

Introduction to DNS-OARC

Keith Mitchell, President

OARC31

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OARC's Mission Statement

The Domain Name System Operations Analysis and Research Center (DNS-OARC) is a non-profit, membership organization that seeks to improve the security, stability, and understanding of the Internet's DNS infrastructure.

DNS-OARC's mission is to:

- promote and conduct research with operational relevance through data collection and analysis*
- offer useful services and tools*
- build relationships among its community of members*
- facilitate an environment where information can be shared responsibly*
- enable knowledge transfer by organizing open workshops*
- increase public awareness of the DNS's significance*



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Domain Name System Operations Analysis and Research Center



OARC's Members



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It's quite hard to explain what DNS-OARC is/does...

- Are we a library, or more like a Learned Society ?
- *"Where DNS experts work together"*
- Perhaps you have to be an active, engaged Member to really “get” it...then it becomes obvious



OARC Technical Resources

- >250TB, 15+ year DNS data catalog
- Core infrastructure in Fremont, California
 - analysis servers for Member use
- Open-source DNS tool software
 - <https://www.dns-oarc.net/oarc/software>
- Suite of active DNS test services
- Secondary sites in Ottawa and Stockholm



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OARC Membership Categories

Category	Contacts	Annual
Supporter	1	\$0
Blue	2	\$1k
Bronze	3	\$6k
Silver	5	\$9½k
Gold	8	\$14k
Platinum	10	\$25k
Diamond	18	\$50k

- **Supporter** requires annual in-kind contribution
 - e.g. data, presentations, services
- **Blue** category for ^{small} organizations/individuals only



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OARC Governance

- Independent legal entity
- Diverse member base
- Financially self-supporting
 - ~\$800k annual revenue ~= expenses
- Self-governing, neutral
- Elected Board reflecting Member interests
- Contracted Executive Staff
- Volunteer workshop Programme Committee
- 501(c)3 non-profit public benefit corporation



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2018-9 OARC Board

- Jacques Latour, *CIRA*, Treasurer
- David Lawrence, Director
- George Michaelson, *APNIC*, Director
- Ondřej Surý, *ISC*, Director
- Jaromír Talíř, *CZ.NIC*, Director
- Duane Wessels, *Verisign*, Chairman



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DNS-OARC Staff Resources

- President, Secretary (*Keith Mitchell*, Indiana) 0.75 FTE
- Systems Engineer (*Matt Pounsett*, Toronto) 0.75 FTE
- Software Engineer (*Jerry Lundström*, Stockholm) 1.0 FTE
- Membership Coordinator (*Sue Graves*, Oregon) 0.5 FTE
- Events Coordinator (*Denesh Bhabuta*, London) 0.5 FTE
- Book-Keeper (*Pam Stone*, California) 0.1 FTE



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2019 OARC Programme Committee

- Anand Buddhdev, *RIPE NCC*
- Ralph Dolmans, *NLnet Labs*
- Robert Edmonds, *Fastly*
- Shumon Huque, *Salesforce* (Chair)
- Dave Knight, *Snake Hill Labs*
- Jan Včelák, *NS1*
- Jake Zack, *CIRA*
- Ondřej Surý (OARC Board Liaison)



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OARC Workshops

- 2½ workshops per year, 2 days long
- Co-location with RIPE/NANOG/ICANN meetings:
 - saves attendee time and \$\$\$\$ costs
 - overlapping operational communities, outreach
 - connectivity/facility sharing
- Sponsor and Patron support helps a lot !
 - <https://www.dns-oarc.net/workshop/patronage-sponsorship>



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What we provide to our Members and the Community

- DNS operational best-practice knowledge-sharing
- Development and maintenance of open-source DNS tools
- A range of online platforms and services to support the above
- DNS dataset collection, curation and sharing
- Collaboration venue between operators and researchers
- Workshops as a focus for all the above activities
 - “Global DNSNOG”



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Next workshops

- OARC32
- Feb 8th 2020
- San Francisco, California
- Co-located with NANOG78
- OARC33
- May 9-10th 2020
- Paris, France
- Co-located with ICANN IDS, GDD



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DNS-OARC Conduct Policy

- Applicable to all DNS-OARC activities, both at workshops and on-line:

<https://www.dns-oarc.net/oarc/policies/conduct>

- All workshop attendees and OARC Members have agreed to adhere to this policy
- Please let an OARC Staff or Board Member know if you feel this is not being complied with by anyone



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Why Become an OARC Member ?

- Access to and participation in the world's premier community of DNS technical experts
- Influence development of open tools and services to support your infrastructure operations
- Ability to share and analyze a unique dataset perspective into global DNS operations
- Use of community co-ordination resources to respond to incidents and threats
- Support a trusted neutral party free of vested interests in the DNS space



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OARC's Value Proposition

Member testimonials:

"OARC is the only organization of its kind, dedicated to DNS operations and research. Given my company's deep involvement with DNS and my personal interest, I simply have to be a member and attend the workshops, which have consistently high-quality content."

"OARC is a unique venue that brings together DNS vendors, operators of DNS services and researchers - the workshops provide a unique and valuable insight into the current state of the art of the DNS."

"DNS OARC provides the invaluable mingling of DNS operators, developers, researchers, to communicate, collaborate, and share data via workshops, mail lists, and shared computing resources. Without this association I would not be aware of the current problems facing the DNS and Internet community nor be a part of their solutions."

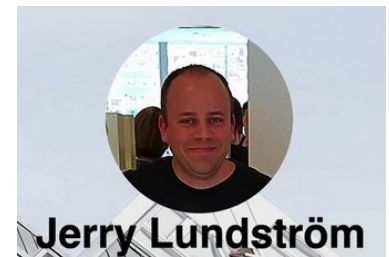
"Of all the work-related conferences I attend, @dnsoarc is reliably the one with the fewest uninteresting bits. Approaching zero."



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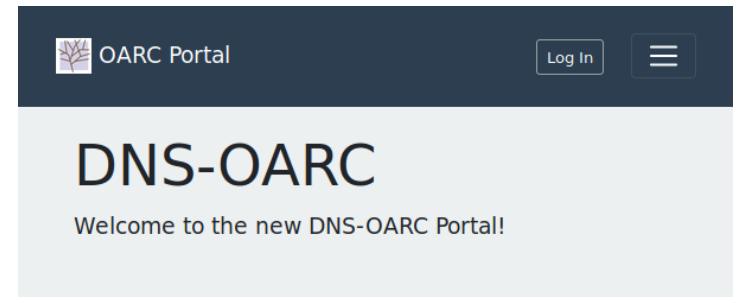
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Demo Booth



Come by the demo booth and try **dnsmeter** & **shotgun** yourself!

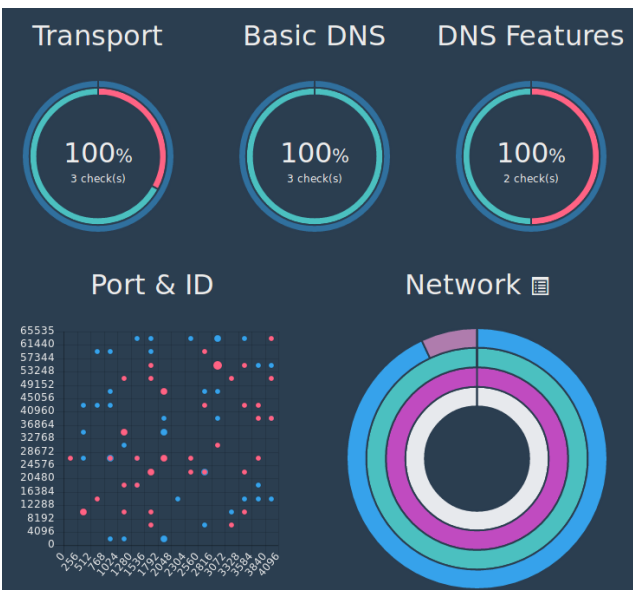
```
$ sudo dnsmeter -p payload.txt -s 127.0.1.0/24 -z 127.0.0.1:53 -l 3
INFO: Loading and precompile payload. This could take some time...
INFO: 4 queries loaded
#####
# Start Session with Threads: 1, Queryrate: unlimited
00:00:01 Queries send: 172322, rcv: 32580, Data send: 9423 KB, rcv: 6677 KB
00:00:02 Queries send: 219732, rcv: 80922, Data send: 12016 KB, rcv: 16612 KB
00:00:03 Queries send: 211729, rcv: 73739, Data send: 11578 KB, rcv: 15036 KB
00:00:04 Queries send: 86286, rcv: 34516, Data send: 4718 KB, rcv: 7074 KB
00:00:05 Queries send: 0, rcv: 0, Data send: 0 KB, rcv: 0 KB
=====
network if Pkt send: 0, rcv: 0, Data send: 0 KB, rcv: 0 KB
DNS Queries send: 690069, Qps: 230023, Data send: 37738 KB = 12 MBit
DNS Queries rcv: 221757, Qps: 73919, Data rcv: 45400 KB = 14 MBit
DNS Queries lost: 468312 = 67.865 %
DNS rtt average: 3.4190 ms, min: 0.1000 ms, max: 20.0000 ms
DNS truncated: 0
DNS RCODES: OK: 221757,
```



If you find yourself here and aren't part of DNS-OARC but want to be, please see our [Joining and Participating](#) page for more information, or email: [admin \(at\) dns-oarc \(dot\) net](mailto:admin@dns-oarc.net).

Instructions for logging in

If this is your first visit to the new portal you need to do a password reset to gain access:



```
demo@demo2:~$ dnsjit/src/dnsjit shotgun/shotgun.lua -O . -jelu/pellets.pcap -s "fd00::254" -p 53 -S 1
<< dnsjit v0.9.8 https://github.com/DNS-OARC/dnsjit/issues >>
output.dnssim[0x7f314c000b50] notice: transport set to UDP (no TCP fallback)
output.dnssim[0x7f314c000b50] notice: set target to fd00::254 port 53
output.dnssim[0x7f314c000b50] notice: processed: 256; answers: 121; discarded: 0; ongoing: 135
output.dnssim[0x7f314c000b50] notice: processed: 512; answers: 248; discarded: 0; ongoing: 264
output.dnssim[0x7f314c000b50] notice: processed: 896; answers: 436; discarded: 0; ongoing: 325
output.dnssim[0x7f314c000b50] notice: processed: 1536; answers: 750; discarded: 0; ongoing: 522
output.dnssim[0x7f314c000b50] notice: processed: 2176; answers: 1081; discarded: 0; ongoing: 635
output.dnssim[0x7f314c000b50] notice: processed: 3072; answers: 1456; discarded: 0; ongoing: 830
output.dnssim[0x7f314c000b50] notice: processed: 4192; answers: 2069; discarded: 0; ongoing: 1029
output.dnssim[0x7f314c000b50] notice: processed: 5504; answers: 2975; discarded: 0; ongoing: 941
output.dnssim[0x7f314c000b50] notice: processed: 7296; answers: 4084; discarded: 0; ongoing: 1167
output.dnssim[0x7f314c000b50] notice: processed: 8960; answers: 4963; discarded: 0; ongoing: 1474
output.dnssim[0x7f314c000b50] notice: processed: 11264; answers: 6287; discarded: 0; ongoing: 1785
output.dnssim[0x7f314c000b50] notice: processed: 14720; answers: 8567; discarded: 0; ongoing: 2167
output.dnssim[0x7f314c000b50] notice: processed: 17920; answers: 10443; discarded: 0; ongoing: 2526
```

Questions ?



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