

Name

Michael Casadevall

Affiliation

Independent Contractor

Relevant qualifications

- Creator and Designer of the DNSCatcher software and protocol to study and understand the behavior of recursive resolvers
- DNSCatcher's design outline is included in links, but the current proof of concept code implements a DNS recursive resolver which then provides additional logging and cross-checks to validate information to determine if a given server is giving valid server. It's intended to extend to a full validation suite of DNS behavior as well as a system of submitting work requests to allow queries to see behavior of DNS across the board
- Ubuntu Core Developer and Debian Developer with the capability to help push updates and changes to BIND and other DNS server in production to help fix bugs discovered in production
- Creator of the Network Data Recorder server/client which is designed as a SoHo IDS system. As part of its system, it scanned all outbound DNS queries via a modified version of Wireshark and performed cross-check, sanity checks, and reverse lookups to map individual lookups to a given user and provide geoIP information to help detect anomalous traffic. The project source code is currently available at <https://github.com/securedbythem>
- Experienced with embedded, IoT, and router device creation including behavior of DNS lookups of these types of devices and how they are shipped, configured and updated to provide standard DNS lookups, or recursive lookups for a given network.
- Creation of a DNS root zone emulator for testing the behaviors of IDN TLDs <https://github.com/NCommander/idn-root-zone> which implements full DNSSEC and fully manipulatable root zone, authoritative server and recursive resolver as a series of Docker images to both aid in development of DNS software, and to test the behavior of various softwares in an IDN environment (for example, validation and revocation checking of TLS certificates containing IDNs, and checking behavior of SMTP software in the face of EAs)
- I'm actively involved with UASG and extremely familiar with the IDNA specifications, and attended UASG meetings to help identify pain points and spread understanding of where to extend and help fix IDN/EAI issues on a programming language level and on a low level programming level to help solve issues higher in the stack.
- I actively read DNSOPs and occasionally participate in some email threads. I'm well familiar with the DNS protocol, and wrote a full server stack and client implementation from scratch as part of this work.
- I provided technical insight to the NARALO community on DNS-over-HTTPS and DNS-over-TLS including the risks of tying DNS to the WebPKI ecosystem, false sense of security provided by these protocols, and other design issues that need

to be aware of to help understand what DoH/DoT does and doesn't fix, and what additional work is necessary to truly provide secure and authenticated DNS records to the end user.

- I attended ICANN61, and have been a fellow for ICANN63 and ICANN65, and consider myself relatively familiar with the ICANN ecosystem and how various groups interact. I'm a member of ISOC-NY (and thus NARALO through the ALS), as well as NCUC.

Motivation for membership in the RSSAC Caucus

My primary motivation for joining the RSSAC Caucus is to help expand research into the recursive resolver behavior as well as providing help and front-line support in fixing DNS resolvers in production operating systems to help reduce load and abuse of the root servers. My skillset is basis towards the technical aspects of DNS, and I feel that working as part of RSSAC is one of the best ways I can contribute to the ICANN community.

I was encouraged to join the caucus after attending several RSSAC sessions and providing input based on my experience with device deployment and the work of my research done to date on recursive DNS resolver behavior.

Indication of availability

Any - as I'm self-employed, I set my own hours of availability and travel. I will be able to attend most of not all caucus calls, and will be able to attend events in person depending on funding and location availability.

Formal roles (if any) and interests in the work of RSSAC

None

Links

- Full design proposal sent to the OTF for DNSCatcher
https://docs.google.com/document/d/1DOLpwleSGWk9J_EHaG6TwSgB8-LKSW635VBrW-psnO4/edit
- DNSCatcher source code
<https://github.com/ncommander/dnscatcher>