

# inSSIDer Office User Guide



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# Overview

inSSIDer Office is a Wi-Fi optimization and troubleshooting tool. It scans for wireless networks with your Wi-Fi adapter, so you can visualize their signal strengths, and what channels they are using. It also lists a lot of useful information about each network.

inSSIDer Office also listens for raw radio frequency activity with your Wi-Spy Mini, which is a special device called a "spectrum analyzer". This helps us see how busy each channel really is (not just how many networks are on a channel).

The Wi-Fi adapter gives us information about nearby wireless networks, while the Wi-Spy Mini gives us information about channel activity and interference.

inSSIDer Office is great for:

- Picking the best channel for your access point
- Performing channel-planning on a multi-AP network
- Avoiding interference
- Measuring channel use (utilization)
- Performing coverage checks
- Optimizing wireless networks

# Spectrum Analysis with Wi-Spy Mini

Wi-Spy Mini supplements your Wi-Fi adapter with spectrum analysis data, giving you a lot more details about is happening in your environment. [Learn more here](#).

A Wi-Spy Mini, Wi-Spy 2.4x, or Wi-Spy DBx is strongly recommended to unlock inSSIDer Office's full potential.

## Navigation

### Networks Table, Details Pane, and Networks Graph

inSSIDer Office shows information in three different ways:

<b>Networks Table</b>	Shows a list of all of the nearby wireless access points, wireless networks, or channels.
<b>Details Pane</b>	Shows details about the selected access point, wireless network, or channel. Click on a line item in the Networks Table to reveal the associated Details Pane.
<b>Networks Graph</b>	Shows a graphical representation of nearby wireless networks, what their signal strengths are, and how they share channels and overlap with each other.

08:EA:44:0E:E3:1x

Analysis:

RADIO	SSID
08:EA:44:0E:E3:1x	MetaGeek-Lab-A...
08:EA:44:0E:E3:2x	MetaGeek-Lab-A...
00:0E:B3:87:1B:A3	bba
The Library	MetaGeek

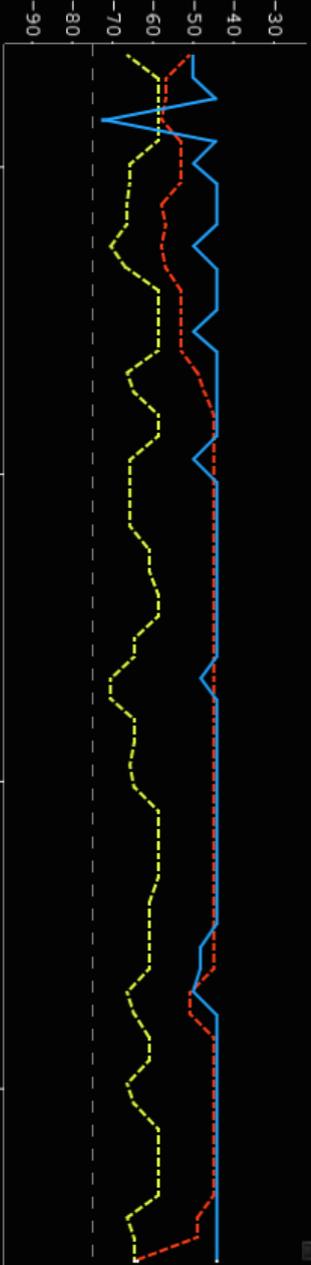
Link Score: 21  
 Radio Signal: -45 dBm  
 Channel: 11  
 Recommended: 1  
 Co-Channel APs: 16  
 Strongest: MetaGeek  
 54:78:1A:32:53:00  
 -59 dBm  
 Overlapping APs: 7  
 Strongest: bba  
 00:0E:B3:87:1B:A3  
 -64 dBm

SSID	Mac Address	Security
MetaGeek-L...	08:EA:44:0E:E3:15	WPA2-Personal
MetaGeek-L...	08:EA:44:0E:E3:16	WPA2-Personal
MetaGeek-L...	08:EA:44:0E:E3:14	WPA2-Personal

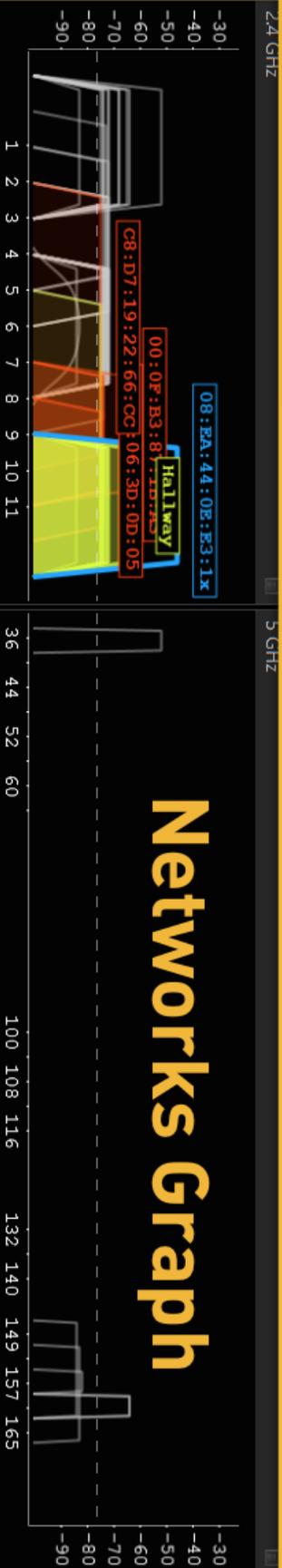
# Networks Table

94:10:3E:06:47:F8	MountainWestGro...
E4:F4:C6:FE:0C:9D	Potato
10:5F:06:52:D4:35	CenturyLink3177
20:10:7A:9F:E6:37	MOTOROLA-CA44E
00:00:00:00:00:00	
02:2B:4B:8C:07:8B	HPE710n.C97BE6
D4:CA:6D:B3:EC:1F	
6C:70:9F:E0:CA:95	JEP LAN
00:27:22:FA:52:28	condoWiFi
B4:75:0F:A3:C8:88	Hulk

# Details Pane



# Networks Graph



## Open and Close the Details Pane

To open the Details Pane in any grouping mode, click on the associated line item. To close the pane, click the X button.

RADIO	SSIDS ▲	CHANNEL	SIGNAL (dBm)	SSID COUNT
10:60:4B:1E:E6:EB	HP-Print-EB-Of...	11	-71	1
6C:70:9F:E0:CA:94	IEP LAN	1	-71	1
00:1A:2B:B4:2C:B4	Invest	11	-67	1
FC:75:16:8C:57:23	ISRguest	4	-67	1
80:EA:96:F0:9C:A8	LaNeige Bridal	11	-73	1
A4:B1:E9:2B:F9:1D	LillyJane'sCupc...	1	-73	1
00:1C:10:26:7B:9A	linksys	6	-72	1
C8:B3:73:3A:E4:44	LocalConstruct	1	-65	1
Hallway	MetaGeek	11	-53	1
The Library	MetaGeek	161	-64	1

## Physical, Logical, and Channel Grouping

inSSIDer Office also groups access points, networks, and channels in three different ways:

Physical	Groups virtual SSIDs on the same access point together
Logical	Groups access points with the same SSID together
Channels	Groups channels together

*Note: Each group has a dedicated section below.*



# Network Drilldown

inSSIDer Office links networks, access points, and channels together with the **Network Drilldown** button, and can be found in most tables. Click on the **Network Drilldown** button to visit the associated item.

**× The Library**

Link Score: <b>28</b>	Phy Types: <b>g, n</b>	
Radio Signal: <b>-51 dBm</b>	Min Data Rate: <b>7.20</b>	
Channel: <b>1</b>	Max Data Rate: <b>216.70</b>	
Recommended: <b>1</b>	Vendor: <b>Cisco</b>	
Co-Channel APs: <b>9</b>	(-65 dBm) ▼	
Overlapping APs: <b>7</b>	(-65 dBm) ▼	

SSID	Mac Address	
MetaGeek	3C:08:F6:72:66:A0	

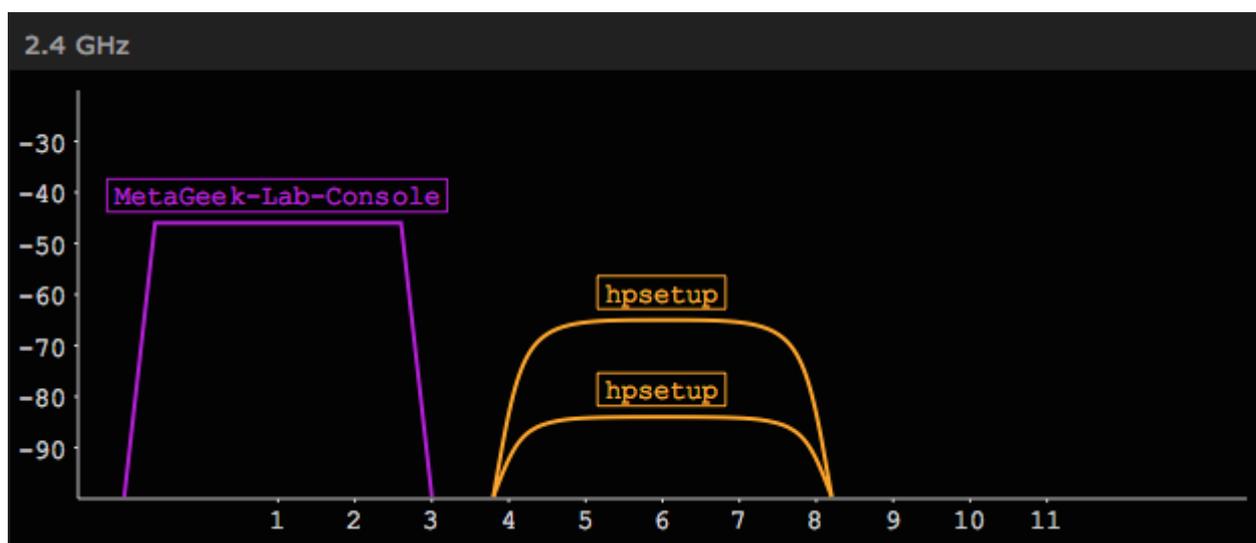
# Networks

## Networks Graph

inSSIDer Office draws a network shape in the 2.4 and 5 GHz channels graph for every network it hears with your Wi-Fi adapter. Each network shape is centered over the channel that it is on, and the height of the shape shows how loud the network is (represented by amplitude).

**802.11b network** (max rate of 2 or 11 Mbps) will be drawn with a curved top.

**802.11 a/g/n networks** will be drawn with a flat top.



# Networks Table

inSSIDer Office lists all of the networks that it can hear with your Wi-Fi adapter.

SSID	CHANNELS	SIGNAL (dBm)	RADIO COUNT	PHY TYPE
RI1	6	-84	1	b, g, n
ISRguest	4	-81	1	b, g, n
LocalConstruct	1	-74	1	b, g, n
MOTOROLA-CA44E	1	-78	1	b, g, n
Amped_SR	4	-82	1	b, g, n
Owyhee Penthouse	1	-74	1	b, g, n
condoWiFi	1	-76	1	b, g, n
HP-Print-b9-LaserJet 100	6	-84	1	b, g
HPE710n.C97BE6	6	-86	1	b, g
Safari Inn	1, 6	-84	2	b, g, n
MetaGeek	5, 11, 157, 161	-60	6	g, n, ac
HP-Print-EB-Officejet 7610	11	-77	1	b, g, n
ARRIS-E5EE	6	-83	1	b, g

# Filters

Above the Networks Table, you'll find the filter bar. You can filter by **SSID**, **MAC Address**, **Channel**, **Signal Strength**, **Security**, and **Phy Type**.



Type in the data you wish to filter by, and hit the enter key to apply the filter. Clicking the **X** next to your filter will remove it.

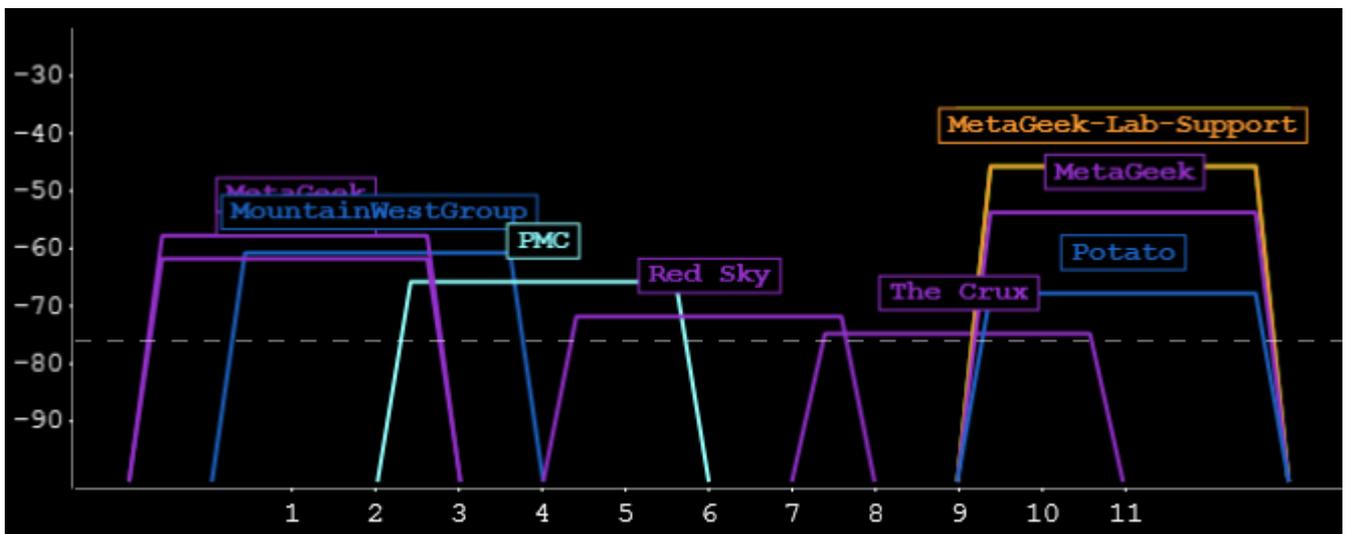


# Coloring Rules

inSSIDer Office color-codes all networks and network groups. The color scheme is consistent throughout in swatches next to network names, network shapes, selected items, and details fields.

## Rainbow Mode

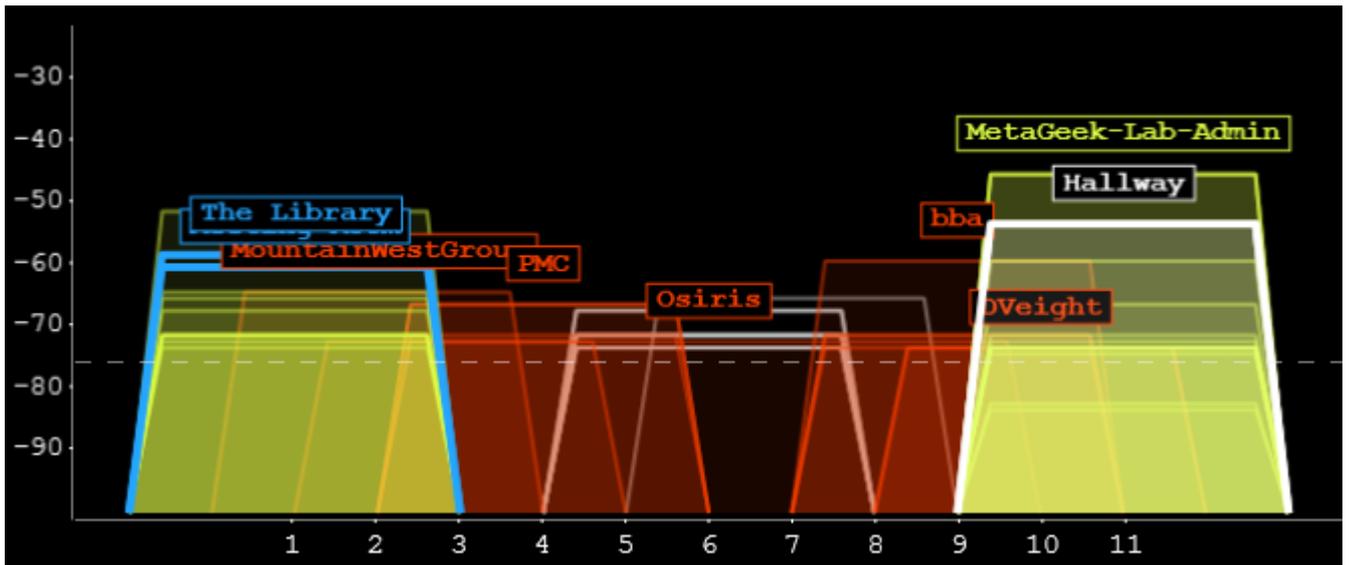
Unselected networks with no grouping applied, most networks get their own color.



## Selected Network Mode

Shows relationships between networks, depending on which network is selected.

<b>Red</b>	A network that partially overlaps with your network, causing adjacent-channel interference (worst)
<b>Yellow</b>	A network that shares a channel with your network (better)
<b>Blue</b>	Selected Physical (radio) or Logical (ESSID) group
<b>White</b>	Selection within a Physical or Logical group
<b>Grey</b>	Unselected network that doesn't relate to or overlap with your selected network



## Physical and Logical Grouping

inSSIDer Office groups access points **Physically** (multiple SSID's on one access point) or **Logically** (multiple access points with the same SSID, making them all part of one ESSID).

### Physical Grouping

With **Physical Grouping**, all virtual SSID's on the same radio are grouped together. Each line item then represents one physical radio on an access point that is the host of more than one SSID.

The screenshot shows the inSSIDer software interface in Physical Grouping mode. The 'Physical' tab is selected. The 'FILTERS:' dropdown is set to 'SSID'. The table below shows the data for the Physical Grouping mode.

RADIO	SSIDS	CHANNEL
00:27:22:FA:52:28	condoWiFi	1
B6:75:0E:63:DA:37	DCB-guest	6-2
10:5F:06:3D:0D:05	DVeight	10
C8:B3:73:59:D1:33	Falk Wireless	11
AC:81:12:CE:8A:5B	GoSaints	9
AE:81:12:CE:8A:5C	GoSaintsGuest	9

Physical Grouping Mode works best when you are working with a single access point. A common use case scenario for this mode might be picking the best channel for a home wireless network.

## Radio Details Pane

The Radio Details Pane displays:

<b>Radio Signal</b>	Current signal strength in dBm
<b>Channel</b>	Current channel of the access point
<b>Recommended</b>	The channel that inSSIDer recommends for the best performance
<b>Strongest Overlapping Radio</b>	The loudest radio that is on an adjacent (partially overlapping) channel
<b>Strongest Co-Channel Radio</b>	The loudest radio that is sharing the same channel as your network

RADIO	SSIDS ▲	CHANNEL	SIGNAL (dBm)	SSID COUNT
10:60:4B:1E:E6:EB	HP-Print-EB-Of...	11	-71	1
6C:70:9F:E0:CA:94	IEP LAN	1	-71	1
00:1A:2B:B4:2C:B4	Invest	11	-67	1
FC:75:16:8C:57:23	ISRguest	4	-67	1
80:EA:96:F0:9C:A8	LaNeige Bridal	11	-73	1
A4:B1:E9:2B:F9:1D	LillyJane'sCupc...	1	-73	1
00:1C:10:26:7B:9A	linksys	6	-72	1
C8:B3:73:3A:E4:44	LocalConstruct	1	-65	1
Hallway	MetaGeek	11	-53	1
The Library	MetaGeek	161	-64	1

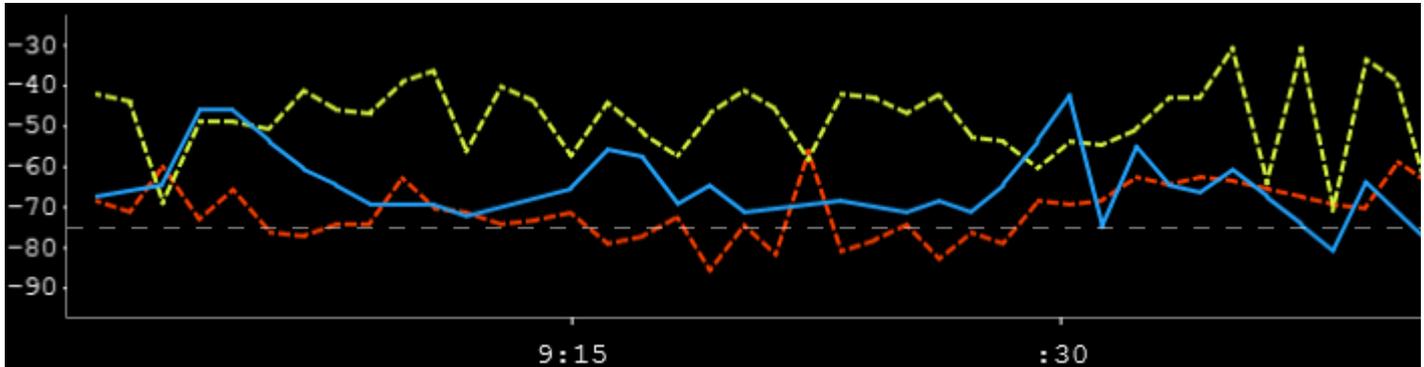
## Radio Details Table

The Radio Details Table lists each virtual SSID on the selected radio, along with each respective **MAC Address** and **Security** type.

SSID	Mac Address	Security
	08:EA:44:0E:E3:15	WPA2-Personal
MetaGeek-Lab-Support	08:EA:44:0E:E3:16	WPA2-Personal
MetaGeek-Lab-Admin	08:EA:44:0E:E3:14	WPA2-Personal

## Signal Strength Over Time Graph

Towards the bottom, you can view the signal strength of your radio over time (blue), as well as the signal strength of the strongest overlapping radio (red), and the strongest co-channel radio (yellow).



## Logical Grouping

With **Logical Grouping**, all access points with the same SSID are grouped together.

SSID	CHANNELS
MetaGeek-Lab-Admin	11, 36
MetaGeek-Lab-Support	11, 36
Potato	11
Hulk	11
Safari Inn	6, 11
HP-Print-EB-Officejet 7610	11
MetaGeek	6, 11, 157, 161

This mode works best when your network has more than one access point. A common use case scenario for ESSID Grouping is ensuring that your corporate network provides adequate or continuous coverage throughout a building.

### Logical Group Table

Each access points that belongs to the Logical Group (or ESSID Group) is listed in the table.

× MetaGeek Analysis: ↶

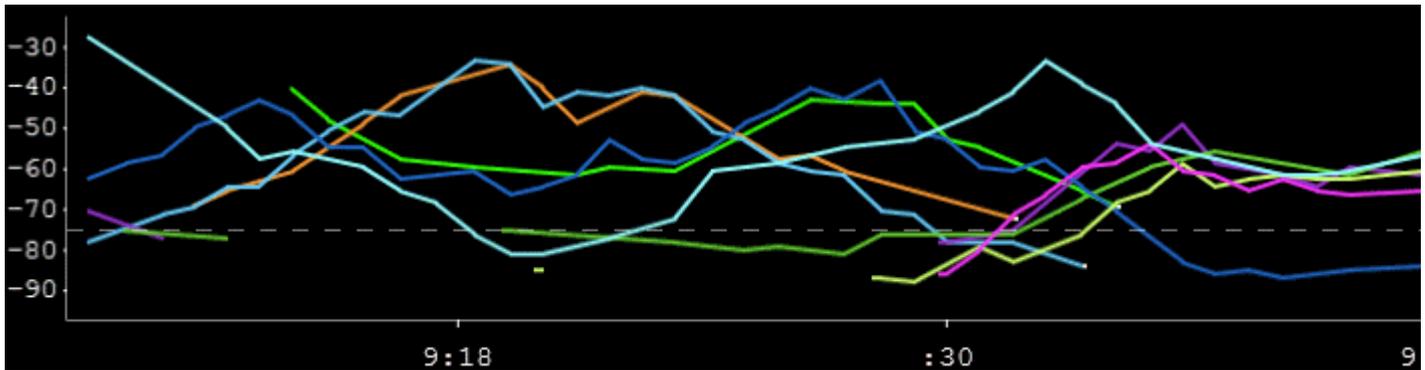
Radio	Channel	PHY Type	Security	Min	Max	Signal
Reception	1	g, n	WPA2-Enterprise	7.2	216.7	-80
The Library	6	g, n	WPA2-Enterprise	7.2	216.7	-55
Meeting Room	11	g, n	WPA2-Enterprise	7.2	216.7	-60
Meeting Room	161	n	WPA2-Enterprise	6	216.7	-65
The Library	161	n, ac	WPA2-Enterprise	6	600	-63
Reception	157	n	WPA2-Enterprise	6	216.7	-85
Hallway	11	g, n	WPA2-Enterprise	7.2	216.7	-59

The Logical Group Table displays:

<b>Radio</b>	Either the MAC address, AP name (Cisco and Aruba only), or custom AP Alias. Click the <b>Pencil</b> icon to set your custom AP Alias.
<b>Channel</b>	Wireless channel that the access point is on.
<b>PHY Type</b>	802.11 protocols supported by the access point.
<b>Security</b>	The security protocol that the access is configured to support.
<b>Min</b>	Minimum supported data rate. Slower data rates fly farther, but cause more channel utilization.
<b>Max</b>	Maximum supported data rate.
<b>Signal</b>	The amplitude level (loudness or signal strength) of the wireless network as seen by your computer's wireless adapter.
<b>Link Score</b>	The higher the link score, the better. The amount of partially overlapping networks, amount of same-channel networks, and RF activity in the channel can all negatively affect the Link Score.

## Signal Strength Over Time Graph

Towards the bottom, you can view the signal strength of all of the access points in your Logical Group. The colors are matched with the Logical Group Table, but you can click on a network in the table to highlight it in the graph.



## Channels

Channels mode focuses on the health of each Wi-Fi channel.

*Note: The Channels mode button will be greyed out if a [Wi-Spy Mini](#), [Wi-Spy 2.4x](#), or [Wi-Spy DBx](#) isn't [connected](#), since the tab relies on spectrum analysis data from a Wi-Spy.*

The screenshot shows the Channels mode interface with a table of channel utilization and on-channel networks. The table has three columns: CHANNEL, CHANNEL UTILIZATION, and ON-CHANNEL NETWORKS. The data is as follows:

CHANNEL	CHANNEL UTILIZATION	ON-CHANNEL NETWORKS
1	1.8%	12
2	2.8%	0
3	3.8%	1
4	4.2%	4
5	4.2%	0
6	3.3%	15

The Channels table shows:

<b>Channel Utilization</b>	How often activity is occurring on the channel, or how often the channel is being "Utilized". Only one wireless device can use a channel at a time, so you want channel utilization to be as low as possible.
<b>On-Channel Networks</b>	Amount of wireless networks on the same channel. The fewer, the better.
<b>Max Signal</b>	Maximum signal strength of on-channel networks. Analogous to the yellow signal strength over time graph in other parts of inSSIDer.
<b>Overlapping Networks</b>	Amount of wireless networks that are partially overlapping with the channel. The fewer, the better. Partially overlapping networks cause one of the worst types of interference.
<b>Max Overlapping Signal</b>	Maximum signal strength of overlapping networks. Analogous to the red signal strength over time graph in other parts of inSSIDer.

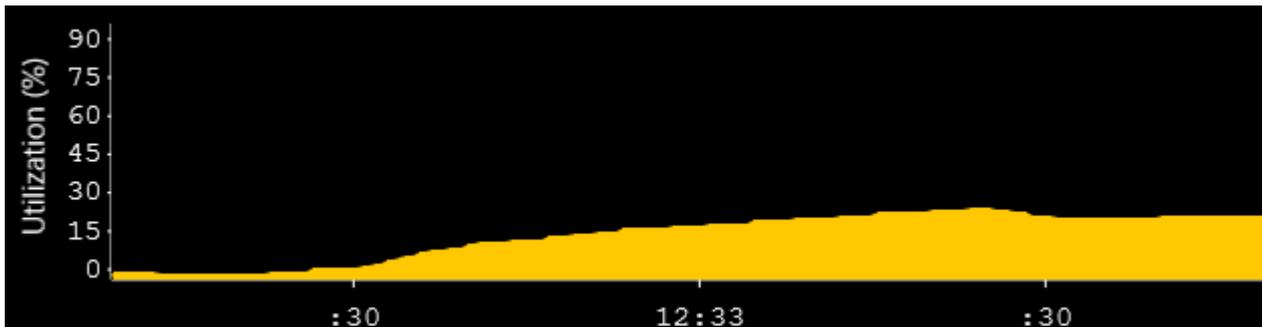
### Channel Details Pane

Select a channel to open the Channel Details Pane, where you can learn more about it.

CHANNEL	CHANNEL UTILIZATION	ON-CHANNEL NETWORKS	MAX SIGNAL
1	0.6%	9	-60 dBm
2	1.0%	0	-84 dBm
3	1.4%	1	-73 dBm
4	2.2%	3	-71 dBm
5	2.4%	0	-70 dBm

### Utilization Over Time Graph

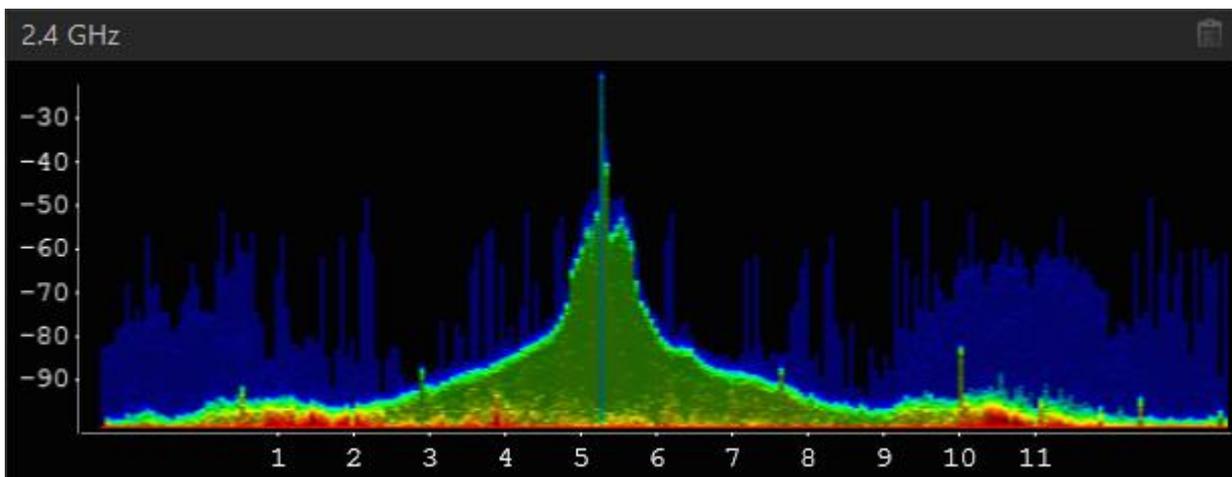
The Utilization Over Time Graph shows how busy a channel is over time. The higher the utilization, the less time is left available for Wi-Fi devices to talk.



### Channels Graph

The Channels Graph uses spectrum analysis data from the Wi-Spy to show raw radio frequency activity in the band. This activity can be made by any wireless device, Wi-Fi or otherwise.

You can see which channel devices are talking on (where), how loud they are talking (height), and how often they are talking (intensity of the color).



## AP Aliasing

In addition to detecting Cisco and Aruba network names, inSSIDer Office allows you to give access points custom names. Click the **Pencil** icon next to the AP's name or MAC address to give it a custom name.

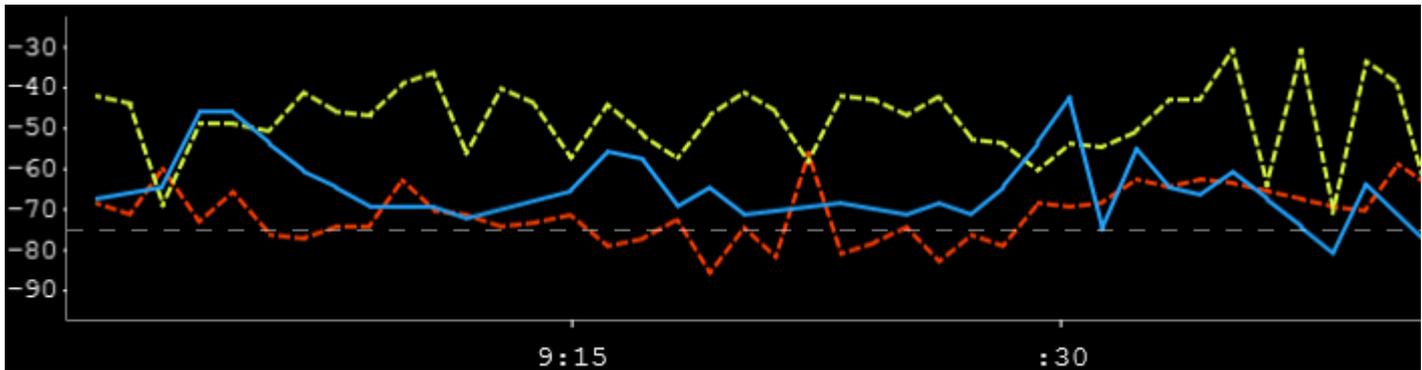
## Signal Strength Threshold

The Signal Strength Threshold feature displays a dotted line across the Channels Table and Signal Strength Over Time graphs.

The threshold can be changed in **File > Settings**. [Find out more about acceptable Wi-Fi signal strengths here.](#)

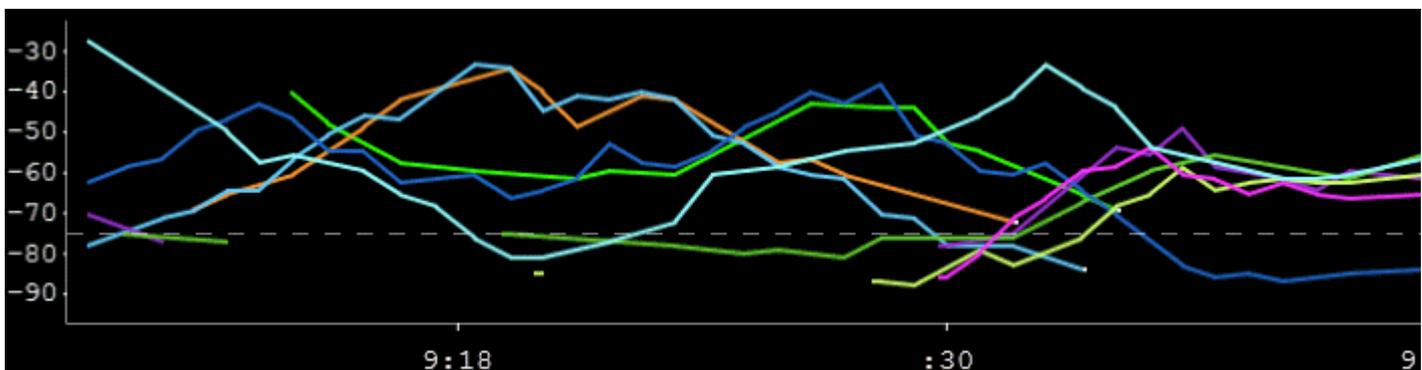
## Coverage Check in Physical Mode

Once the threshold has been set, select a network in **Physical Mode**, and walk the desired coverage area while watching the **Signal Strength Over Time Graph**. The signal strength line falls below the threshold, then you may have a coverage problem to address.



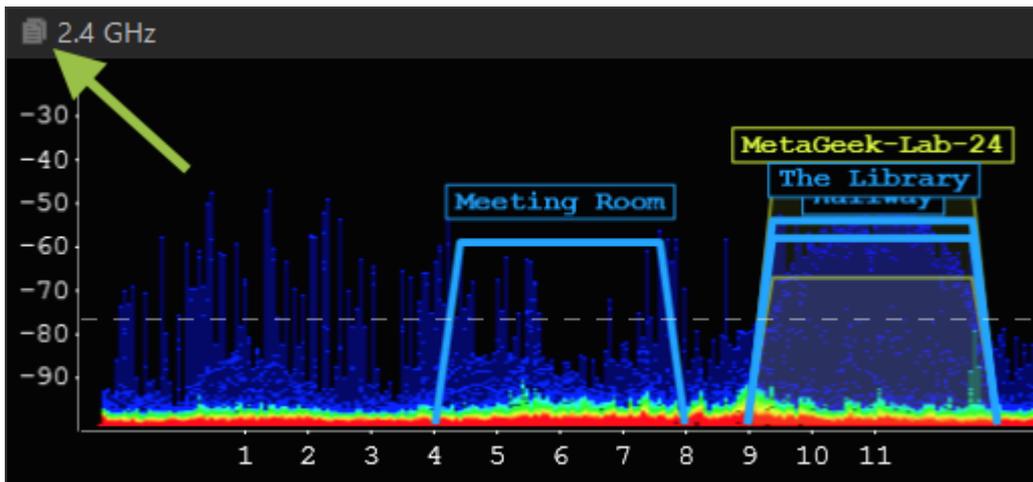
## Coverage Check in Logical Mode

**Logical Mode** can be used to ensure that every location in the desired coverage area is covered by one or more access points.



## Copy to Clipboard

Each respective table and graph has a **Copy to Clipboard** button, usually in the upper righthand corner. Graphs are copied out as an image, and tables are copied out as plaintext, ready to be pasted into a word processor or spreadsheet.



## Export a Wi-Spy Recording

With inSSIDer Office, you can export a Wi-Spy recording file, which can be opened in Chanalyzer.

Learn how to use this feature here: [Export a Wi-Spy Recording with inSSIDer Office](#)

## Network Table Terms

Common acronyms and technical terms that inSSIDer Office uses:

**802.11** – The letters displayed in this column inform you of the 802.11 protocols in use by that Access Point.

**Access Point** - This is the hardware that Wi-Fi devices wirelessly connect to. Sometimes these will function as a router, and are often referred to as a wireless router.

**Channel** – Each wireless network operates on a specific Wi-Fi channel. Channels 1-14 are in the 2.4 GHz frequency range, while channels 36-165 are in the 5 GHz range. For best performance in the 2.4 GHz band we recommend channels 1, 6, and 11.

\* **(Asterisk)** - In ESSID grouping, an asterisk/star indicates that the channel is 40 MHz wide.

ESSID	CHANNELS▼
Key Design Access	1, 44*
Key Design Websites	1

**Co-Channel Network** - Every access point on the same channel cooperates and negotiates opportunities to transmit. This can slow down performance for every connected device.

**MAC Address** - This is a unique identifier for a wireless network or BSSID.

**Overlapping Network** - Stations and access points on an overlapping channels talks over each other on overlapping frequencies. This causes transmission corruption and slow performance for connected devices. Overlapping networks have a more severe impact on performance than co-channel networks.

**Security** – inSSIDer will display networks utilizing the following standard security settings: Open (Unsecured), WEP, WPA-Personal, WPA-Enterprise, WPA2-Personal, and WPA2-Enterprise.



**Open Lock** - Indicates a network that is unsecured. None of the data on the network is encrypted.



**Broken Lock** - WEP, which is a very broken and insecure encryption method. This encryption method can be broken into in a matter of minutes.



**Closed Lock** - WPA or WPA2 wireless security encryption. These are the best security options available today. We recommend WPA with WPS disabled, which is the most secure.

**Signal** - The amplitude level of the wireless network as seen by your computer's wireless adapter, also known as RSSI or "Received Signal Strength Indication". inSSIDer provides a line graph representing the signal strength over time.

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



**Link Icon** - Indicates which access point you are currently connected to. This icon also appears within an ESS, so you can see which specific access point you are connected to on your network.