a work order with the assets in the multi asset table

Enable self service requesters to open a map and select the correct asset to open a service request against

Demo: Indoor Maps in Maximo Manage



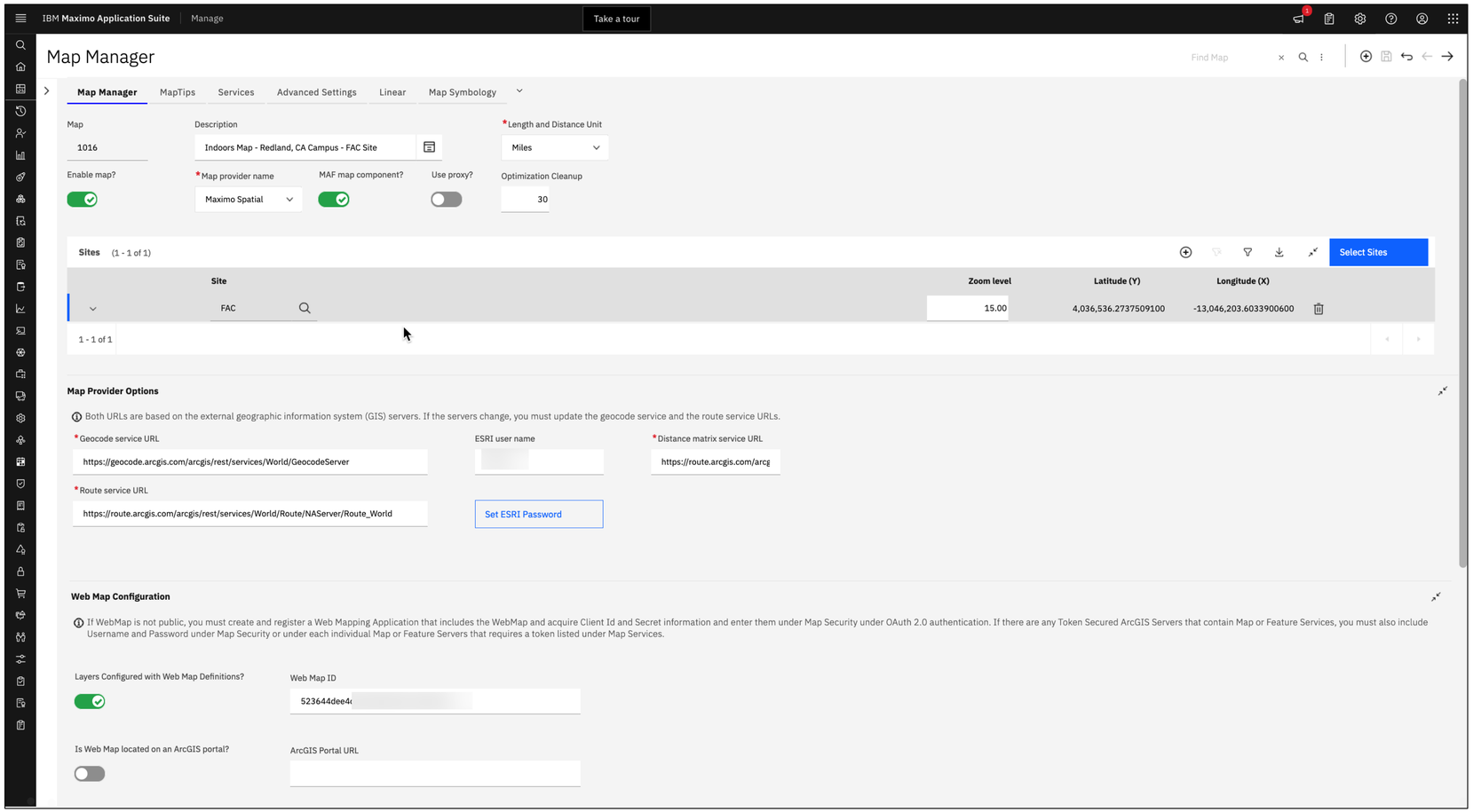
Demo: Indoor Maps in Maximo Mobile



SCAN ME

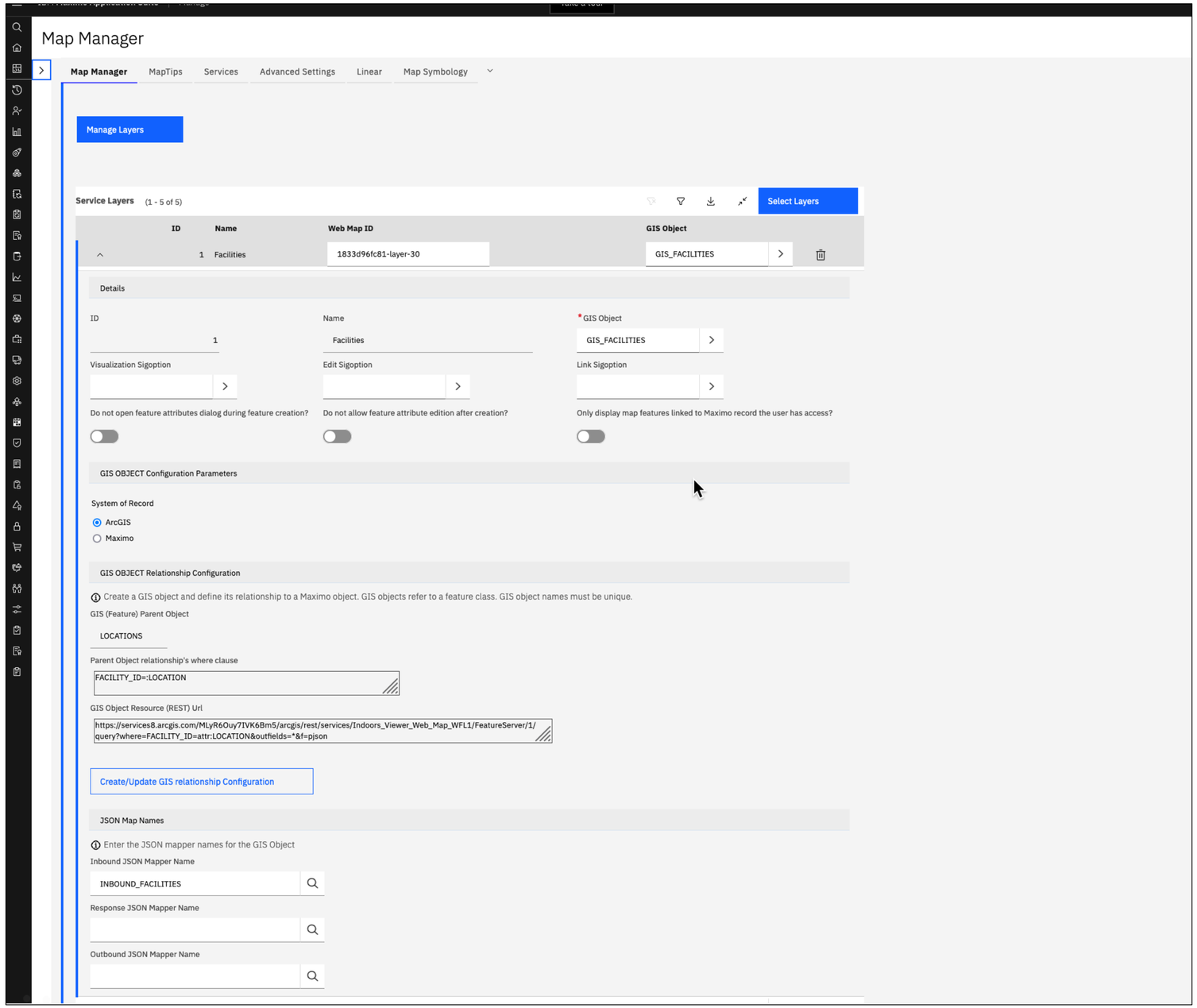
Set Up your Map Manager Record for Visualization

- Enable Map = Y
- Map provider name = Maximo Spatial
- MAF map component = Y if you plan to use the map on Mobile or Health
- Associate Sites with the Map - only one active map per site allowed (don't forget to expand the details of a site and add Initial and Full Extent)
- Add your Web Map Configuration details, Map Security and Map Services depending on your ArcGIS setup (Enterprise vs Online) and if you are using a web map
- Add your Geometry Service on the Services tab
- Ensure all URLs are https
- There are more advanced options, but these are the basics to enable visualization of the map



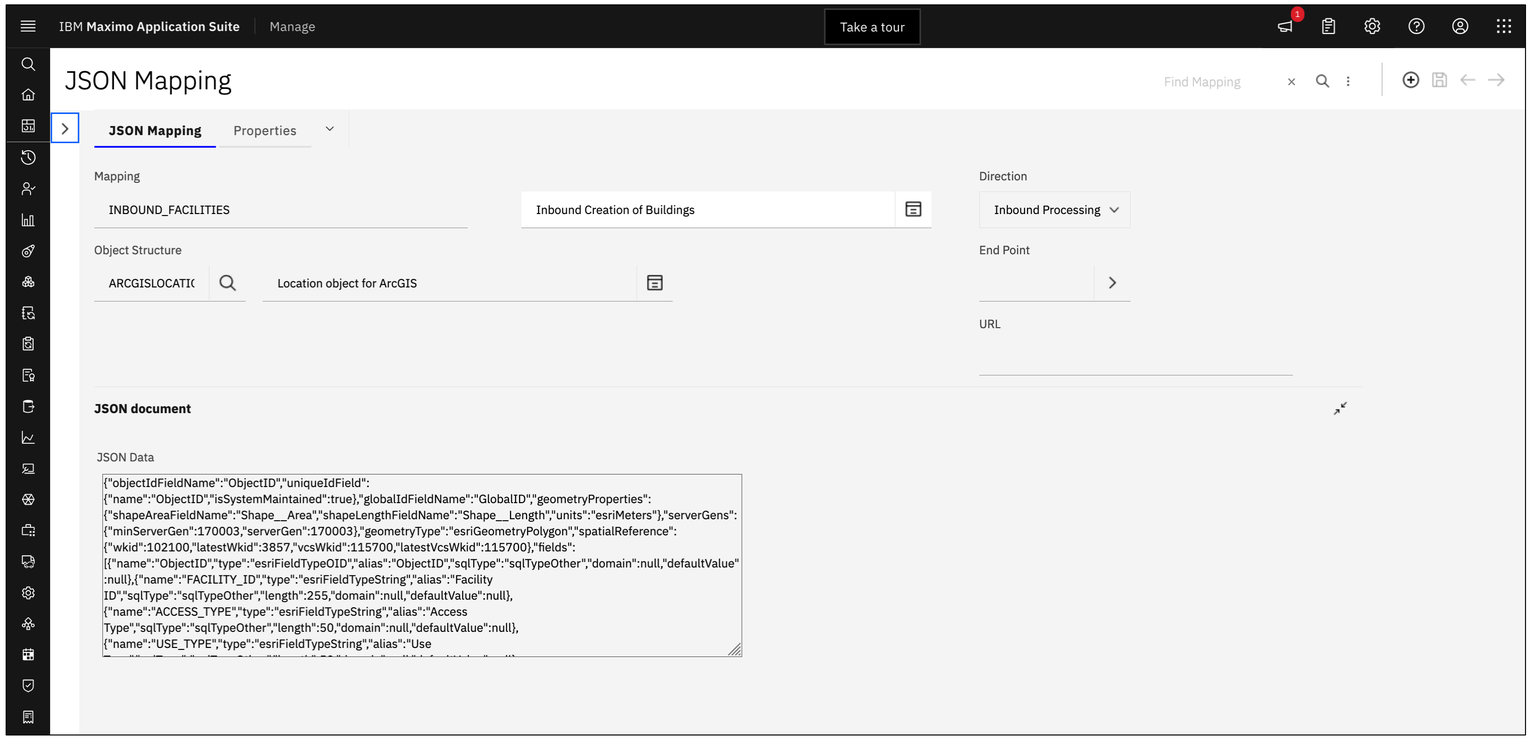
Set Up Manager Manager for Inbound Record Creation and Synchronization

- If using a web map, first click Select Map Services and select your Map Service (you may have more than one depending on your web map setup)
- Next expand the Map Service row and click the Select Layers button, select your layer with the checkbox and click OK
- Define your GIS Object Name and Select Parent MBO in the GIS OBJECT Configuration Parameters Section and Execute GIS Configuration (this creates the database object)
- Create/Update GIS Relationship Configuration to define the relationship that links the Maximo record with the GIS object, e.g. how do you know this GIS feature is the same as this Maximo record (this updates your End Point)



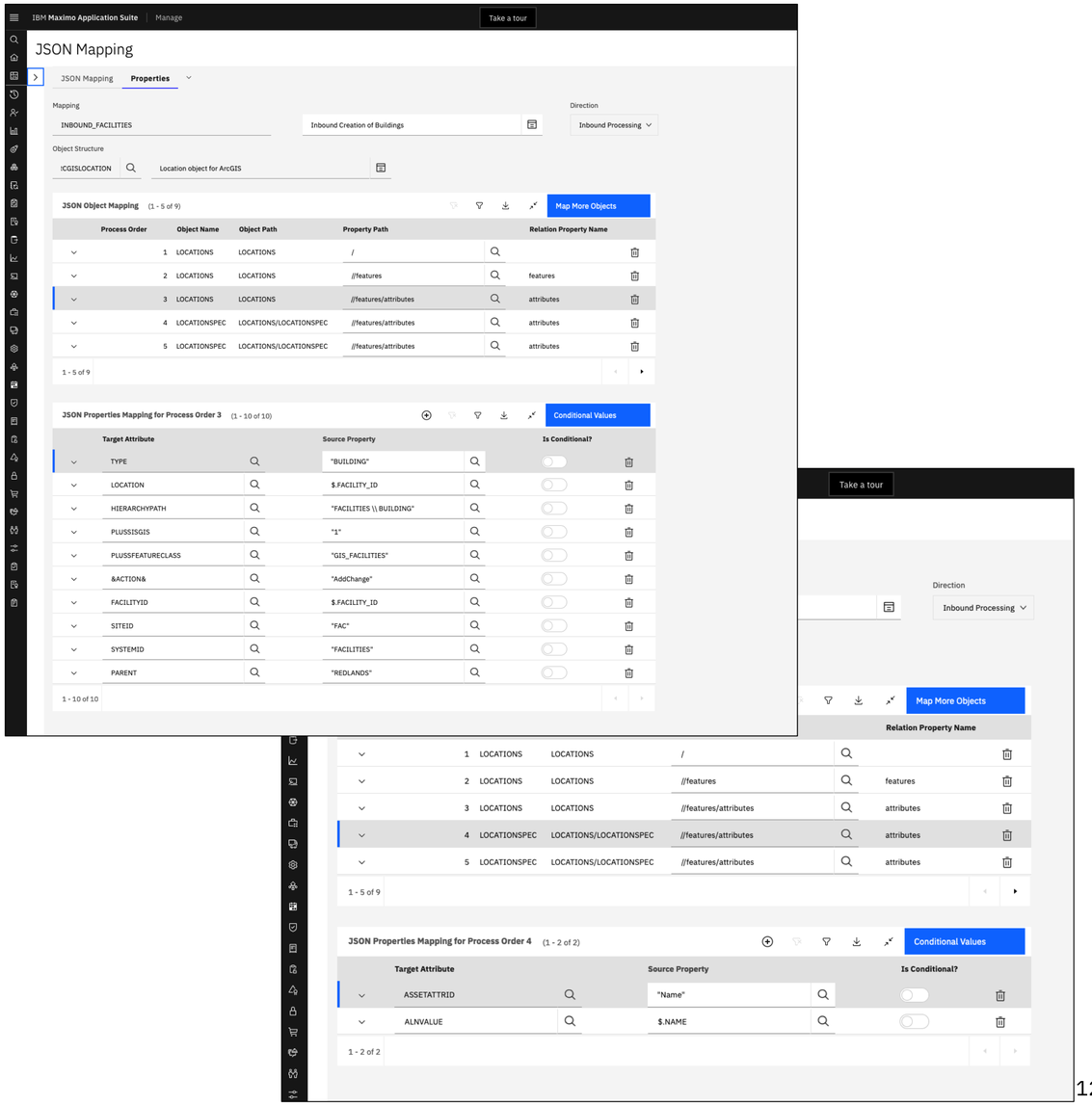
Create a JSON Mapping Record for each ArcGIS Feature Class aka Service Layer you want to synchronize with Maximo

- If setting up a location hierarchy, start with Facilities first, Levels second and Units third
- Create the System and parent location in the Locations application first
- Specify the Maximo Object Structure
  - ARCGISASSET, ARCGISLOCATION, ARCGISSRVAD are included with Maximo Spatial and have the main object and spec object, but you can modify them if you want to map to other related tables
- Direction = Inbound Processing
- Query your feature service to find at least 1 record (but not too many) and copy and paste the URL into the URL field or copy and paste the JSON data directly

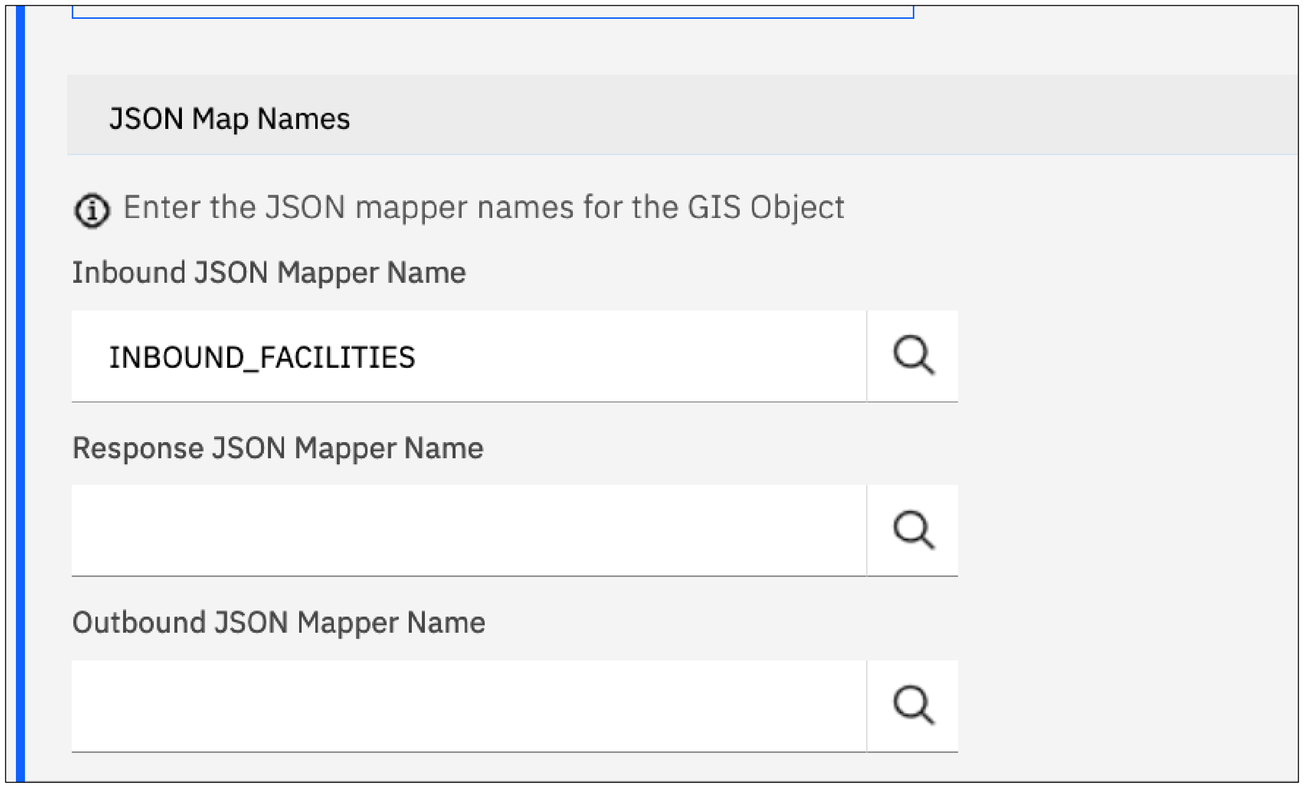


Create a JSON Mapping Record for each ArcGIS Feature Class aka Service Layer you want to synchronize with Maximo

- Map the data you want to synchronize on the Properties tab
- Don’t forget to map the relationship field(s), PLUSSISGIS, PLUSSFEATURECLASS, FACILITYID and LEVELID and any other required fields such as SITEID. FACILITYID and LEVELID are new fields in Maximo and are required for the Esri Indoors setup except on the Location that represents the Building, there will be no LEVELID on it
- You can hard code fields, map field to field, use javascript and conditional mapping or a combination of these techniques for a field
- You can map main object, specifications and any related Maximo table if you modify the Object Structure first
- Map non persistent SYSTEMID and PARENT to build the location hierarchy in Maximo
- Review this tech note if you are mapping specs
  - https://www.ibm.com/support/pages/how-avoid-spatial-erasing-info-assetspec-table-inbound-json-mapping
- Test your mapping using the Test Mapping action

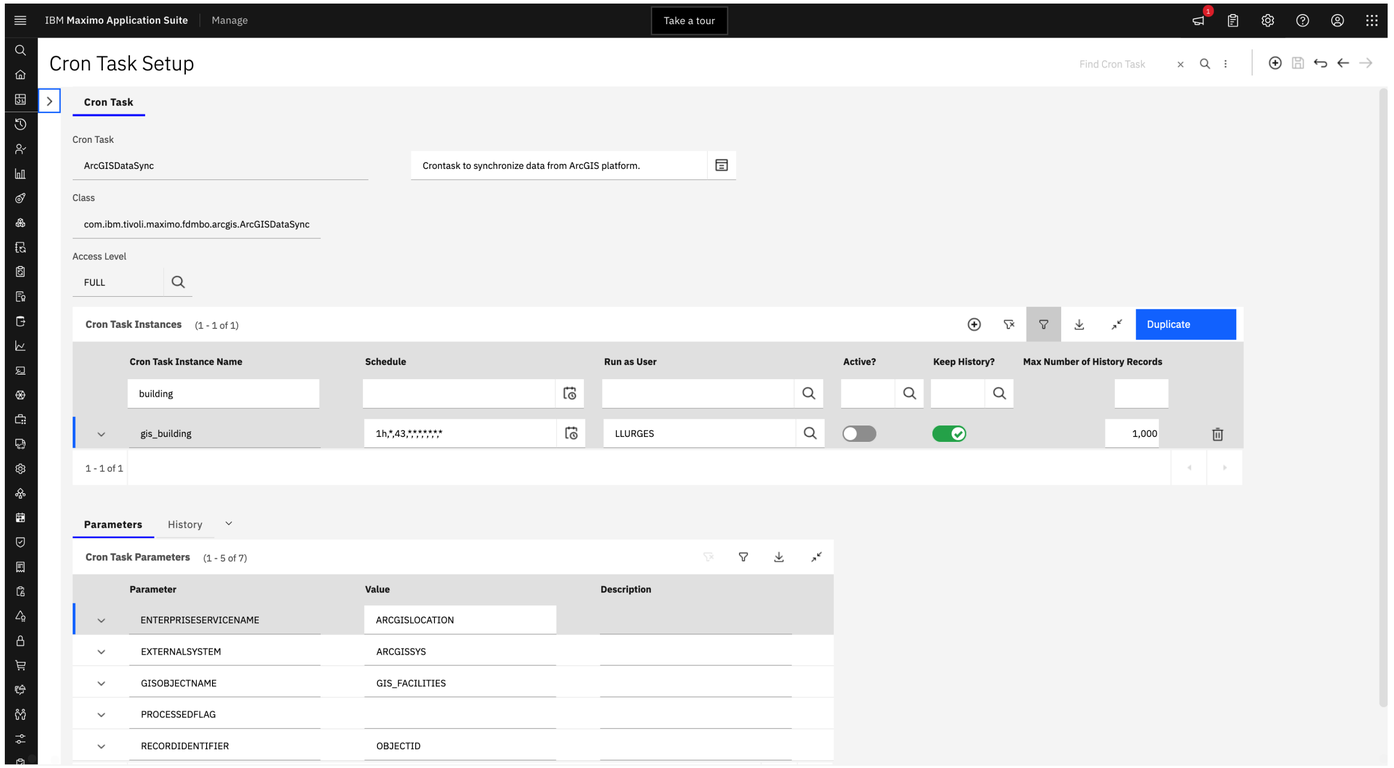


Associate the JSON Mapping with the Service Layer in Map Manager Inbound Record Creation and Synchronization



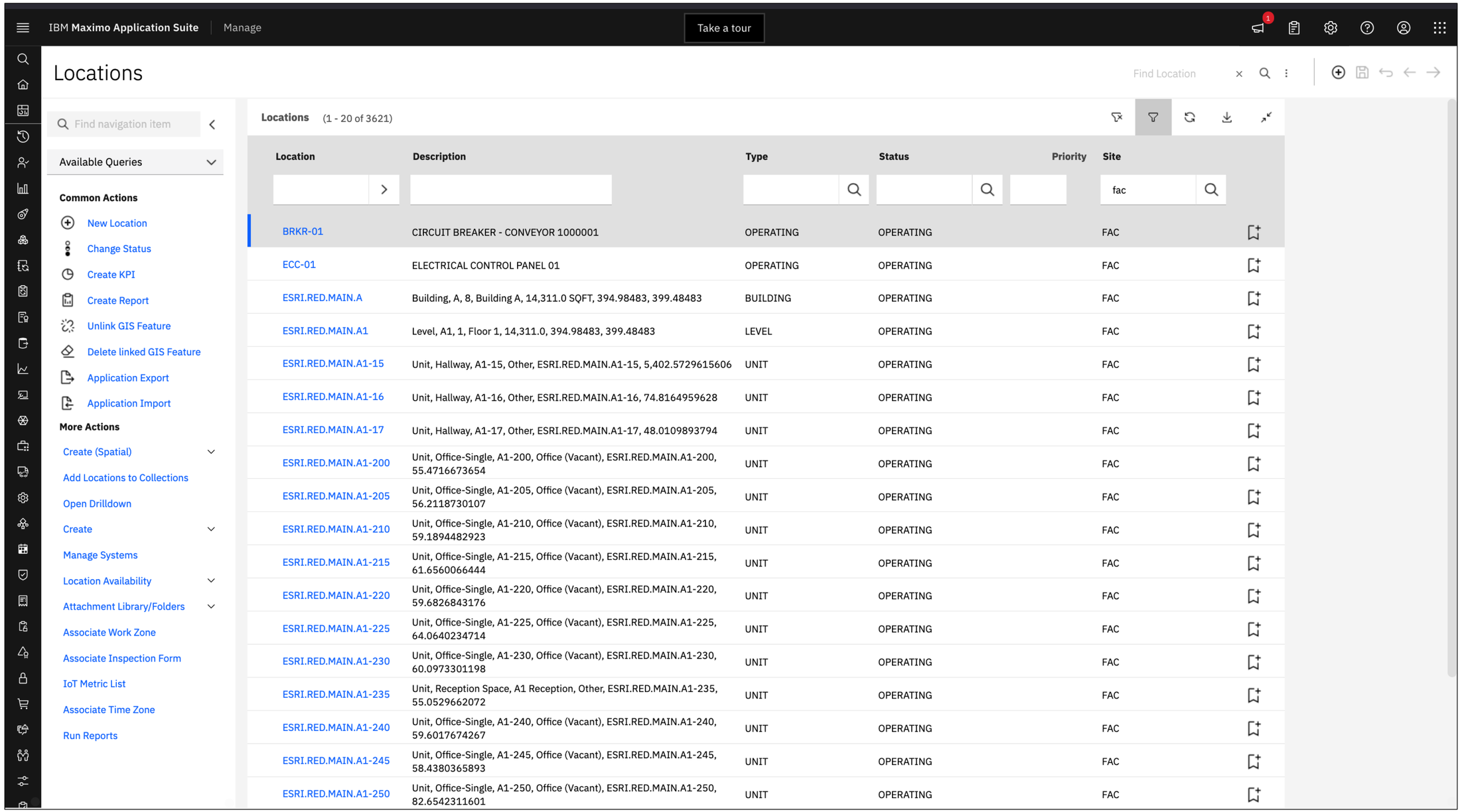
Set Up a Cron Task Instance

- Add a new instance for the ArcGISDataSync Cron Task (you will have one instance for each feature class you will synch)
- The user who runs the cron MUST have the same default insert site as the records that are being created
- Set the parameters
- There are 3 approaches to the URL
  - Set the URL to find all records to data load
  - Set the URL to use a Processed Flag then use it in the URL to find all records where that value is set by the GIS editor and upon processing Maximo will send a value back to change it so it no longer matches the query
  - Set the URL to use dates to compare an updated date to last successful run of the cron instance (see example)
- Schedule the cron instance to run (fi data loading then turn it off immediately after the Action)



https://services1.arcgis.com/qYqXGubbNLHN3cEI/ArcGIS/rest/services/Inspections/FeatureServer/0/query?where=editdate>=:LASTSUCCESSFULSTARTTIME&outFields=*&f=pjson

Magic!! Location Data is Created!!



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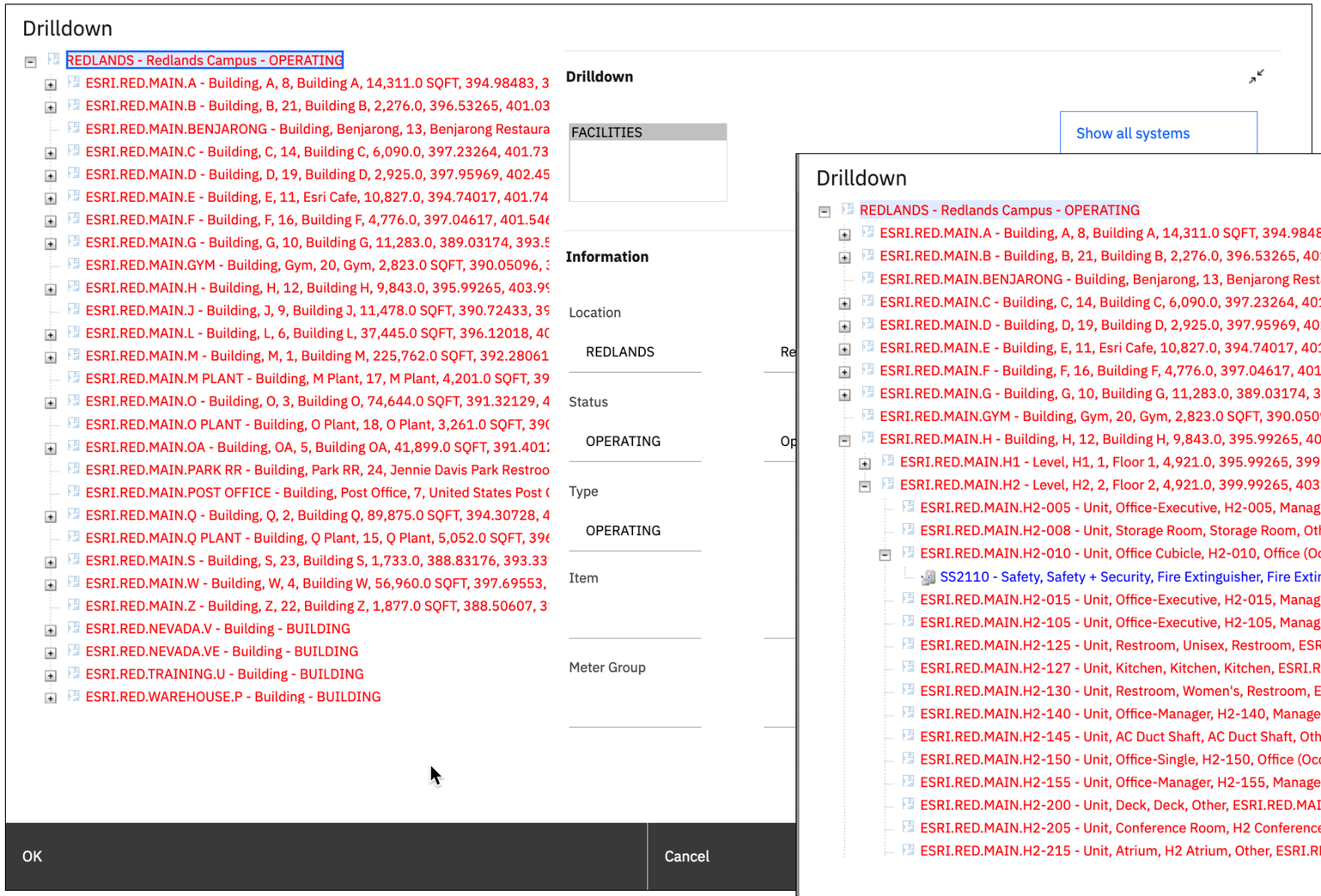

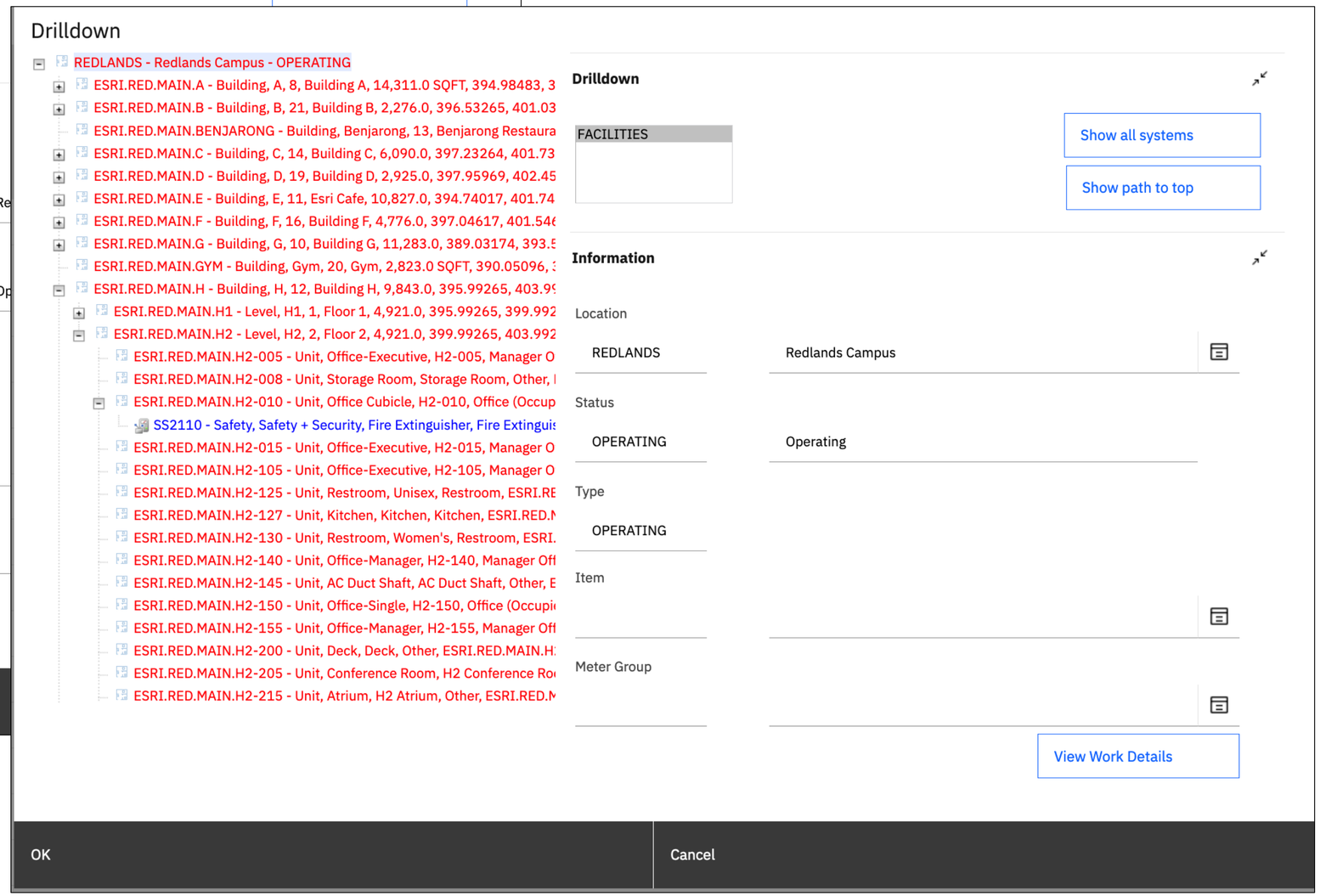

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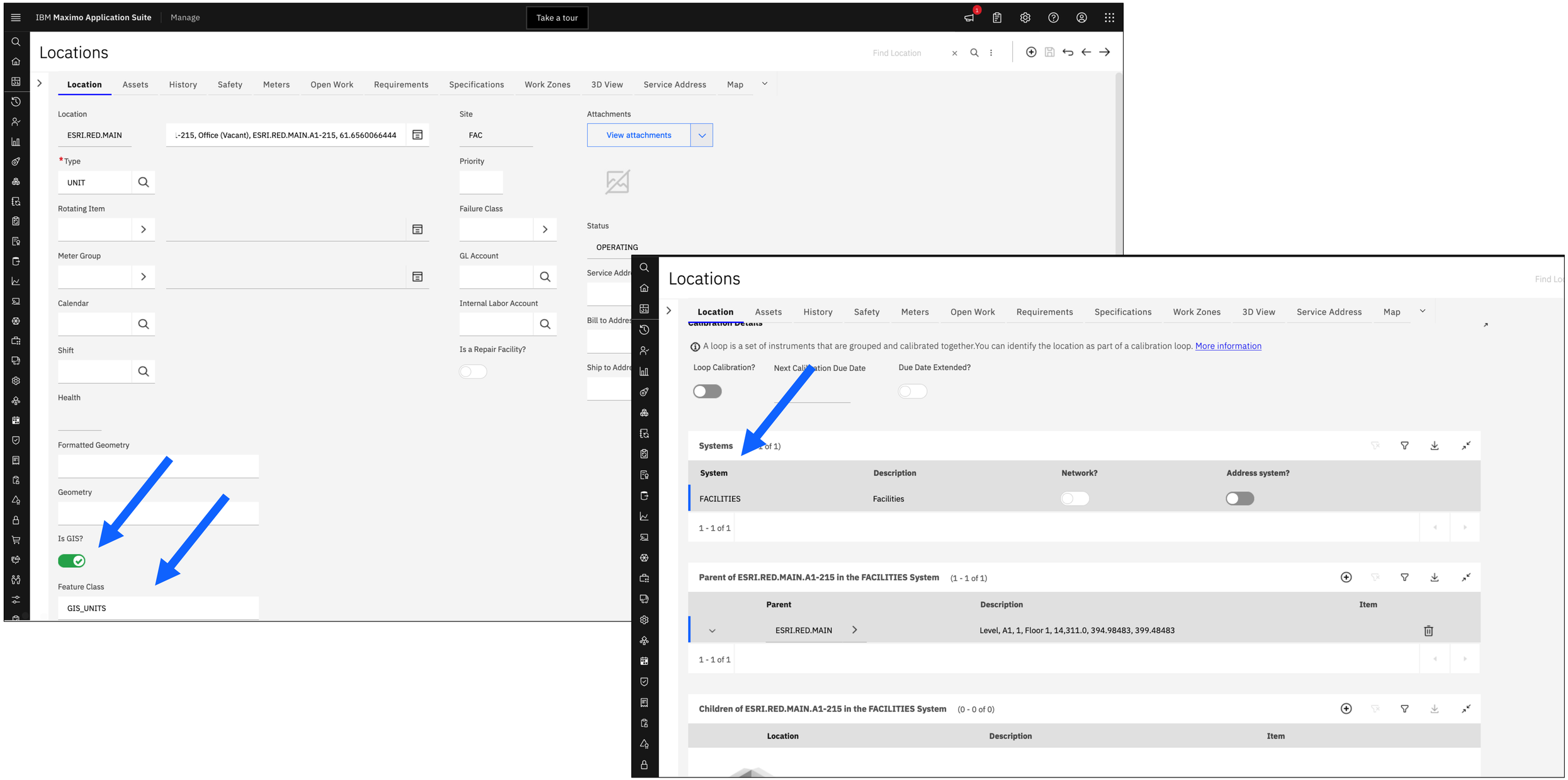

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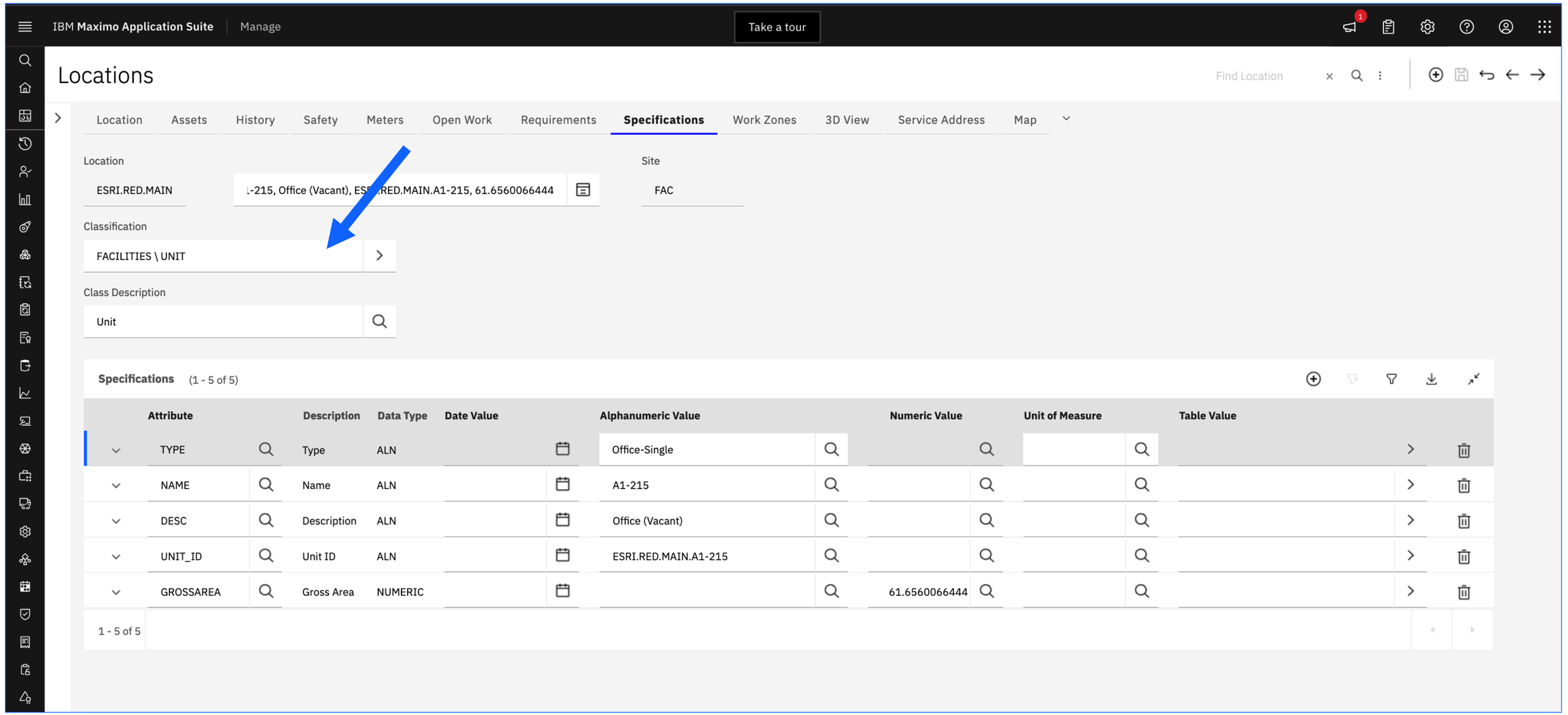

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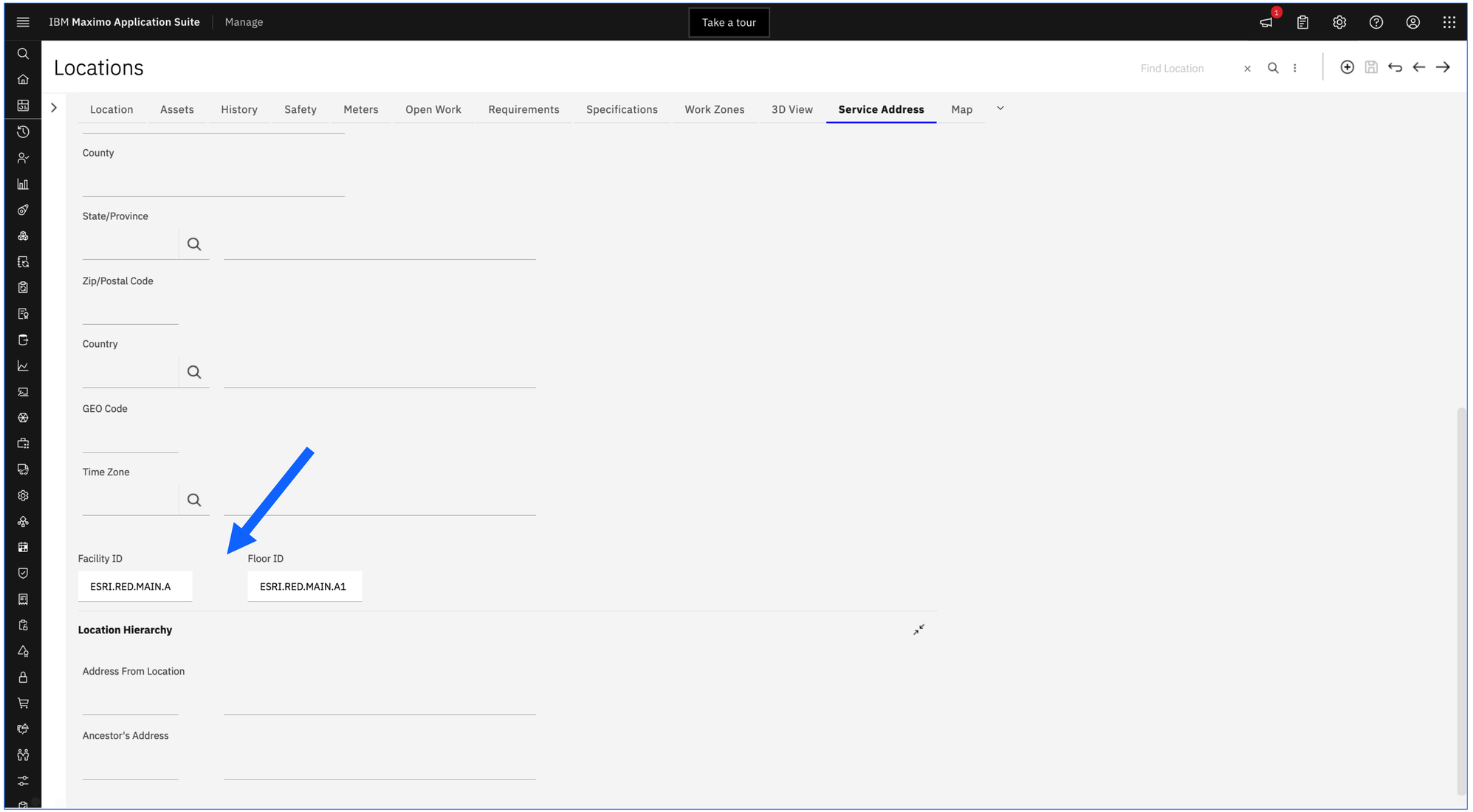
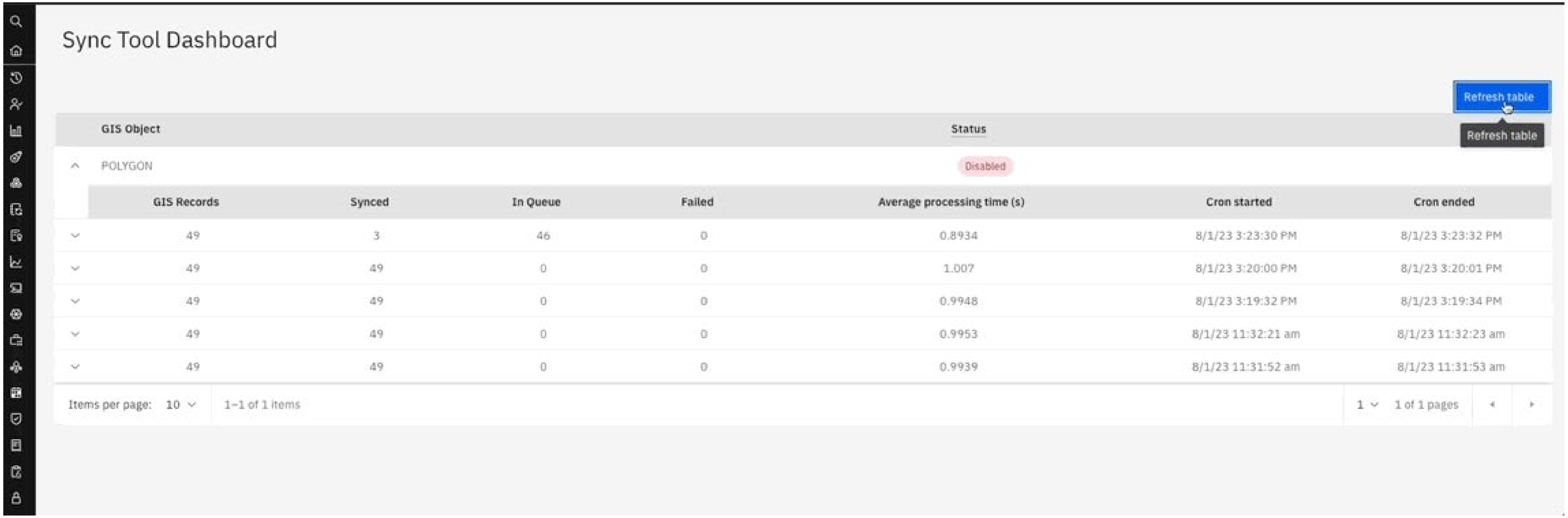


Synchronization - Operation Report



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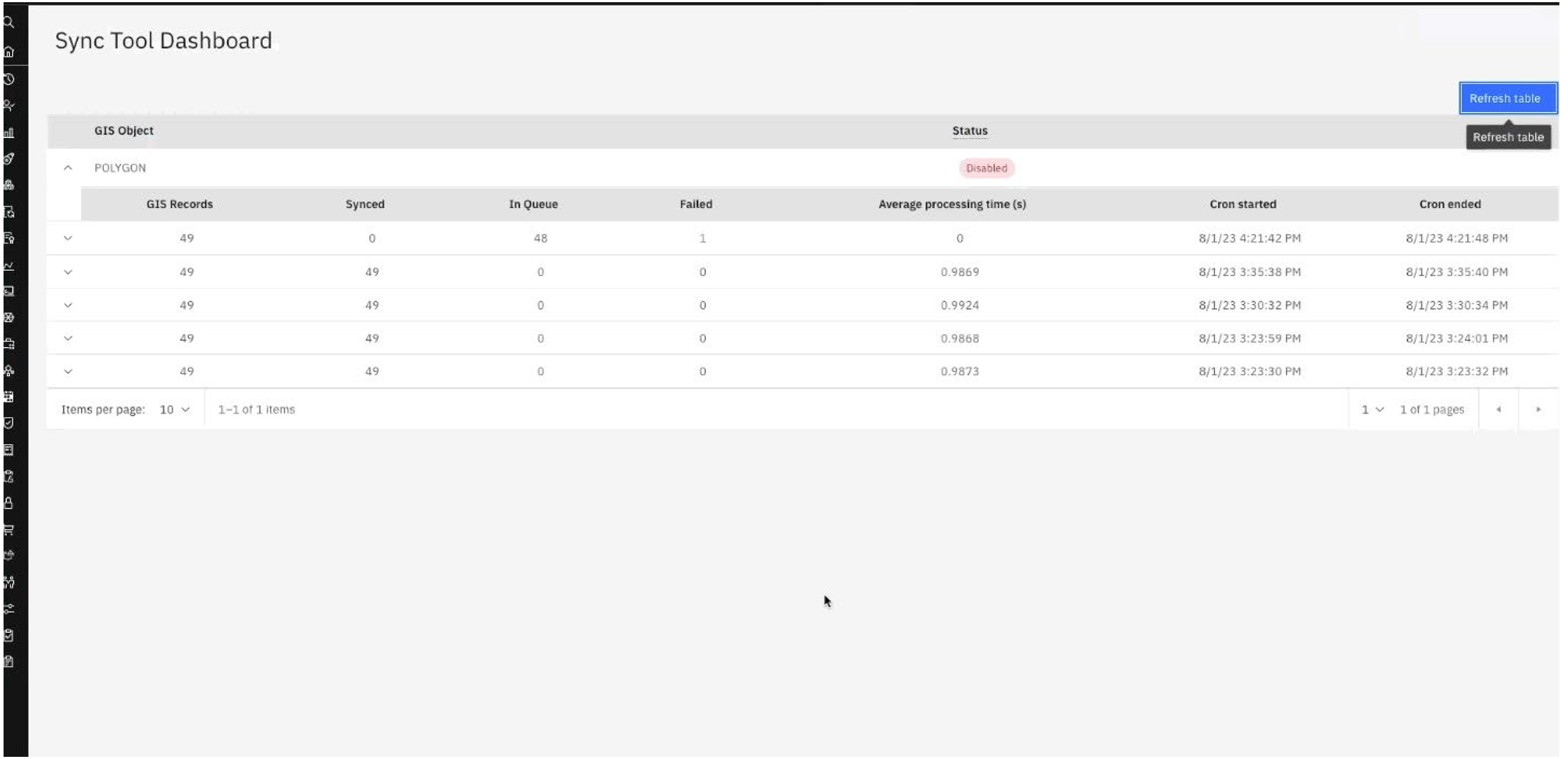


A Few More Tips

- Ensure your continuous queue is setup and associated with the ARCGIS External System
- Enable the ARCGIS External System
- Enable your ARCGISLOCATION Enterprise Service
- Enable Message Tracking on the ARCGIS Enterprise Service
- After the Cron Task Instance successfully runs with an Action, review the ArcGIS Synchronization dashboard and Message Tracking
- If you are using a field other than the Maximo database key in your Relationship in Map Manager and you are letting Maximo autonumber, then create a new Index on the Maximo object in DB Config, e.g. Locations, and add it as the Alternate Index to your Object Structure else you will get duplicate records created

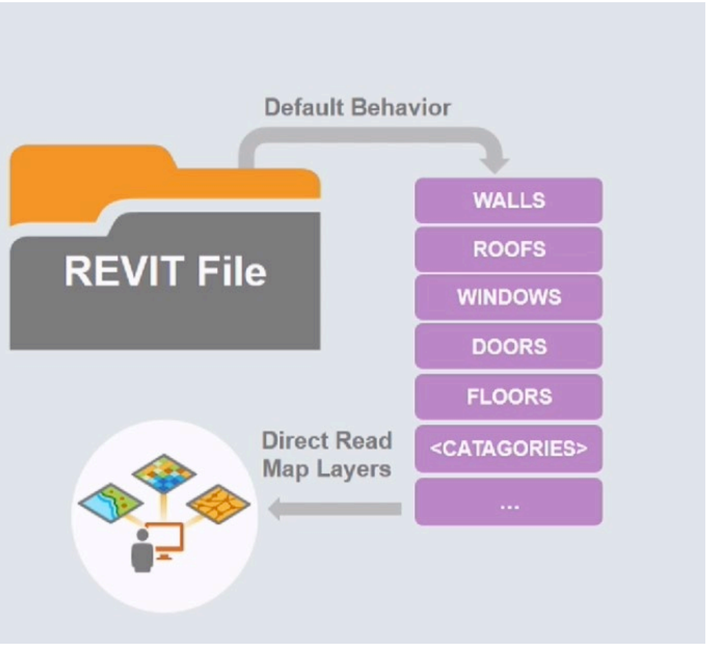
CAD/BIM -> GIS Features

Visualization of BIM data in ArcGIS Pro:

•GIS users can visualize BIM information in ArcGIS.
•The structured Revit data is preserved through feature classes.
•Allow using BIM data for other purposes, such as asset management.

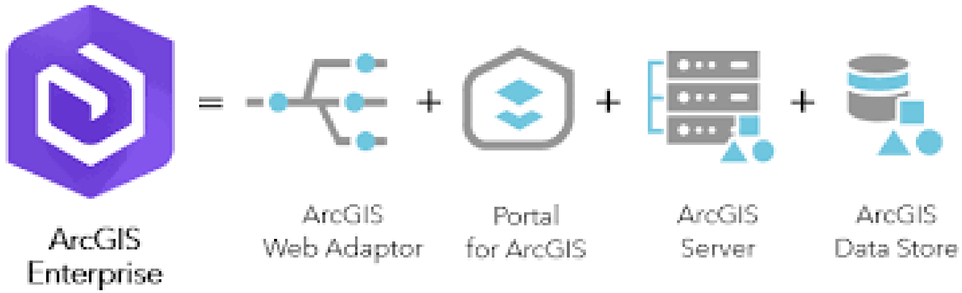
Visualization of a complete BIM model in a geographic context:
•GIS users can understand what's inside a BIM model, such as rooms and spaces.
•Geometric entities familiar to the GIS world can be analyzed easily

Handling Revit data in ArcGIS:
•Esri handles Revit data similarly to CAD data, abstracting and interpreting it as a GIS dataset.
•The Revit reading capability is a crucial first step for managing BIM data in a GIS environment.



IBM Maximo Location Service for Esri

- Combines Maximo Application Suite with Esri ArcGIS geospatial capabilities
- Seamless deployment and integration of ArcGIS Enterprise on Kubernetes within Maximo Application Suite
- Simplified procurement process for the bundle through IBM
- Unified support channel using IBM support
- Compatibility and Integration
- Fast deployment and upgrades
- Scalable



Ansible Automation

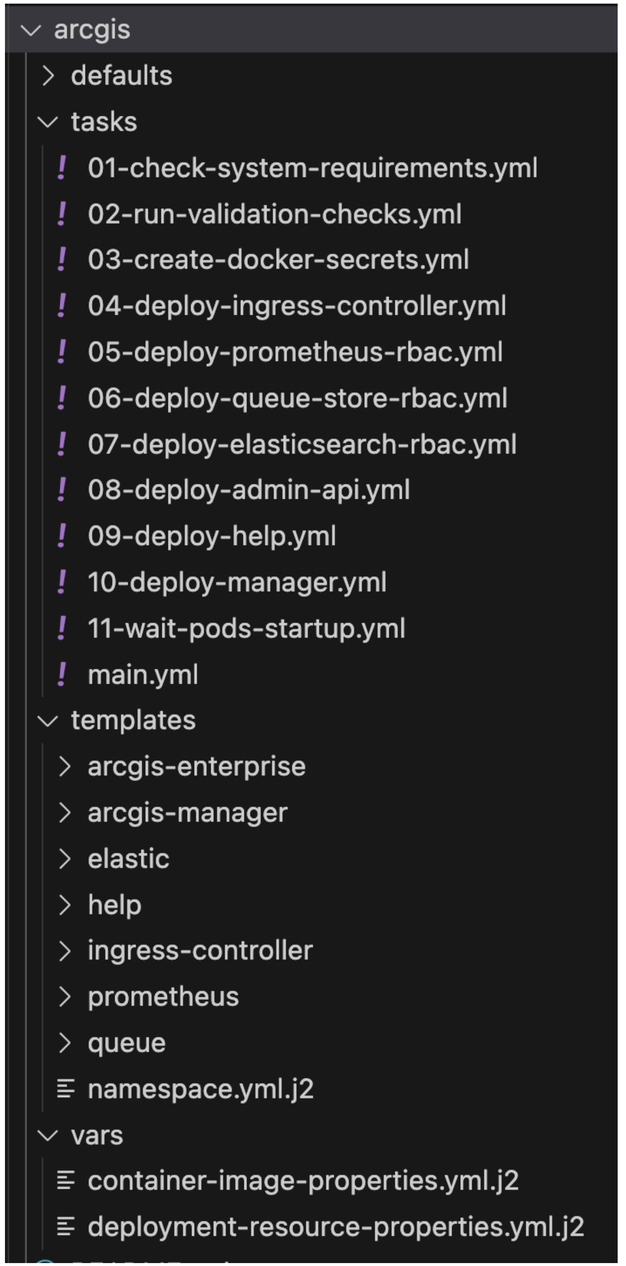
– Takes care of all complexities.

– Does not require programming knowledge.

– Faster to run.

– It does retry if anything fails.

– Runs the installation from end to end



IBM Maximo Location Service for Esri
What is included:

ArcGIS Enterprise on Kubernetes, one (1) license, including:

- Creator User Types (2)
  Viewer User Types (5000)
  GIS Professional Advanced User Type (2) (admin)
- ArcGIS Pro (2)
- ArcGIS Pro Indoors Extension(2)
- ArcGIS Data Interoperability (2)
- Standard Basemaps
- JavaScript API for ArcGIS

IBM Maximo Location Service for Esri
Cost:

Maximo Spatial -> **20 App Points**
Maximo Spatial + ArcGIS Enterprise -> **150 App Points**
Maximo Spatial + ArcGIS Enterprise + ArcGIS Indoors-> **220 App Points**

IBM maximo®

ArcGIS Enterprise

ArcGIS Indoors

Request for Enhancement migration to AHA

AI Applications - Ideas Portal

Welcome to the idea portal for IBM AI Applications Customers

IBM Employees:

The correct URL for entering your ideas is: https://ibm-ai-apps-internal.ideas.aha.io/

Clients:

Shape the future of IBM!

We invite you to shape the future of IBM, including product roadmaps, by submitting ideas that matter to you the most. Here's how it works:

Post your ideas

Start by posting ideas and requests to enhance a product or service. Take a look at ideas others have posted and upvote them if they matter to you,

1. Post an idea
2. Upvote ideas that matter most to you
3. Get feedback from the IBM team to refine your idea

Help IBM prioritize your ideas and requests

The IBM team may need your help to refine the ideas so they may ask for more information or feedback. The offering manager team will then decide if they can begin working on your idea. If they can start during the next development cycle, they will put the idea on the priority list. Each team at IBM works on a different schedule, where some ideas can be implemented right away, others may be placed on a different schedule.

Receive notification on the decision

Some ideas can be implemented at IBM, while others may not fit within the development plans for the product. In either case, the team will let you know as soon as possible. In some cases, we may be able to find alternatives for ideas which cannot be implemented in a reasonable time.

https://ibm-ai-apps.ideas.ibm.com/

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Thank you