



# inSSIDer User Guide

metageek

# inSSIDer

Free Wi-Fi Scanning Software for Windows

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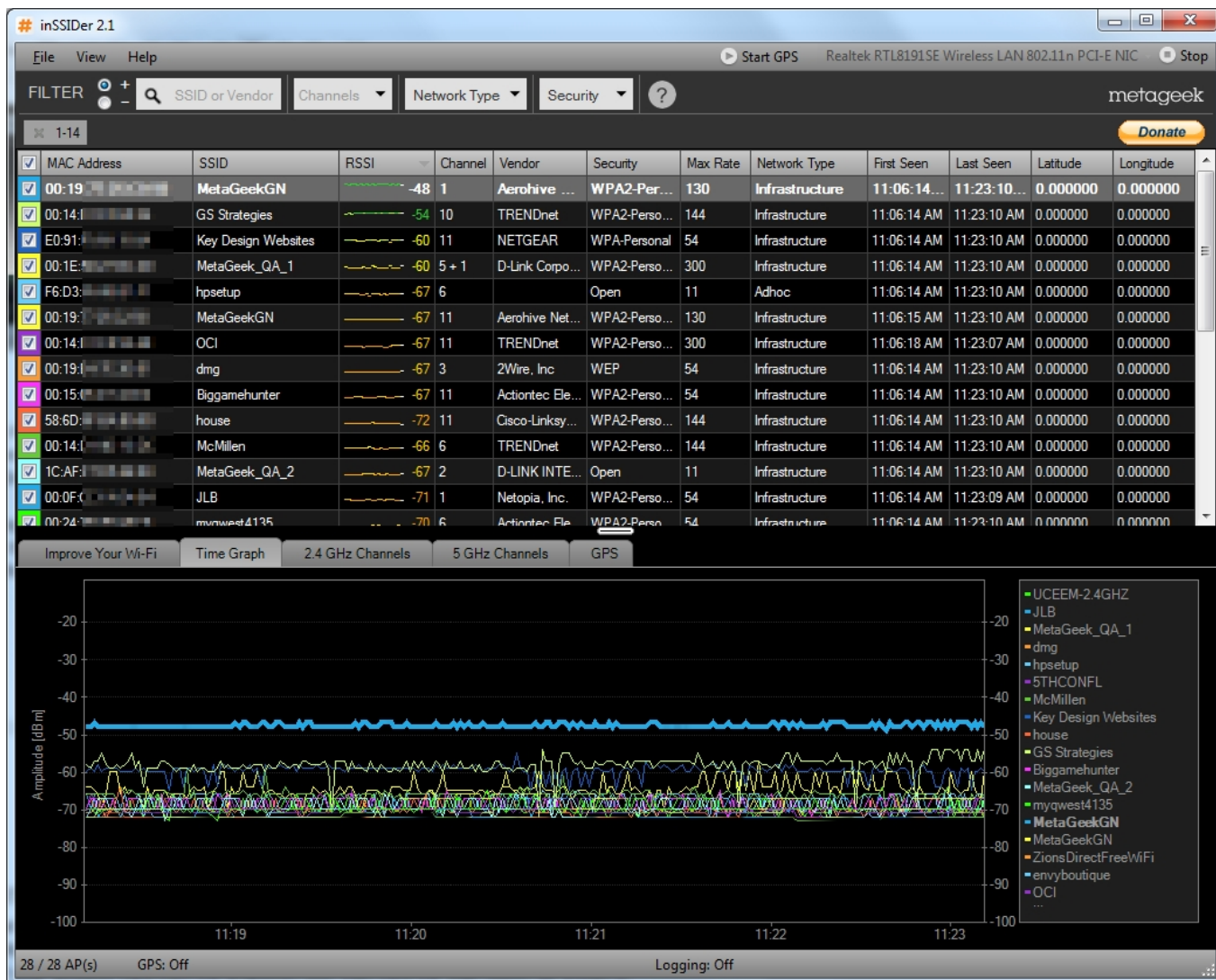
# Introduction

## Overview

inSSIDer was created by MetaGeek, a company that specializes in RF visualization. inSSIDer is a free, open source Wi-Fi scanner that tracks the SSID (network names), RSSI (signal strength), security, and other settings of nearby access points. This information is then displayed in an informative, easy to understand graphical form.



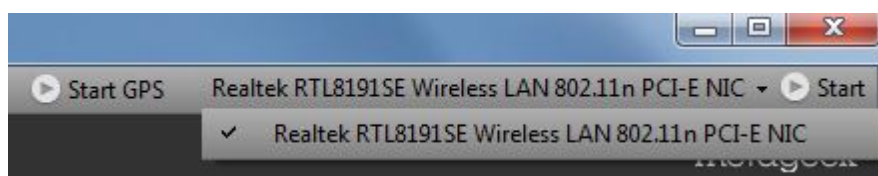
inSSIDer's table lists out each SSID as a new row with its details in the columns. SSIDs with a checked box will be drawn in the Time Graph below. Selecting a row will bold the SSIDs line in the Time Graph.



inSSIDer logs the RSSI, Security, Channel, Hardware Vendor, Max Rate, Network Type and MAC address in the columns of the table. Each column in the table can be reordered by dragging its header to the desired position. The table can be resorted by the columns if the header is clicked.

## Getting Started

Ensure that your wireless network interface card/adapter is selected in the top right. inSSIDer pulls the information it displays from the data that your wireless card/adapter receives. To do this, select your wireless card from the dropdown box, then click the Start button as shown in this image:



# Networks Table

The Networks Table in inSSIDer displays nearby access points. When you open inSSIDer, it will have all networks selected by default. Check and uncheck the boxes on the left to select the networks you are interested in. Access Points with their boxes checked will be drawn in the Time Graph below.

Selecting a row will bold the Access Point's corresponding line in the Time Graph below.

The Networks Table shows RSSI, Security, Channel, Hardware Vendor, Max Rate, Network Type, and MAC Address.

Each column in the table can be reordered by dragging its header to the desired position.

The table can also be resorted by clicking the header of any column.

## Network Table Data Columns

**MAC Address** – This is a unique identifier for a wireless network. In an infrastructure network, this will be the radio's MAC Address. In an Ad-Hoc environment, this will be a pseudo-randomly generated MAC Address.

**SSID** – Abbreviation of "Service Set Identifier", which is the name an 802.11 wireless network uses to identify itself.

**RSSI** – Abbreviation of "Received Signal Strength Indication", which is the amplitude level of the wireless network as seen by a computer's wireless card. inSSIDer represents RSSI in dBm's. The following will help you in determining what is a good RSSI and a poor RSSI:

**Channel** – Each wireless network operates on a specific Wi-Fi channel. Channels 1-14 are in the 2.4 GHz frequency range, while channels 30-160 are in the 5 GHz range. inSSIDer may display two numbers in the channel column, which indicates that a network is using "channel bonding".

[Learn more about channel bonding.](#)

**Vendor** – inSSIDer will display the hardware vendor of an Access Point, if available.

**Max Rate** – The maximum rate, or data throughput (displayed in Mbps) that each Access Point is capable of.

It does not indicate the data rate of your connection.

**Security** – inSSIDer will list the following security settings: Open, WEP, WPA Personal, WPA-Enterprise, WPA2-Personal, WPA2-Enterprise, Wi-Fi Protected Setup, or Open (No Security). [Learn more about wireless security.](#)

**Network Type** – There are two different types of networks which inSSIDer identifies. Infrastructure networks are access points which facilitate communication between clients. Ad-Hoc or independent networks are clients operating in a wireless network without an access point.

Quality	dBm
Excellent	>-51
	-53
	-55
	-57
	-59
Good	-61
	-63
	-65
	-67
	-69
Fair	-71
	-73
	-75
	-77
	-79
Poor	-81
	-83
	-85
	-87
	-89
Very Poor	-91
	-93
	-95
	-97
	-99
No Signal	-101
	-103
	-105
	-107
	-109
	-111
	<-113

## Hidden SSIDs

Some Wireless networks may hide or cloak their name. While the name may be invisible to inSSIDer, the MAC address and table information are still available for inSSIDer to track.

## What is inSSIDer graphing?

One of the main features of inSSIDer is its ability to graph signal strength (RSSI) over time (located under the "Time Graph" tab). This type of information is useful when it comes to tracking AP's in your location. Not only does inSSIDer track this information, but others as well which are listed in the Network Table.

## Time Graph

inSSIDer will track the RSSI of your checked networks in the time graph below the networks table. To track multiple networks, check more boxes in the networks table. The vertical axis is RSSI amplitude (measured in dBm), and the horizontal axis is system time. A consistently high RSSI line graph indicates a wireless network within close proximity to you. In other words, the higher the line, the closer the network.

## Channel View

inSSIDer allows you to view activity on both 2.4 and 5 GHz channels. These views can be navigated to by clicking their respective tabs.

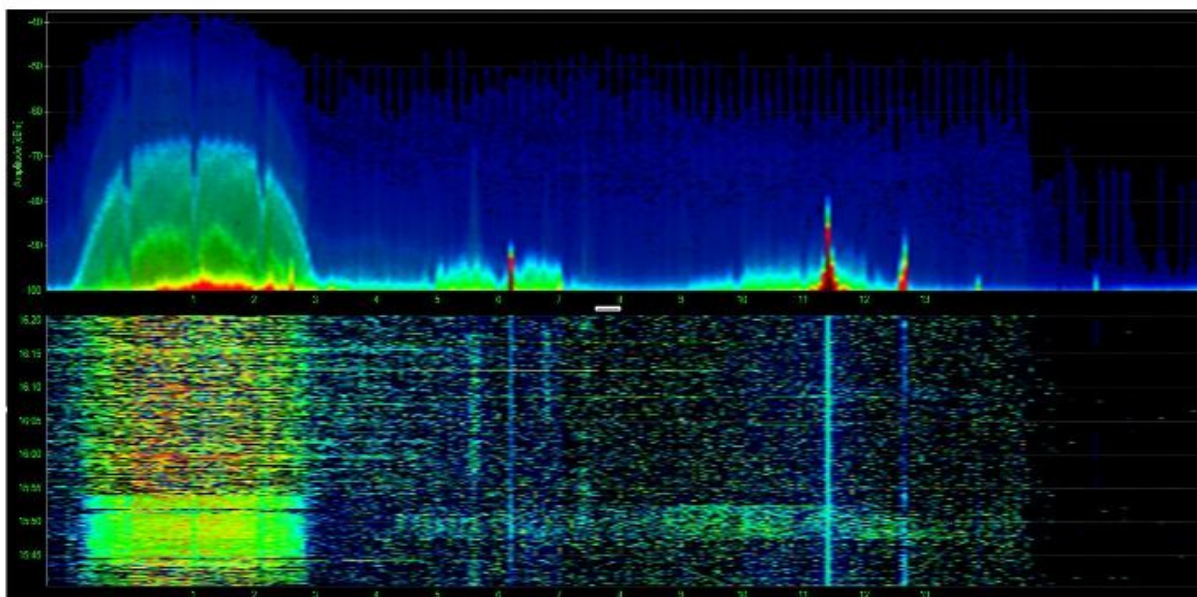
As you select more boxes in the networks table, inSSIDer will display the AP's above the channel that they are broadcasting on. They will be displayed as follows:

Lines: The line style in the channel graph denotes encryption level.

- **Dotted Line** = No Encryption
- **Dashed Line** = WEP
- **Solid Line** = WPA

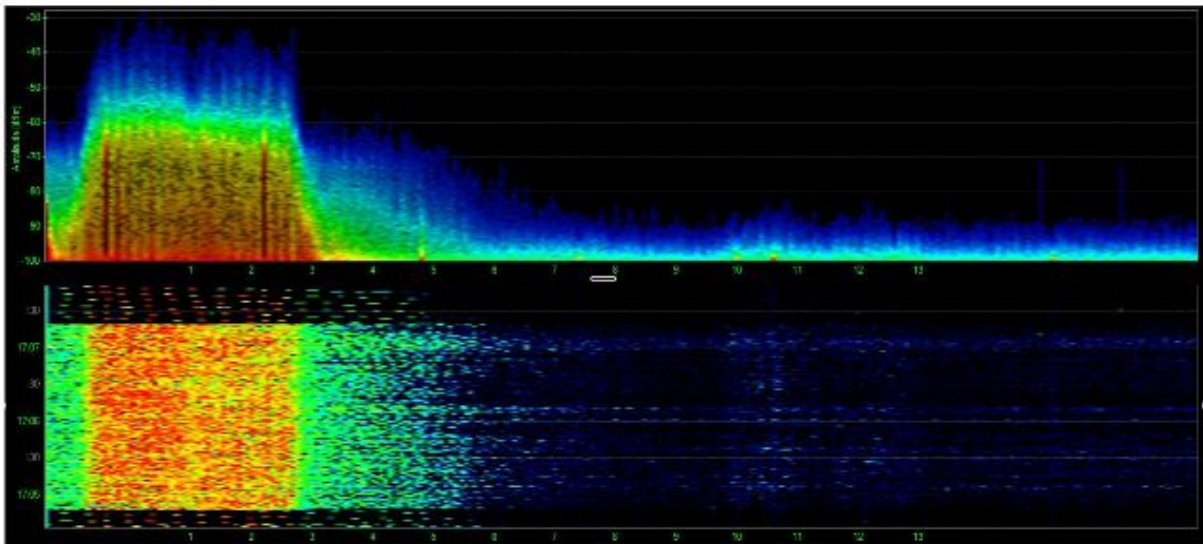
Shapes: The shape denotes modulation types in the 2.4ghz band.

- **Flat Top:** Any WLAN with a maximum rate of 12 or greater will be drawn with a flat top. This represents access points that can support ERP-OFDM.
- **Curved Top:** Rates 1, 2, 5.5 and 11 will be drawn with a curve. This represents the HR-DSSS BPSK (High-Rate Direct Sequence Spread Spectrum). In other words, this is the pattern that a 802.11b signal will make in 2.4GHz spectrum.



The above image capture from Chanalyzer Pro shows HR-DSSS BPSK (802.11b) as a "hill shaped" area centered at Channel 1.



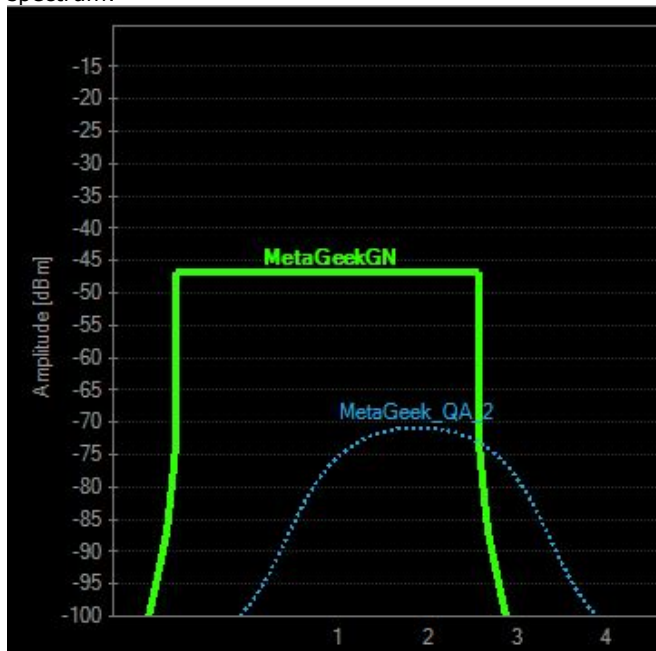


The above image shows ERP-OFDM (802.11g), recognizable by its “flat top” shape with a little bit of a “v” in the center.

### *Why is 802.11b/g more round than just 802.11g?*

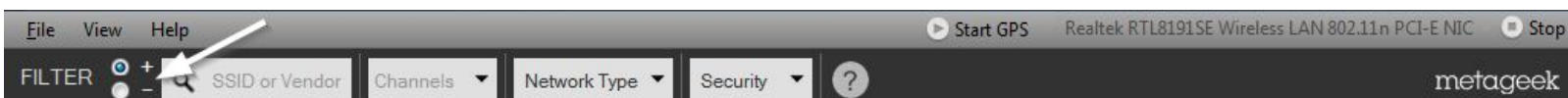
The more curved appearance of BPSK/HRDSSS (B-speed) networks is due to communication with legacy hardware at speeds of 1, 2, 5, and 11 Mbps. The manner by which these frames are sent are what cause the more rounded shape. In a strictly ERP-OFDM (G-speed) network, these legacy speeds are disabled. This causes the flat top in the capture.

This image illustrates how inSSIDer’s network drawings are informed by their real appearance in the Wi-Fi spectrum:



# Filters

A cool feature of inSSIDer is its ability to show you only the things you want to see. This is done by using the filter bar, which is located at the top of the inSSIDer window.



These filters let you narrow down on the networks which are displayed. You can filter by SSID, vendor, channels, network type, and security. This can be very useful if you are in an area with dozens of AP's and you only want to view ones on a specific channel, or whose names contain certain letters. Whether you are only using one filter or several filters at once, you will only see what you want to see.

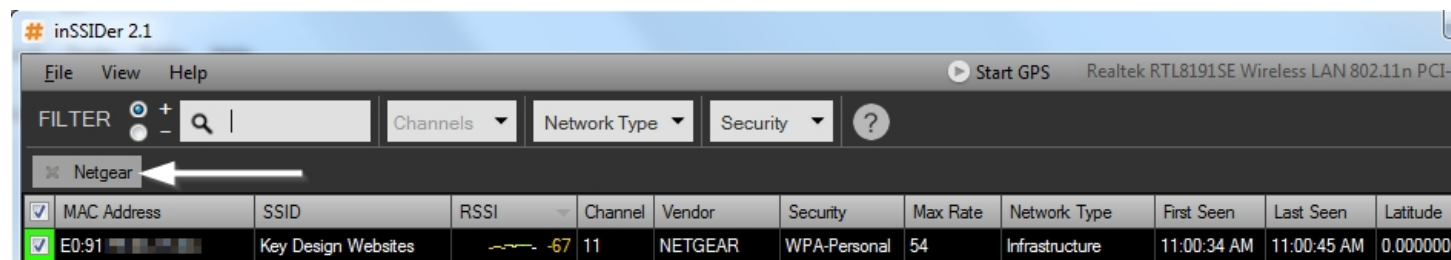
## How to Use Filters

### Display Options

Using filters is extremely easy, and your options vary depending on what information you are interested in. There are two options for filtering information inSSIDer: the plus (+), and minus (-). When the "+" option is selected, inSSIDer will show only the access points who meet the criteria you have chosen. The "-" option will do exactly the opposite-- it will hide the AP's that match the criteria.

### Filter by SSID/Vendor

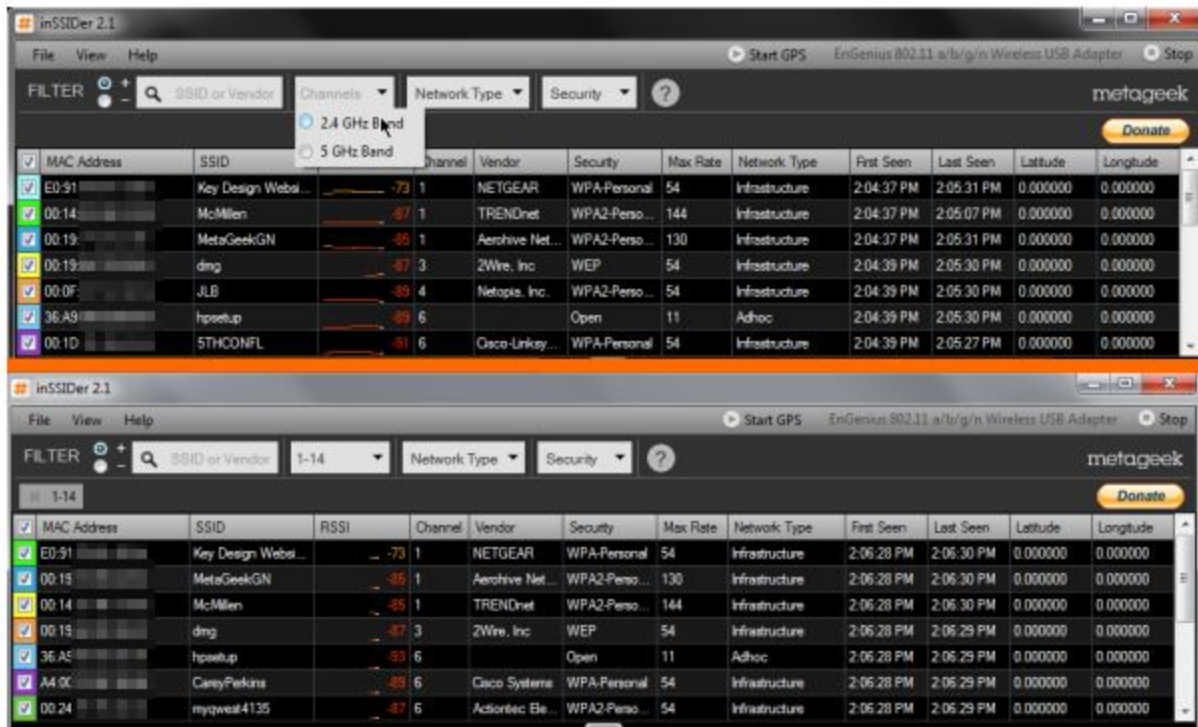
In order to filter by SSID, simply type in the name of the name of the AP or the Vendor you want to view and press enter. The following is an example where inSSIDer is filtering by the vendor "Netgear."



### Filter by Channel

Another option is to filter by Channel. When it comes to this, you have two options. Option 1 is that you can click the arrow to the drop-down menu which will allow you to choose between 2.4 GHz and 5 GHz channels. The channels in the 2.4 GHz spectrum range from 1 to 14, and 5 GHz channels range from 36 to 165. The following screenshot is selecting the 2.4 GHz channels



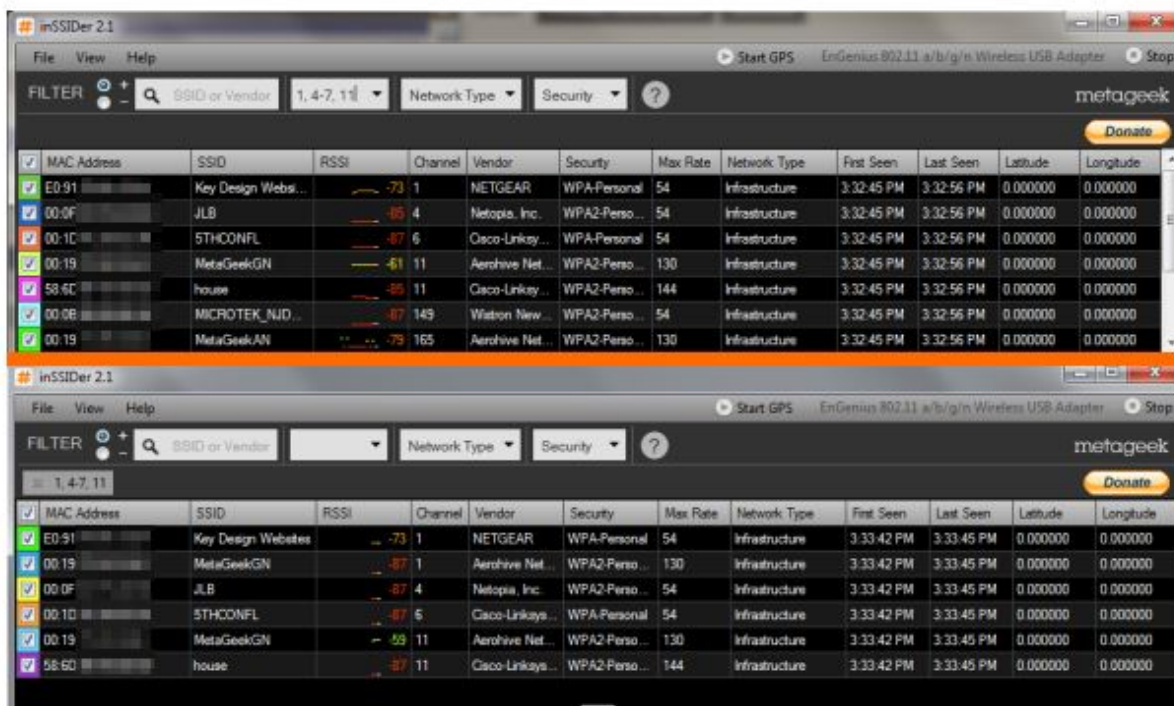


Filtering by channel is another option inSSIDer offers.

The follow operands can be used:

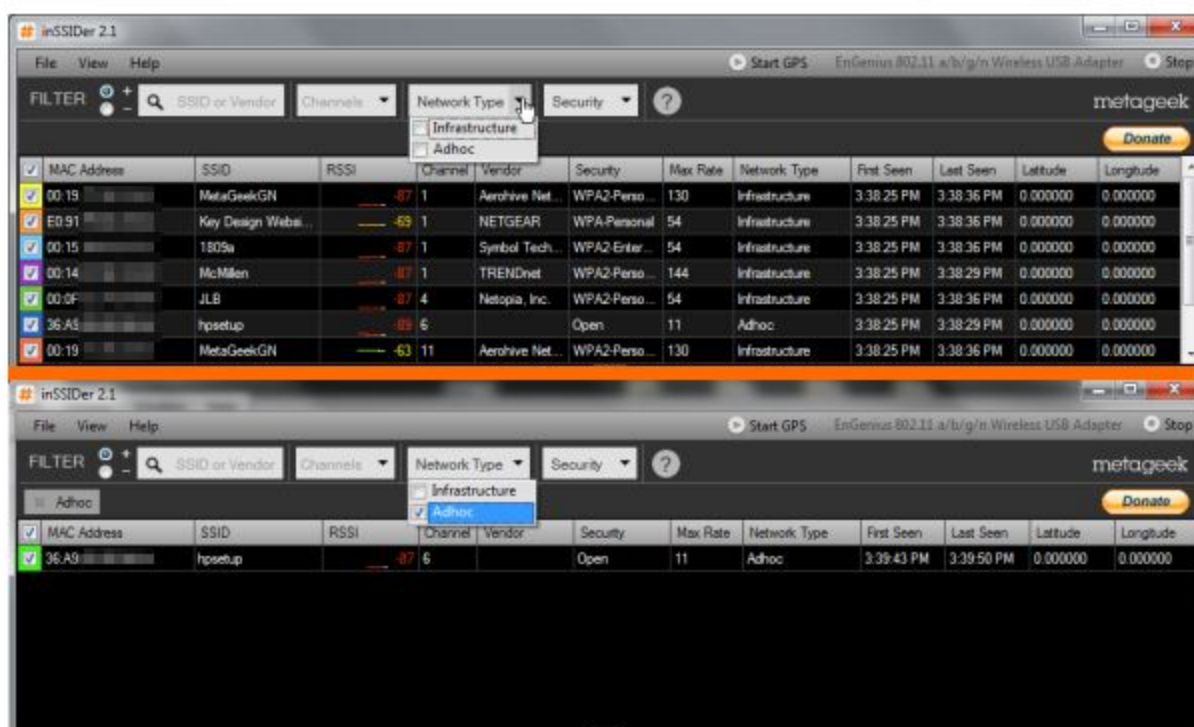
- “-” will filter a range of channels. For example, “1-6” will show channels 1 to 6.
- “,” will allow you to enter multiple single channels to view. For example, “1, 4, 6, 9” will show channels 1, 4, 6, and 9.
- The two above options can be combined. For example, “1, 4-7, 11” will show channels 1, 4, 5, 6, 7, and 11.

The following screenshot is filtering by the channels 1, 4-7, and 11.



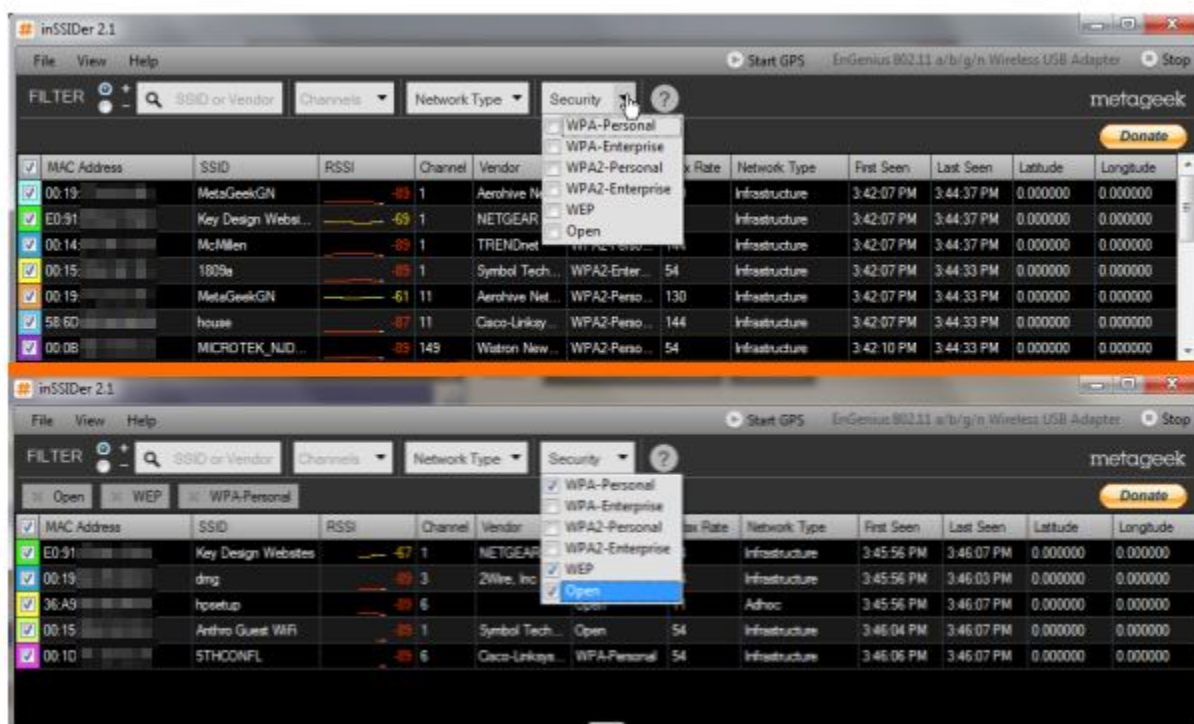
## Filter by Network Type

Clicking the menu will display a drop-down menu where you can select the "Infrastructure" network type and/or "Adhoc" network type. The following image is filtering by Adhoc.



## Filter by Security

Here you can filter between different security types. Clicking the menu will display a drop-down menu where you can select between the WPA-Personal, WPA-Enterprise, WPA2-Personal, WPA2-Enterprise, WEP, or Open securities. You can select more than one of these options. The following image is filtering by WPA-Personal, WEP, and Open security types.



## GPS

inSSIDer is capable of working along with a GPS unit to track your location as you walk about your location tracking AP's. GPS information is displayed in the network table by the columns "Latitude" and "Longitude."

## Setting up a GPS

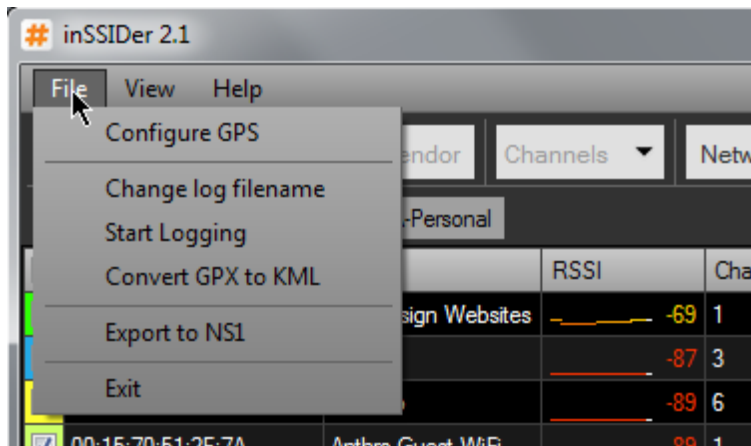
First ensure that your GPS device is compatible with inSSIDer. A list of compatible units can be found on our forum at <http://www.metageek.net/forums/showthread.php?3535-Compatible-GPS-devices>

Further instructions can be found at <http://www.youtube.com/watch?v=39jrKvhojs8>

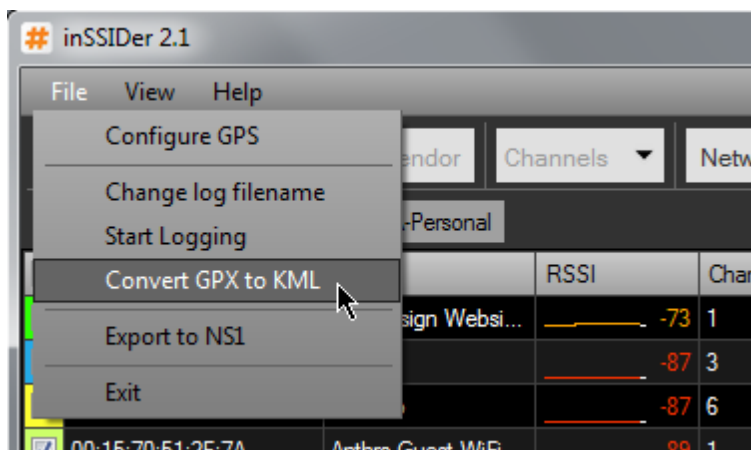
## Convert GPS to KML

GPS data collected in inSSIDer can be exported to KML for use in GPS applications like Google Earth. This process is covered in the above video, though the process does look slightly different in newer versions of inSSIDer. The first-time conversion steps are as follows:

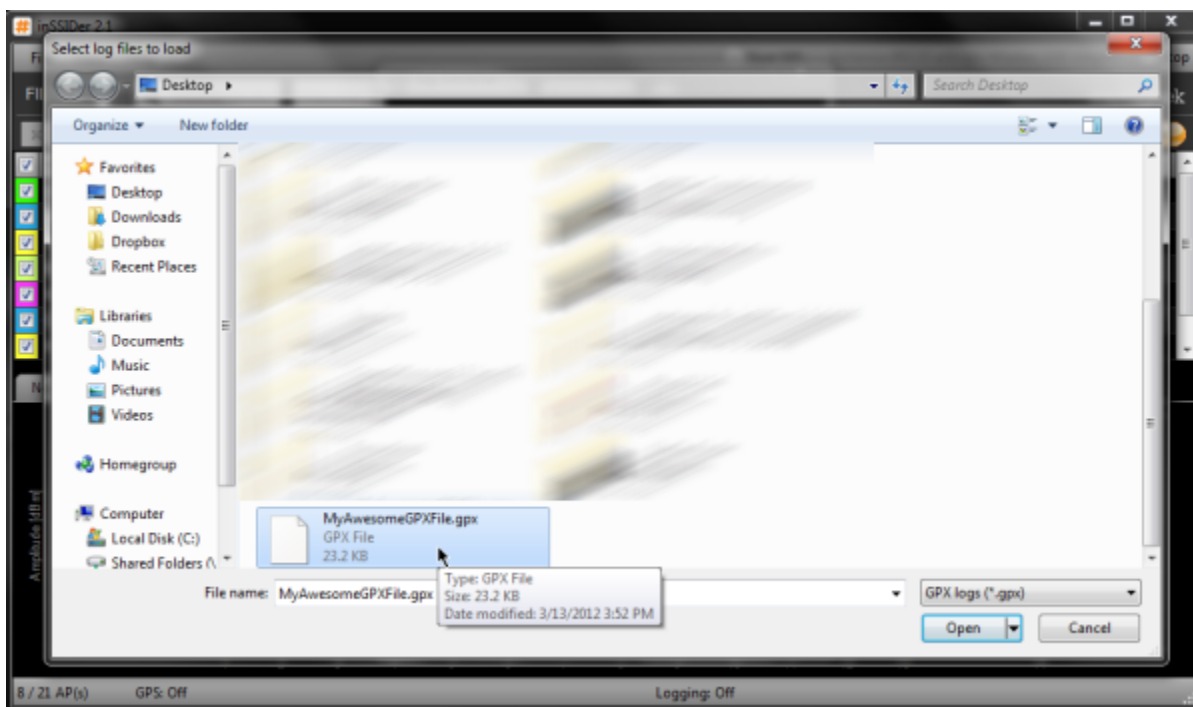
1. Click File



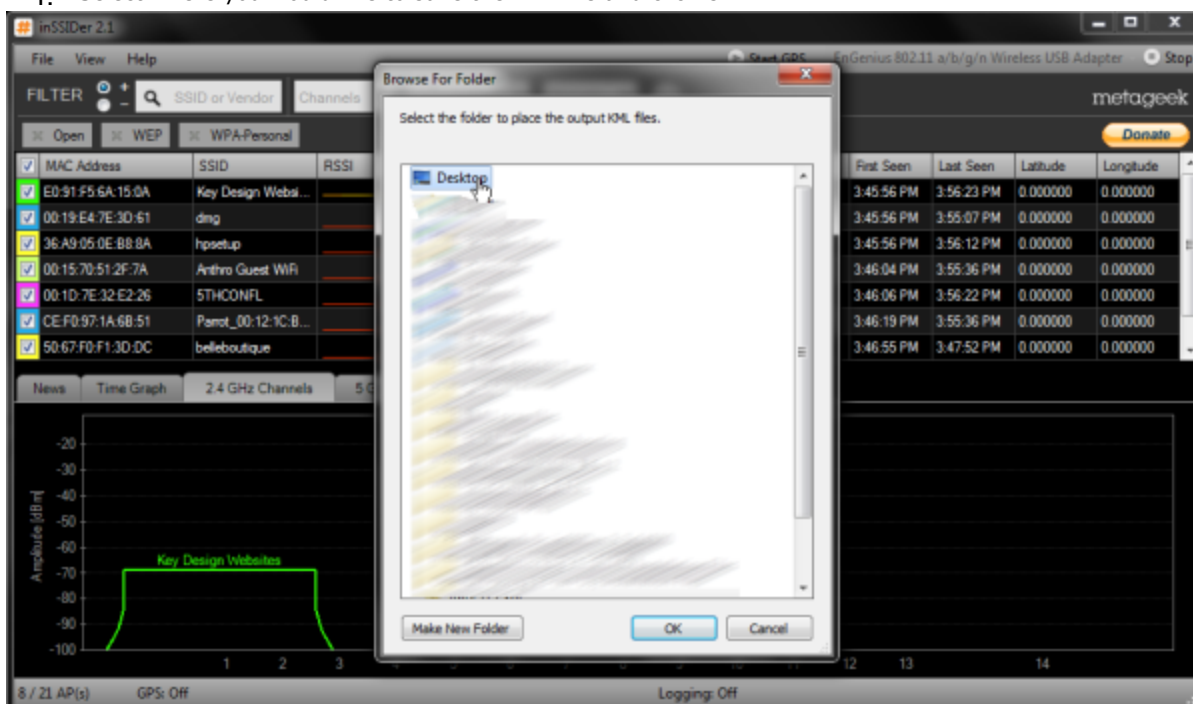
2. Click "Convert GPX to KML"



3. Select your GPX file

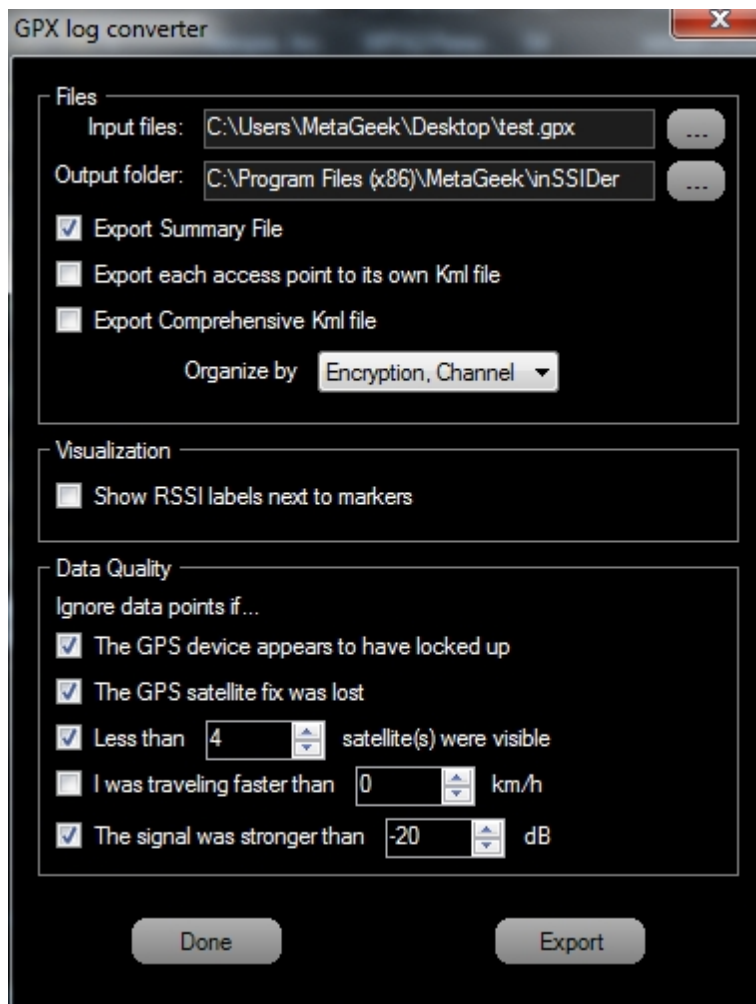


4. Select where you would like to save the KML file and click OK

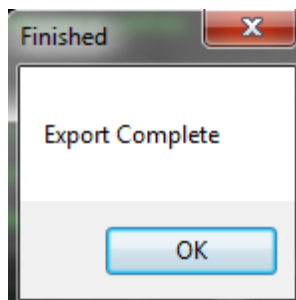


5. A new window will appear. Select the options you want and click Export





6. Ensure that the export was completed



7. Click OK, then Done

For future occasions when you convert from GPX to KML, you will be presented with the log converter window from Step 5 above. In this window, you must select the new GPX file you wish to export and a new destination path (if desired). See the image below:





## Useful Links

MetaGeek Website: <http://www.metageek.net/>

MetaGeek Blog: <http://www.metageek.net/blog/>

MetaGeek Forums: <http://www.metageek.net/forums/>

HowToGeek's tutorial on how to change Your Wi-Fi Router Channel to Optimize Your Wireless Signal : <http://goo.gl/2j9e>

How to enable WLAN AutoConfig Service:

<http://goo.gl/QWiaa>