

CS 524 Homework #4

This homework is essentially a lab on DNS, for the total of **100** points.

Reading assignment: Chapter 5 (and references).

1. **(5 points)** Find out the exact number of all top domain names. Make sure you put a date and time of your finding. (Hint: use the information given at the lecture to locate the list of names at IANA.)
2. **(5 points)** Experiment with <http://whois.domaintools.com> (and also take a look at www.internic.net) and
 - a. Find the information about the *stevens.edu* domain as well as the domain of some other school (for instance, the school you had studied at before you came to *Stevens*). Who are the administrative contacts for the domains listed there?
 - b. Now, what happens when you try to find the administrative contact for the .xxx domain? Explain what you have found.
3. **(20 points)** Research the responsibilities and structure of IANA (www.iana.com) and ICANN (www.icann.com). What are the differences in responsibilities between these two organizations? Search the web for the information and then describe the controversy in ICANN concerning *Whois*?
4. **(50 points)** The *Spamhaus* attack
 - a. (5 points) Read <https://www.isc.org/blogs/is-your-open-dns-resolver-part-of-a-criminal-conspiracy-2/> . Describe (in no more than a couple of paragraphs) the *Spamhaus* attack and explain the dangers of open recursive resolvers.
 - b. (45 points) Find out (you will need to search the Web and sort out a lot of information!) how Cloudflare services were used to mitigate this attack.
5. **(20 points)** Study the *Amazon Route 53* service and answer the following questions
 - a. What does *Route 53* do?
 - b. Why is it called *Route 53*?
 - c. What other Amazon services is it designed to work with (please explain how it happens with one or two examples)?
 - d. What is the difference between the domain name and *hosted zone*?

- e. Does *Route 53* have a default for the *Time-to-live (TTL)* value?
- f. What is the pricing of the service?