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Facility Viewer Web Application

Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000.





Overview

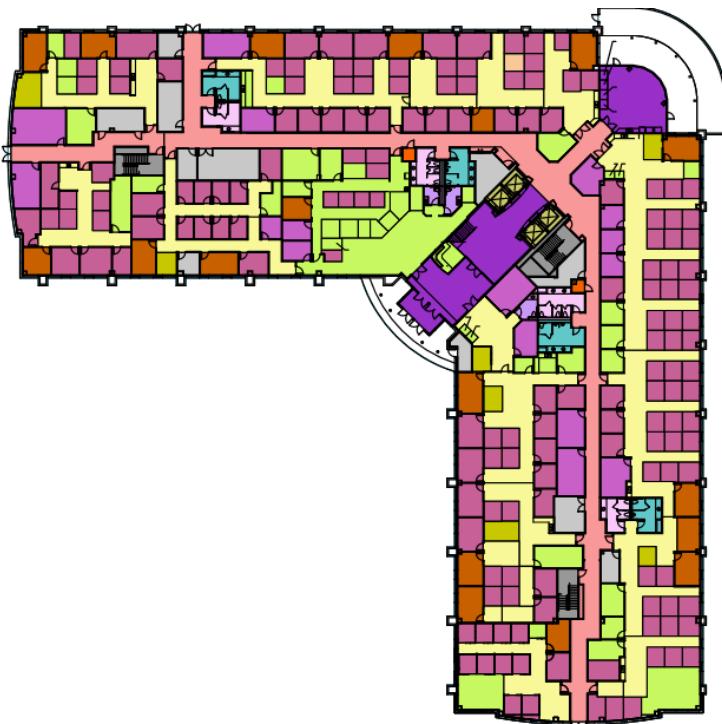
Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000. SNL uses TRIRIGA to manage approximately 7.6 million gross square feet (gsf) of property (owned, permitted, and leased space) at three major locations:

SNL/New Mexico(SNL/NM)
SNL/California(SNL/CA)
SNL/Nevada(SNL/NV)- Tonopah Test Range

SNL implemented CAD Integrator using Bentley MicroStation® 5 years ago in TRIRIGA 9 on 868 drawing space files, and upgraded to TRIRIGA 10 to take advantage of the new graphics reporting features. We have leveraged the TRIRIGA space Management data to build a Facility Viewer Web Application using the ESRI 10.2 Platform.

Sandia Space Management

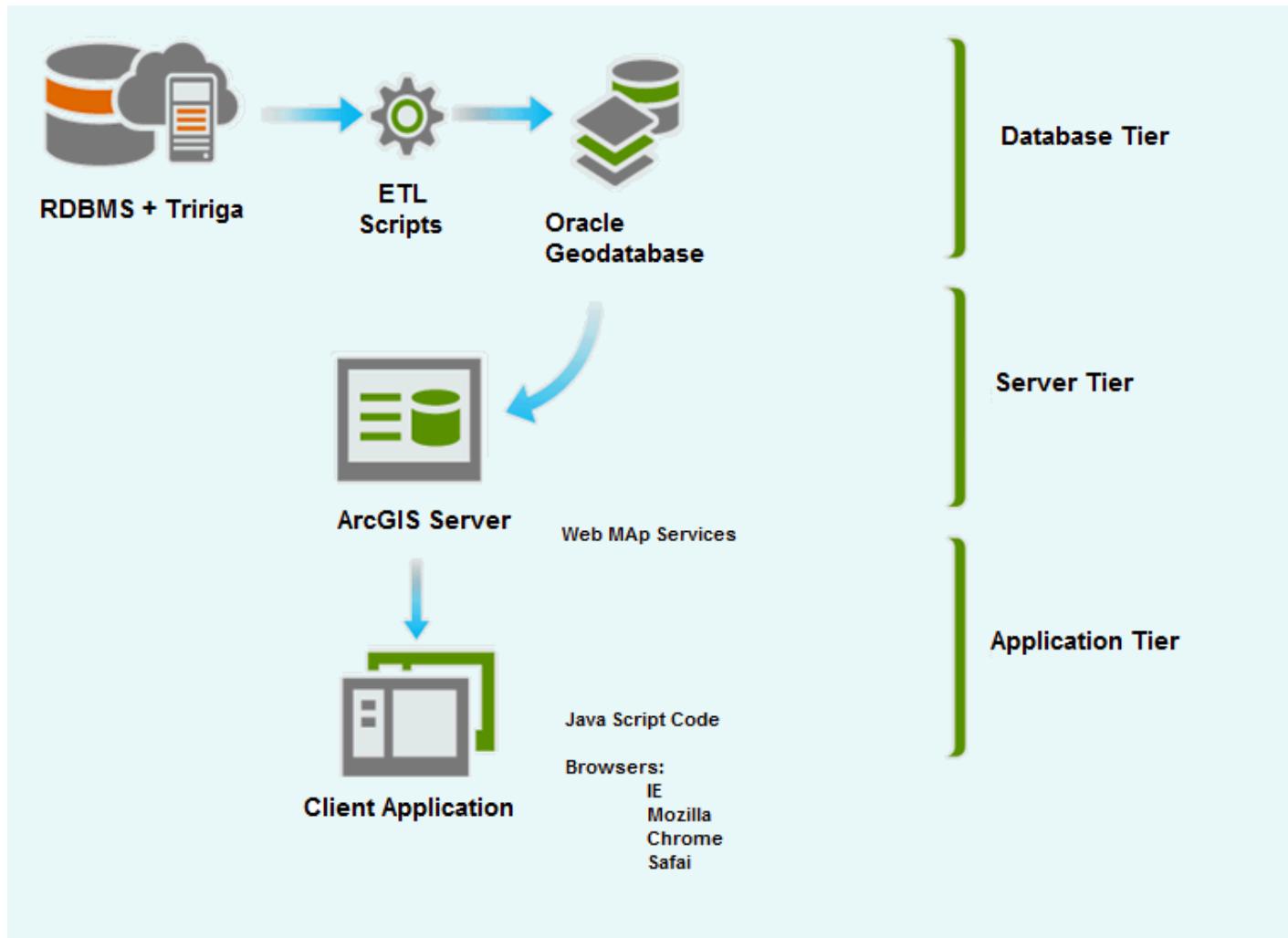
Tracking and reporting space at Sandia became easier with the implementation of Sandia's Facilities Management System, TRIRIGA. On a daily basis space data changes are updated and recorded in TRIRIGA and square footage is recorded/updated with the help of TRIRIGA CADD Integrator software. This made the data available for our ESRI Platform GIS development



Facility Viewer Integration

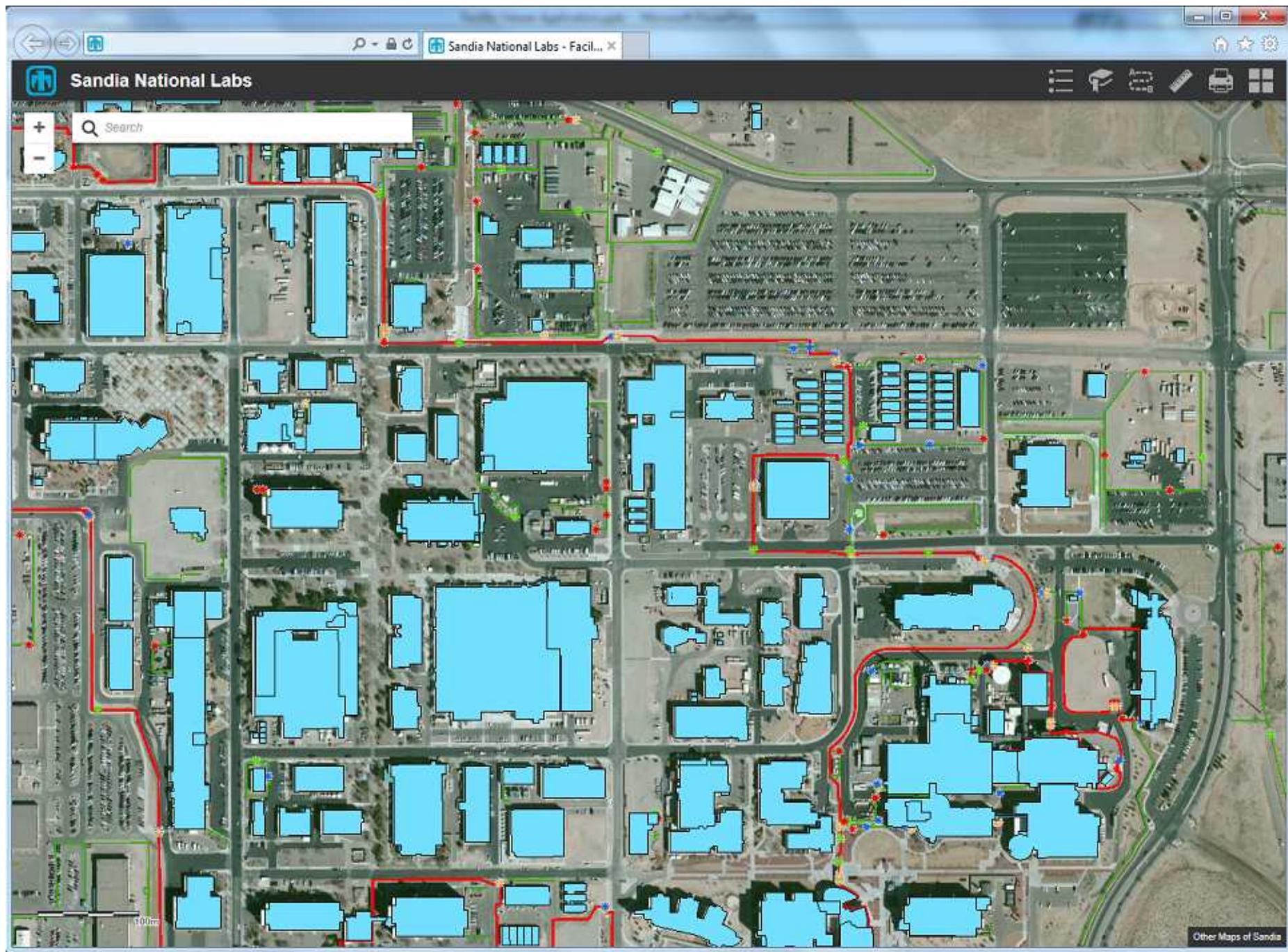
- Leverages an Oracle based Geodatabase as a repository to maintain spatial data that consists of layers representing Sandia campus, buildings, people/staff and CAD drawings of floor plans.
- Includes ETL scripts that transformed and loaded data into the Oracle geodatabase for the Facility Viewer Application from Tririga FMS.
 - Data Interoperability Extension
- Spatial data made available for querying and map generation by publishing ArcGIS map services for application development.
- Developed with the ESRI Java Script Web App Builder

System Architecture



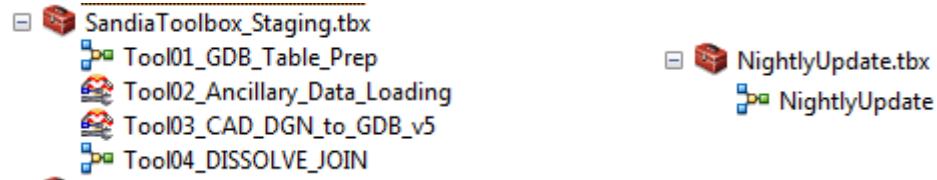
Design Overview

- **Goals:**
 - Highly Available
 - Scalable
 - Flexible
 - Extensible
 - Intuitive
 - Search and Locate
 - Buildings
 - Rooms
 - People
 - Gates



Database Overview

- **Floor Plan Data Load :** (Data from Tririga Facilities Management System)
- **Ancillary Data Load**
 - Shape Files: (Fences & Gates from Facilities Bentley Map Data)
- **Spatial Layer**
 - ETL Scripts Nightly Update: (Python Script, Task Scheduler)
- **Oracle 11 Enterprise Geodatabase**
- **Web Services published to ArcGIS Server**

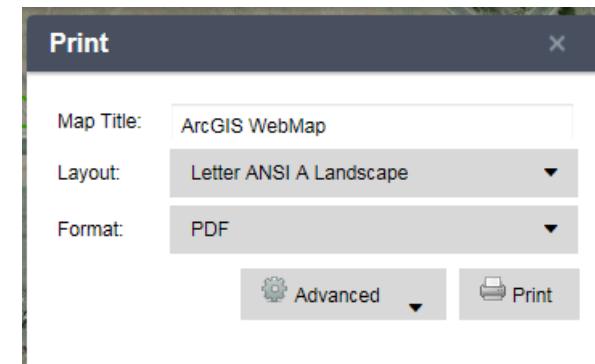
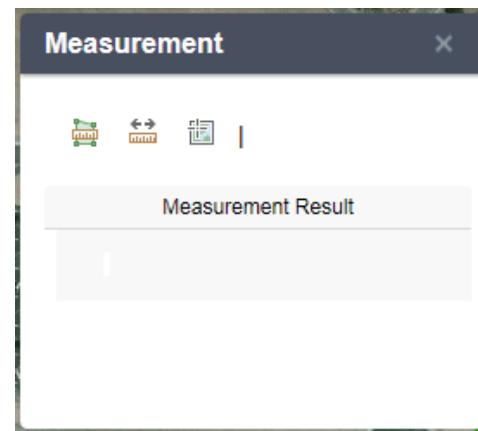
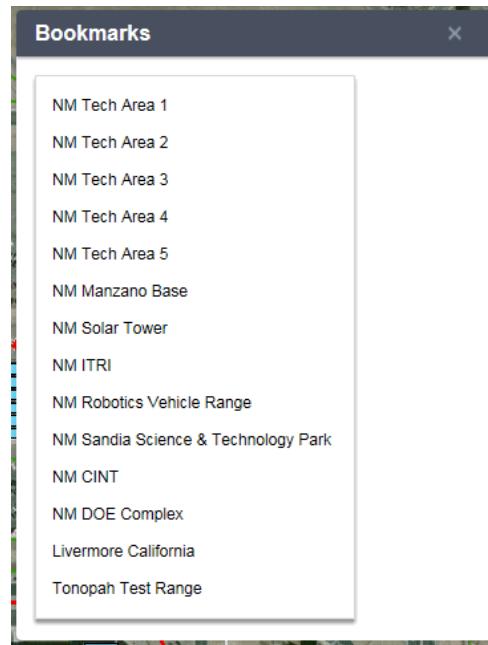
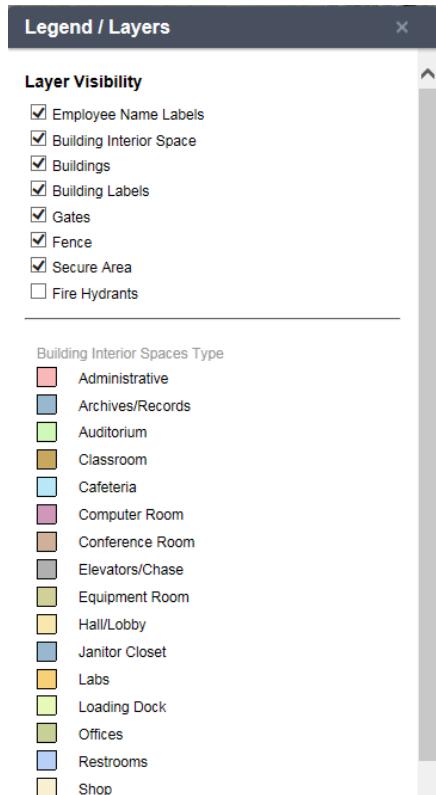
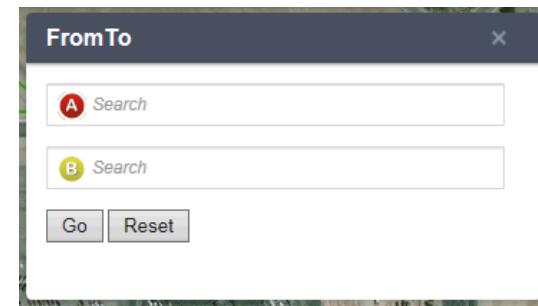
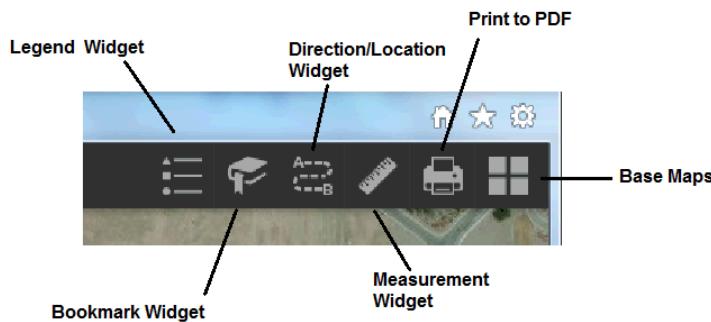


Contents	Preview	Description
Name		Type
SDE.Building		SDE Feature Class
SDE.BuildingFloor		SDE Feature Class
SDE.BuildingFloorplanLine		SDE Feature Class
SDE.BuildingFloorplanLine_Dissol		SDE Feature Class
SDE.BuildingFloorplanPublish		SDE Feature Class
SDE.BuildingFootprint		SDE Feature Class
SDE.BuildingInteriorSpace		SDE Feature Class
SDE.ESH_Incident_Location		SDE Table
SDE.FacilitySite		SDE Feature Class
SDE.Sandia_People		SDE Table
SDE.SiteAmenityLine		SDE Feature Class
SDE.StreetFurniture		SDE Feature Class
SDE.Tririga_Buildings		SDE Table
SDE.Tririga_Rooms		SDE Table
SDE.TririgaBuildings_to_BuildingFloor		SDE Relationship Class
SDE.TririgaBuildings_to_ESHIncident		SDE Relationship Class
SDE.TririgaBuildings_to_SandiaPeople		SDE Relationship Class
SDE.TririgaBuildings_to_TririgaRooms		SDE Relationship Class
SDE.TririgaRooms_to_ESHIncident		SDE Relationship Class
SDE.TririgaRooms_to_SandiaPeople		SDE Relationship Class

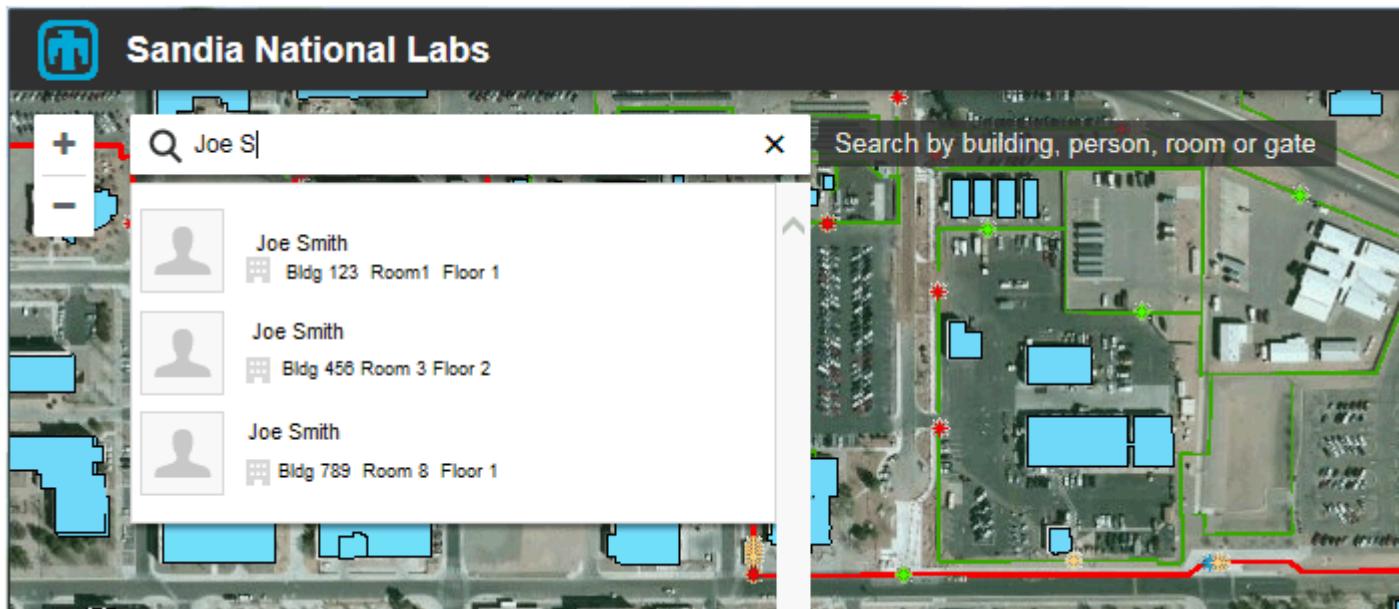
Application Overview

User Interface Functionality

- Pan , Zoom
- Base Map Selection
- Bookmarks
- Search/Results
- Measure
- Floor Selector
- Entity Details
- Related Info Tabs
- Print
- Legend
- To/From



Search by Person



Search by Building

Building 123

Close

Search by building, person, room or gate

Building: 123
Name: A Sandia Building
Area: 001_Area 1

All Floor 1

Rooms People

Name	Building	Floor	Type
123	123	Floor 1	
123	123	Floor 1	
123	123	Floor 1	
123	123	Floor 1	
123	123	Floor 1	
123	123	Floor 1	

Building 123

Ireland Air Force Base

Vehicle Gate

Vehicle Gate

Gate 8

Gate 9

Search by Room

Sandia National Labs

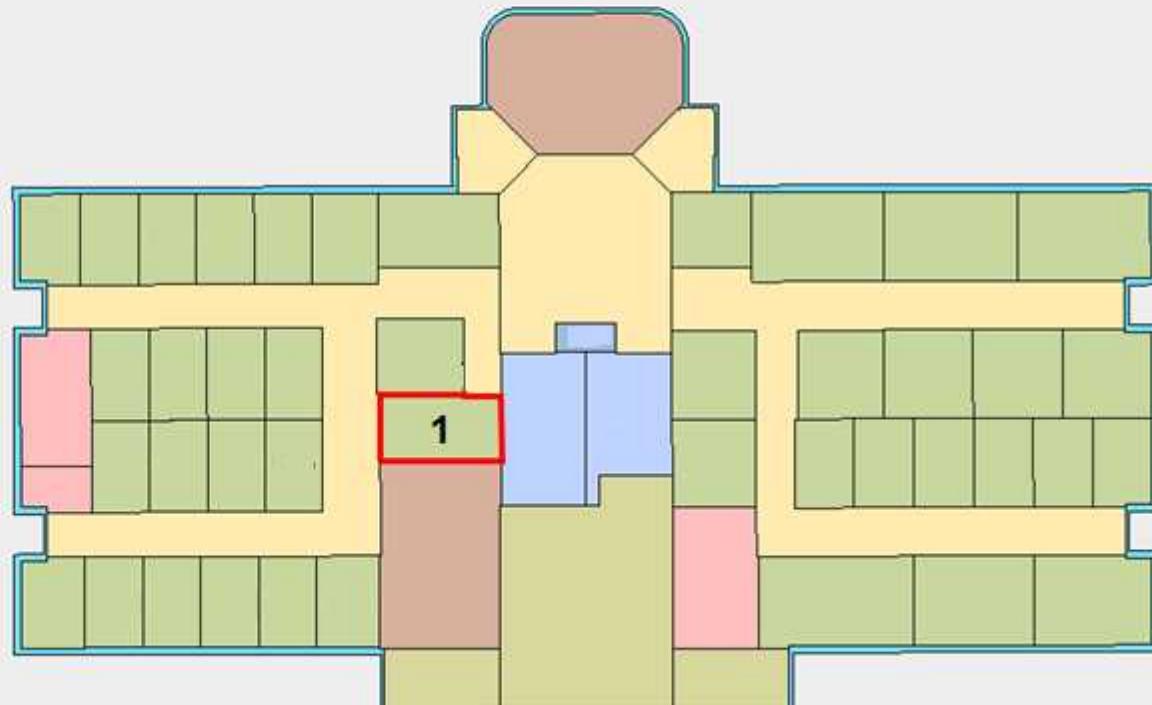
Search

Building: 123

Room: 1
Building: 123
Floor: Floor 1
Class: General Office

People

Name	Room	Title	Phone	Email
Joe Smith	1	Employee	xxxx-xxxx	xxx@sandia.gov



Search by Gate



NEXT STEPS

- Implement ArcGIS Portal
- Heat Mapping
 - Chemical Tracking
 - ES&H Incident Tracking
 - Organizational
- Routing
 - Building to Building
- Maintenance (Maximo) Integration
- Time Slider

Contact Information

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