NETBEACON INSTITUTE

NetBeacon Institute

2024 Annual Report

Letter from the Executive Director

In May 2024, we rebranded the DNS Abuse Institute as the NetBeacon Institute, with our flagship initiatives also receiving new names—NetBeacon and DNSAI: Compass became NetBeacon Reporter and the NetBeacon Measurement and Analytics Platform (MAP), respectively. Although the rebrand occurred mid-2024, for clarity and consistency, this Annual Report will use our new name and branding.

In April 2024, we saw one of the most significant changes to the landscape of DNS Abuse, the contracts administered by the Internet Corporation for Assigned Names and Numbers (ICANN) for generic Top Level Domain registries and registrars (gTLDs) changed to include requirements to mitigate well evidenced reports of DNS Abuse in specific circumstances (e.g., taking into account collateral damage). This ushers in a new era of obligations on registries and registrars operating in the gTLD space, and is a significant achievement for all those involved in raising the contractual bar.

In 2024, we continued with the evolution of our flagship products. We introduced exciting new features to NetBeacon Reporter: a mitigation monitor, ccTLD integration, and simultaneous reporting to hosts. We also published bespoke analysis from NetBeacon MAP targeting topical industry issues, such as measuring the impact of the recent ICANN contract amendments on DNS Abuse.

Our educational and collaborative work continued with a packed schedule of events and presentations, both virtual and in-person, around the world. We also expanded our team from two to three toward the end of the year to increase our engagement capacity.

The Institute is incredibly grateful for the trust and support shown by our peers within the domain and Internet security industries. With special thanks to Public Interest Registry (PIR), who created and continues to fully fund and operate the Institute, our collaboration partners, CleanDNS and KOR Labs, and our Advisory Council.

Graeme Bunton,

Executive Director

Questions, comments, and requests for more information can be sent to info@netbeacon.org.

The NetBeacon Institute

Founded in 2021, the NetBeacon Institute is dedicated to creating a safer Internet for everyone by providing a world class, comprehensive, free suite of tools. We primarily focus on DNS Abuse, defined by the domain industry as malware, botnets, phishing, pharming, and spam, when used as a delivery mechanism. The work of the Institute falls under three pillars: Innovation, Education, and Collaboration.

Institute Pillars:

Innovation — The Institute drives innovation in combating DNS Abuse through providing recommended practices, offering practical, free solutions for registries and registrars of varying sizes and resources, and funding DNS-related cybersecurity research.

Education — The Institute serves as a resource for all interested stakeholders who are curious about DNS Abuse. This includes a comprehensive resource library of existing information and practices, promulgating reporting standards, and publishing reports and case studies.

Collaboration — The Institute serves as a networking forum and central resource for all interested stakeholders, cultivating collaboration with technical, academic, and policy organizations, registries, registrars, governments, and security researchers. Our collaborative model enables all parties to be better equipped to fight DNS Abuse.

Institute Pillar: Innovation

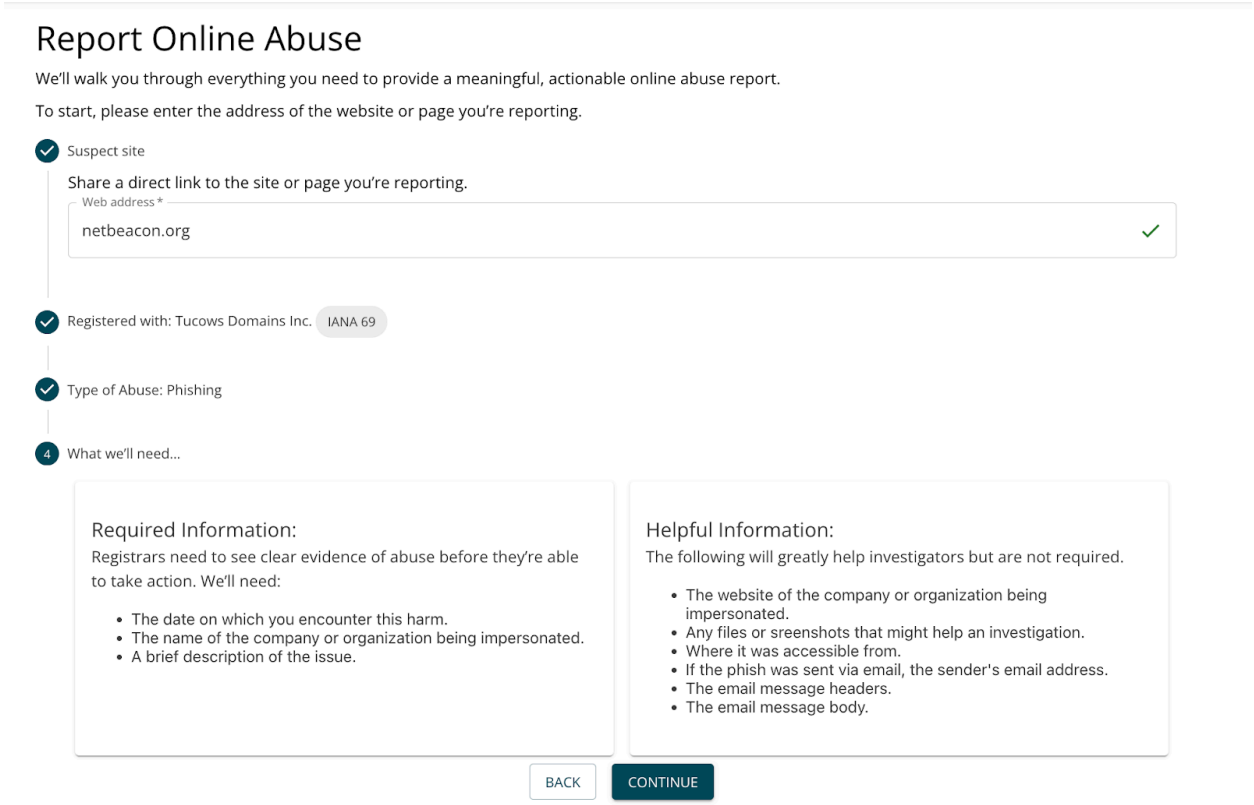
DNS Abuse is a complex, global challenge, spanning thousands of domain resellers, registrars, registries, numerous hosting companies, and content distribution networks. We're at the forefront of developing innovative tools and technologies to help understand and reduce the complexity of mitigating abuse throughout the ecosystem. In 2024, we made significant advances in our two flagship initiatives: NetBeacon Reporter and NetBeacon MAP.

NetBeacon Reporter

NetBeacon Reporter (formerly 'NetBeacon') is the Institute's centralized abuse reporting system. It launched in June 2022 with the generous support of CleanDNS who donated the initial technical development work. .

NetBeacon Reporter is a free tool that simplifies DNS Abuse reporting for individuals and organizations and aims to provide domain registrars with high quality, well-evidenced reports. This centralized system reduces the need for reporters to navigate the entire DNS ecosystem, which can be complex, onerous, confusing, and extremely difficult to scale. It also improves the quality and actionability of reports registrars receive by reducing duplication, attaching evidence and avoiding incomplete or misdirected reports which can waste time for abuse desks.

DNS Abuse reports entered into NetBeacon Reporter are standardized and enriched with information from a number of online abuse databases. A screenshot is taken and the report is then sent to the appropriate domain registrar (gTLDs) or registry (for participating ccTLDs) for investigation and action.



In 2024, the volume of abuse reports submitted through NetBeacon Reporter continued to grow, surpassing 50,000 reports by year end. Since launching in 2022, we have worked closely with registrars and reporters to onboard users, increase reporting, and improve the platform. We have now integrated KOR Labs as a reporting source into NetBeacon Reporter. This means that registrars receive timely, well-evidenced abuse reports through NetBeacon Reporter which are directly related to the numbers we measure registrars against in NetBeacon MAP. Throughout the year, feedback from registrars was consistently positive and report deliverability was high. Deliverability was generally high in 2024, the Institute actively investigated bounced reports and reached out to registrars to resolve issues. In 2024, NetBeacon Reporter introduced several enhancements to improve its functionality:

- **Mitigation Monitor:** Reporters can now track the status of their submissions. This feedback loop was the most requested feature from users, allowing reporters to see if and when incidents have been resolved. We're tracking changes to domain status, nameservers, IPs, and content for submitted URLs

for up to 7 days after submission. Results are available both via the API and web at app.netbeacon.org.

- **Automatic Reporting to Hosts:** Netbeacon Reporter now automatically and simultaneously sends reports of DNS Abuse to the associated hosting providers, if available. This means that we can help disrupt malicious domains and content simultaneously, and the reports for compromised websites get to the appropriate place to mitigate faster.
- **ccTLD Integration**: ccTLDs integrate with NetBeacon Reporter to receive and manage reports according to their local policies and processes. Integration can be as simple as providing an email address, or could involve connecting via API. Fifteen ccTLDs are already receiving reports, including some of the largest such as .de, .uk, .eu, .br, .nz, and .ca.

If you're a ccTLD operator interested in receiving abuse reports for your TLDs, please contact support@netbeacon.org.

We are grateful to CleanDNS for their ongoing development and maintenance of the platform, as well as to Abusix for access to their abuse contact database, which supports our mission of making the Internet safer.

NetBeacon MAP

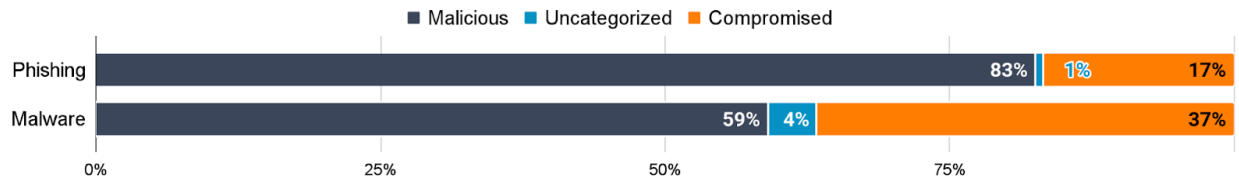
NetBeacon Measurement and Analysis Platform (MAP) (formerly 'DNSAI: Compass') provides an academically robust, independent, and transparent way to measure the use of the DNS for phishing and malware. It was developed in collaboration with our academic research partner KOR Labs, and follows a published methodology for data collection and analysis.

NetBeacon MAP provides granular data including the type of registration (malicious or compromised), mitigation rates, and mitigation speeds to further understand and empower change.

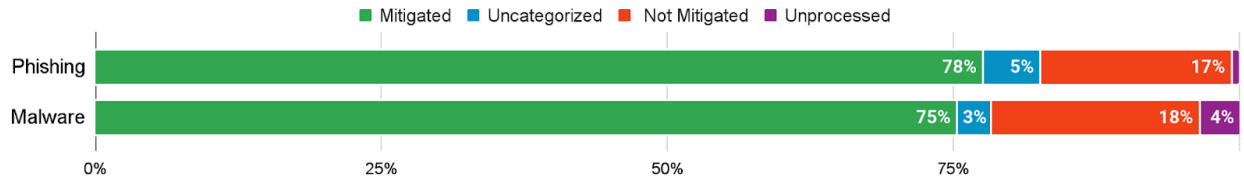
In 2024, the Institute published Monthly Analysis Reports covering aggregate trends and specific reporting by registry and registrar. Each month, we identified registries and registrars with high and low rates of malicious phishing and malware per DUM and new registrations. We also published a yearly analysis of registrar credentials, explaining our redaction policy and highlighting the high level of consistency from month to month.

In 2024, like 2023, most of the data in NetBeacon MAP related to the use of the DNS for phishing. With 389,346 unique domains associated with phishing attacks and 4,258 associated with malware distribution. This is still a very small proportion of the overall domains registered at any given point in time, which is approximately 350 million.

In 2024, our methodology classified 83% of the domains related to phishing as maliciously registered, compared to 59% of domains associated with malware distribution. This distinction is particularly relevant to mitigation, as typically the registrar or registry is *not* the most appropriate actor to disrupt abuse related to a compromised website.



In 2024, overall mitigation rates were 78% for phishing, and 75% for malware. These rates include both maliciously registered domains and compromised websites. Our mitigation measurement is agnostic to attribution; we're looking for whether our observations indicate the harm has stopped. Mitigation includes a variety of disruption actions that could have been executed by many actors in the wider Internet ecosystem (including registries and registrars, but also hosting providers or law enforcement). This reflects the complexity of mitigation, and the fact that referrals and collaboration are commonplace in abuse management processes.



In 2024 we continued to offer free Individual Dashboards for registrars and TLD operators. These provide zone-specific data and peer comparisons. All TLDs and ICANN-accredited registrars have access to a customized dashboard, contact support@netbeacon.org to gain access.

Institute Pillar: Collaboration

Making the Internet safer is an inherently collaborative endeavor involving many distributed actors making up the ecosystem. It requires voluntary actions from numerous individual Internet actors and often relies on sharing of information to create a mutual understanding. We engage collaboratively both within the DNS community and beyond to educate and share our free resources, as well as receive information from new stakeholders and new regions. Collaboration enables us to better serve our mission, and inform the development of our free flagship products.

Engagement

The Institute is deeply engaged with the DNS community and beyond, participating actively in networks like the Internet and Jurisdiction Policy Network, the Global Cyber Alliance, TopDNS from ECO, and ICANN, especially within the Registry Stakeholder Group (RySG) DNS Abuse Group and the Contracted Party House (CPH) DNS Abuse

Group. We also conduct regular outreach to broader stakeholders not typically involved in domain industry events, explaining DNS Abuse, industry activities, and the work of the Institute. These stakeholders include governments, law enforcement, civil society, trade organizations, special interest groups, and inter-governmental organizations.

Enablement

The Institute hosts a Slack community workspace for interested registrars and registries. This platform serves multiple purposes, from providing valuable feedback on Institute ideas and work to sharing information, tips, and actionable abuse intelligence. Participants frequently exchange advice and input on tackling abuse, making it a vibrant hub for collaboration.

The Institute presented the Keynote Speech at the first Paraguay DNS Forum in August 2024.

Participation

The Institute has participated in numerous events over the past year, some highlights include:

- IWF Report Launch, London
- Nordic Domain Days, Stockholm
- CENTR Jamboree, Copenhagen
- CENTR Legal & Regulatory Meetings
- APTLD86, Da Nang
- LAC DNS Week, Santa Marta (virtual)

- Geo TLD Event, London
- Contract Parties Summit, (CPS), Paris & the co-located CPH DNS Abuse Day for which the Institute planned the agenda
- Paraguay DNS Forum, Asuncion
- ICANN79 Community Forum, San Juan
  ICANN80 Policy Forum, Kigali
- ICANN81 Annual General Meeting (26th), Istanbul
- Global Anti Scams Alliance (GASA) Summit, Lisbon
- Canada - U.S. Cybercrime Exchange Sprint

ICANN81 in Istanbul, where the NetBeacon Institute had its first booth

NetBeacon Institute Partners

The Institute relies on the ongoing support of our valued delivery partners.

- Clean DNS
  The Institute partnered with the cybersecurity and investigative professionals at CleanDNS to develop the NetBeacon Reporter platform.
- KOR Labs
  The Institute partners with KOR Labs for the delivery of NetBeacon MAP. KOR Labs is led by Dr Maciej Korczynski, a professor at Grenoble Alpes University in France.

The Institute also collaborates informally with a number of organizations working to make the Internet safer for all by helping to reduce DNS Abuse. Including:

- Asia Pacific Network Information Centre (APNIC)
- Asia Pacific Top Level Domain Association (APTLD)
- Africa Top Level Domains Organization (AfTLD)
- Latin American and Caribbean Country Code Top-Level Domain Association (LACTLD)
- Anti-Phishing Working Group (APWG)
- European country code top-level domain (ccTLD) registries (CENTR)
- Global AntiScam Alliance (GASA)
- Global Cyber Alliance (GCA)
- ECO Top DNS
- ICANN
- Internet & Jurisdiction Policy Network
- Internet Infrastructure Association

Institute Pillar: Education

Considerable elements of our education pillar are delivered through our Collaboration activities including the events we attend and the presentations we deliver globally and virtually.

In addition to these events, in 2024, the Institute published several reports and articles on key topics. These publications include bespoke analysis from our NetBeacon MAP project, as well as wider informative resources. They aim to educate and inform the community, driving forward the conversation on combating DNS Abuse.

- GAC Communiqués and Community Activity on DNS Abuse: The Institute released an updated report detailing references to DNS Abuse by the Governmental Advisory Committee (GAC) (part of the ICANN multi-stakeholder model), summarizing relevant community activity, and highlighting remaining gaps.

- How have the gTLD contractual amendments impacted DNS Abuse? The new gTLD contract amendments, introduced in April 2024, created obligations for registrars and registries to mitigate DNS Abuse. The Institute published a variety of visualizations to understand the impact of the amendments on registrar behavior. Early data suggests a promising trend of higher mitigation rates.
- How Did the Closure of Freenom Impact DNS Abuse Across the TLD Ecosystem? This Institute analysis uses NetBeacon MAP data to understand the impact of the closure of Freenom in March 2023, which offered free registration of various ccTLDs.
- Why Measuring DNS Abuse is Difficult and Why do different DNS Abuse measurement projects result in different numbers? The Institute summarizes methodologies for measuring DNS Abuse, and explains why different projects produce different results.

Looking Ahead

In 2025, we are focused on ensuring we have the resources to expand and improve our two flagship initiatives with additional features: NetBeacon MAP and NetBeacon Reporter. We continuously look for ways to deepen our engagement with stakeholders and ensure we progress with feedback and input from users of our products and the wider Internet community.

Advisory Council

The Institute would like to thank its advisory council for its time and contributions. Members at the end of 2024 were:

Member	**Affiliation**
Alissa Starzak	Cloudflare
Ashley Heineman	GoDaddy

Bertrand de la Chapelle	Internet & Jurisdiction
Bruce Tonkin	.au Domain Administration Ltd. (auDA)
Bruna Martins Dos Santos	Data Privacy Brasil Research Association
Chris Disspain	Identity Digital
Crystal Ondo	Google Registrar and Registry
Drew Bagley	Crowdstrike
Jeff Bedser	CleanDNS
John Crain	ICANN
Keith Drazek	Verisign
Maciej Korczynski	Univ. of Grenoble, KOR Labs
Mike Silber	PIR Board Liaison
Nick Wenban-Smith	Nominet UK
Reg Levy	Tucows
Rod Rasmussen	Independent
Tobias Knecht	Abusix, Inc
Owen Smigelski	NameCheap

Appendix 1: Additional 2024 Reference Materials

Domain Trust and 2024: The Year of Domain Abuse Mitigation, 18 April 2024
https://globalcyberalliance.org/domain-trust-and-2024-the-year-of-domain-abuse-mitigation/

Introducing the NetBeacon Institute: Empowering a Safer Web, 6 May 2024
https://www.newswire.ca/news-releases/introducing-the-netbeacon-institute-empowering-a-safer-web-893457469.html

Introducing the NetBeacon Institute: Empowering a Safer Web. 6 May 2024
https://www.darkreading.com/vulnerabilities-threats/introducing-the-netbeacon-institute-empowering-a-safer-web

The NetBeacon Institute: a new chapter in combating DNS abuse, 16 May 2024
https://webhosting.today/2024/05/16/the-netbeacon-institute-a-new-chapter-in-combating-dns-abuse/

NetBeacon Institute Emerges to Fight Growing Online Abuse, 8 May 2024
https://startupworld.tech/netbeacon-institute-emerges-to-fight-growing-online-abuse/https://startupworld.tech/netbeacon-institute-emerges-to-fight-growing-online-abuse/

Trust and Safety in Domain Name Governance, 5 August 2024
https://www.lawfaremedia.org/article/trust-and-safety-in-domain-name-governance

Why Canadian websites are bypassing .com in favour of the .CA domain, 28 October 2024
https://www.theglobeandmail.com/business/adv/article-how-the-ca-domain-can-help-build-your-brand-and-your-online-security/