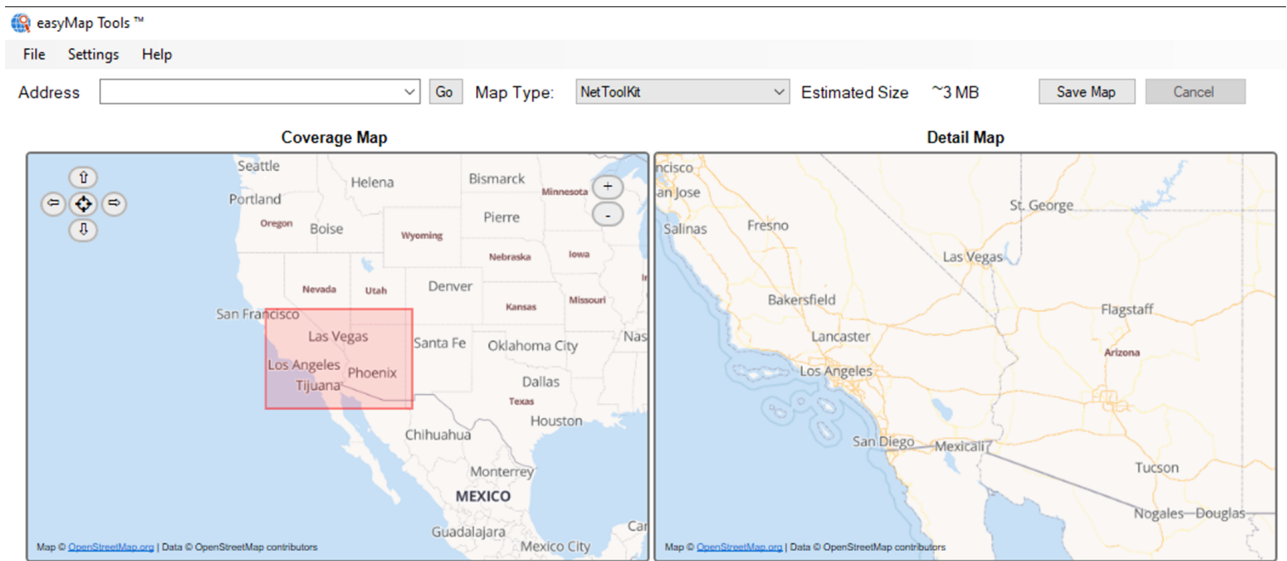


User Guide

easyMap Tools™



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NetToolKit

UPDATES

Updates, if any, can be downloaded from the Documents area of the Anritsu Website at:

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Chapter 1 — General Information

1-1 Introduction

easyMap Tools is a PC based map preparation utility for Anritsu Spectrum Analyzers with Interference Analysis (Option 25) or Coverage Mapping (Option 431) capabilities. The easyMap Tools utilities prepare geo-referenced maps and building floor plans for use by Anritsu Handheld Spectrum Analyzers. easyMap Tools provides features to:

- Convert maps and floor plans to a form suitable for use on Anritsu handheld spectrum analyzers
- Save maps by address, city, or browsing
- Insert GPS information into previously non-geo-referenced maps and set the levels of detail
- Convert bit maps to floor plans that can be displayed on the instrument

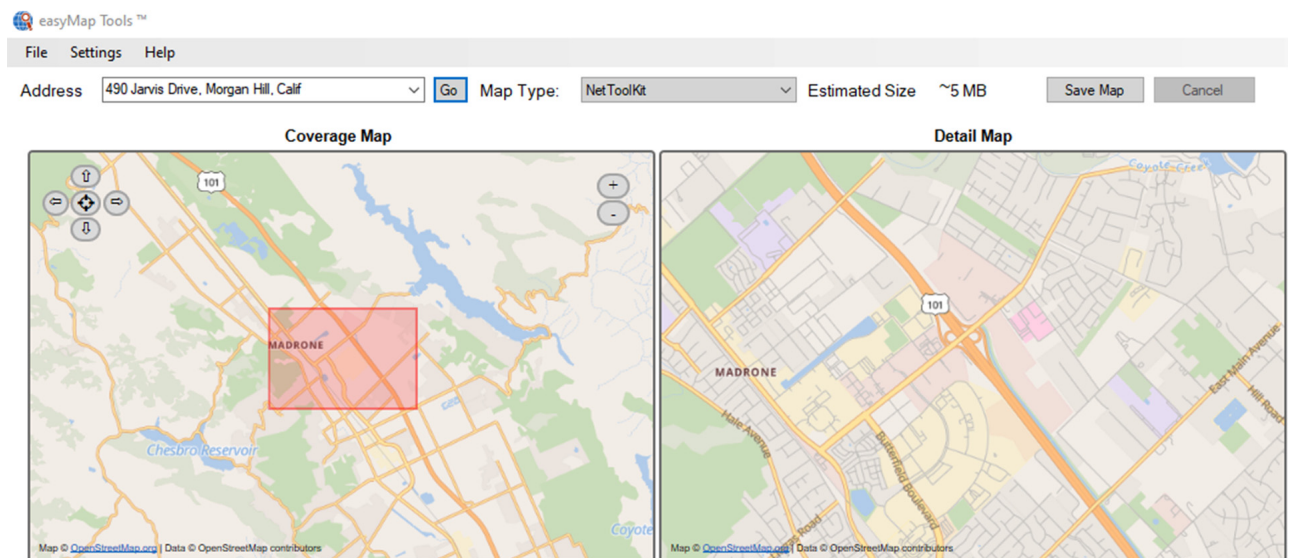


Figure 1-1. Coverage and Detail Map Screen

System Requirements

- Microsoft® Operating Systems with:
- 1 GB of RAM
- 1 GB of available hard-disk space
- Microsoft .Net Framework 3.5 SP1
- Internet Connection (required for downloading maps)

Instruments Supported by easyMap Tools

To identify the instruments supported by easyMap Tools, visit the Anritsu product page for Line Sweep Tools at: <https://www.anritsu.com/en-us/test-measurement/products/emt>

1-2 Installation

easyMap Tools is a software component of the Anritsu Tool Box download. Go to the Anritsu download library to install the latest Anritsu Tool Box software:

<https://www.anritsu.com/en-US/test-measurement/support/download>.

- If you select the Full Installer, internet access is not required while running.
- If you select the Web Installer, internet access is required while running.

Select the installation program to start the download process and follow through the several installation screens as shown in Figure 1-2.

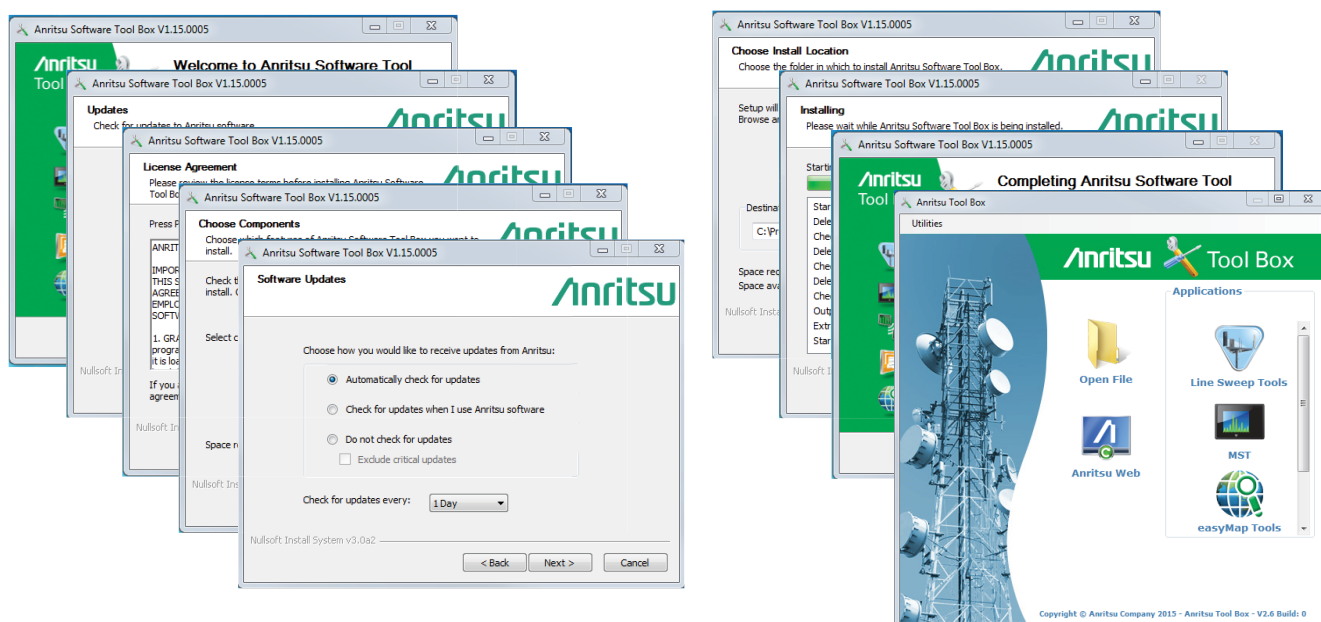


Figure 1-2. Anritsu Tool Box Installation Process

During the installation process, an instruction screen will prompt you to choose the program to download. See Figure 1-3. Select easyMap Tools. Note that you may download more programs from the Anritsu Tool Box suite. The selected program(s) will be loaded to your system tray and show as shortcut icons on your desktop.

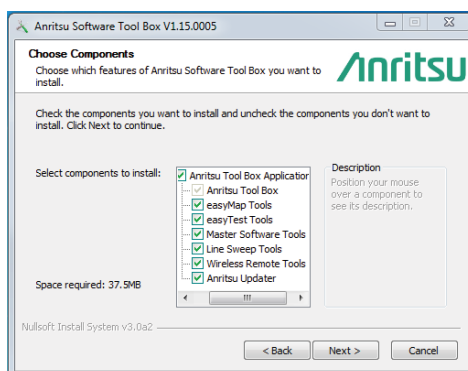


Figure 1-3. Anritsu Toolbox Program Selection Screen

Chapter 2 — User Interface

2-1 Introduction

The easyMap Tools user interface screen display provides the utilities to prepare maps for use on Anritsu handheld spectrum analyzers.

Table 2-1. easyMap Tools User Interface

	Title	Description
1	Menu Bar	Contains the File, Settings, and Help menus.
2	Map Type	easyMaps uses MapQuest and NetToolKit
3	Save Map	Saves the geo-referenced maps.
4	Detail Map	Zoomed in view of the desired area.
5	Coverage Map	The total area covered by the geo-referenced map and red Panel Marker.
6	Progress Bar	The status of the map tiles being captured and saved.
7	Address Input	The area to be covered by the geo-referenced map.

2-2 Menu Bar

The menu bar provides the File, Settings, and Help menus.

File Menu

The File menu is shown [Figure 2-1](#).

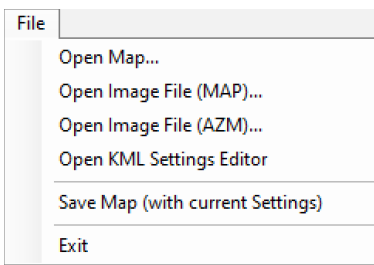
	<p>Open Map: Opens two map types. Opens (.map) Legacy Map Viewer. See Section “Map File Viewer” on page 3-1. Opens (.azm) Map File Viewer. See Section “Map File Viewer” on page 3-1.</p> <p>Open Image File (MAP): Opens an image file in the Legacy Map Viewer. Most image files will not contain GPS information. If boundaries need to be added to the image, go to Section “Setting Image Map Boundaries” on page 3-5. A single geo-referenced map panel for legacy instruments. Set the desired field of view by changing the Coverage & Detail Status/Input.</p> <p>Open Image File (AZM): This is a pan and zoom map. Multiple map panels are saved for use in an instrument that allows for pan and zoom. Use Coverage Map to set the desired largest field of view and Detail Map to set the close up view.</p> <p>Open KML Settings Editor : Opens KMLSettingsEditor to label KML points based on inequality operators and numeric values. See Section 3-3 “Open KML Settings Editor” on page 3-7.</p> <p>Save Map: Saves a map set in Coverage Map and Detail Map. There are two types of maps can be saved using easyMap Tools:</p> <p>Exit : Closes the easyMap Tools software.</p>
---	---

Figure 2-1. File Menu

Settings Menu

The Setting menu is shown in [Figure 2-2](#).

<div><div>Settings</div><div><div>Set Map Format</div><div>Set Color Filter</div><div>Register API Keys</div><div>Configure Web Proxy</div><div>Configure Base Station Geo Location</div></div></div>	<p>Set Map Format: Select an instrument map format: map for legacy instruments, .azm for the T and E series instruments.</p> <p>Save Map and AZM: This saves maps in Map format and AZM format. Because the map is saved in both formats, the saving process will be longer than saving maps in either Map format or AZM format.</p> <p>Save AZM (Pan and Zoom): File format for the BTS Master, Spectrum Master, Cell Master and LMR Master.</p> <p>Save MAP (legacy): File format used in legacy products.</p> <p>Set Color Filter: Allows you to select a color filter when saving a map:</p> <p>None: No color filter applied</p> <p>Grayscale: For viewing in bright daylight</p> <p>High Contrast: Increases the black and white contrast of the default display. This setting is used for challenging viewing conditions.</p> <p>Register MapQuest API Keys: Opens the MapQuest Register API Keys dialog to obtain and register OpenStreetMap API Key.</p> <p>Configure Web Proxy: Opens the Web Proxy Configuration dialog to set the Proxy Server manually.</p> <p>Configure Base Station Geo Location: Opens the Configure Base Station Geo Location window.</p>
---	---

Figure 2-2. Settings Menu

Help Menu

The Help Menu is shown in [Figure 2-3](#).

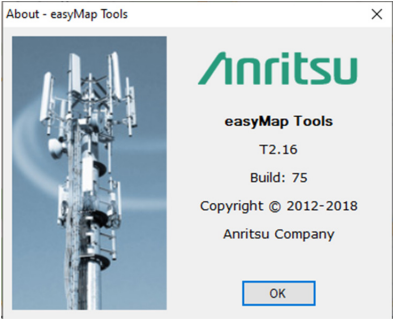
<div><div>Help</div><div><div>Contents</div><div>Check for Updates</div><div>About</div></div></div>	<p>Contents: Opens easyMap Tools Help.</p> <p>Check for Updates: Checks the Anritsu Website for software updates.</p> <p>About: easyMap Tools dialog that displays the software version and copyright date as shown below.</p> <div></div>
--	---

Figure 2-3. Help Menu

Chapter 3 — Generating Maps

3-1 Introduction

easyMap Tools is a utility to create, view, and save maps. Geo-referenced saved files are viewed with Legacy Map Viewer .map files, or Map File Viewer .azm files.

3-2 Creating a Map

easyMap Tools uses NetToolKit and MapQuest as the map source vendors to create and save maps. OpenStreetMap map is provided by MapQuest and NetToolKit.

Map File Viewer

Map File Viewer allows you to view individual tiles with their geo-reference information that create the .azm file.

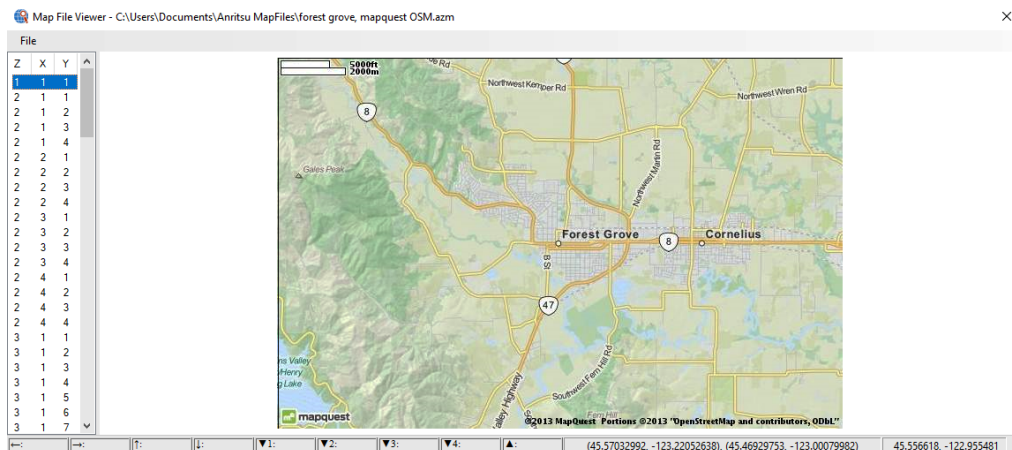


Figure 3-1. Map File Viewer

Before saving Open Map, use the “[Settings Menu](#)” on [page 2-2](#) to set the color filter for the desired map appearance.

1. Click **File** menu.
2. Click **Open Map...**
3. Select a file with the .azm extension. The map opens in the Map File Viewer.

Legacy Map Viewer

The Legacy Map Viewer allows you to edit or add boundaries to a saved map.

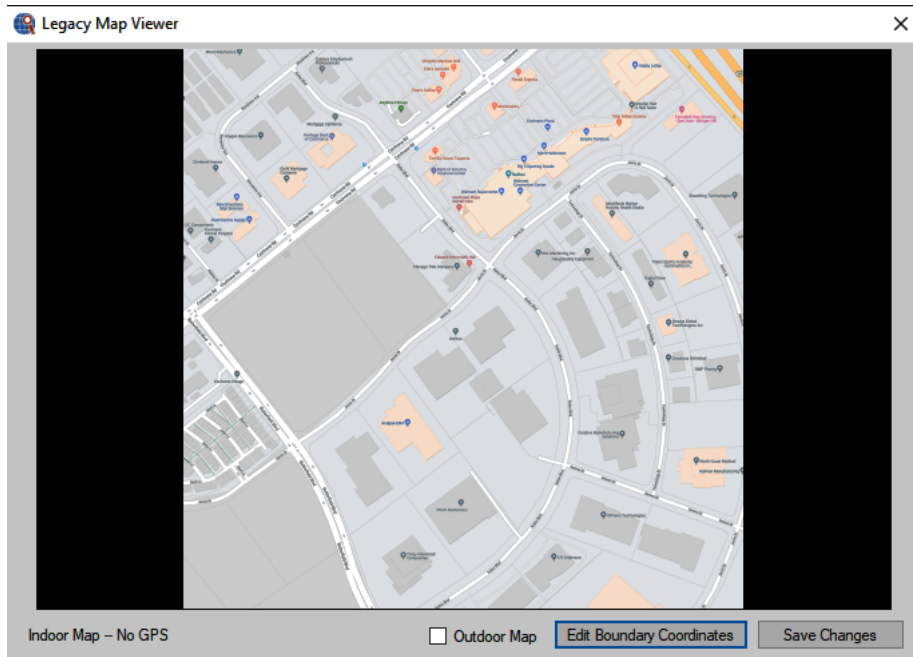


Figure 3-2. Legacy Map Viewer

Before using Open Map, use the [“Settings Menu” on page 2-2](#) to set the color filter for the desired map appearance.

1. Click **File** menu.
2. Click **Open Map...**
3. Select a file with the .map extension. The map opens in the Legacy Map Viewer.
4. Edit the map boundaries if desired.

Address Input

Enter the address of the location to be displayed in the Coverage Map and Detailed Map panels. Address Inputs can be entered as an address or GPS coordinates. There are two types of GPS coordinate inputs:

General Format

[Latitude][Space or Comma][Longitude]

- A minus sign (-) or a compass direction (N, E, S, W), can precede a latitude or longitude value.
- North, East values are positive.
- South, West values are negative.

Examples:

- 37.4, -120.123
- N37.4, W120.123
- 37.4 -120.123

Secondary Format

[Latitude][Compass Direction][Longitude][Compass Direction]

Examples using Decimals:

- 38.959390N95.26548W
- 38S95.1E

Examples using Degree Minute Second (DMS) Notation:

- The symbols °, ', " are optional. If symbols are not used, Degree, Minute, and Second must be separated by a space.
- Degrees and minutes must be integers (no decimal).
- Seconds may have decimal digits.
- A single comma separating Latitude and Longitude is mandatory. Without this comma, many street addresses could incorrectly qualify as DMS notation.
 - 38°57'33.804"N, 95°15'55.739"W
 - S38°57' 33.804", E95 ° 15 ' 55 "
 - 38 57 33.804 N, 95 15 55.739 W

Estimated Size

The value shown is an estimate of the file size of the map that will be saved. The larger the map sizes, the longer the saving process. Depending on the instrument used, large maps may need to reside on memory stick and connected to the instrument while interference mapping.

Saving Map

This button and the Save Map command in the File menu begin the process of saving a map. Press the Cancel button to stop the saving process. The larger the map sizes, the longer the saving process. Depending on the instrument used, large maps may need to reside on a memory stick and connected to the instrument while interference mapping.

Note

If a Base Station Geo Location List file was added to the map, it will be saved with the map file at this time.

Coverage map

The Coverage Map window has multiple functions when creating maps for legacy instruments, new instruments and image files.

- **Legacy Instruments:** Use this window for saving single map panels for legacy instruments. Set the desired field of view by changing the Coverage & Detail Status/Input. Use the mouse to drag the desired area into view.
- **T and E Series Instruments:** Use Coverage Map to set the desired largest field of view when saving an .azm map. A rectangle in this window represents the map displayed in the Detail Map window. Use the mouse to drag the desired area into view.

Panel Marker

The red rectangle boundary over the map that designates the single map panel displayed in Detail Map.

Detail Map

Use this window panel to set a close-up field of view for the .azm map to be saved. This view will be the most detailed level of the azm. map. Set the desired field of view using the Pan & Zoom Tools. Pan is available for MapQuest only.

Setting Latitude and Longitude

The Edit Latitude and Longitude editor allows you to edit the latitude and longitude coordinates of the map in the Coverage Map window. Map boundaries in the Coverage Map window are dynamic. Dragging the map or moving to a new location changes the boundaries to the last area viewed. The units are in degrees.

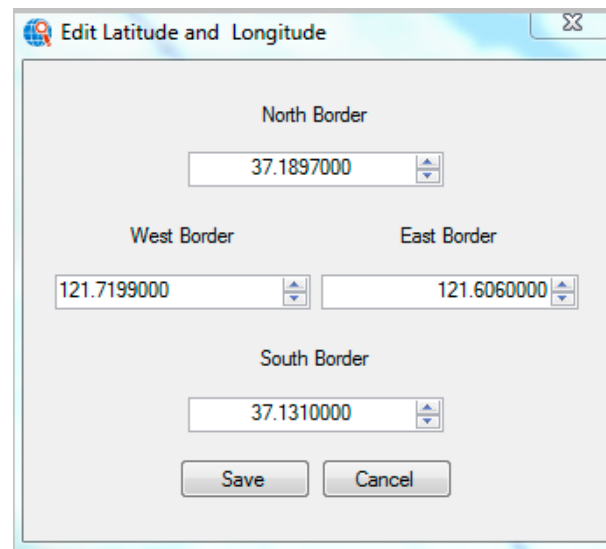


Figure 3-3. Edit Latitude and Longitude

Setting Image Map Boundaries

1. Open the **File** Menu.
2. Click **Open Image File...**
 - The Open dialog opens and displays a list of image files.
3. Select the desired image file and press **Open**.
 - The image file is displayed in the Legacy Map Viewer.
4. Check the Outdoor Map box for maps created outdoors. Uncheck the Outdoor Map box for maps created indoors.
5. Press **Edit Boundary Coordinates**.
 - The Edit Latitude and Longitude dialog opens.
6. Enter the latitude and longitude coordinates.
 - For acceptable types of coordinate inputs, refer to [Section “Address Input” on page 3-3](#).
7. Press **Save**.
 - The Edit Latitude and Longitude dialog closes.
8. Press **Save Changes**.
 - The Save As dialog opens.
9. Enter a name for the map with new boundary coordinates.
10. Press **Save**.
11. Press the close button at the top right corner of the Legacy Map Viewer dialog.

Coverage Map Setup

1. Enter the desired location’s address in the Address Input box.
2. Press **Go**.
3. Set the depth of view for Coverage Map and Detail Map using the Pan and Zoom Tools within each map.
4. Center the desired location in Coverage Map by placing the mouse cursor in Coverage Map, holding down the left mouse button, then dragging the map.
5. Set the desired view of the Detail Map by moving the red Panel Marker in Coverage Map or grabbing and dragging Detail Map moving to the desired location. (MapQuest only)
6. Select Settings.
7. Select the Map Format.
8. Click one of the three save formats:
 - Save MAP and AZM
 - Save AZM (Pan and Zoom)
 - Save MAP (legacy)
9. Select Color Filter.
10. Click one of the color filters or leave it at the default None:
 - Grayscale
 - High Contrast

Coverage Map and Detail Map Setup

1. Enter the desired location's address in the Address Input box.
2. Press **Go**.
3. Set the depth of view for Coverage Map and Detail Map by using the Pan and Zoom Tools within each map.
4. Center the desired location in Coverage Map.
5. Place the mouse cursor on the desired location in Coverage Map holding down the left mouse button, and then it to the center of the map.
6. Center the desired location in Detail Map. (MapQuest only)
7. Place the mouse cursor on the desired location in Detail Map, holding down the left mouse button, and then drag it to center of the map.
8. Save the map using one of the following methods. Both perform the same function.
 - Save Map Button
 - Save Map (with current Settings) (File menu command)

Note

If the size of the map to be saved is estimated to be greater than 20 MB, a warning dialog opens. To deactivate the dialog from opening in future map saves, check the box, "Hide this message in the future. (Cannot be re-enabled)."

3-3 Open KML Settings Editor

Allows the user to label stepping points of KML files downloaded from an Anritsu handheld instruments based on inequality operators and numeric values. These labeled points can include mapping types RSSI, THD, SINAD, External SINAD, SINR, BER, Mod Fid and EVM.

File Menu

Open: Click to open the directory folder containing previously saved KML files downloaded from an Anritsu handheld instrument. Highlight and click the desired file to load into the KML Settings Editor.

Help Menu

Contents: Opens this topic page.

Mapping Type

1. Press the list arrow button to list the map types available to KML including these – RSSI, THD, SINAD, External SINAD, SINR, BER, Mod Fid and EVM.
2. Click the desired map type.

Stepping Points

1. Enter a numeric value in the second column or entry window for each of the five labels.
2. For each of the five labels, click the list button and select one of the four inequality operators.
3. Press the Update button to write the changes to the currently open KML file and saved.

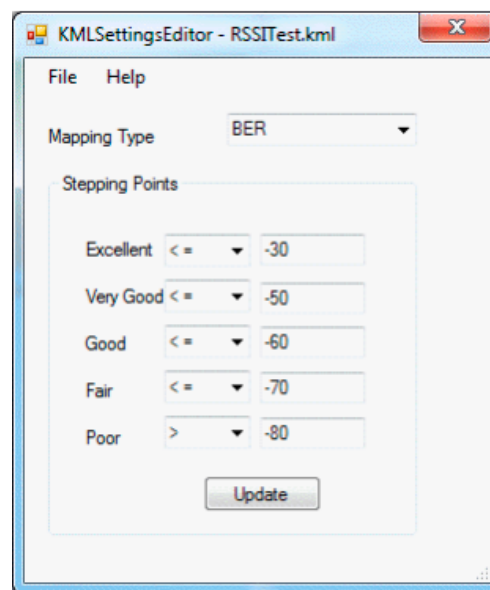


Figure 3-4. KML Settings Editor

Set Map Format

Set Map Format allows you to save a map format by selecting:

- **Save MAP & AZM:** This saves maps in Map format and AZM format. Because the map is saved in both formats, the saving process will be longer than saving maps in either Map format or AZM format.
- **Save AZM (Pan and Zoom):** File format for the BTS Master, Spectrum Master, Cell Master and LMR Master.
- **Save MAP (legacy):** File format used in legacy products.

When you click **Save Map** command in the File menu or press the **Save Map** button on the easyMap Tools window, the map format selected will be used to create the map and then saved.

Note

If a Base Station Geo Location List file was added to the map, it will be saved with the map file at this time.

Chapter 4 — Configuring a Web Proxy

4-1 Web Proxy Configuration

To configure the Web Proxy:

1. Click **Settings** on the Menu Bar.
2. Click **Configure Web Proxy** to open the dialog shown below in [Figure 4-1](#).

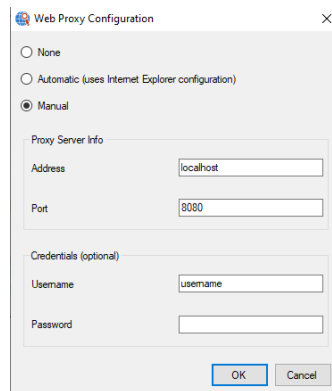


Figure 4-1. Web Proxy Configuration Dialog

3. Select one of the following options:
 - **None:** Automatic is the default setting. If you are not using a web proxy and problems occur, then select None.
 - **Automatic (uses Internet Explorer configuration):** This is the default setting. Will automatically set the settings for the Web Proxy server.
 - **Manual:** Some businesses require specific web proxy information. In this case, setup the Proxy Server Info and Credentials (optional) as required. Consult your IT when setting the web proxy manually.

4-2 Base Station Geo Location Configuration

Adding a geo location file to an AZM map file.

1. Click **Configure Base Station Geo Location** in the Settings menu to open the dialog [Figure 4-2](#).

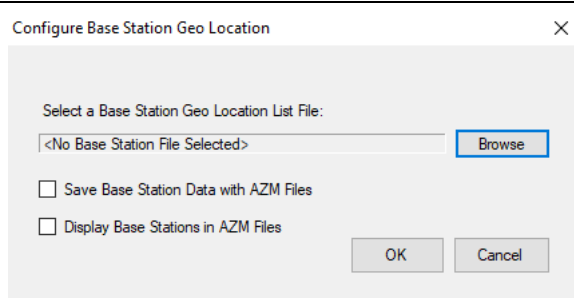


Figure 4-2. Configure Base Configuration Dialog

2. Click **Browse** button to load the desired Base Station Geo Location File into easyMap tools.
3. Check the box next to Save Base Station Data with AZM files.
 - When this box is checked the Base Station Geo Location List File is loaded into the AZM map file.

Base Station Geo Location File

The purpose of a Base Station Geo Location File is to display a known base station in a geo-enabled map when running Interference Mapping on an Anritsu Handheld Instrument.

The Base Station Geo Location File contains various information specific to a particular base station. This information includes:

- Type
- Base station's Latitude and Longitude
- Site Name and four additional labels that further describe the base station.

These will be displayed in the first row of the file as column headers. "Type" color codes the base station icon and labels. Only four "Types" are supported – 0: red, 1: green, 2: blue and 3: black.

The file format is tab-delimited also known as tab-separated values (TSV). "Site Name" and the four other column labels will be the button labels on the instrument. This TSV file can be created and edited with a simple text editor such as Notepad. Also, files created in a spreadsheet such as Excel need to be exported to the TSV file format. Below is an image of a sample TSV Base Station Geo Location file.

Note

There is a limit to the number of label characters on the instrument. "Site Name" will be truncated to 18 characters and the three IDx labels will be truncated to 32 characters.

Type	Latitude	Longitude	Site Name	BTS ID1	BTS ID2	BTS ID3	BTS ID4
0	37.14856667	-121.6683444	Madrone	Terry	Tom	Jonathan	Jeff
1	37.126575	-121.6534778	Downtown	Tony	Chris	Dave	Steve
2	37.19154167	-121.7090417	Coyote	John	Greg	Nick	Eric
3	37.13222222	-121.6207389	San Pedro	Terry	Tom	Jonathan	Jeff

Figure 4-3. TSV Base Station Geo Location

easyMap Tools imports the content of the file and places it into the correct map tile of the AZM file.

4-3 API Keys

Using MapQuest: An API key registration is required. The MapQuest zoom level control is restricted.

Using NetToolKit: Does not require an API key registration. The NetToolKit zoom level is not restricted.

Registering API Keys for MapQuest

API keys are obtained from MapQuest. To fully utilize easyMap, a Registration Key, also called an API key is required. Without an API key, easyMap allows you to create maps up to three zoom levels. API key registration is required for unrestricted zoom levels. However, with an API key, easyMap allows you to create maps up to seven zoom levels. This allows great detail at the tightest zoom levels, yet can cover a large geographic area.

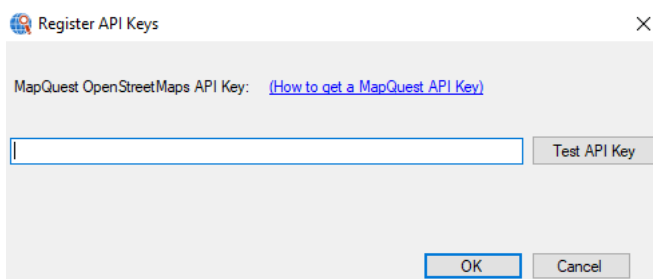


Figure 4-4. Register API Keys Dialog

The warning dialog shown in [Figure 4-5](#) will pop up if the depth between Coverage Map and Detail Map is excessive. Click Capture at Trial Depth button that provides a capture maps with three levels of zoom.

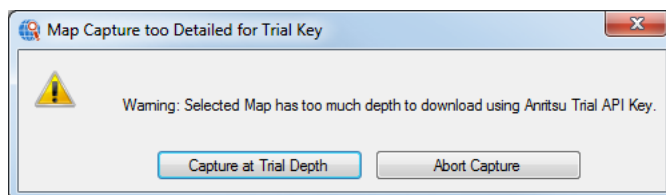


Figure 4-5. Map Capture Error Message

MapQuest API Key

To obtain a MapQuest API Key, follow the list of instructions below.

1. Set up a MapQuest account if you don't currently have one.
2. Go to: <https://developer.mapquest.com/>
3. Follow the MapQuest instructions to obtain an API key.

Entering the API Key

1. After obtaining the API key, enter it into easyMap.
2. Open easyMap v2.0 or above
3. Click **Register API Keys** in the Settings menu. The Register API Key dialog opens.
4. Enter the API key in the API Key box.
5. To check if the key entered is valid, press the **Test API Key** adjacent to the entry box. It may take up to 1 hour to activate your API Key.

Download and save maps of several zoom levels. Maps can be large and can easily be over a Gigabyte, as each zoom level has twice the number of tiles (elemental maps) as the level above it.



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