



87

ANNUAL
GENERAL
MEETING



Inside IROS

Identifier Research, Operations, and Security Function

October 2026

IROS (Identifier Research, Operations and Security)

The IROS function
an umbrella that covers two teams:

Office of the Chief Technology Officer
(OCTO)

Collecting data, researching and writing papers, providing training and capacity building, and trying to help identify and measure DNS security threats and abuse.

IANA Functions

Delivering the names, numbers, and protocol parameters functions that the community depends upon for the Internet to work.

IROS (Identifier Research, Operations and Security)

- **Business Operations:** Liaise between OCTO and other ICANN functional teams and facilitate OCTO-specific meetings and activities - ICANN DNS Symposium (IDS), budget management, as well as provide project management and other support to OCTO and IANA (as requested).
- **Technical Engagement (TE):** Develop framework for organizations to cooperate, coordinate, and collaborate with ICANN on technical matters. Ensure a coherent technical engagement across ICANN by framing and communicating the organization's technical position.
- **Research:** Provide trusted and verifiable information to the Internet community regarding the system of unique identifiers. Perform studies or analyze data to better understand the health and well-being of the DNS ecosystem.
- **Security Stability and Resiliency (SSR) Research:** Leads cybersecurity discussions and contributes subject matter expertise, research and tooling that, in one form or another, helps to maintain secure and resilient identifier systems.

Technical Engagement

Technical Engagement

- To help promote best practices and technical knowledge related to the Internet unique identifier system that ICANN helps coordinate;
It Involve
 - *Lead engagement on Unique Identifiers operational best practices.*
 - *Develop and Maintain tools that support an effective technical knowledge sharing.*
 - *Coordinate ICANN the Knowledge-Sharing and Instantiating Norms for DNS and Naming Security (KINDNS - kindns.org) initiative.*
- To coordinate, develop and sustain ICANN engagement with the global technical community.
- To ensure ICANN constituencies are continuously informed of ICANN technical works;

Technical Engagement

- o **Technical capacity building and outreach:**
 - Regional/local training and capacity development programs
 - Technical content for online training platform (ICANN-Learn)
 - Training partnerships
- o **Engagement with the broader technical community:**
 - Promote ICANN's technical initiatives
 - Technical assessment of policies, regulations, and technology trends
 - Support regional communities on technical topics (IDNs, DNS, DNSSEC, security best practices for Internet Identifiers System)
 - Support SSAC, RSSAC, UASG, and other advising constituencies engagement efforts
 - Engage with Law Enforcement and Public Safety Community on DNS technical related matters.
 - Support CDA technical Tracks (DNSSEC Roadshow, IXP, IMRS & ccTLD Capacity Building)

Regional Coverage



Adiel Akplogan,
Vice President for
Technical Engagement



Nicolás Antoniello



Yazid Akanho



David Huberman



Ulrich Wissner



Champika Wijayatunga

Technical Engagement



TECHNICAL
TRAINING
EUROPE

Advanced DNSSEC

*Prerequisites: Basic knowledge of
DNS and DNSSEC*



18 September 2024



12:00 - 13:30 UTC

REGISTER NOW

ULRICH WISSER
Regional Technical
Engagement Manager
for Europe, ICANN



WHAT WE DO

**STRENGTHENING
ICANN'S ENGAGEMENT
WITH THE GLOBAL
TECHNICAL COMMUNITY**



Research

Research Goals

- Provide trusted and verifiable information to the Internet community regarding the system of unique identifiers
- Engage actively with the DNS technology communities to identify issues that fall within ICANN's remit and will benefit from the focused attention our researchers can bring to bear on the issue
- Facilitate or participate with these same communities in preparedness activities to protect against or mitigate threats to DNS ecosystem
- Perform studies or analyze data to better understand the health and well-being of the DNS ecosystem
- Root server traffic research
- Represent ICANN org on RSSAC

Research Activities

- o Identifier Technology Health Indicators (ITHI)
 - Develop metrics to measure the health of the Internet's unique identifier system
- o DNS authoritative servers and resolvers
 - Concentration and distribution
- o Resource Public Key Infrastructure (RPKI)
 - Coverage of DNS servers and resolvers by Route Origin Authorizations (ROAs)
- o DNSSEC error reporting
 - Develop protocol and facilitate and encourage implementation
- o ICANN L-root root server behavior
 - Tracking round trip times from various locations

Security, Stability, & Resiliency Research

SSR Research Goals

Support ICANN's commitment to ensure the security, stability, and resiliency of the topmost

levels of the Internet's system of unique identifiers by:

- o Understanding the state-of-the-art research
- o Leading and carrying out research in the areas that is relevant to the SSR of DNS
- o Creating tools, visuals and data that helps the community to understand and measure events related to SSR of DNS
- o Facilitating cyber security discussions
- o Contributing subject matter expertise or data that helps maintain secure and resilient identifier systems
- o Educating the community on the topics related to SSR of DNS
- o Providing funding to projects/conferences that require support

Key SSR Research Activities

- o ICANN Domain Metrics **Keep an eye for the updates in the Techday - Try the platform**
- o Inferential Analysis of Maliciously Registered Domains (INFERMAL) - final report out on ICANN website
- o Quantifying the prevalence and implications of “**Active**” Domains
 - Paper accepted and presented at IEEE Security & Privacy EUROPE 2023
- o Developing a **classifier** for **unsolicited** email, based on data from APWG
 - Paper accepted and presented at TRUSTCOM 2023
- o Developing Metrics that allows for Reputation Block Lists **Evaluations**
 - Paper accepted and presented at APWG e-crime 2023 conference
- o Blockchain based domains based on **root data observations**
 - Initial research results presented at IDS
- o DNS Abuse prediction research: Flag potentially malicious domain names using ML techs
- o Estimating malicious domains’ **uptime**

The work of the IROS team

Where can you find it?

OCTO Document Series

- o OCTO publishes technical documents written by OCTO authors in the OCTO document series
 - Series started in 2019
 - Published 41 documents and counting
- o Recent examples:
 - A Verifiable and Reproducible Random Candidate Selection Process (OCTO-041)
 - Introduction to Blockchain Technologies (OCTO-040)
 - Introduction to Blockchain Name System Technologies (OCTO-039)
 - Methodology to Classify Unsolicited Email Threats (OCTO-038)
 - RBL Evaluation Methodology (OCTO-037)
- o Links to all documents at <https://www.icann.org/octo/publications>

External work of the OCTO team

ICANN Blog



ICANN Trains More than 200 Students During Grenada ICT Week

13 March 2023

By David Huberman and Naela Sarraz



ICANN Mobile Network Operator Day 2023: Strengthening the DNS Ecosystem Security

30 November 2023

By Yazid Akanho



ICANN Publishes Paper on Defense Mechanisms Against Harmful Internet Content

18 December 2023

By Carlos Hernandez Ganan, Siôn Lloyd, and Samaneh Tajalizadehkhoob, Ph.D.

Reputation Block Lists (RBLs) serve as a common defense against harmful and unwanted Internet content. These lists contain the Internet Protocol addresses, domain names, or full uniform resource locators of known spam sources, phishing pages, malicious sites, or other unwanted content. We use these data sources for producing metrics in systems like [ICANN's Domain Abuse Activity Reporting \(DAAR\) system](#) for research, and as training sets for machine learning models, among other uses. Organizations may use RBLs to block incoming or outgoing access to domain names, filter spam, warn about phishing or other activities, all of which protect users from online threats.

Speaking engagements



84

ANNUAL GENERAL MEETING

INTERNET SERVICE PROVIDERS AND CONNECTIVITY PROVIDERS (ISPCP) CAPACITY BUILDING WITH OCTO



ULRICH WISSNER
RECEPTION MANAGER
EUROPE



YAZID AKANHO
RECEPTION MANAGER
MOBILE EAST AND AFRICA



9 NOVEMBER 2024
ICANN.ORG

DIVE INTO ICANN'S OCTO TEAM AND ITS INITIATIVES



Questions?



icann.org



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youtube.com/icannnews



flickr.com/icann



linkedin.com/company/icann



instagram.com/icannorg

IANA Functions

Kim Davies

VP, IANA Services & President PTI

What is IANA?

- The record keeper for the unique names and numbers used by internet technologies to interoperate.
- The IANA functions pre-date ICANN. In 1988, ICANN was established to be the home of the IANA functions.
- The unique identifiers include protocol parameters, Internet numbers and domain names.
- The IANA team maintains these records according to the policies.

Why do the IANA functions exist?

- Coordinating the internet unique identifier systems is needed to ensure the Internet interoperates globally.
- If internet-connected devices do not use the same system of identifies and numbers to talk to one another, the system will not interoperate. (i.e. speak a common language)
- The authoritative registries are used by vendors, service providers, businesses, application developers and others to innovate and expand the use of the internet.

Core Deliverables

Protocol Parameters: Create new registries, or add new values to existing registries.

Names: Assignment and transfer of TLDs and routine maintenances of name servers and other technical elements; Manage the Root Zone KSK

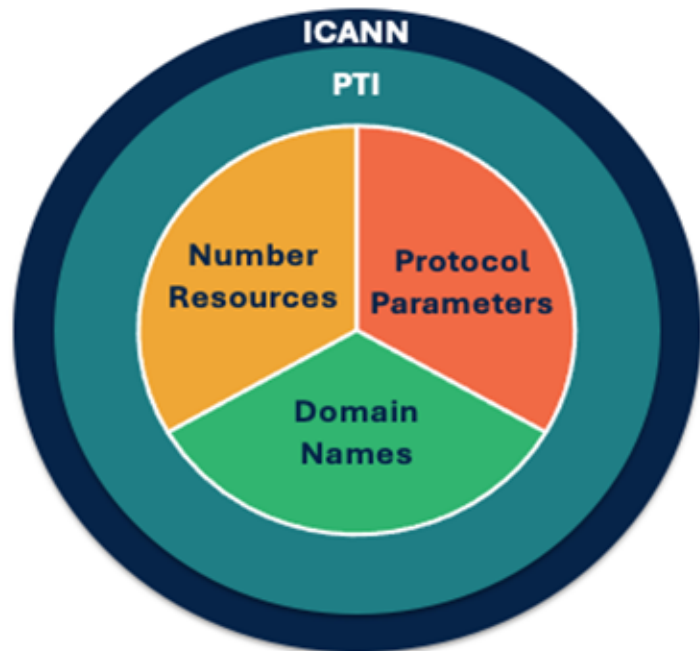
Numbers: Allocate large IP Address blocks to RIRs for distribution to their communities.

- Manage registry data - approx 4000 registries
- Serve as SME for upcoming standards efforts and global policy development.
- Adhere to contractual mandates - Service level Agreements.

Who's involved?

ICANN oversight of the IANA Functions

How ICANN supports and oversees PTI



Three IANA functions

ICANN responsibilities

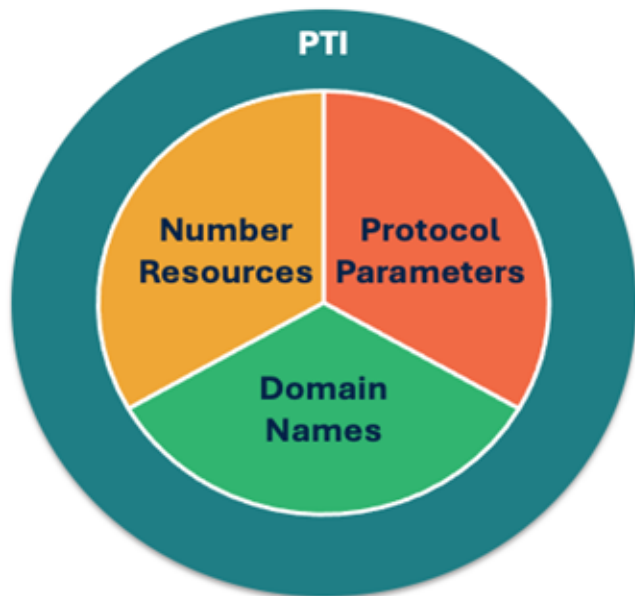
- 01 Responsible for the IANA functions
- 02 Contracts PTI to perform the IANA functions
- 03 Oversees PTI's performance
- 04 Provides shared resources (Legal, IT, HR, Finance and many others)
- 05 Provides all funding to PTI

Additional accountability

Customer Standing Committee and IANA Naming Function Reviews

Oversight of Public Technical Identifiers (PTI)

PTI performs the three IANA functions



Three IANA functions

About PTI

01

A nonprofit organization created in 2016

02

Performs the IANA functions

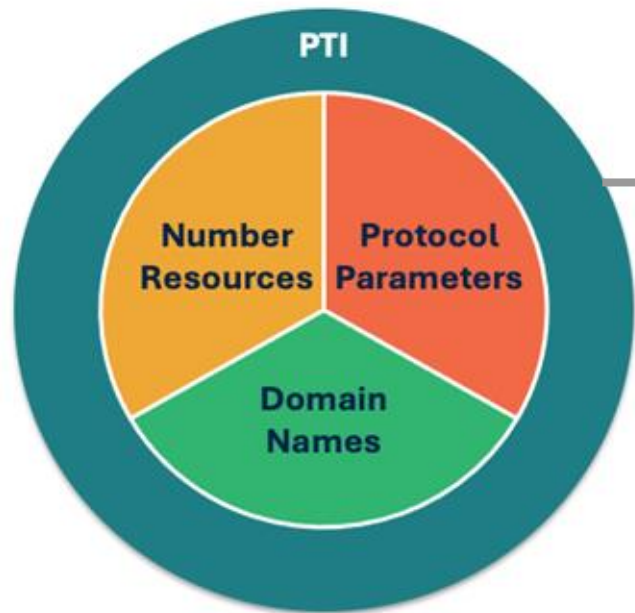
03

Hires the IANA staff

04

ICANN is PTI's sole member (an affiliate of ICANN)

Oversight of PTI Board



**Five-member board of directors
including two Nomcom appointees**

Board of Directors



Anupam Agrawal

NOMCOM APPTTEE



Xavier Calvez

ICANN CFO



Kim Davies

PTI PRESIDENT



John Crain

ICANN CTO



Lise Fuhr

CHAIR
NOMCOM APPTTEE

The Team



 Operations Team  Strategic Projects Team
 Technical Services Team  Leadership



IANA Operations

- Process all requests for Protocol Parameters, Internet numbers and Domain Name Functions
- IANA Subject Matter Experts for process and system enhancements, and customer engagement
- Adherence and reporting to various SLAs
- Emergency Root Zone change requests



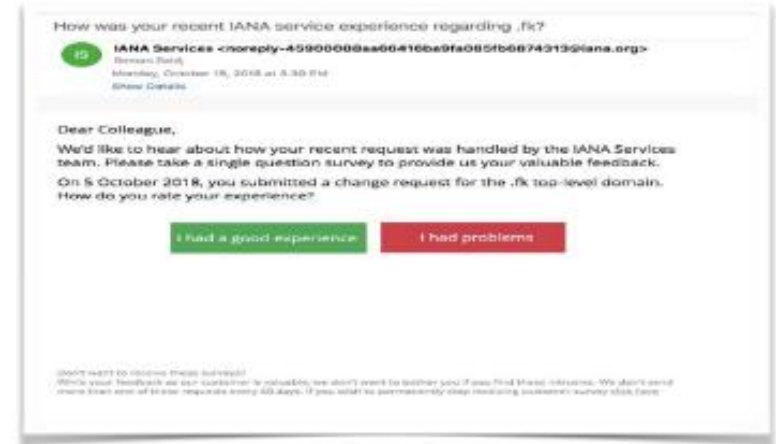
IANA Technical Services

- Software Development
- Product Management
- Cryptographic Business Operations - Root Zone Key Signing
- System monitoring and maintenance



IANA Strategic Programs

- Third-Party Information Security Audits
- Risk, Audit & Compliance
- Customer Satisfaction Surveys
- Project Management
- Community Engagement
- Strategic and Operating plan & Budget



Key Takeaways:

The IANA Department Does

- ✓ Create registries based on policies from the community
- ✓ Maintain existing registries
- ✓ Allocate number resources
- ✓ Publish all registries for general public use

The IANA Department Doesn't

- ✗ Create nor interpret policy
- ✗ Determine what can be a domain name
- ✗ Choose TLD Managers

Want to know more?

- **IANA Modernization and 10 years of PTI**
 - Detailed review of our recent work and what we've accomplished over the past 10 years, and what's to come
 - Wednesday October 21, 10:30am Bali time
 - Nusantara 3 (ccNSO Room)