

UC



Configuring ArcGIS Enterprise in Disconnected Environments

BILL MAJOR

Disconnected Environments

Not everyone has internet access?

- How many of you run disconnected today, i.e. no internet access?
- Many customers run ArcGIS Enterprise with no access to internet resources.
 - No access to AGOL Base Maps
 - No access to <http://js.arcgis.com>
 - No access to lots of cool stuff, e.g. GeoEnrichment Services or Living Atlas Layers
- Security often dictates running disconnected environments.
- Disconnected environments create unique challenges that need to be addressed in order to take full advantage of on-premises Web GIS with ArcGIS Enterprise.

Agenda

Disconnected Environment Considerations

- **Portal for ArcGIS On-premises Services**
- **Portal for ArcGIS Back-end**
- **Security**
- **Configuring Apps**



ArcGIS
Enterprise

=



ArcGIS
Web Adaptor

+



Portal
for ArcGIS

+



ArcGIS
Server

+



ArcGIS
Data Store



ArcGIS
Enterprise

=



ArcGIS
Web Adaptor

+



Portal
for ArcGIS

+



ArcGIS
Server

+



ArcGIS
Data Store



ArcGIS
Enterprise

=



ArcGIS
Web Adaptor

+



Portal
for ArcGIS

+



ArcGIS
Server

+



ArcGIS
Data Store

Web GIS Deployment Patterns

Begin with ArcGIS Online & SaaS →



Basemaps &
Content Services

ArcGIS Online

ArcGIS Enterprise

Customer Managed Infrastructure

On-premises

Private Cloud

Public Cloud

(AWS, Azure, others)

Managed Services



← Begin with ArcGIS Enterprise & Software

Friendly reminder before you get started.....

Disconnected environment preparation steps

- **Download all the software installers and data products from My Esri**
 - Windows vs. Linux
 - ArcGIS Server, Portal for ArcGIS, Web Adaptor, ArcGIS Data Store, License Manager, ArcGIS Pro, ArcGIS Desktop, latest JSAPI 3.x and 4.x, ArcGIS Maps for Office Portal Resources, etc.
 - Living Atlas Boundary Layers
- **Get licenses that you will need**
 - Server Roles, Portal named users, Insight Users, etc.
- **Consider open source downloads from <http://esri.github.io/>**
 - Ago-assistant

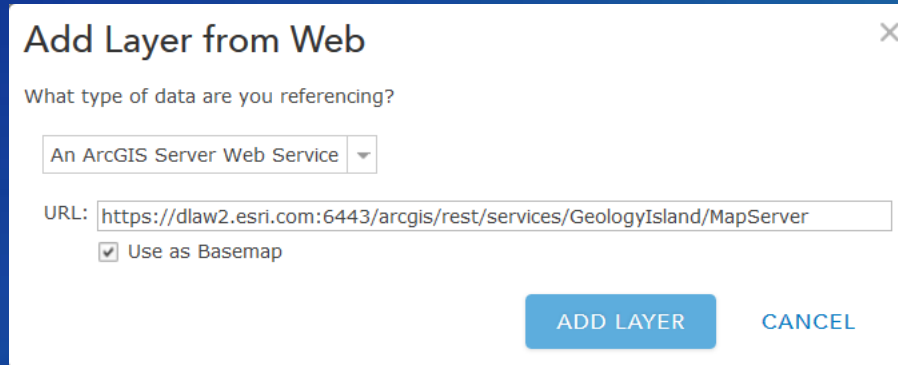
Portal for ArcGIS On-premises Services



Custom Basemaps for ArcGIS Enterprise

Where will your Basemaps come from?

- Add a cached service to Portal map viewer



Add Layer from Web

What type of data are you referencing?

An ArcGIS Server Web Service

URL: <https://dlaw2.esri.com:6443/arcgis/rest/services/GeologyIsland/MapServer>

☒ Use as Basemap

ADD LAYER CANCEL



- Save Web Map as a new item and share with Everyone
- Add item to a custom public group
- Select custom group in the Basemap gallery option and select a default Basemap
- Esri Commercial Data Appliance (CDA) offers AGOL Basemap capabilities

Enabling On-premises Utility Services in Portal

- There are a number of Portal Utility Services that bring a lot of functionality to your on-premises Portal. Some of them include:
 - **Printing** – Enable ArcGIS Server Print Service to use the Export Web Map Task.
 - **Geocoding** - ArcGIS Online World Geocode Service is unavailable in disconnected environments
 - Utilize Esri Streetmap Premium Geocode Services published on-premises
 - World Geocode Service on-premises
 - Custom Geocoding Service
 - **Geometry** – Utilize the Geometry Services of an on-premises ArcGIS Server
 - **Routing** – ArcGIS Online Routing Service is unavailable in disconnected environments.
 - Utilize Esri Streetmap Premium Routing Services published on-premises
 - Custom Routing Service
 - **Analysis Utility Services, e.g. Hydrology, Elevation, and Network**



Portal for ArcGIS Back-end Considerations



config.js

What is this?

- Located at <Portal Install Directory>\customizations\10.5.1\webapps\arcgis#home\js\arcgisonline
- Detailed in the Portal Administrator [Help](#)
- Provides additional configuration of the Portal UI
- You may want to do this if you're configuring a disconnected deployment or modifying the portal's behavior to match the requirements of your organization
- Use extreme caution when editing; always make a backup!
- Note: Not maintained (but not overwritten) in an upgrade
 - Will need to reapply edits after upgrade

config.js

Important Settings for Disconnected Environments

- **Set the extentService**
- **Add Security Classification Banners**
- **Add Footer Links**
- **Restrict My Organization page to Portal Admins only**
- **Enable/Disable Show Social Media Links**
- **Enable/Disable search ArcGIS Online**





Demo

Portal Advanced Customization

Editing `config.js` file properties

Updating which Language Content Appears in Search Results

- How often have you searched for “Streets” and seen the following?
- At 10.4 and later, organizations can hide from search results all language content not relevant to their organization.
- Provides the added benefit of removing many default Portal items that have external URLs that are inaccessible in disconnected environments.

	Relevance	Title	Owner	Rating	Views	Date
		Streets				
This map features highway-level data for the world and street-level data for North America, Europe, and other parts of the world.						
Web Map by esri_en						
Last Modified: March 1, 2016						
★★★★★ (0 ratings, 0 comments, 679 views)						
Open Details						
		OpenStreetMap				
This web map references the live tiled map service from the OpenStreetMap project. OpenStreetMap (OSM) is an open collaborative project to create a free editable map of the world.						
Web Map by esri_en						
Last Modified: March 1, 2016						
★★★★★ (0 ratings, 0 comments, 709 views)						
Open Details						
		OpenStreetMap				
Šī web karte atsaucas uz mozaikas karšu servisu no OpenStreetMap projekta. OpenStreetMap (OSM) ir atklāts sadarbības projekts, lai izveidotu bezmaksas rediģējamu pasaules karti.						
Web Map by esri_lv						
Last Modified: March 1, 2016						
★★★★★ (0 ratings, 0 comments, 181 views)						
Open Details						
		OpenStreetMap				
이 웹 맵은 OpenStreetMap 프로젝트의 라이브 타일 맵 서비스를 참조합니다. OpenStreetMap(OSM)은 편집 가능한 무료 세계 맵을 만들기 위한 개방형 공동 프로젝트입니다.						
Web Map by esri_ko						
Last Modified: March 1, 2016						
★★★★★ (0 ratings, 0 comments, 263 views)						
Open Details						

Updating which Language Content Appears in Search Results

- Use Portal Administrator API to update

Portal Administrator Directory

[Home](#) > [System](#) > [Languages](#)

Languages

- Arabic - عربي (true)
- Czech - čeština (true)
- Danish - Dansk (true)
- Dutch - Nederlands (true)
- English - English (true)
- Estonian - Eesti (true)
- Finnish - Suomi (true)
- French - Français (true)
- German - Deutsch (true)
- Greek - Ελληνικά (true)
- Hebrew - עברית (true)
- Italian - Italiano (true)
- Japanese - 日本語 (true)
- Korean - 한국어 (true)
- Latvian - Latviešu (true)
- Lithuanian - Lietuvių (true)
- Norwegian - Norsk (true)
- Polish - Polski (true)
- Portuguese (Brazil) - Português (Brasil) (true)
- Portuguese (Portugal) - Português (Portugal) (true)
- Romanian - Română (true)
- Russian - Русский (true)
- Simplified Chinese - 简体中文 (true)
- Spanish - Español (true)
- Swedish - Svenska (true)
- Thai - ไทย (true)
- Traditional Chinese (Hong Kong) - 繁體中文 (香港) (true)
- Traditional Chinese (Taiwan) - 繁體中文 (台灣) (true)
- Turkish - Türkçe (true)
- Vietnamese - Tiếng Việt (true)

Supported Operations: [Update](#)

Supported Interfaces: [REST](#)

Licensing ArcGIS Pro with Portal for ArcGIS

- ArcGIS Pro
- Setup:

1. In A

- Co
- G


2. In F

- Im
- ht

3. Use

- Ne

[HOME](#) [GALLERY](#) [MAP](#) [GROUPS](#) [MY CONTENT](#) [MY ORGANIZATION](#) Administrator

 **Managing ArcGIS Pro Licenses for City of Naperville - GIS Portal**

MY ORGANIZATION HELP

Licensed Members		Product	ArcGIS Pro Basic	ArcGIS Pro Standard	ArcGIS Pro Advanced	Spatial Analyst	3D Analyst	Network Analyst	Geostatistical Analyst	Data Reviewer	Workflow Manager
Maximum	15	Licenses	5	5	5	5	5	5	5	5	5
Available	11	Available	5	4	2	3	4	3	5	5	5

Members [SELECT ALL](#)

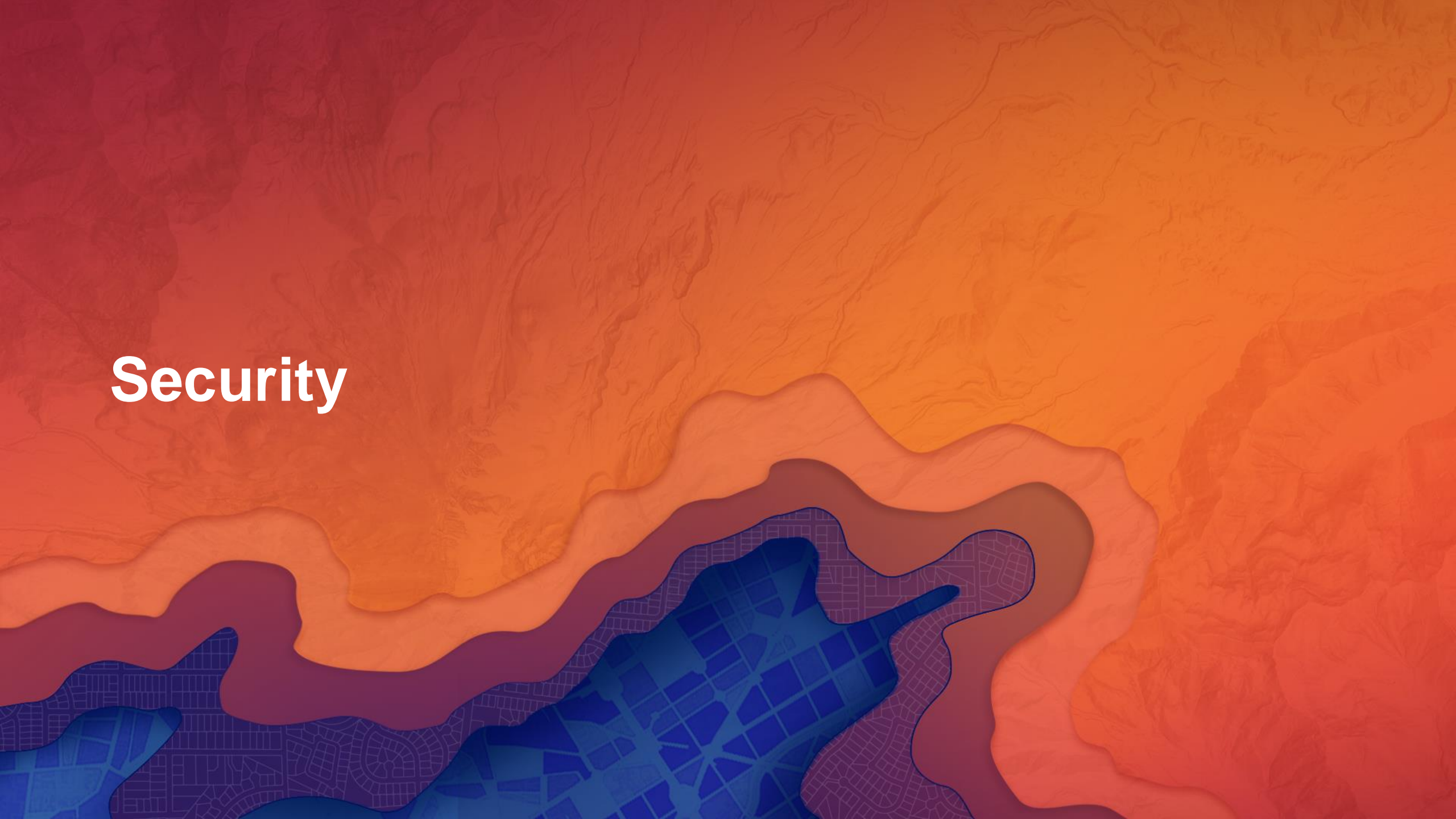
Click to select a member.

Name	Username	Licensed for	Last Used ArcGIS Pro
Krista Page	User1	Pro Advanced	Dec 7, 2014, 10:20:28 AM
John Lynch	User2	Pro Standard + 2 Extensions	Dec 7, 2014, 10:21:32 AM
Derek Law	Derek	Pro Advanced + 2 Extensions	Dec 3, 2014
William Dell	User3	Pro Advanced + 1 Extensions	
Administrator Person	administrator	Configure licenses	
System Publisher	system_publisher	Configure licenses	

Selected Members
Click to remove a selected member.

Name	Username
------	----------

Security



Setting up SSL Certificates and Trusts

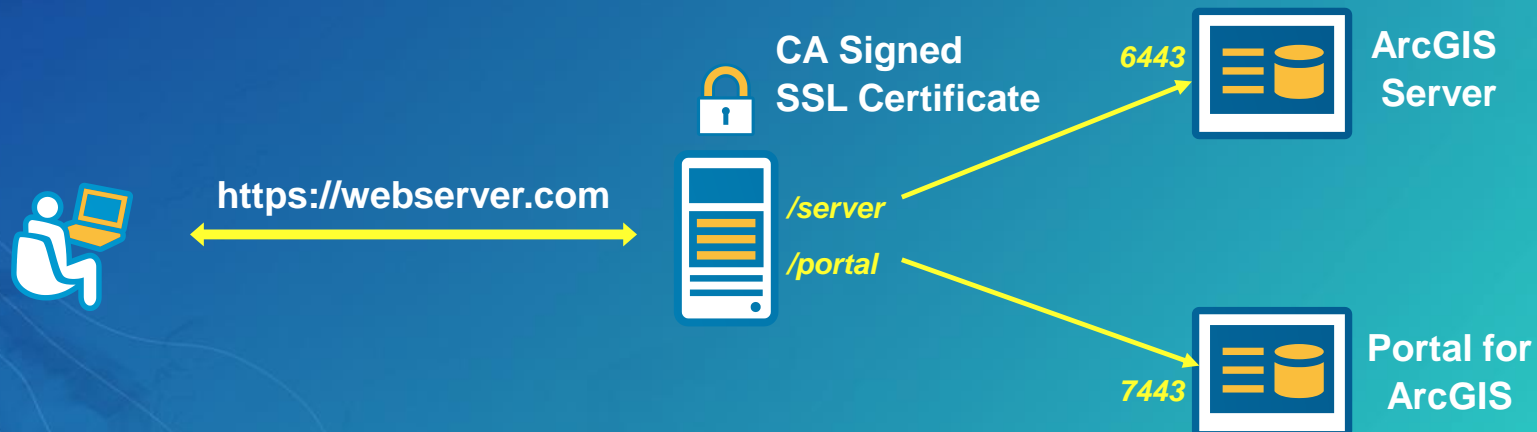
Server Certificates and Trust Stores

- Typically, disconnected environments are done for security reasons.
- Most of these organizations have strict SSL requirements that must be adhered to for compliance.
- Many of these environments have Certificate Authorities for signing server certificates for server identification and issuing user certificates for client identification (i.e. Public Key Infrastructure).
- There are a number of adjustments needed to configure Portal and ArcGIS Server to work properly in these types of environments.

Setting up SSL Certificates and Trusts

Server Certificates and Trust Stores

- Portal for ArcGIS and ArcGIS Server install self-signed certificates to support ports 7443 and 6443, respectively.
- Consuming services from self-signed certificates is highly discouraged.
- To overcome this, install separate Web Adaptors for Portal and ArcGIS Server and SSL-enable your web server.
- Users only communicate with Web Server over 443.



Setting up SSL Certificates and Trusts

Updating Server Certificates

- Some organizations take this a step further, mandating that no HTTP(S) ports serve content without using a properly signed server certificate. Users must update the self-signed certificates with CA signed certificates.
- Portal Administrator Directory provides tools to generate a new Certificate Signing Request and ability to import Intermediate or Root certificates for trust.
- ArcGIS Server Administrator Directory provides a near identical interface.

Portal Administrator Directory

[Home](#) > [Security](#) > [SSLCertificates](#)

SSL Certificates

- [portal](#)
- [samlcert](#)

Web Server SSL Certificate: portal

Web Server SSL Protocols: TLSv1.2,TLSv1.1,TLSv1

Web Server SSL Cipher Suites:

Supported Operations: [Update](#) [Generate](#) [Import Root or Intermediate](#) [Import Existing Server Certificate](#)

Supported Interfaces: [REST](#)

ArcGIS Server Administrator Directory Logge

[Home](#) > [machines](#) > [BMAJOR3.ESRI.COM](#) > [sslcertificates](#)

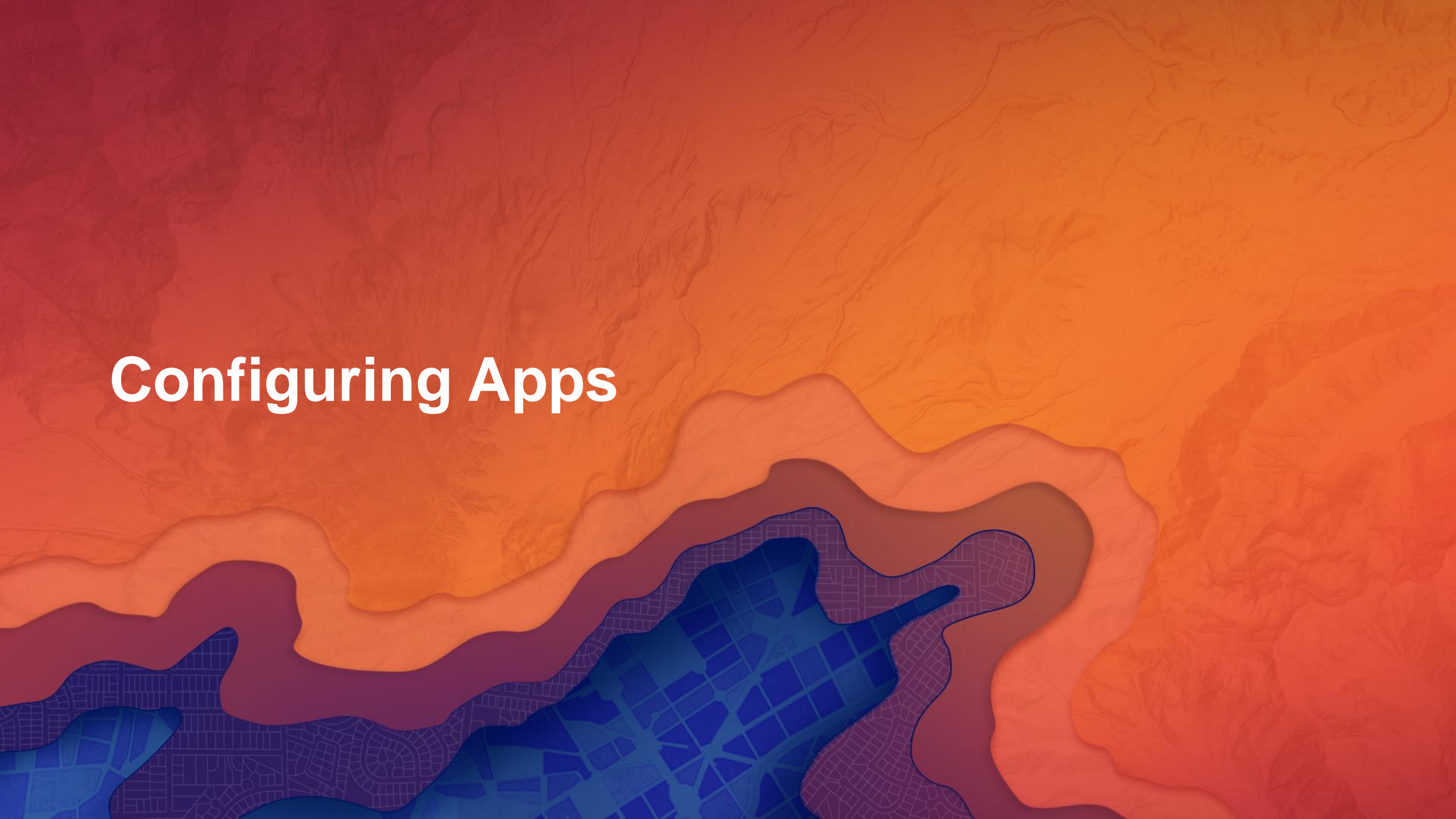
SSL Certificates

- [bmajor3_ss](#)
- [selfsignedcertificate](#)

Supported Operations: [generate](#) [importRootOrIntermediate](#) [importExistingServerCertificate](#)

Supported Interfaces: [REST](#)

Configuring Apps



Living Atlas of the World

Esri curated set of ready-to-use content
It includes both Esri published and user published content



Living Atlas

Types of Content

- **Live Content: Hosted in ArcGIS Online**
 - Items are installed in Portal but item URLs reference Online
 - Internet connection is required for access
 - Read-only content
 - Data types (web maps, apps, scenes and layers)
- **Local Content: Hosted in Portal for ArcGIS**
 - Boundary layers service definition files (by country)
 - Download from MyEsri or request DVD
 - Publish to Portal as hosted feature services
 - Run analysis in Insights for ArcGIS or Portal



Living Atlas

Publishing Boundary Layers to ArcGIS Enterprise


- **Disable online Living Atlas Content**

Configure Living Atlas Content ?

☐ Access Living Atlas content in your portal.

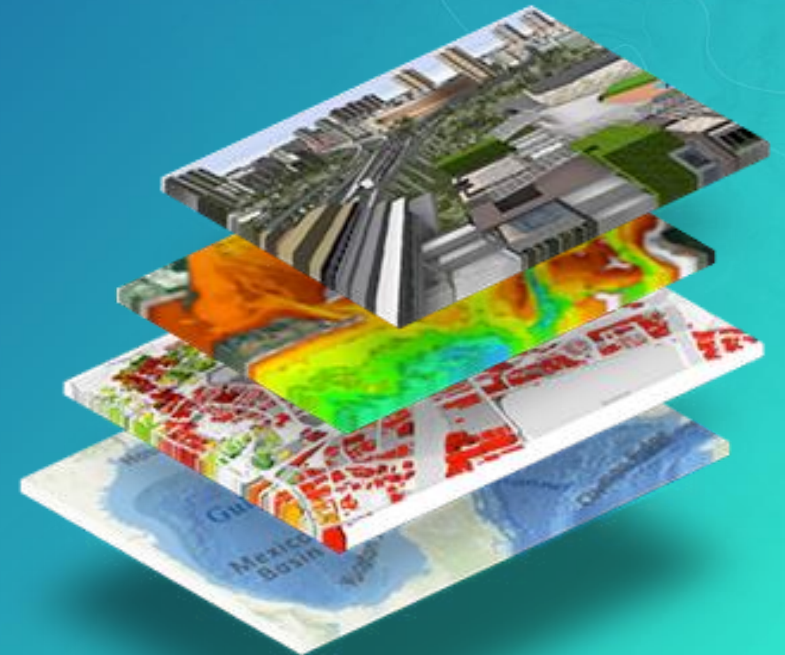
Check the box for the additional types of Living Atlas content you would like to enable in your portal and provide ArcGIS Online credentials for accessing them.

To disable an existing type of content, uncheck the account checkbox and click Configure.

☐ Subscriber ☐ Premium (requires credits )

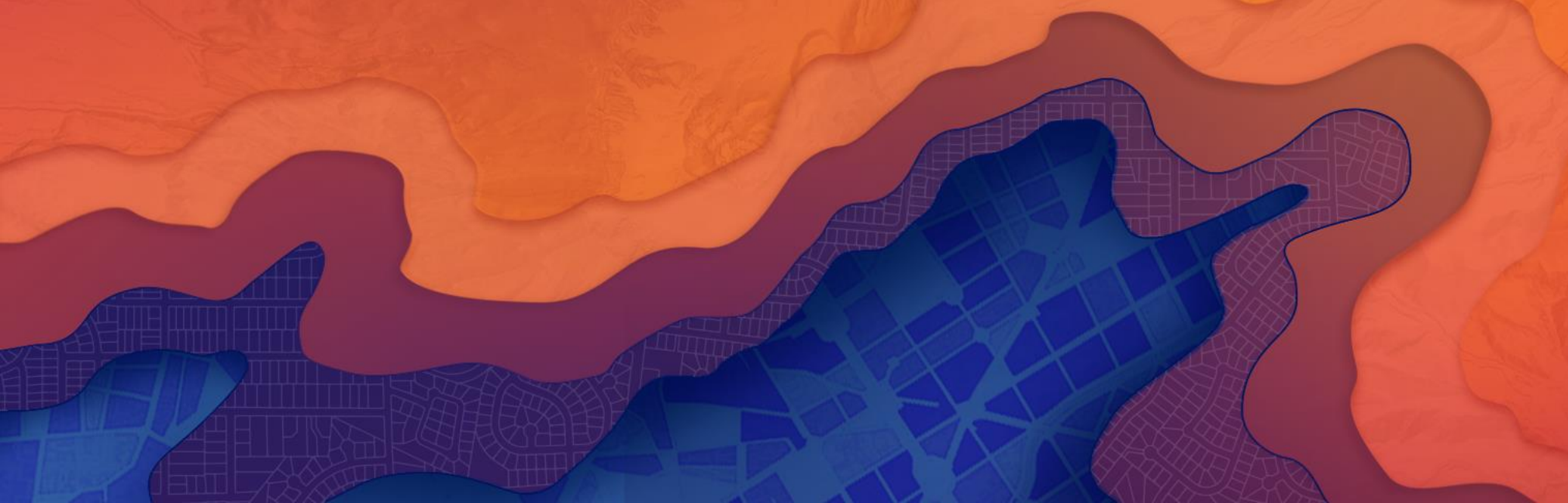
[CONFIGURE](#)

- **Download Boundary Layers from My Esri**
 - 10.5.1 will make available 100+ countries of data
- **Make/move the SD files available to the Portal server**
- **Run a Python script provided by Portal installation to publish SD files as Hosted Feature Services**
 - <Portal installation directory>\tools\publishboundarylayers



Demo

Publishing Boundary Layers



Deploying Esri JSAPI On-Premises

- Portal 10.5.1 comes with JSAPI 3.20 and 4.3 – can use this as needed
- 3.21 and 4.4 just released!
- Download from <https://developers.arcgis.com/downloads/>
 - Download the API and Documentation
- Deploy to your own web server following the Help Documentation
- Use to:
 - Update links in Web Application Templates
 - On-premises JSAPI web development
 - ArcGIS Server REST Handlers

ArcGIS Server Administrator Directory	
Home > system > handlers > rest > servicesdirectory	
Services Directory	
Services Directory :	Enabled.
AllowedOrigins :	*
Javascript API URL :	http://bmajor3.esri.com/jsapi/3.13/init.js
Javascript API SDK URL :	http://bmajor3.esri.com/jsapi/3.13/sdk/
Javascript API CSS URL :	http://bmajor3.esri.com/jsapi/3.13/dijit/themes/tundra/tundra.css
Javascript API CSS2 URL :	http://bmajor3.esri.com/jsapi/3.13/esri/css/esri.css
ArcGIS.com Map Text :	ArcGIS Online map viewer
ArcGIS.com URL :	http://www.arcgis.com/home/webmap/viewer.html
Supported Operations:	edit

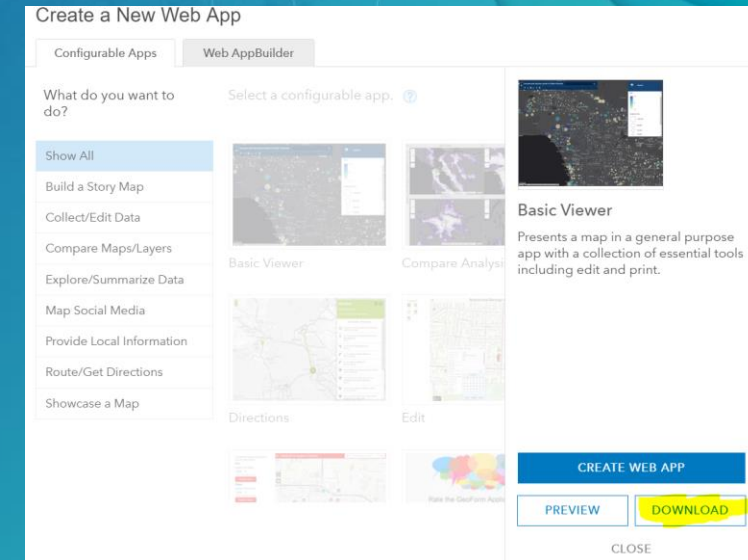
Demo

Deploying Esri JS API

Web Application Template Downloads

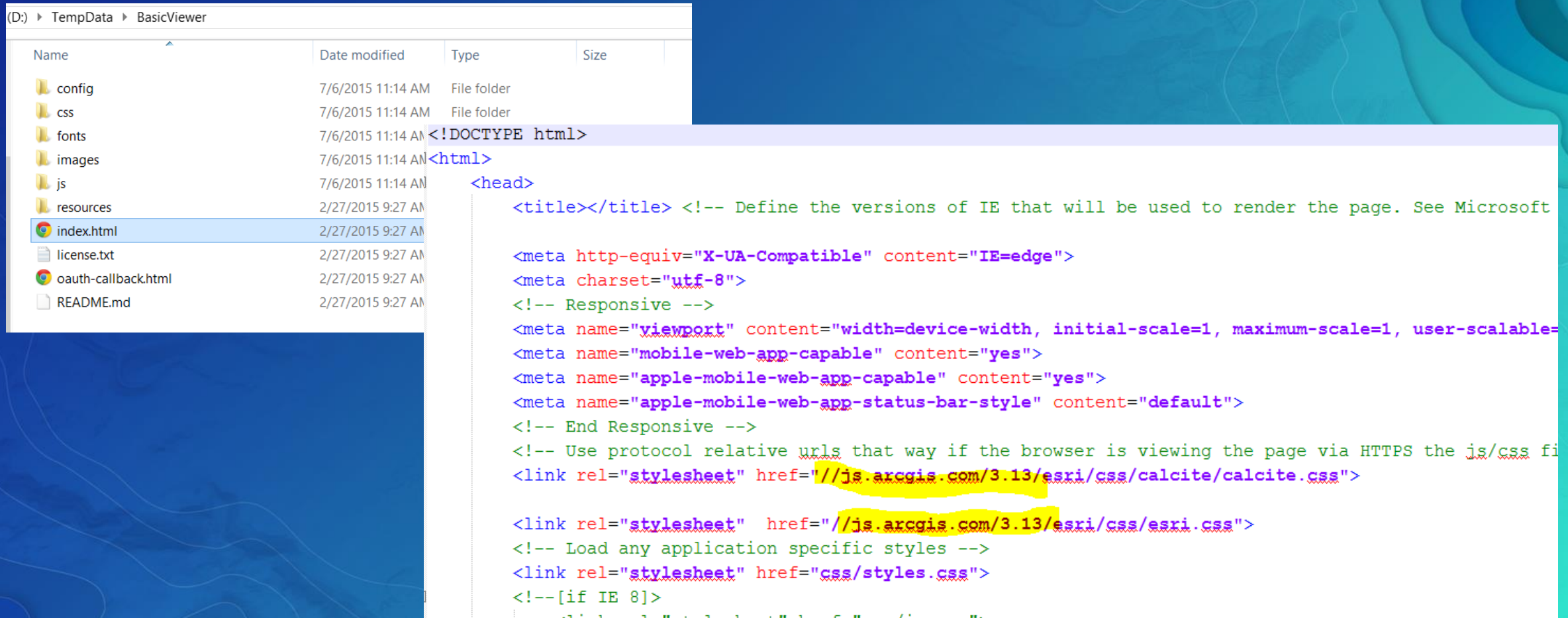
Update JSAPI Links

- If you download Web Application Template to host on your own web server, the source code links point to [http\(s\)://js.arcgis.com](http(s)://js.arcgis.com).
- Update links to on-premises installation of the Esri JS API or Portal's JS API.
 - Note that version of API should be maintained
- Point to your Portal in config files
- Publish/Preview of Web Application Templates within Portal work as-is, since Portal deploys with its own internal version of the JSAPI.
- Some have links to Elevation and Geometry Services that will need to be updated also.



Web Application Template Downloads

Example Update



The image shows a file explorer window on the left and a code editor on the right. The file explorer displays the contents of the 'TempData' directory, specifically the 'BasicViewer' subdirectory. The 'index.html' file is selected. The code editor shows the HTML code for 'index.html', which includes a DOCTYPE declaration, a head section with various meta tags for IE compatibility, viewport, and mobile web app capabilities, and several link tags for stylesheets. The URLs for the stylesheets are highlighted in yellow.

File Explorer (D:) > TempData > BasicViewer

Name	Date modified	Type	Size
config	7/6/2015 11:14 AM	File folder	
css	7/6/2015 11:14 AM	File folder	
fonts	7/6/2015 11:14 AM		
images	7/6/2015 11:14 AM		
js	7/6/2015 11:14 AM		
resources	2/27/2015 9:27 AM		
index.html	2/27/2015 9:27 AM		
license.txt	2/27/2015 9:27 AM		
oauth-callback.html	2/27/2015 9:27 AM		
README.md	2/27/2015 9:27 AM		

```
<!DOCTYPE html>
<html>
<head>
<title></title> <!-- Define the versions of IE that will be used to render the page. See Microsoft
<meta http-equiv="X-UA-Compatible" content="IE=edge">
<meta charset="utf-8">
<!-- Responsive -->
<meta name="viewport" content="width=device-width, initial-scale=1, maximum-scale=1, user-scalable=
<meta name="mobile-web-app-capable" content="yes">
<meta name="apple-mobile-web-app-capable" content="yes">
<meta name="apple-mobile-web-app-status-bar-style" content="default">
<!-- End Responsive -->
<!-- Use protocol relative urls that way if the browser is viewing the page via HTTPS the js/css fi
<link rel="stylesheet" href="//js.arcgis.com/3.13/esri/css/calcite/calcite.css">

<link rel="stylesheet" href="//js.arcgis.com/3.13/esri/css/esri.css">
<!-- Load any application specific styles -->
<link rel="stylesheet" href="css/styles.css">
<!--[if IE 8]>
<link rel="stylesheet" href="css/ie.css">
```

Setting your own Elevation Image Service

- In order to use Scene Viewer in disconnected environments, an organization must make available an Elevation Service.
- Used by Portal Scene Viewer, ArcGIS Earth, ArcGIS Pro
- Must be configured a particular way:
 - Image Service
 - Cached using LERC tiling format
- Update as a Utility Service



Cached Elevation Image Service

Configure your elevation services for 3D applications. To add an elevation service, enter a service URL and click Add. You can also reorder or delete your elevation services.

Example: <https://webadaptor.domain.com/arcgis/rest/services/folder/serviceName/ImageServer>

Name
Terrain3D

Insights for ArcGIS

Analytic Projects – Workbook, Pages, and Cards



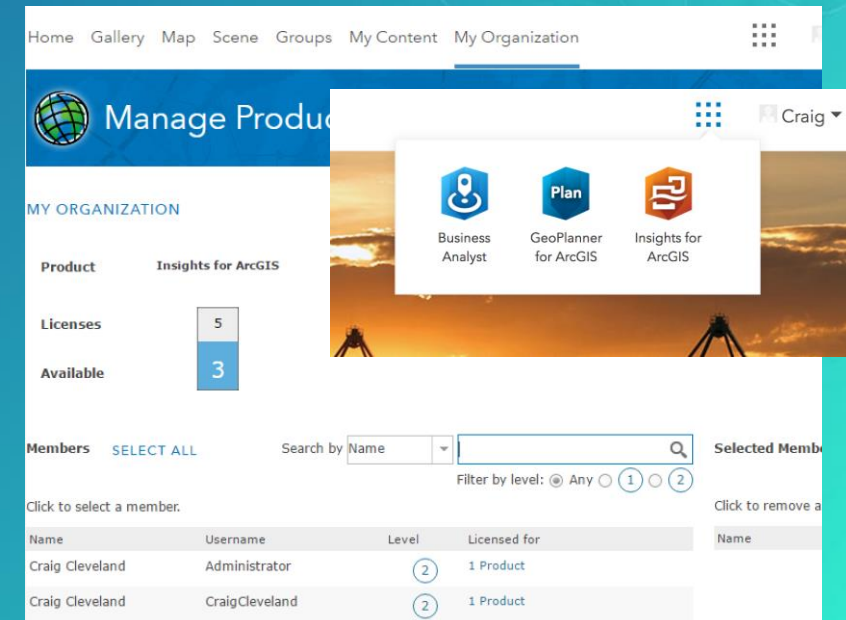
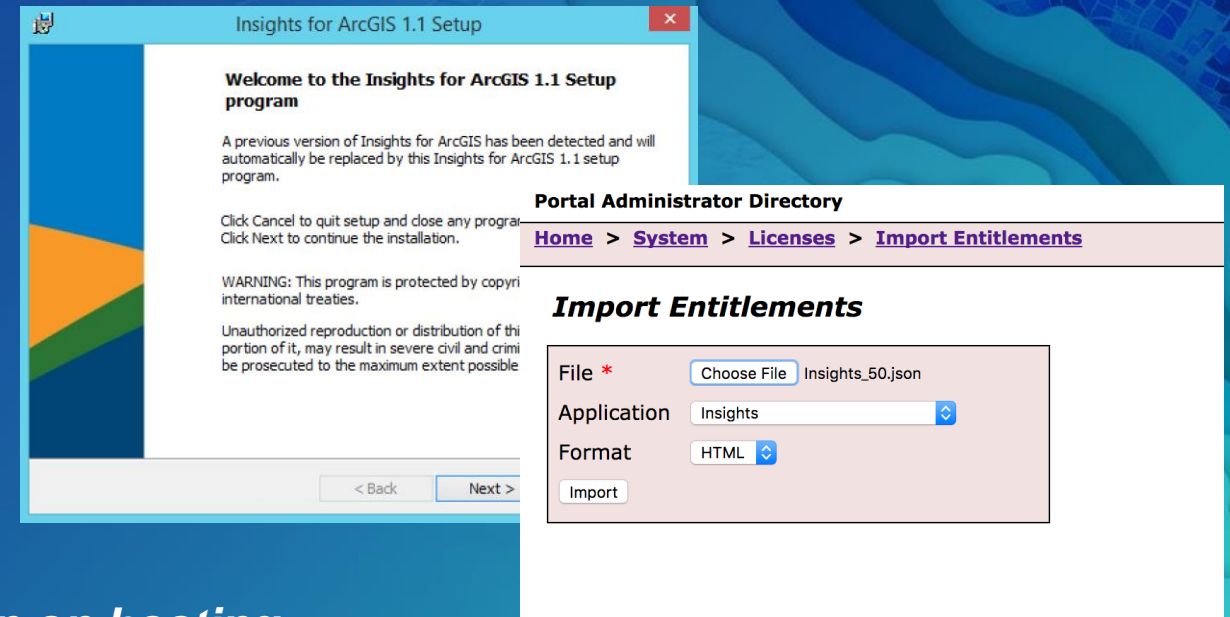
- App for exploratory analysis
- Combine Analysis and Visualization on cards
- Record, share and collaborate



Insights for ArcGIS

Deployment

- Requires ArcGIS Enterprise 10.5.x
- Install on Portal for ArcGIS machine
 - **if working in a distributed environment run on hosting server as well*
 - ****** Make sure to highlight that it's only 1 installer**
- Configure Insights for ArcGIS license (.json) via Portal Admin
- Provision licenses to users via Portal for ArcGIS



Operations Dashboard Deployment Utility (10.3.4)

Enable ability to download/open Windows client from Portal

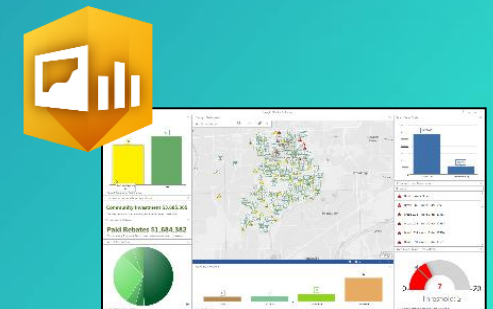
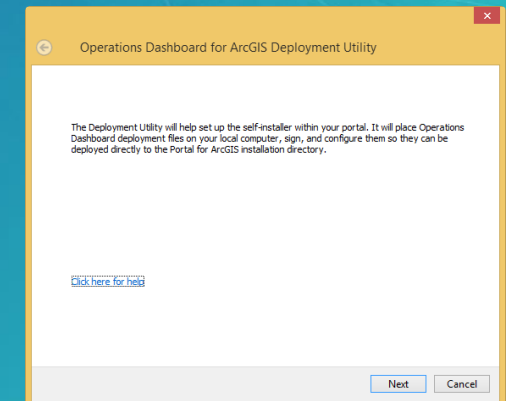
- **Step 1 - Preparations**

- Download and extract deployment utility from “My Esri”
- Have security certificate ready
- Know your Portal URL
- Have write access to Portal’s \apps\dashboard-win folder

- **Step 2 – Run deployment utility**

- **Step 3 – Deploy to Portal**

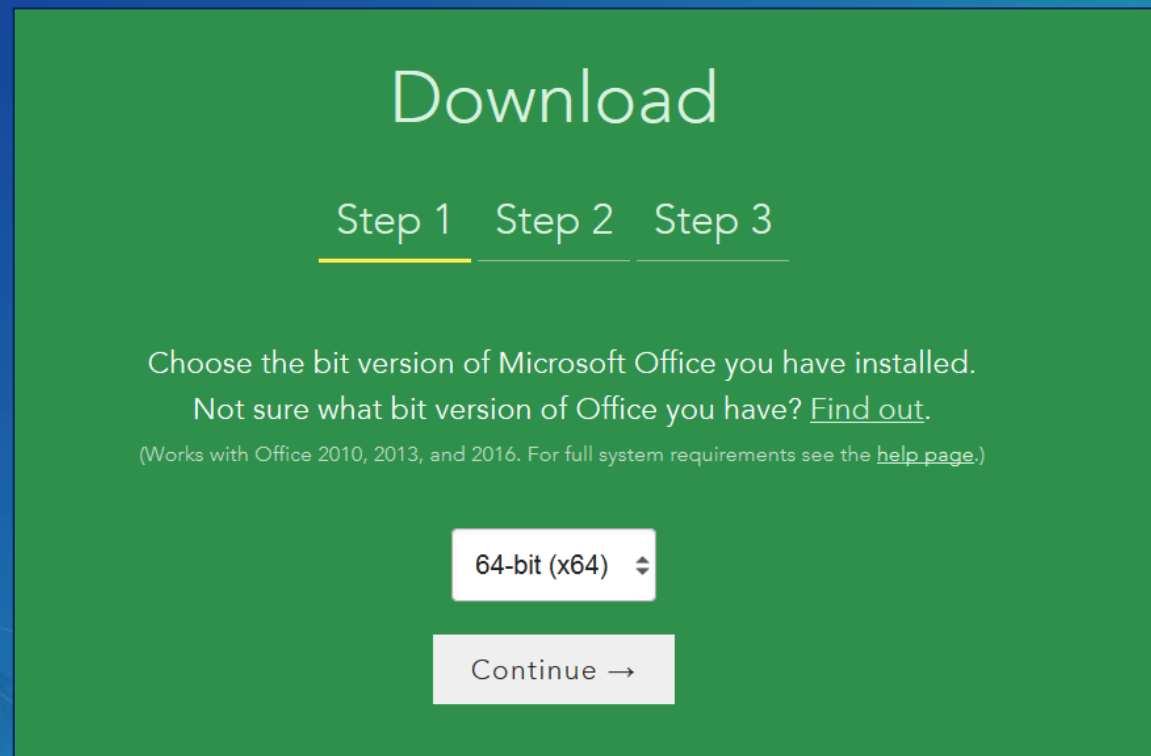
- Copy output folder from step 2 to Portal’s \apps\dashboard-win folder ***** consider putting needs to be a server admin
- Create an application item of Operations Dashboard



ArcGIS Maps for Office with a Disconnected Portal

<http://www.esri.com/software/arcgis/arcgisonline/apps/download>

- For disconnected Portal deployments, requires resource files
 - Separate download, need to install on Portal machine



The screenshot shows a green download wizard window. At the top, the word "Download" is centered. Below it, a progress bar shows "Step 1" as the active step, followed by "Step 2" and "Step 3". The main text asks the user to "Choose the bit version of Microsoft Office you have installed." and provides a link "Find out." for users unsure of their version. A note at the bottom states "(Works with Office 2010, 2013, and 2016. For full system requirements see the [help page.](#))". A dropdown menu is set to "64-bit (x64)" and a "Continue →" button is at the bottom.

Download

Step 1 Step 2 Step 3

Choose the bit version of Microsoft Office you have installed.

Not sure what bit version of Office you have? [Find out.](#)

(Works with Office 2010, 2013, and 2016. For full system requirements see the [help page.](#))

64-bit (x64) ▾

Continue →

Web AppBuilder Developer Edition Disconnected

- Deploy a local JSAPI for 3.x and 4.x
- Need a local Geometry Service enabled on an ArcGIS Server
- Change env.js and config.json files to point to these local resources
- **ArcGIS Blog posting**

<https://blogs.esri.com/esri/arcgis/2016/11/02/deploying-web-appbuilder-for-arcgis-developer-edition-in-a-disconnected-portal-for-arcgis-environment/>



Questions?

Other Relevant Sessions

- ArcGIS Enterprise: Architecture Best Practices
 - Tuesday 10:30am
- High Availability and Disaster Recovery for ArcGIS Enterprise
 - Tuesday 8:30am, Thursday 3:15pm
- Web GIS: Architectural Patterns and Practices
 - Tuesday 10:15am, Thursday 10:15am
- ArcGIS Enterprise Security: An Introduction
 - Tuesday 10:15am, Thursday 8:30am
- ArcGIS Enterprise Security: Advanced Topics
 - Tuesday 1:30pm, Thursday 10:15am
- Building Security into Your System
 - Tuesday 4:30pm

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Select the session you attended



Scroll down to find the survey



Complete Answers and Select "Submit"





esri

THE
SCIENCE
OF
WHERE