

Rooftop Solar Potential Web Application

A Technical Guide

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Step 1. ArcGIS Pro

Create Solar Potential Layer

In ArcGIS Pro, create Solar Potential layer with the following attributes: Electricity Production (MWh), Suitable Rooftop Area (square meters), and Address Data.

Publish Map Service

Publish Solar Potential layer as a map service (solar Potential layer with underlying hillshade layer for texture) to ArcGIS Online (AGOL). In this instance, we will host the underlying data on AGOL.

Step 2. ArcGIS Online (AGOL)

Create AGOL Group

Create a Group in AGOL to help team members work together on developing the application. Make sure to check the box for allowing all group members to edit (NOTE: if you allow for non-organisation members to join the group, the option to let all team members edit will not be available).

Configure Pop-ups in Map Viewer

Open the published map service in Map Viewer and edit to the preferred symbology. Make sure pop-ups are enabled and click on 'Configure Pop-ups' for the Solar Potential layer. Select the desired fields to be displayed in the pop-up. In our case, we want Electricity Production, Suitable Rooftop Area, and Address. If an attribute is located in a separate layer (as our Address data was), you can build an Arcade expression to allow your current layer to "talk" to another layer in the map.

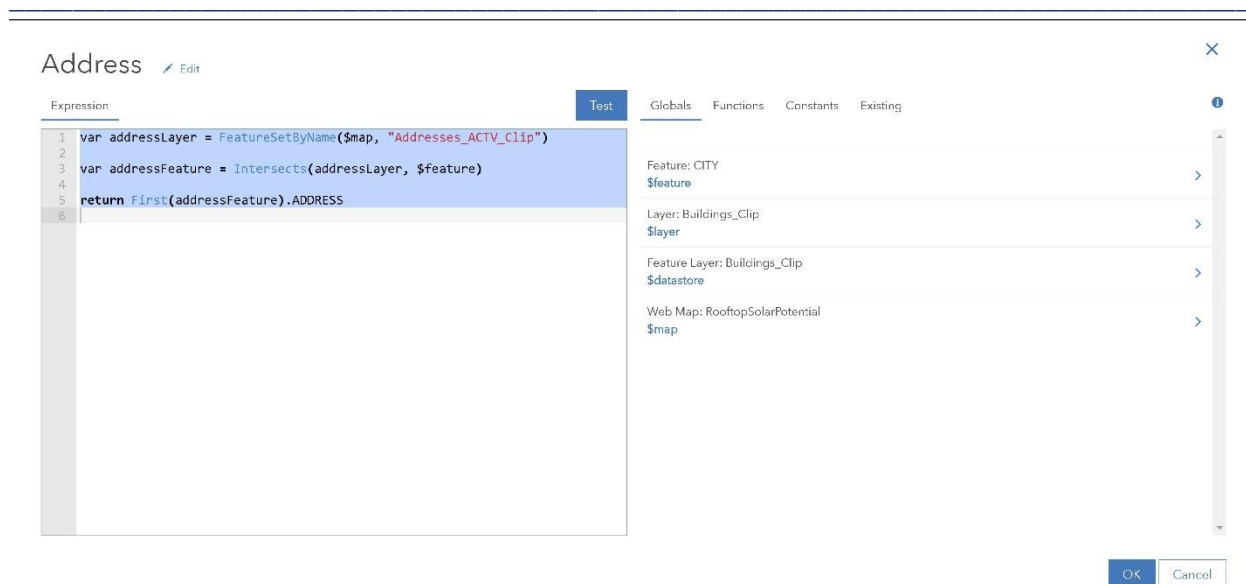


Figure 1. Arcade expression for displaying address field from another layer in the pop-up of the current map.

Configure Graph for Pop-up

Graphs can be configured in Map Viewer pop-up configuration GUI by adding a "Chart". Multiple fields can be added to the chart, but you will need to create more Arcade expressions if you want to include statistical parameters of your data. In our case, we created expressions to display the average electricity potential for a certain size range of buildings to be displayed against the currently selected feature.

Configure Search Bar

A search bar can be added to the map by clicking on the Settings tab and scrolling down to Application Settings. Check off 'Find Locations', 'By layer', 'By address', and 'Use in ArcGIS Field Maps Mobile'. Importantly, when you check off 'By layer' you can pick which layer and the field from the layer that the search will be based on. Then you must decide if the search must contain or equal what is in the field to base the search off. Click save at the bottom of the page to save all the settings.

Application Settings

Select the tools and capabilities to enable in applications that access this web map.

☒ Find Locations [-]

Hint text

Address

☒ By Layer

Addresses_ACTV_Clip ADDRESS Contains

Add Layer

☒ By Address

☒ Use in ArcGIS Field Maps Mobile

Save Cancel

Figure 2. The Application settings for the rooftop solar potential map. This results in a search bar being displayed in the map which can search for addresses based upon the Address layer and its address field, and the search item need only contain part of the address field for the search to be successful.

Configure basemap to change based on zoom level

The rooftop solar potential map was configured to change the basemap when the user zooms in to a certain point. First, Dark Gray Canvas was chosen as the first basemap and is the bottom layer of the map. Its visibility range should be set to visible at every zoom level. Then, World Imagery basemap was added to the rooftop solar potential map, this was done through its rest point URL (https://services.arcgisonline.com/ArcGIS/rest/services/World_Imagery/MapServer). The world Imagery layer was the second last layer of the map, and its visibility range was set from streets to room zoom level.

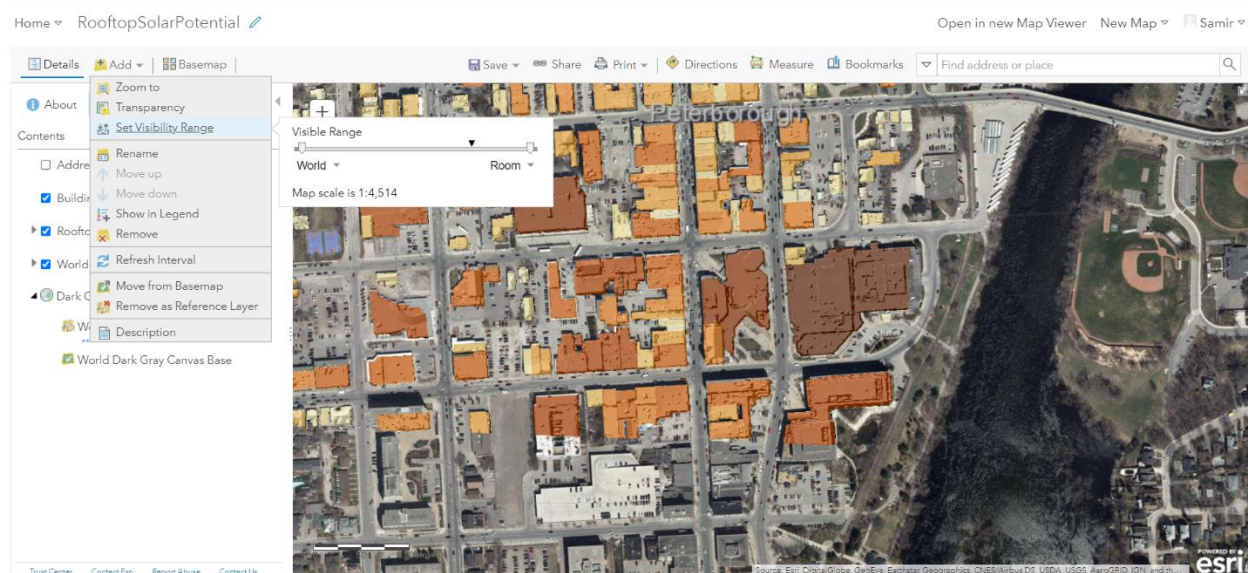


Figure 3. The Visibility Range for the Dark Gray Canvas basemap, which should also be the bottom most layer of the map.



Figure 4. The Visibility Range for the World Imagery basemap, which should also be the second last layer of the map.

Step 3. Experience Builder

Now that the web map is available and pop-ups/search bar/base map configured, we can start a new Experience Builder project from ArcGIS Online.

Layout & Widgets

We selected a map-centric layout for our map page and adjusted the placement of objects from there. From the left panel menu, widgets can be added to enhance the map layout. For example, we added a text box to display information about how the app works. We also added custom icons in the widget controller so that users could access FAQs. Any additional pages or links that you add will automatically be displayed in the top menu bar (unless specified by the user not to). We added a link to our final website.

Additional Pages

Experience Builder allows for multiple pages within a single app. We took advantage of this feature and added an additional page where users can go to access background information on solar potential, for instance. (Note: This page is still under construction!). Additional web maps and dashboard-like layouts can also be added as separate pages in the application.

Adjust Layout for iphone/ipad

Another great feature in Experience Builder is the ability to adjust layouts for smaller screen sizes. Simply click on the iphone/ipad icon and modify the auto-layout to suit your purposes. To do this, widgets can be hidden from view or modified (duplicate the widget and hide this new version from the main display). We did re-sized the text box and text and modified its placement to make it more legible. We also hid less important widgets from view.