Using Modern GIS to Support Interagency Fuels Treatment Decisions
Create a Responsive Decision Support System

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Applications

Description

- IFTDSS
  - Interagency Fuels Treatment Decision Support System
  - Web app to plan mechanical treatments and prescribed burns

- FTEM
  - Fuels Treatment Effectiveness Monitoring
  - Mandatory app to report whether fuels treatment affected fire behavior

- MapStudio
  - GIS Mapping Application integrated in both IFTDSS and FTEM
IBM Value-Add

Firenet Platform

- MapStudio
- IFTDSS
- FTEM
- Model REST Services

- Split-Map
- Managing Landscapes
- Fire Behavior Modeling
- Distributed Async Services
- Reports with rich content
- Experienced fire app team
- GeoChatBot integrating Watson
MapStudio
Why Web App Builder?

- Build initial app in a short period of time
- Many templates available out of the box
- Host the app on our own web server
- Extend the app by adding custom widgets and themes
- Configure application and widgets using json files
Integrate with Angular

- MapStudio - created initially using Web App Builder
- IFTDSS Main App - Angular application

app.js

```javascript
.when('/iftdssDataStudio/\{params\}', { templateUrl: '/pages/mapstudio/mapStudioMain.html',
  resolve: {breadcrumbData:
    function(breadcrumbResource) {
      breadcrumbResource.removeSubtopic();
      breadcrumbResource.removeGuidance();
      breadcrumbResource.setLeafView("Map Studio", ";
    }
  }
}).when('/iftdssDataStudio/\{params\}', { templateUrl: '/pages/mapstudio/mapStudioMain.html' })
```
Integrating with Angular
Using a messaging framework

- Listen to messages
- Broadcast messages
- Web sockets
Value Added - Split Mode

- two ways communication
- configurable
- responsive
DEMO
Map Studio
Integration with Angular/Split mode
Custom Widgets

IFTDSS/FTEM
Widgets Working with Rasters
Using Image Service

• Data Used
  • Mosaic Raster Dataset

• Services Used
  • ArcGIS Server Image Services
    • live data turned on
  • Geoprocessing Services
    • adding raster to mosaic dataset
    • getting raster id from mosaic dataset

• Rendering
  • Using Raster Function Templates

```javascript
var mr = new esri.layers.MosaicRule();
mr.method = esri.layers.MosaicRule.METHOD_LOCKRASTER;
mr.lockRasterIds = [rasterId];

var params1 = new ImageServiceParameters();
params1.noData = -9999;
var rasterFunction1 = new esri.layers.RasterFunction();
rasterFunction1.functionName = "elevationSymbologyComposite";
params1.renderingRule = rasterFunction1;
params1.mosaicRule = mr;
var imageServiceLayer1 = new ArcGISImageServiceLayer(imageService, {
  imageServiceParameters: params1,
  opacity: 0.7,
  visible: false
});
imageServiceLayer1.title = "Elevation (feet)";
```
Widget to Upload Shapefiles
Using Dynamic Feature Service

- Data Used
  - Dynamic Feature Service
- Services Used
  - Dynamic Feature Service
  - Geoprocessing Services
    - custom geoprocessing services
Identify Widget
Identify various type of data

- Data supported
  - Feature Layers
  - Tiled Layers
  - Image Services
  - Map Services
DEMO
Custom Widgets
Watson Geospatial Chat Bot
IBM Watson natural language processing services
Build cognitive apps that help enhance, scale, and accelerate human expertise.

**Discovery**
Add a cognitive search and content analytics engine to applications.

**Knowledge Catalog**
Discover, catalog, and securely share enterprise data.

**Knowledge Studio**
Build custom models to teach Watson the language of your domain.

**Language Translator**
Translate text from one language to another for specific domains.

**Machine Learning**
IBM Watson Machine Learning - make smarter decisions, solve tough problems.

**Natural Language Classifier**
Natural Language Classifier performs natural language classification on queries.

**Natural Language Understanding**
Analyze text to extract metadata from content such as concepts, entities.

**Personality Insights**
The Watson Personality Insights derives insights from transactional and social data.

**Speech to Text**
Low-latency, streaming transcription

**Text to Speech**
Synthesizes natural-sounding speech from text.

**Tone Analyzer**
Tone Analyzer uses linguistic analysis to detect three types of tones from text.

**Visual Recognition**
Find meaning in visual content! Analyze images for scenes, objects, faces, and more.

**Watson Assistant (formerly Conversation)**
Add a natural language interface to your application to automate interactions with clients.

**Watson Studio**
Embed AI and machine learning into your business. Create custom models using.

IBM Watson
What is Watson Assistant?

- IBM Watson Assistant is a fully hosted SaaS application running in IBM Cloud that enables organizations to quickly build bots that can incorporate both short and long tail questions (through Discovery).

- With a focus on Customer Care, Watson Assistant makes it easy to get started with prebuilt domain content, out of the box channel connectors (e.g. Facebook, Slack) and simple easy to use tooling. Moreover, Watson Assistant comes with built-in integration with github, versioning, and deployment management for enterprise-level DevOps.

- Once you’re bot is live and you’re receiving a sea of conversational interactions, Watson Assistant, leveraging unsupervised machine learning approaches, provides helpful recommendations and assistance on how to improve your bot. Finally, Watson Assistant can also help alleviate time pressures on your Live Agents. Watson can listen to agent interactions with users, provide suggestions, and allow Live Agents to hand off interactions to Bots.
**Watson Assistant**

Core New Features

- **Unified tooling experience**
  Single experience between WVA and Conversation leveraging prebuilt and custom content. Ability to incorporate buttons, images, videos, pauses etc.

- **Discovery Connector**
  Leverage Connector to easily assemble Knowledge to address both short and long tail questions

- **Improve & Recommendations**
  Enhanced analytics and recommended insights based on large user activity

- **Hosted Application**
  Built-in session state to track conversational history, out of the box connectors, and leverage serverless IBM Cloud Functions for application logic & 3rd party systems

- **Manage Bot Lifecycle**
  Built-in integration with Github, versioning, and deployment management for enterprise-level DevOps

- **Human Agent Interaction & Learning**
  Improve the performance of the system by leveraging Agent activity (e.g. clicks through)
Watson Geospatial Chat Bot
As a Map Studio Widget

- Integrated through a custom widget
- Using Watson Assistant Services
- Hosted on IBM Cloud
Hello. How can I help you?

What can you do on the map?

I know how to zoom to a state, display active fires and also display the fires for a specific year. What would you like me to do?

Zoom in

Map will zoom in

Type something
Please Take Our Survey in the Esri Events App

Download the Esri Events app and find your event

Select the session you attended

Scroll down to find the feedback section

Complete answers and select “Submit”