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Synergy
Software
Design

GeoReadiness Enterprise and SPIDERS 3D Interoperability

Systems of Record to Systems of Engagement

Systems of Record

- Systems of Record
 - Authoritative Data Should be maintained in Mission Focused Systems of Record
 - Business processes, policy, and personnel in place and working together to ensure Navy-wide enterprise compliance and coverage
 - “Integration” of Data from systems of record is many times a manual operation performed by Subject Matter Experts
 - Examples include iNFADS, MAXIMO, SPIDERS, E-Projects, etc.



Systems of Insight

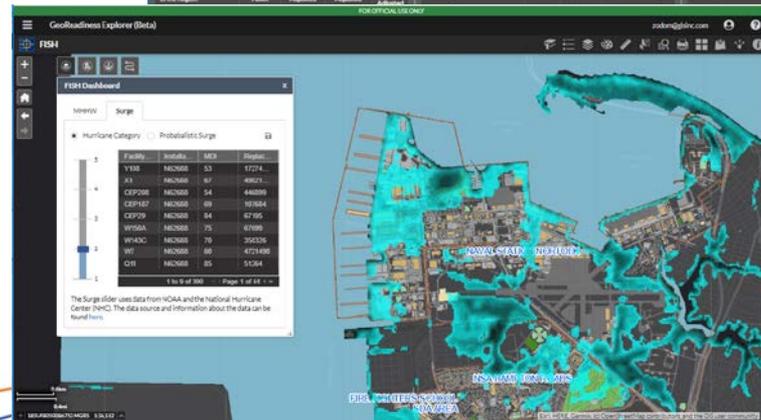
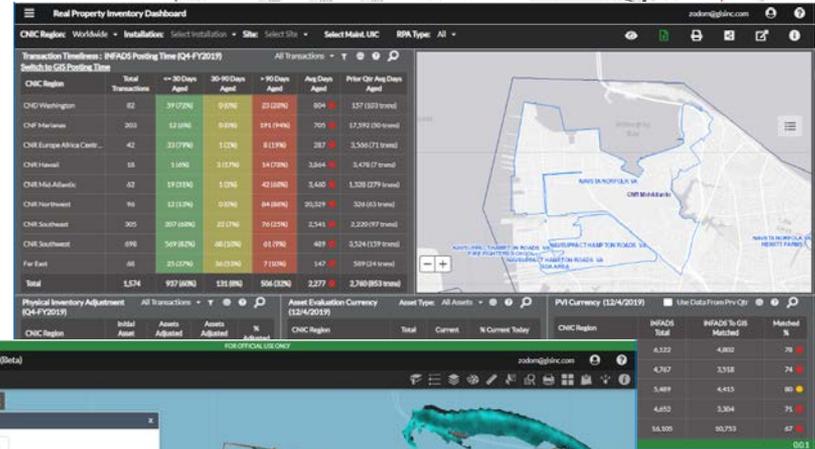
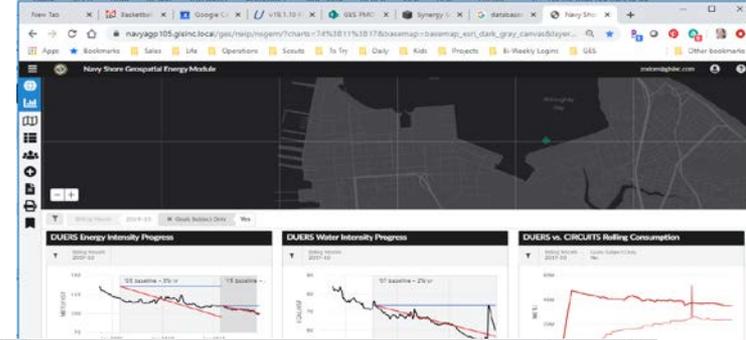
- Geospatial Technology serves as an integration engine, presenting System of Record data on a spatial canvas
 - GRX and SPIDERS have existing database links to iNFADS and Maximo
 - Geospatial Platforms enable purpose built applications to leverage enterprise data to address challenges such as climate change, mission planning, and energy resiliency



GeoReadiness Explorer

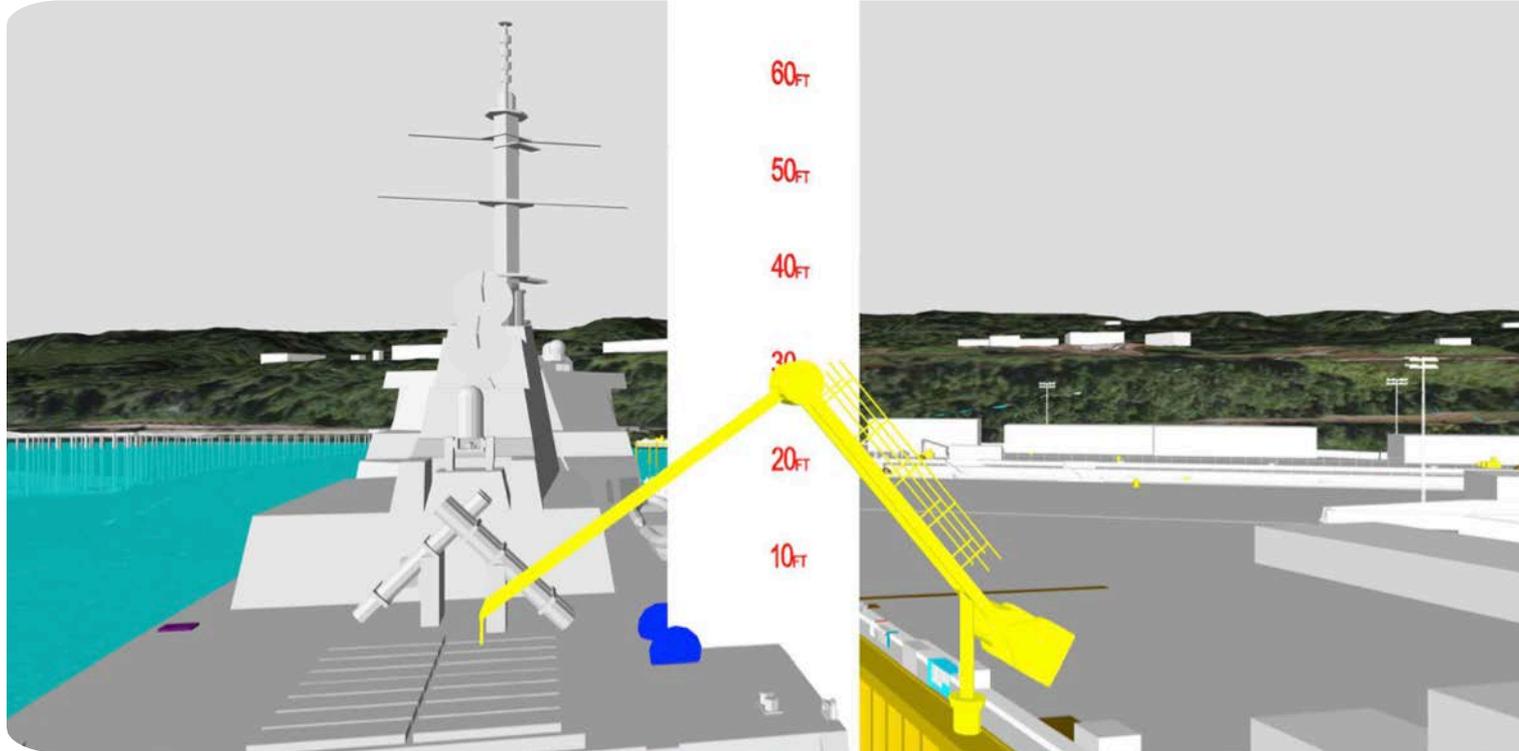
Provides a Navy Enterprise spatial platform

- Not just a “pretty picture” or a viewer
- Provides enterprise geospatial capability to the US Navy through Esri’s Portal for ArcGIS
- Provides tools and processes for data collection, aggregation, publishing, dissemination and analysis
- Provides platform for purpose-built applications to address challenges such as flood inundation, energy resiliency, audit readiness, etc.



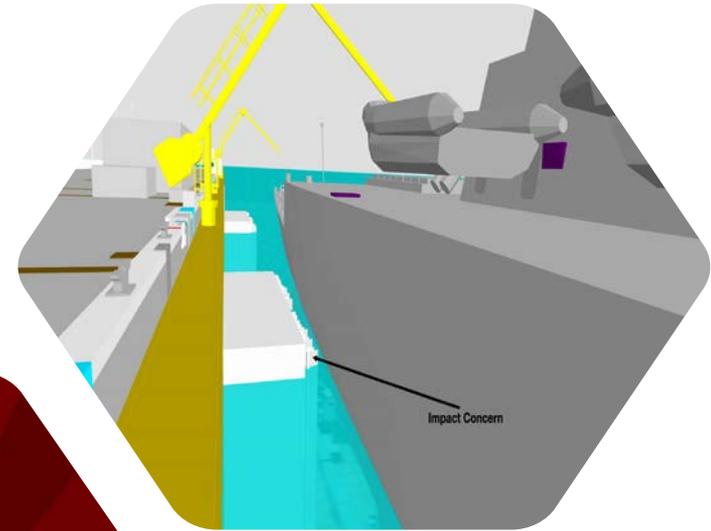
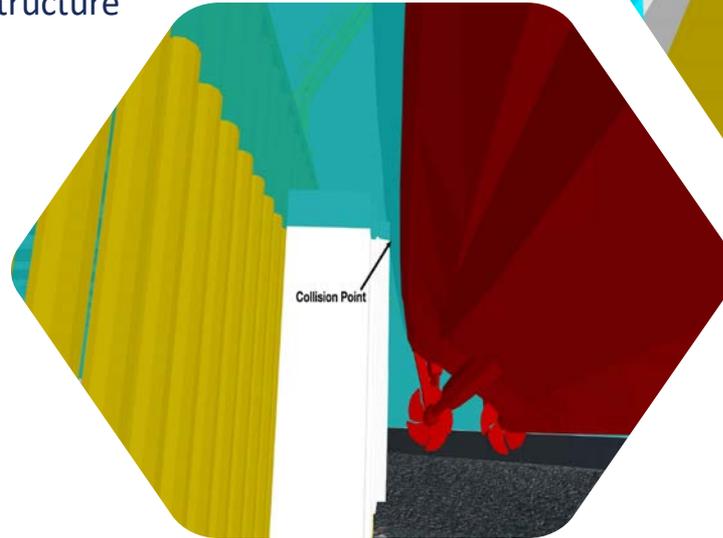
SPIDERS 3D

Describing spatial scenarios that demand the 3rd dimension



SPIDERS 3D

- Reducing costs with simplicity
- Integrated Product Support
 - Describing issues with new naval platforms and how they interface with new and old infrastructure

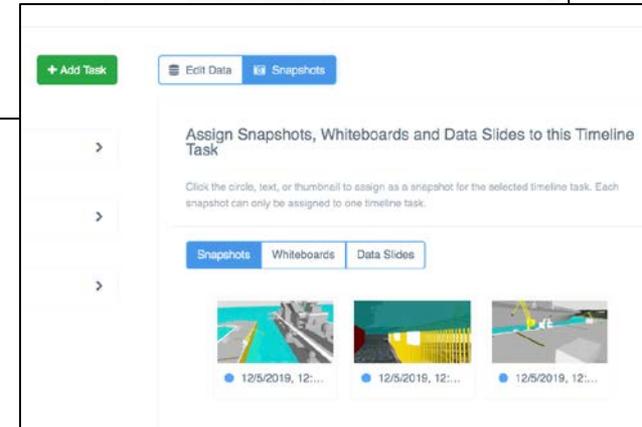
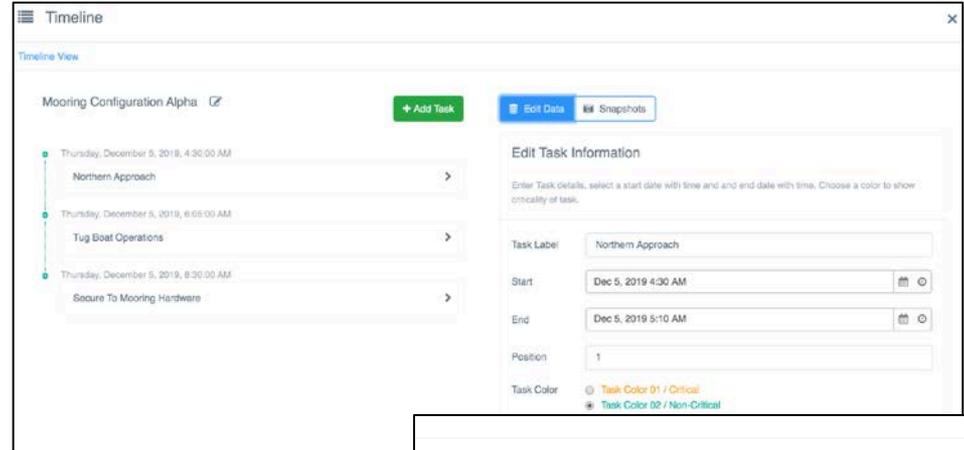


SPIDERS 3D

3D briefings made easy

Timelines & Presentation Mode

- Create 3D Slides
- Invite hundreds of users to your 3D briefing
- Describe a sequence of events
- Adjust the story on the fly



SPIDERS 3D

More Data = Better Story

Data Labels

- Recent R&D Efforts have allowed data labeling
 - Click on a facility or component
 - Browse available data and apply a label



Interoperability

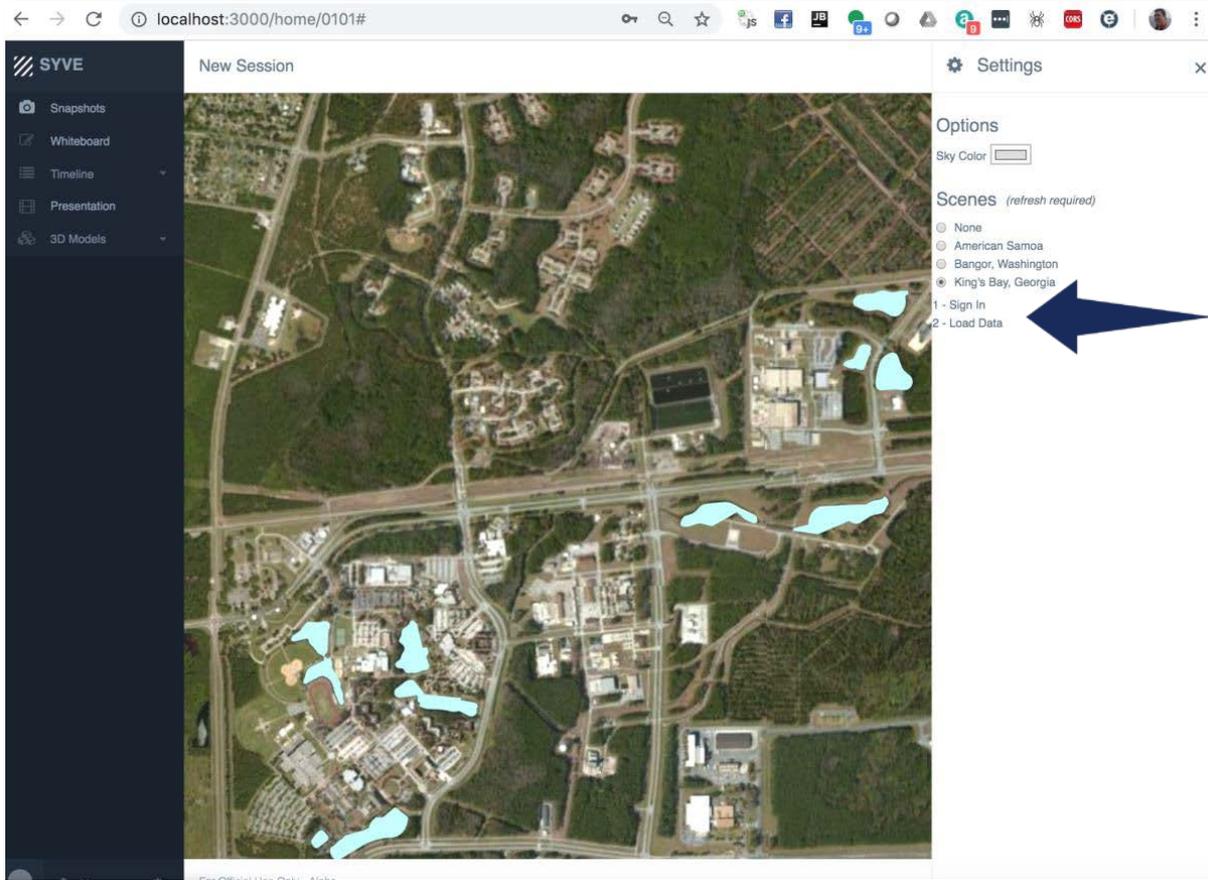
- SPIDERS 3D - Query and Request GeoReadiness Enterprise Data
 - Portal to Portal authentication
 - SPIDERS leverages the NAVFAC Portal SSO Process from ArcGIS Server 10.5.1
 - Utilized HTTP GET request for the REST Service
- Application driven transformation
 - Application transformed JSON and UTM returned spatial data into X3D nodes.
 - JavaScript converted raw coordinates into objects rendered by x3dom



From SPIDERS 3D:

Left: A portion of the Kings Bay scene.

Right: The same portion with the Water Feature service rendered within the scene.



- The first link, “Sign In”, opens a CAC authentication window for RSIMS Portal.
 - This is Required for all RSMIS Services
- The second link, “Load Data”, builds and submits the request.
 - The application converts the polygons into X3D nodes and renders them on top of the scene.

Interoperability

- Basically, a 2 Step Process for Conversion
 - Convert X3D to VRML97
 - Utilize OOTB Geoprocessing tool to Import the .wrl file
- Converted files can be utilized as any GIS File would
 - Files can be opened in ArcMap, ArcScene, ArcPro
 - Scene's can be published as REST Services from ArcPro

1 | choose input encoding

XML encoding (X3D) ▼

2 | paste input code

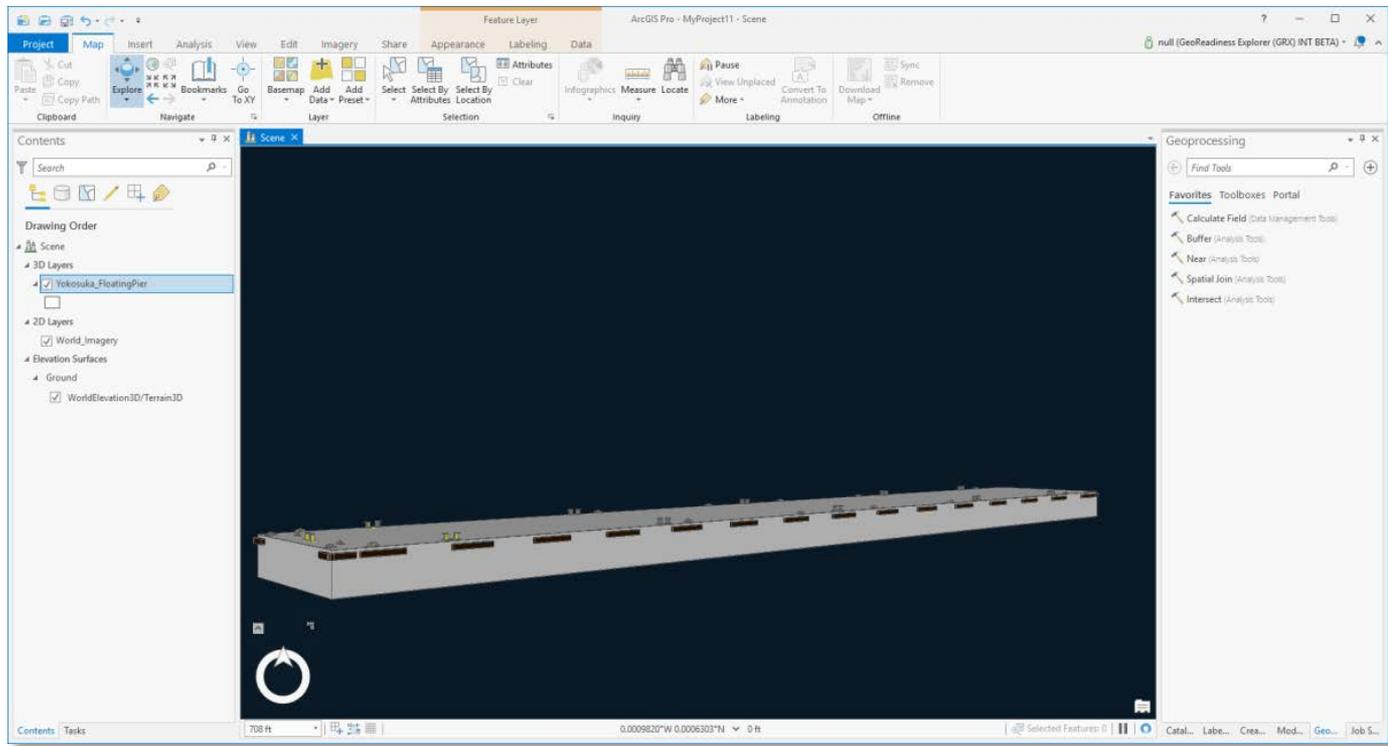
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<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE X3D PUBLIC "ISO//Web3D//DTD X3D 3.0//EN"
"http://www.web3d.org/specifications/x3d-3.0.dtd">
<X3D xmlns:xsd="http://www.w3.org/2001/XMLSchema-instance" profile='Full'
version='3.0'
xsd:noNamespaceSchemaLocation='http://www.web3d.org/specifications/x3d-
3.0.xsd'>
  <Scene DEF='scene'>
    <Transform DEF='Layer:SJ_DECK_GEOM_H103001_D-1' translation='-49.3369
0.5334 57.6477'>
```

3 | choose output encoding

Classic encoding (VRML97) ▼

Convert encoding Reset

4 | encoded output



- Pier from Yokosuka, Japan in ArcPro
- SPIDERS 3D transformation not applied in this example



What Data can be Shared?

- GIS Data
 - CIP Layers
 - Geometry (ESRI points, polygons, polylines, etc..)
 - Feature attributes (tabular data)
 - Topo, Bathy, and Imagery
 - X3D can be derived from source data
- SPIDERS 3D
 - Facilities
 - Users can drop in various facilities
 - Ships, Planes, equipment
 - Plans & CONOPS





What's Next?

- Identifying Use Cases
 - Other Line of Sight Analysis where outside the fence line impacts inside
- Identifying Requirements
 - What services should SPIDERS 3D be digesting?
 - What business tools (new and old) do they support
 - What X3D data should be made available to GRX
 - R&D is done & capabilities are identified
 - With data reuse comes new process requirements
 - How can we enhance current processes to assure data is shared to all applications that need it?





Thank You!!

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