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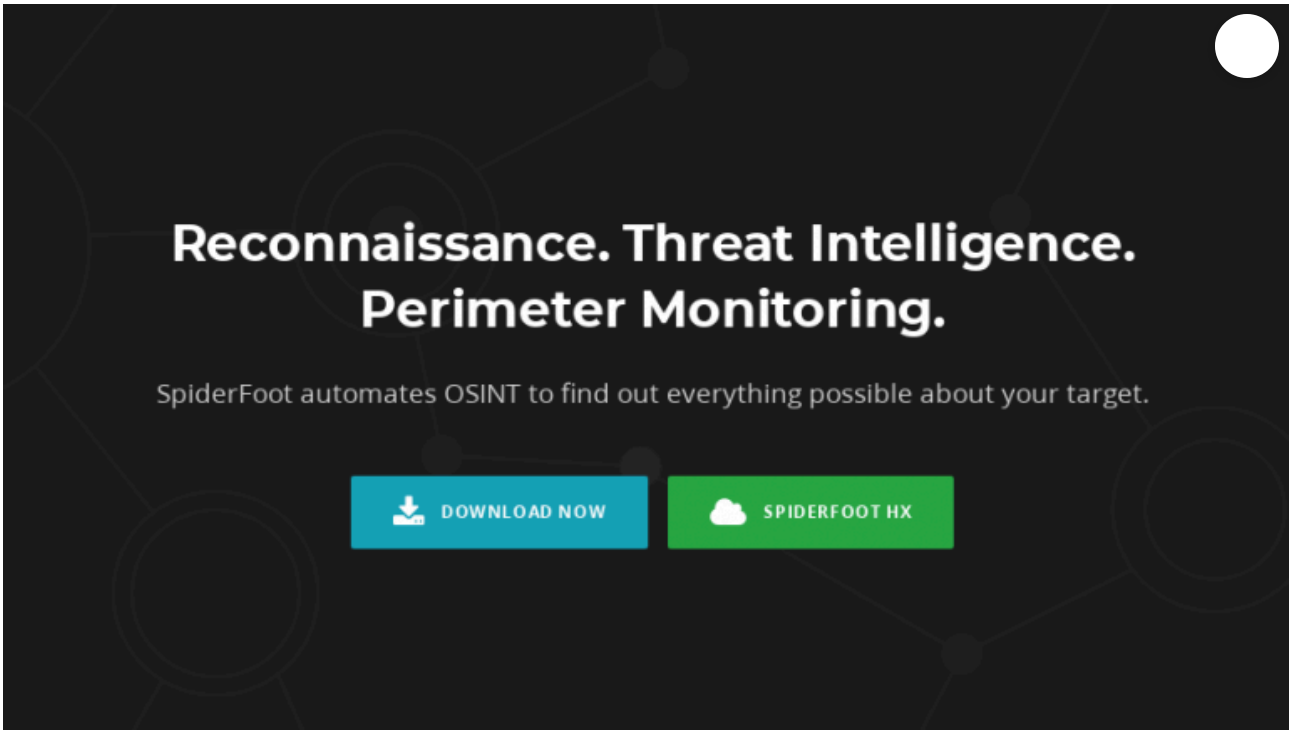
INTELLIGENCE & INVESTIGATIONS



Getting Started With Spiderfoot – A Beginner's Guide

8 Comments / OSINT Tools / By Nixintel

Spiderfoot is one of my favourite OSINT gathering tools. It automates a huge number of queries that would take a long time to do manually. It comes with a wide range of modules that will conduct automated searches for e-mail addresses, IP addresses, domains, phone numbers, usernames, and other types of data. This post will show you how to install and set up Spiderfoot from scratch, and how to conduct a few basic queries.

Spiderfoot runs in a browser but a little command line setup is needed first. For the rest of the post I'll assume that you have little or no command line experience. If you want to know more about setting up Python-based OSINT tools in the command line, I recommend having a read through this series of blog posts I wrote earlier this year.

Setting Up

Spiderfoot runs on Linux, Mac OS, and Windows. It uses Python 2.7 which is already pre-installed in Linux and Mac OS but to set it up in Windows you'll need to do a few other things first.

Windows

Spiderfoot version 2.12 comes as a pre-compiled exe file that you can download here and just click and run. This is an easier way to start Spiderfoot if you're working in a Windows environment but be aware that later and more up to date versions of Spiderfoot won't work this way and you'll have to install Python and Pip for Windows and work from the Github repository to stay updated. If you're not entirely comfortable with Git, Pip, and the command line, this is the easiest way to start using Spiderfoot in Windows.

MacOS and Linux

The best way to run Spiderfoot and keep it up to date is by using git and cloning the Spiderfoot Github repository as outlined in the instructions below.

First of all check that git is installed on your device, as it isn't installed on all distros by default. To check if it is or not, type the following in the console:

```
git --version
```

If git is installed, you'll get a message telling you which version it is. If you're told that git isn't present, simply install it as follows:

```
sudo apt install git
```

If you're using a non-Debian based version of Linux, you'll need to use your system's own package manager instead of apt.

If you're using Mac OS, install brew first (it isn't installed on Mac OS by default), and then enter the following in the terminal:

```
brew install git
```

And then you're done.

Whether you're on Linux or Mac, the rest of the installation instructions are the same from this point on. In the terminal type:

```
git clone https://github.com/smicallef/spiderfoot.git
```

This will create a directory called "spiderfoot" in your home directory. Move to it by entering the following in the console before moving on to the next step:

```
cd spiderfoot
```

Installing Pip Requirements

If you've tried installing Python scripts from GitHub before, it's easy to get stuck at this point. Usually the installation guides tell you to enter something like this:

```
pip install -r requirements.txt
```

What this command does is read through a list of Python libraries that are listed in a file called *requirements.txt* and then try to install them. It sounds easy enough but people frequently run into difficulties and encounter a lot of errors at this point and the packages won't install. The most common reason for this is that their operating system is using a different version of Python and Pip to the one required by the program. Your system's default version of Python might be Python 3.6, and so Pip assumes that you want to download packages compatible with that version of Python. This can cause a lot of conflicts and stops your software from working. Some of the most popular Python OSINT tools don't all run with the same version of Python.

The way to avoid this is by making sure that when you call Pip to install the necessary requirements, you invoke it with the correct version of Python. In the case of Spiderfoot, this is Python version 2.7. If you have a more recent version of Python installed on your system, you might run into error messages. To check the version of Python used by your system, enter the following in the terminal:

```
python --version
```

The console will then tell you which version of Python your system is using by default. If you're installing Spiderfoot and your version of Python is anything higher than 2.7, you'll need to do the following:

Move to the spiderfoot directory you created before and then enter the following:

```
python2.7 -m pip install -r requirements.txt
```

Entering the command this way ensures you launch Python 2.7 and then use the -m flag (for 'module') to launch the appropriate version of Pip for this version of Spiderfoot. One Pip has installed the requirements, you'll be ready to go.

Launching Spiderfoot

After completing the installation, you'll be ready to start Spiderfoot for the first time. If using the command line fills you with anxiety and dread, don't worry, it's all GUI after this…

Linux and MacOS

From inside the Spiderfoot directory, run the following command in the terminal:

```
python sf.py
```

Or if your system uses Python 3.x, make sure you specify Python 2.7 when launching to avoid problems:

```
python2.7 sf.py
```

You'll see a message in the terminal like this:

```
Attempting to verify database and update if necessary...
Starting web server at http://127.0.0.1:5001 ... ********************
```

```
Use SpiderFoot by starting your web browser of choice and
browse to http://127.0.0.1:5001
********************************************************** [29/Sep
[29/Sep/2019:09:31:26] ENGINE Listening for SIGTERM.
[29/Sep/2019:09:31:26] ENGINE Listening for SIGUSR1.
[29/Sep/2019:09:31:26] ENGINE Bus STARTING
[29/Sep/2019:09:31:26] ENGINE Serving on http://127.0.0.1:5001
[29/Sep/2019:09:31:26] ENGINE Bus STARTED
```

I recommend creating an alias for Spiderfoot to make life easier in the future. To do this, open the .bashrc file for editing in the terminal:

```
sudo nano .bashrc
```

Scroll to the end of the text and add the following line:

```
alias spiderfoot="cd ~/spiderfoot && python2.7 sf.py"
```

Ctrl + X and Y to save and exit. Then restart the terminal for the change to take effect. Now to launch Spiderfoot, all you'll need to do is type:

```
spiderfoot
```

And you're done!

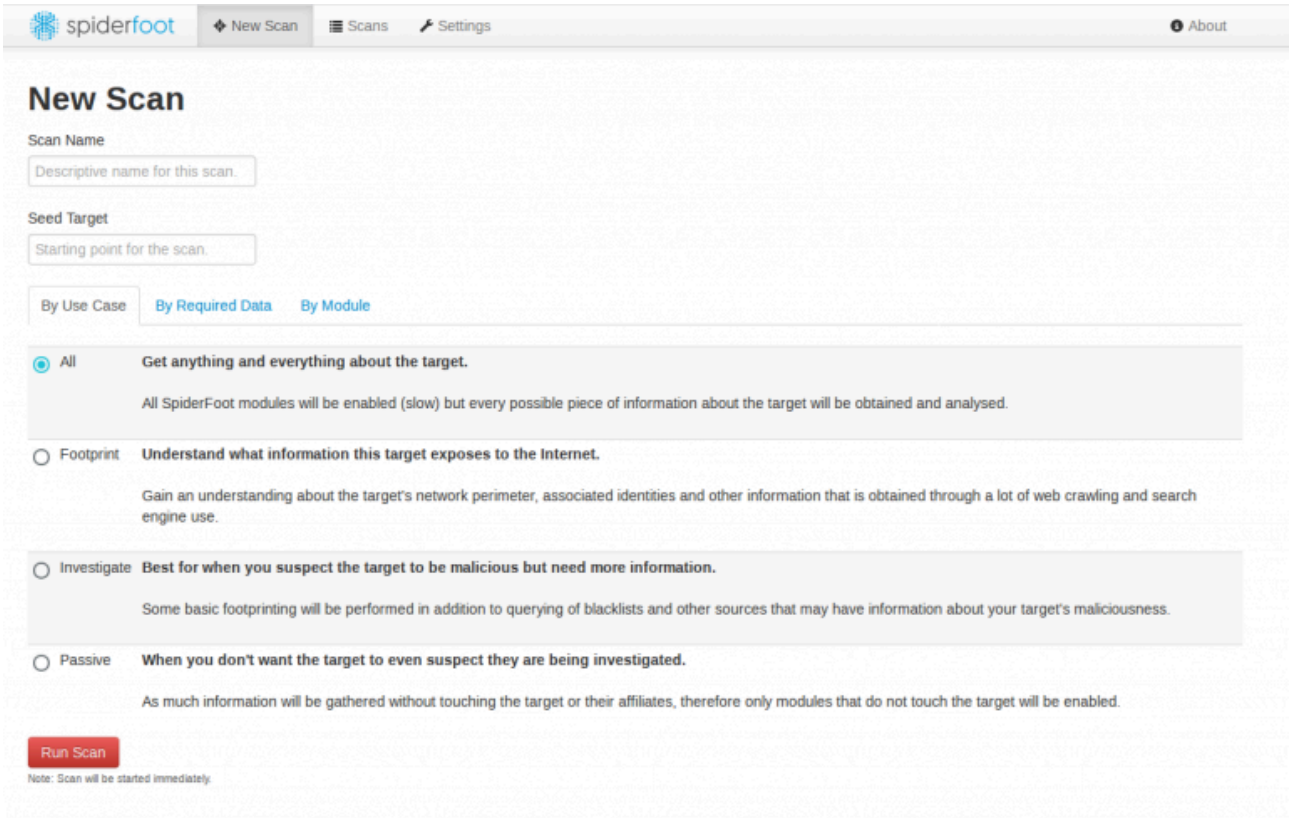
Windows

Launch sf.exe from inside the Spiderfoot directory

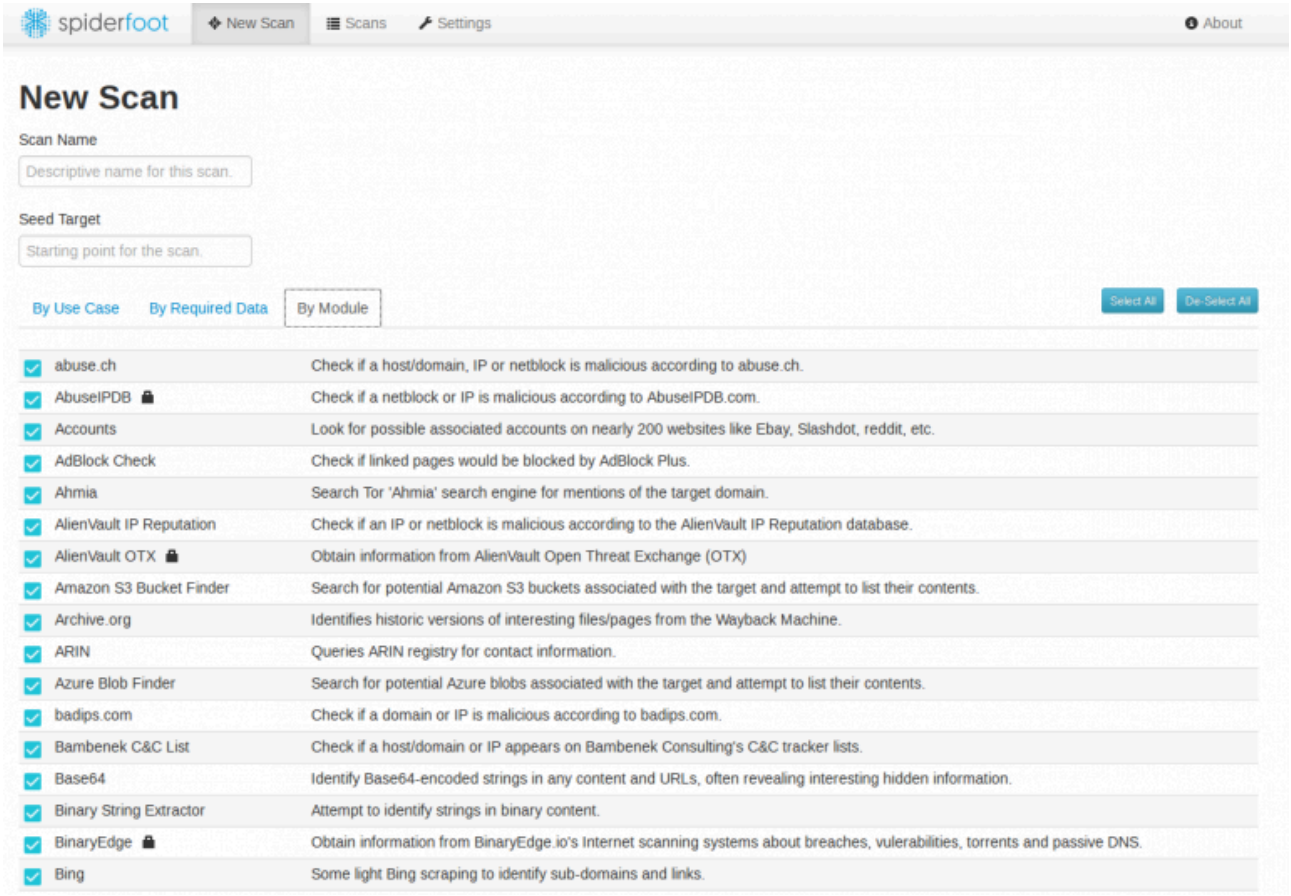
Now open your browser and in the address bar go to the location specified by Spiderfoot: http://127.0.0.1:5001. You'll notice that Spiderfoot is still working away in the background in the terminal. You'll need to keep the terminal open as Spiderfoot runs but you can just minimise the window and leave it in the background.

The Spiderfoot Homepage

In your browser, you'll see something like this:



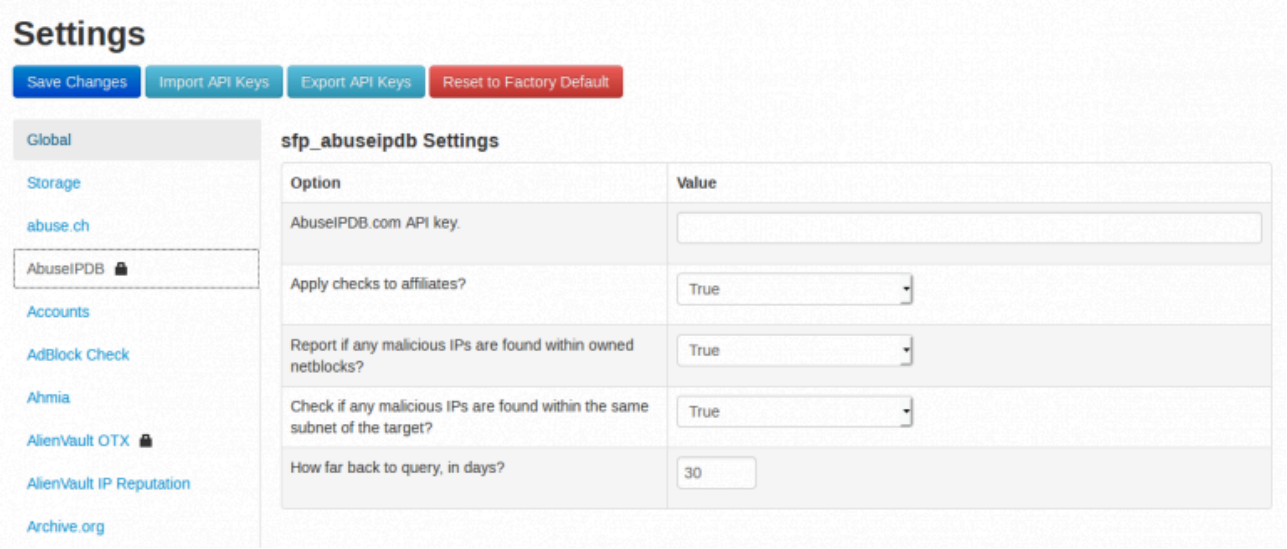
Spiderfoot's interface is simple intuitive. The top menu lets you choose a new scan (as pictured above), view the results of your previous scans, or tweak the settings. You'll see that Spiderfoot offers four different levels of scan, depending on your use case.



The "By Module" tab allows you to conduct a scan with only selected specific modules enabled. Unless you're confident about what each module does, it's best to leave them all enabled by default. You'll notice that some modules have a padlock symbol next to them – this indicates that the module requires an API key to function. API keys need to be acquired directly from the service provider. Some services provide API keys for free when you sign up, but most require some kind of payment.

As with Recon-NG and similar scanning services, the best results are usually obtained from paid for services that offer API keys, but Spiderfoot has so many modules and is so thorough that it's still very effective even if you don't have access to a lot of API keys.

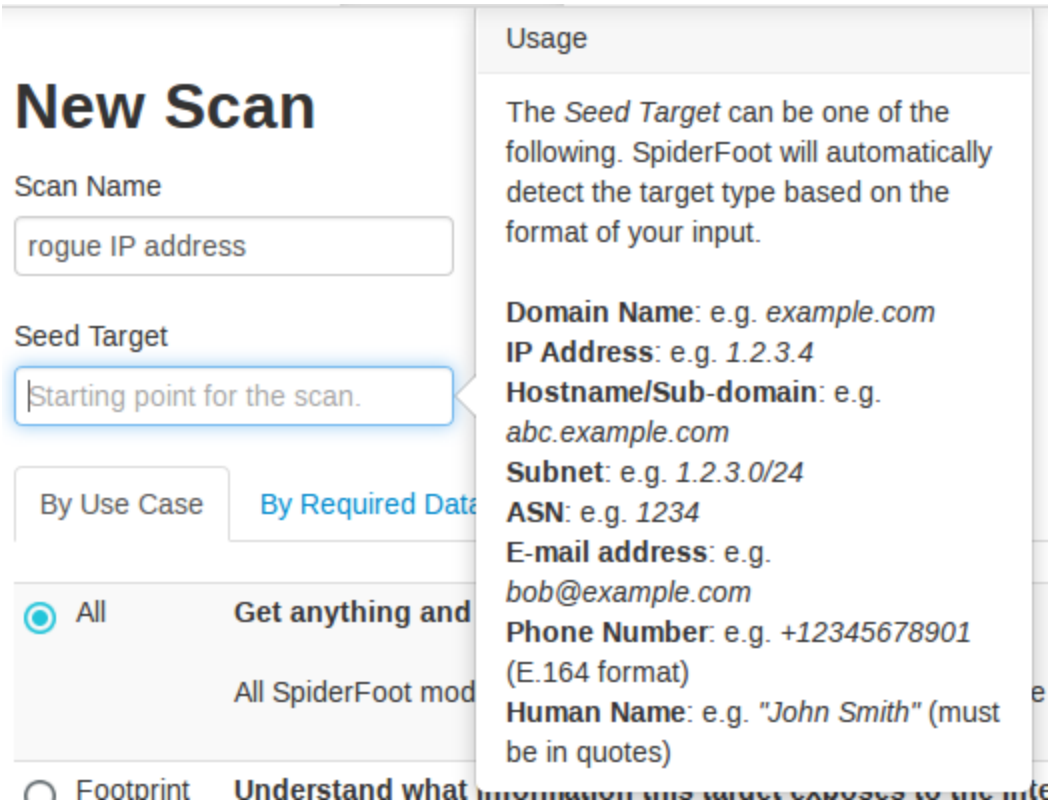
To add an API key, simply go to the Settings page, find the tab for the relevant module, and paste your API key into the relevant field:



Click on "Save Changes" and you're done.

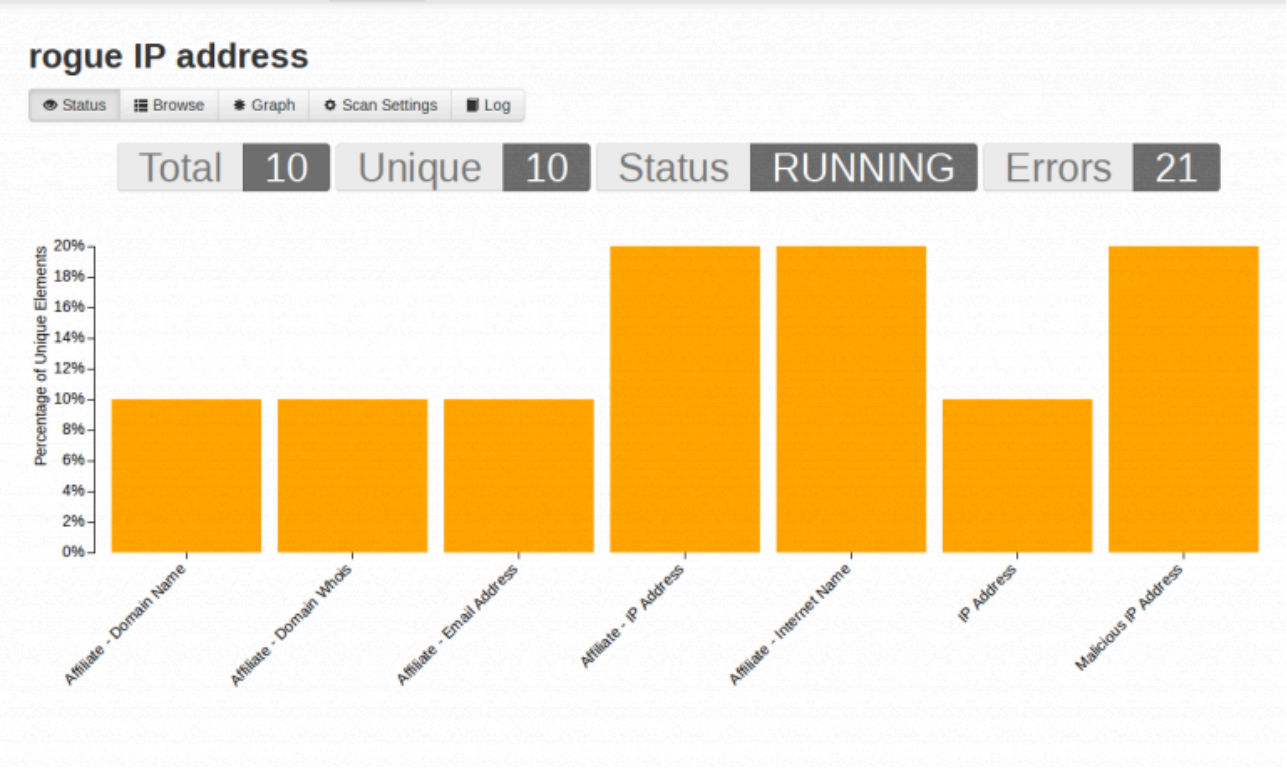
Example 1 – Gathering OSINT On An IP Address

For the first example I'm going to show how Spiderfoot can gather information about an IP address. I've chosen a live example (at the time of writing) of a problem IP address. IP address **149.202.204.88** has been causing problems for one of my servers and the firewall rules have now caused it to be permanently banned. What can we learn about it from Spiderfoot?

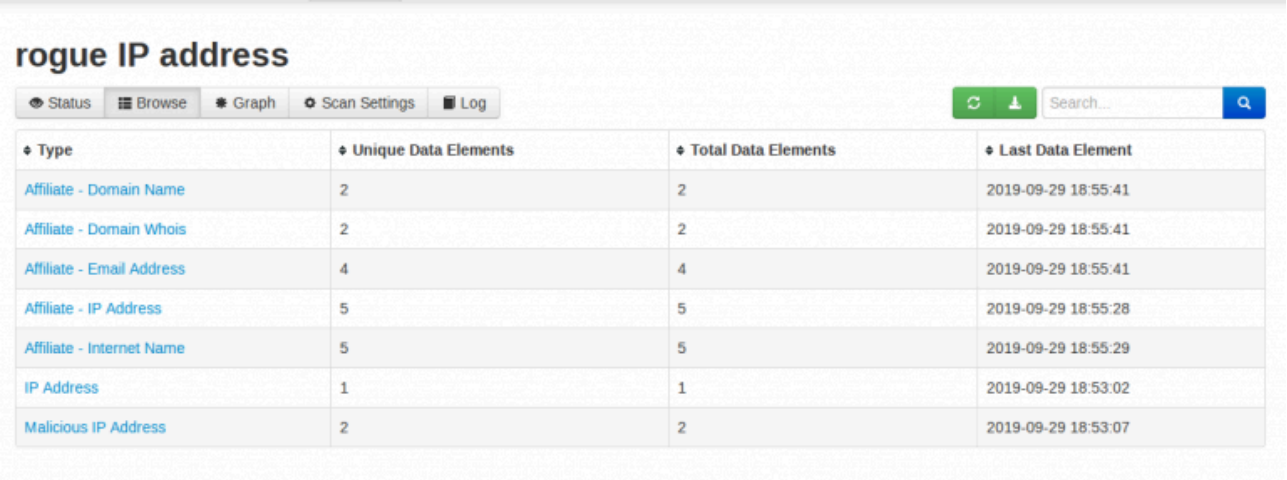


I'm going to start a new scan called "rogue IP address". The seed target is the piece of information Spiderfoot will be searching for. As you can see, you can search on domain names, hostnames, e-mail addresses, phone numbers, and human names too.

For this search I've chosen "all" and I've left all the modules enabled. Click "run scan" once you're ready to start. The amount of time it takes to complete a search varies a great deal. It really depends on just how much information there is out there about your target.

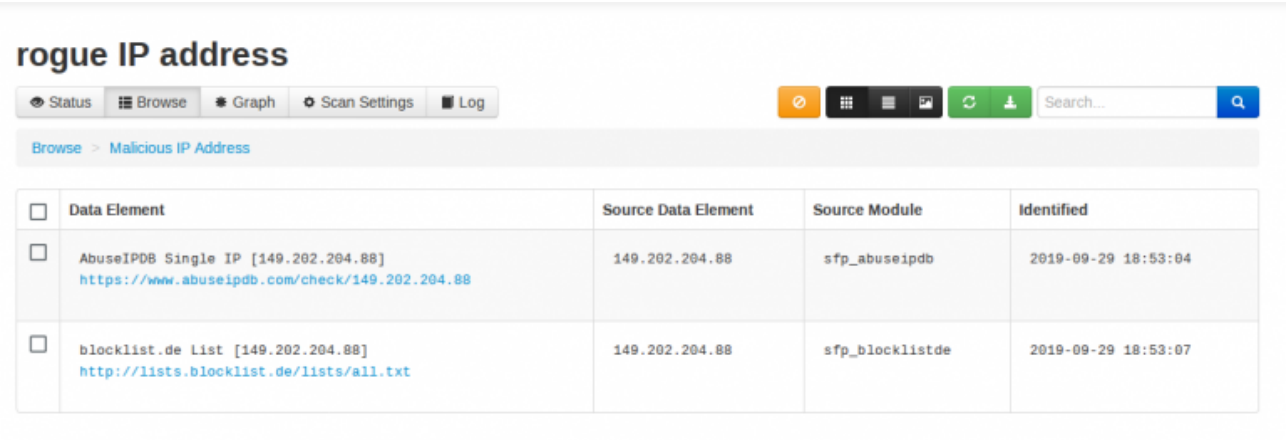


You don't have to wait for a scan to finish before you can start to look at the results. Spiderfoot sorts them by type so you can begin to get an idea of the type of information that is coming back. To see your results, click on the "Browse" tab:

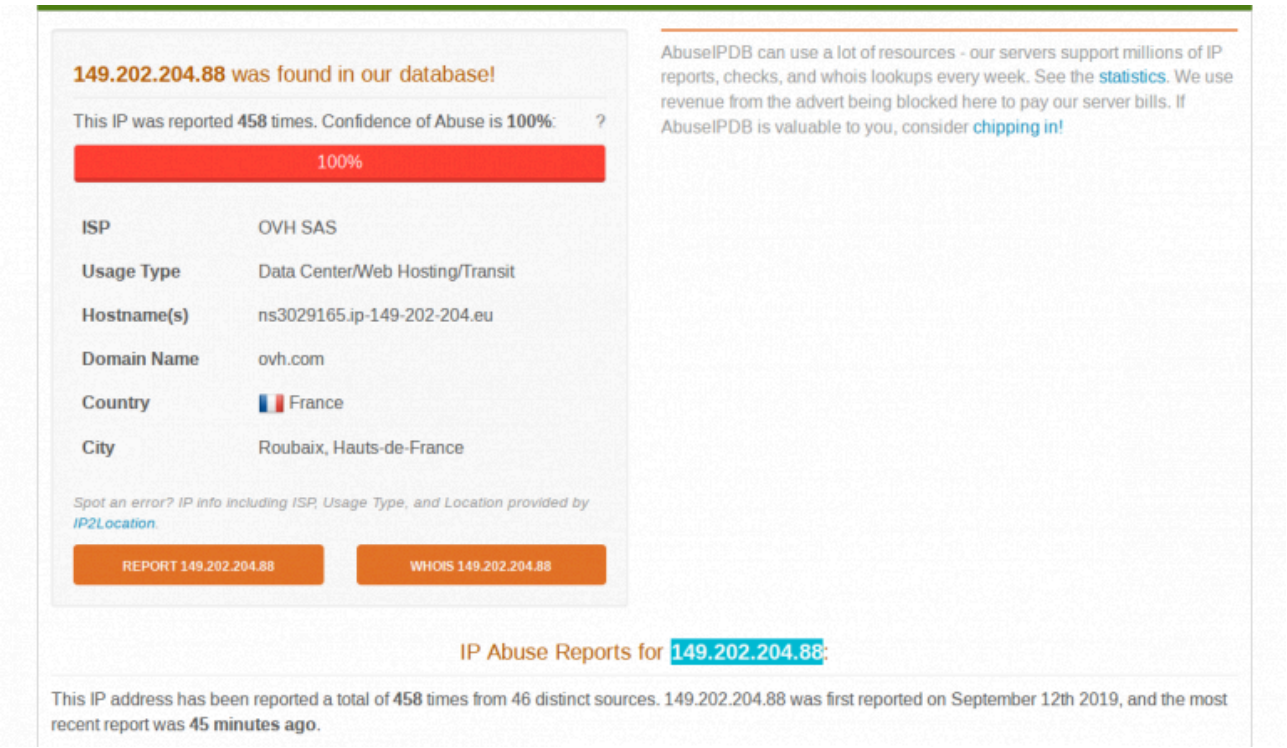


Type	Unique Data Elements	Total Data Elements	Last Data Element
Affiliate - Domain Name	2	2	2019-09-29 18:55:41
Affiliate - Domain Whois	2	2	2019-09-29 18:55:41
Affiliate - Email Address	4	4	2019-09-29 18:55:41
Affiliate - IP Address	5	5	2019-09-29 18:55:28
Affiliate - Internet Name	5	5	2019-09-29 18:55:29
IP Address	1	1	2019-09-29 18:53:02
Malicious IP Address	2	2	2019-09-29 18:53:07

Spiderfoot has already found lots of information for me to work with: Whois results, domains associated to the IP address, and also the fact that the IP address I'm learning about has been flagged as malicious by at least two other services. Clicking on the "Malicious IP Address" result set shows me this:

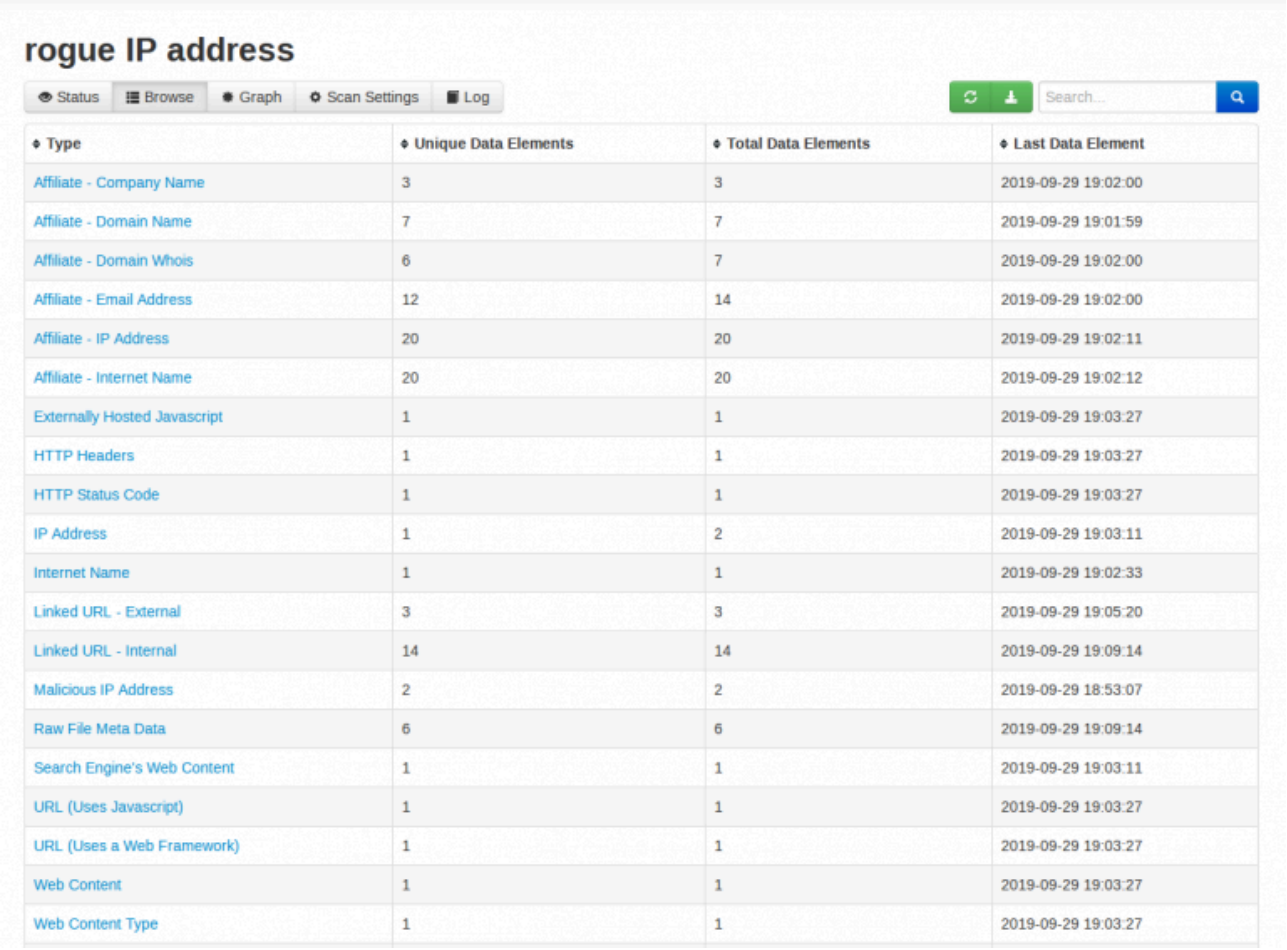


Both blocklist.de and AbuseIPDB have found matches for the IP address that has been causing me grief. Clicking on the AbuseIPDB link gives more information:



It seems that hundreds of other webservers have been plagued by attacks from the same IP address. This is useful to know – it reassures me that my firewall rules are set up and working correctly, and that this result from Spiderfoot is not a false positive.

After a few more minutes, Spiderfoot has found even more information:



rogue IP address

Status | Browse | Graph | Scan Settings | Log

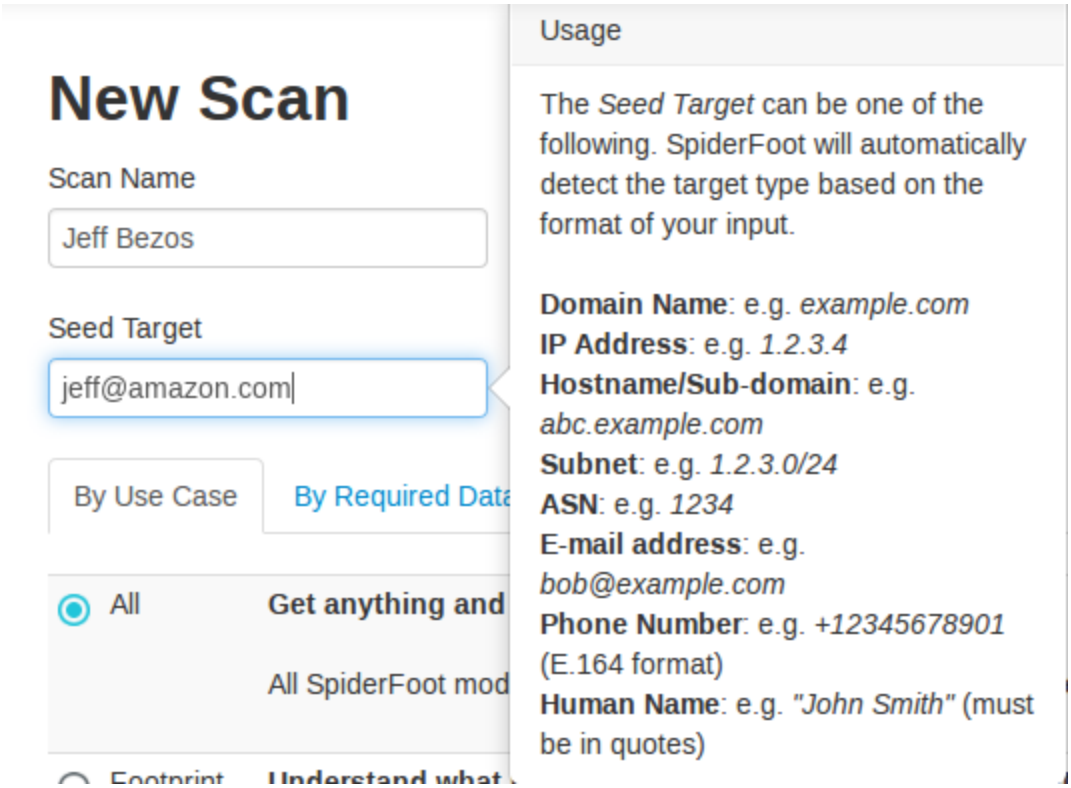
Search...

Type	Unique Data Elements	Total Data Elements	Last Data Element
Affiliate - Company Name	3	3	2019-09-29 19:02:00
Affiliate - Domain Name	7	7	2019-09-29 19:01:59
Affiliate - Domain Whois	6	7	2019-09-29 19:02:00
Affiliate - Email Address	12	14	2019-09-29 19:02:00
Affiliate - IP Address	20	20	2019-09-29 19:02:11
Affiliate - Internet Name	20	20	2019-09-29 19:02:12
Externally Hosted Javascript	1	1	2019-09-29 19:03:27
HTTP Headers	1	1	2019-09-29 19:03:27
HTTP Status Code	1	1	2019-09-29 19:03:27
IP Address	1	2	2019-09-29 19:03:11
Internet Name	1	1	2019-09-29 19:02:33
Linked URL - External	3	3	2019-09-29 19:05:20
Linked URL - Internal	14	14	2019-09-29 19:09:14
Malicious IP Address	2	2	2019-09-29 18:53:07
Raw File Meta Data	6	6	2019-09-29 19:09:14
Search Engine's Web Content	1	1	2019-09-29 19:03:11
URL (Uses Javascript)	1	1	2019-09-29 19:03:27
URL (Uses a Web Framework)	1	1	2019-09-29 19:03:27
Web Content	1	1	2019-09-29 19:03:27
Web Content Type	1	1	2019-09-29 19:03:27

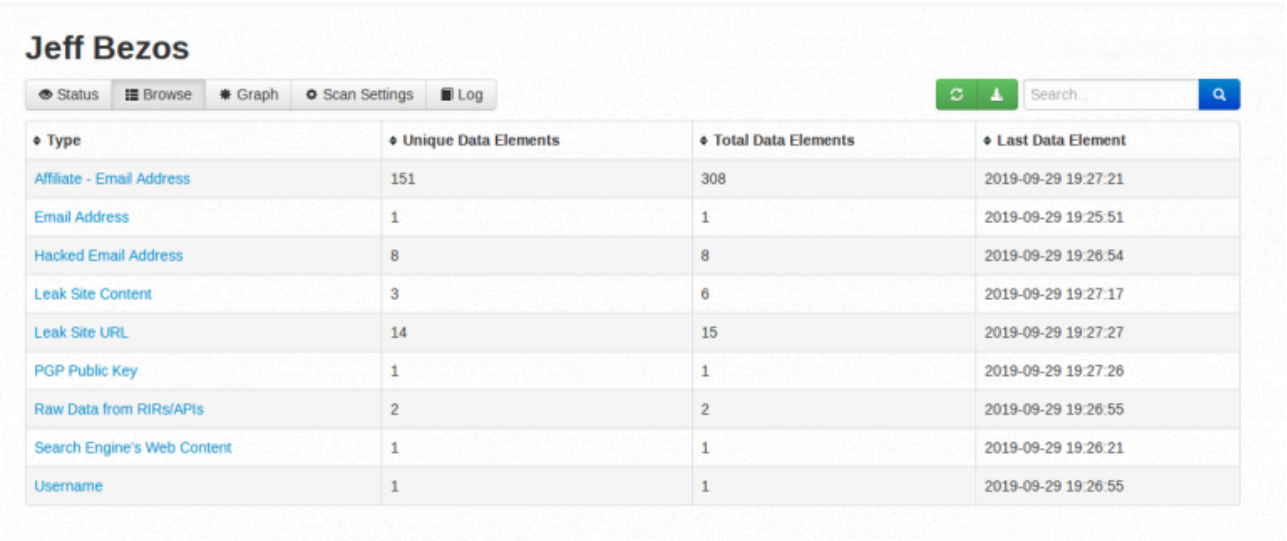
As with all search results there are a few false positives in there too, but in about fifteen minutes Spiderfoot has gathered information that would have taken me hours and hours if I were to check for it all manually.

Example 2 – Researching An E-mail Address

I mentioned Spiderfoot in my recent post on e-mail research techniques, but there's chance to go into a little more detail here. Just for an example, I'll search for Jeff Bezos' e-mail address and see what Spiderfoot pulls back.



The results will be slightly artificial for this search – someone like Jeff Bezos will have his name and e-mail address all over the internet. Real-world OSINT targets are likely to have a much smaller footprint. Part of the difficulty of writing these kind of posts is trying to use real-world examples without doxing some innocent person along the way! As you can see below, Spiderfoot finds a lot of information very quickly:



Type	Unique Data Elements	Total Data Elements	Last Data Element
Affiliate - Email Address	151	308	2019-09-29 19:27:21
Email Address	1	1	2019-09-29 19:25:51
Hacked Email Address	8	8	2019-09-29 19:26:54
Leak Site Content	3	6	2019-09-29 19:27:17
Leak Site URL	14	15	2019-09-29 19:27:27
PGP Public Key	1	1	2019-09-29 19:27:26
Raw Data from RIRs/APIs	2	2	2019-09-29 19:26:55
Search Engine's Web Content	1	1	2019-09-29 19:26:21
Username	1	1	2019-09-29 19:26:55

Spiderfoot brings back hits for associated usernames, data breaches, PGP keys, even websites where the target e-mail address is contained within the page source code. As always check everything and be mindful of the possibility of false positives.

The real strength of Spiderfoot is that by rapid automation of OSINT queries it brings back large amounts of useful data in a fraction of the time that it would take to do the same searches manually, leaving you a

lot more time to focus on the analysis and reporting aspect of your OSINT enquiries.

For updates on Spiderfoot follow its creator Steve Micallef on Twitter @binaryfoot

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8 thoughts on "Getting Started With Spiderfoot – A Beginner's Guide"

ANON
22ND DECEMBER 2021 AT 12:05 PM

so no browser for linux? ok then

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Reply

NIXINTEL
30TH DECEMBER 2021 AT 12:17 PM

There is a browser for Linux?

Loading...

Reply

JOEL PRESTON
17TH OCTOBER 2022 AT 9:31 PM

I'm new to OSINT, and relatively new to Python. These look like great instructions, but I'm struggling with errors as I work through them. When I run "python2.7 -m pip install -r requirements.txt" I get "ERROR: Could not find a version that satisfies the requirement dnspython=2.2.0 (from -r requirements.txt (line 2)) (from versions: 1.11.0, 1.11.1, 1.12.0, 1.13.0, 1.14.0, 1.15.0, 1.16.0)
ERROR: No matching distribution found for dnspython=2.2.0 (from -r requirements.txt (line 2))"

I've confirmed that I'm in Python 2.7.18 and I'm in the spiderfoot directory.
I'd be grateful for any suggestions. Thank you.

Loading...

Reply

NIXINTEL
18TH OCTOBER 2022 AT 11:45 AM

My apologies, some aspects of this guide are now out of date. Python 2.7 is no longer supported so I need to update this tutorial.

You should now use Python 3+. Check which version your system has installed by typing python -V in the console and it should tell you what version it is. You should be able to run the commands as above but replace python2.7 with python or python3, depending on what you have installed on your system.

Loading...

Reply

JOEL PRESTON
18TH OCTOBER 2022 AT 12:54 PM

Thank you NIXINTEL. I stuck with 2.7, thinking the code wouldn't work otherwise. I've got 3.9. I'll try it again. Much appreciated.

Loading...

BARRY BOOGERS
31ST MARCH 2023 AT 2:26 PM

hi,
i tried to install spiderfoot on a windows pc with GIT. I cannot proceed because i have a recent version of phyton and i tried teh steps told in this tutorial but its not working.

$ install python2.7 but it says install: missing destination file operand after 'python2.7' , try –help for more information. What do i do wrong??

Loading...

Reply

NIXINTEL
31ST MARCH 2023 AT 7:47 PM

This tutorial is slightly out of date now because Python 2.7 is deprecated, you should now use Python 3+. Check which version your system has installed by typing python -V in the console and it should tell you what version it is. You should be able to run the commands as above but replace python2.7 with python or python3, depending on what you have installed on your system.

Loading...

Reply

RAY ROBINSON
1ST MAY 2023 AT 7:07 PM

I'm also a fan of Spiderfoot. I understand it's been acquired by another company. I hope it continues to be a great standalone product and doesn't get rolled up into a really expensive suite of products.

Loading...

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