

# DXMAPMAKER

## About DXMapMaker

Probably every DXer has at least once in their hobby career put a map on the wall and filled it with pins locating their DX catches. With DXMapMaker anyone can easily create a virtual Google Map that does the same thing. And there is no reason to limit it to radio stations. DXMapMaker can be used to make maps locating your favorite restaurants, previous vacation destinations, or anything else that can be located on a map. Play around with the different settings to understand the variations in adding map legends and sizing the maps.

DXMapMaker is written in C# using Visual Studio 2015.

DXMapMaker is licensed under the Apache License, Version 2.0 and is free to use and modify in most circumstances. The source code is available for download from my website. For more information see the *About DXMapMaker* tab in the application.

If you find my applications useful and would like to contribute something, donations may be sent via PayPal at the following email address. Donations received will be contributed to [www.kiva.org](http://www.kiva.org) where they will be used to make micro-loans in Third World countries.

Don Moore [DonMooreDXer@Yahoo.com](mailto:DonMooreDXer@Yahoo.com)  
<http://www.DonMooreDXer.com/dx/apps/>

## **Quick Start Guide**

**... or what you should know if you want to start without reading all the directions.**

DXMapMaker is for making maps to be viewed on laptop computers and full-size monitors. The maps can be viewed on mobile devices but it won't be the best experience.

**Get an API Key from Google.** This is a requirement. See the section on how to do this. DXMapMaker web pages can be created without a key but Google won't turn them into maps unless the web page has a valid API key.

On the Map Set Up tab there are six different page layout options. If you understand HTML and CSS you can make modifications to the base styles. Here you also can select whether or not to include a map legend and how to format that legend.

On the Titles and Settings tab, the Main Title and Subtitle appear on the web page (unless making a full page map). The Page Name appears in the web tab and is used to make the HTML file name. It shouldn't contain spaces or unusual characters. *Zoom Level* determines how wide of an area the map will display when initially opened. (The user can still zoom in or out as needed.) DXMapMaker defaults to a value of six. Generally values between four and nine work best unless the focus is on a specific city. The size and resolution of the monitor being used also affects how much of the map is displayed.

On the Icons and Locations tab, the *Load Locations* box lists a small selection of icons for the maps. There are many more available. See section on icons.

On the Make Map tab, *Map Limits* are meant to limit the user from zooming out too far on a map. The values are not absolute. More area may be seen on one side or another depending on size and resolution of the monitor and the relative dimensions of the area inside the limits. But it more or less works.

For a complete walk-through on creating DXMapMaker maps, do the tutorial.

**Tip:** In making your first maps, un-check the *Clear For New Map* checkbox under the *Create Web Page* button. Then you can test creating multiple map configurations using the same locations without reloading the locations every time. You will need to update the page name each time.

## Getting Started

Just unzip the DXMaker.zip file in a convenient location. I recommend placing it either in your *Documents* folder or else on a USB drive. If it's placed in *Program Files* Windows may complain when new files are created. Click on the *DXMapMaker.exe* file to open the program.

The *DXMapMaker* folder contains the following items:

**DXMapMaker.exe** - This is the DXMapMaker application.

**References Folder** - This contains a copy of this file, MapsIconList.txt (used by the program), API\_Keys.txt (used by the program), and several sample files of icons that can be added to MapsIconList.txt.

**WebPages folder** - Currently empty. Map pages that you create will go here.

**LocationLists folder** - The default location for location files used to create maps. Put the location lists you create here. Currently this folder only contains the **Tutorial** folder with files used in the tutorial.

## Error-Proofing

I have not thoroughly error-proofed DXMapMaker. For example, DXMapMaker won't complain if your location files list places at 500 degrees longitude. The map just won't work. But as long as the program is used as it is expected to be used there shouldn't be problems. If there are any technical problems they will be reported in the Error Log (which will appear in the same folder as the DXMapMaker.exe file). If you have an issue let me know. Then if there is a bug I can fix it.

## **Getting and Using A Google API Key**

Google won't create maps unless the web page has a valid API key. To get yours follow the directions at this link or just Google the phrase "get free api key Google Maps" to read more about the process. Once you have a valid key, open the API\_Keys.txt file in the References folder of DXMapMaker and replace the first line with your key. For most users one key will be enough.

<https://developers.google.com/maps/gmp-get-started#api-key>

Google charges for use of their map-making services. However, they are not looking at collecting from really small users. Your account comes with an initial US \$300 of free usage and then US \$200 of free usage every month. DXMapMaker creates 'dynamic maps' and that \$200 pays for about 28,000 of those. If you are just creating maps to view on your own computer, it's very unlikely you would ever reach that limit. If you plan to put the maps on a website then be sure to understand how to restrict your API and how to set a daily quota of page hits.

<https://developers.google.com/maps/api-key-best-practices>

<https://cloud.google.com/apis/docs/capping-api-usage>

You can read everything there is to know about the Google Maps API in the FAQ, but that's not necessary for DXMapMaker unless you expect to make maps that get viewed by thousands of people every day.

<https://developers.google.com/maps/faq>

## Creating Location Files

See the sample location text files in the LocationLists\Tutorial folder for examples of location files that are used to create maps. The file format is just

```
Item Description, Latitude, Longitude, optional link URL, optional comment
```

Because commas are used to separate the fields, you can not put commas in the description or optional comment! Use dashes or another divider.

Here is a sample of Australian entries.

```
Radio Australia - Shepparton - 9580|A.B.C. - Melbourne - 6150, -36.333, 145.25  
Radio Australia - Brandon - 6020, -19.50, 147.333  
Radio Australia - Lyndhurst - 15160|VNG - Lyndhurst - 12000, -38.05, 145.2666  
VL8A - Alice Springs - 2325, -23.71137, 133.87595
```

Make multi-line descriptions by including a | (pipe) symbol where the line break should go. The first line in the above file will display this way:

Radio Australia - Shepparton – 9580  
A.B.C. - Melbourne - 6150

Icons may double as links to other websites. Just add a third comma and a URL. Clicking on an icon created with the next link will open the Radio Juticalpa Facebook page in a new browser tab. Links should start with *https://* .

```
Radio Juticalpa, 14.678337860, -86.2101849, https://www.facebook.com/radiojuticalpa/
```

Comments can be placed in the fifth field (after the fourth comma). If there isn't a URL just put two commas. DXMapMaker does not use the comments in any way. They are just for the user to add notes, such as where the coordinates were found.

```
BBC Daventry, 52.2542, -1.1401, https://www.bbc.com/, Coordinates per Google Maps  
BBC Daventry, 52.2542, -1.1401, , Coordinates per Google Maps
```

## Finding Coordinates

The hardest part of creating DXMapMaker maps is finding coordinates. The coordinates for many SWBC transmitter sites can be found in old WRTHs. But the WRTH doesn't include everything. In my sample files, the coordinates for the Alice Springs station weren't listed so I use the center of town. The coordinates for Radio Juticalpa is their current office (and not the transmitter site, wherever that was back in 1974 when I heard them). For aeronautical stations I use the airport terminal building and for marine broadcasters I find where the port is.

Coordinates can be gotten by finding the location on Google Maps (often switching to satellite view for more precision). If you right-click on the spot a box will pop up with the coordinates at the top. Regular (left) click on the coordinates to copy those to the clipboard and then paste in your locations file.

Coordinates from Google Maps extend fourteen or fifteen places after the decimal point and it's easiest to just paste the entire string in a file. However, three or four digits is more than enough accuracy for these maps. The distance between two points 0.0001 degrees of latitude apart (e.g. 45.0000 and 45.0001) is just over ten meters. Differences in longitude are the same as latitude at the equator but degrees of longitude get closer as one approaches the poles. At 45 degrees latitude, 0.0001 degrees difference in longitude is about 8 meters. At 80 degrees latitude it's about two meters.

## Using and Selecting Icons

DXMapMaker uses links to icons, not the actual icons. Google gets the icons when the map is created.

The Icon list on the *Icons and Locations* tab is loaded from the *MapsIconList.txt* file in the *References* folder. That file contains a list in the format “icon name, icon URL”.

Red Radio, <http://www.donmooredxer.com/dx/apps/icons/radioRed.png>  
Airplane, <http://maps.google.com/mapfiles/kml/pal2/icon56.png>  
Black Anchor, <http://www.donmooredxer.com/dx/apps/icons/anchorBlack24.png>

The *References* folder contains three sample files listing additional icons you can use. If you find one you like just copy the line to the *MapsIconList.txt* file. You can add and subtract icons as you please and reorder them so that your favorites are on top. The ones at my website are royalty-free ones that I have found and edited. Feel free to copy them to your own domain if you want. Google has dozens more that can be used at the following URLs.

<http://kml4earth.appspot.com/icons.html>  
<https://sites.google.com/site/gmapsdevelopment/>

Of course, there are numerous places on the Internet to find icons and if you are skilled in a graphics program you can create and edit your own. Give the icon a name and add the icon and its URL to the icon file. All icons have to be on the Internet at a full http URL. Local files and relative links do not work with Google Maps as the viewable maps are created at Google and their servers can't find local relative links.

To see what the icons in the sample files look like on a map, go to the Tools tab on DXMapMaker. Here you can use any file that lists icons in the above format to create a sample map. The maps will show all the icons with their names spread across North America and also across the North Pacific (so that you can see what they look like both over land and water).

# **Tutorial**

## *Map Set Up Tab*

- In the Web Page Layout box, select *With Page Header*.
- In the Icon Legend box, select Google Legend.
- Now select RIGHT\_BOTTOM in the position list.

## *Titles and Settings Tab*

- Type “Tutorial\_Page\_One” in the *Page Name* box.
- Change the Initial Zoom Level to 5.
- Your valid registered API key should be displayed in that box.
- Use the average for the center point.
- Under Page Titles, type “Australia Test Map” in the *Main Title* box and “Tutorial” in the *Sub Title* box.

## *Icons and Locations Tab*

- In *Load Locations*, select *Red Dot* and then click the *Load Lat/Long File* button to open the *LocationLists* folder.
- Click on the *Tutorial* folder and then inside that select the *Australia\_SWBC.txt* file and click *Open*.
- In the text box type “SWBC” and click *Save Result*.

## *Make Map Tab*

- Ignore the *Map Limits* box.
- Remove the check from the *Clear For New Map* box.
- Click the *Create Web Page* button.
- Minimize DXMapMaker (Do Not Close!)

## *View Your Map*

- Using Windows Explorer, open the *WebPages* folder in the DXMapMaker folder.
- Click on the *Tutorial\_Page\_One.html* file to open it in your default browser.
- Hover the mouse over any icon to see the descriptive information for that item.



## **Create a New Page Based on The Previous Page**

Switch back to DXMapMaker. Because the settings were not cleared we can make a new map by reconfiguring the old settings and adding new locations.

*Map Set Up* tab.

Change the layout to *With Left Sidebar*.

Select *DXMapMaker Legend*

*Titles and Settings* Tab

Change the Page Name to “Tutorial\_Page\_Two”.

Change the Main Title to “Australia HF Stations”

*Icons and Locations* Tab

Select the *Airplane* icon and load the “Australia\_Aero.txt” file from the samples folder. Put airports in the Description box.

Now use the Red Anchor icon to load the “Australia\_Maritime.txt” file with a description of “Maritime Stations”.

Now use the Blue Anchor icon to load the “Australia\_Maritime\_Active.txt” file with a description of “Maritime Stations With Links”.

Now switch to the *Make Map* Tab to create the page. Click on one of the blue anchors to open the VMC/VMW website.

## **Limit The Map**

On the first two maps it's possible to zoom out and see the entire planet. Now let's limit that. Go back to the *Titles and Settings* tab and update the page name box to “Tutorial\_Page\_Three” in the page name box.

Now return to the *Make Map* Tab. In the *Map Limits* box, check the Include *Panning Limits* box. Now insert the following values (without the quotation marks): “-10” in north, “-44” in south, “112” in west, and “155” in east. Create the map, open it, and see how far out it will zoom. (Google will probably let it go somewhat beyond those values, but not too much beyond.)

**Happy Map Making!**