



# SSAC Activities Update as of September 2022



# Security and Stability Advisory Committee (SSAC)

## Who We Are



• 36 Members



• Appointed by the ICANN Board

## What We Do

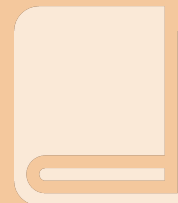


Role: Advise the ICANN community and Board on matters relating to the security and integrity of the Internet's naming and address allocation systems.

## What is Our Expertise

- Addressing and Routing
- Domain Name System (DNS)
- DNS Security Extensions (DNSSEC)
- Domain Registry/Registrar Operations
- DNS Abuse & Cybercrime
- Internationalization  
(Domain Names and Data)
- Internet Service/Access Provider
- ICANN Policy and Operations

## How We Advise



**121 Publications  
since 2002**



# Security and Stability Advisory Committee (SSAC)

## ICANN's Mission & Commitments

- Ensure the stable and secure operation of the Internet's unique identifier systems.
- Preserve and enhance the administration of the DNS and the operational stability, reliability, security, global interoperability, resilience, and openness of the DNS and the Internet.

## SSAC Publication Process

Form  
Work Party



Research and Write  
Report



Publish



Review and  
Approve

## Consideration of SSAC Advice

(to the ICANN Board)

SSAC Submits Advice to ICANN Board



Board Acknowledges & Studies the Advice



Board Takes Formal Action on the Advice



1. Refer to GNSO for  
policy development



2. Forward to affected  
parties for their  
consideration



3. Direct org to implement  
with public consultation



4. Decline advice  
with explanation

# SAC121: SSAC Briefing on Routing Security

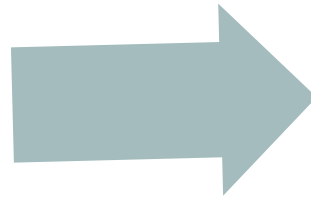
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- **Background Technical Information**
- **Routing Security and the Domain Name System (DNS)**
- **Efforts to Enhance Routing Security**
- **Operating Secured Infrastructure**
- **Key Takeaways**

# The Relevance of Routing Security for the DNS

## The DNS protocol and DNS resolution are susceptible to routing incidents

- Many authoritative DNS servers answer any query they receive
- Many DNS clients do not authenticate the identity of the server that provides the answer, and do not perform DNSSEC validation
- Stub resolvers have no visibility into which authoritative servers provide answers to queries
- Vast majority of DNS queries are in the clear and use UDP as the transport protocol



- A routing attack can substitute one DNS server for another without the awareness of the client
- Routing attacks can alter the network path of a query, allowing third parties to inspect DNS queries or otherwise eavesdrop on transactions.

# SAC120: Input to GNSO IDN EPDP on IDN Variants

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- A variant management mechanism serves two purposes:
  - Enhance security of IDNs that have variants
  - Promote an acceptable experience that meets the user expectations for those IDNs
- Balancing Security and Usability:
  - IDN and its variants must be treated as a single package from a domain provisioning and life cycle management perspective
  - Variants of an IDN that are in actual use can be delegated.

# SAC120: Input to GNSO IDN EPDP on IDN Variants

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- Important Limitations:
  - There is no protocol solution in the DNS or other protocols (e.g., HTTP, SMTP, TLS) to enforce equivalence of variant domains.
  - Management of variant domains can introduce a combinatorial explosion for registries, registrars and registrants and need to be managed carefully
- These limitations call for a conservative approach in the delegation and management of variant domain names.
- The Root Zone must use the ICANN Root Zone Label Generation Rule to determine variants for all current and future TLDs.

# NCAP (name collision project) Background

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- ICANN Board tasked SSAC to conduct studies to present data, analysis and points of view, and provide advice to the Board on name collisions
  - Specific advice regarding .home/.corp/.mail
  - General advice regarding name collisions going forward
- Studies to be conducted in a thorough and inclusive manner that includes other technical experts
  - 25 discussion group members, including 14 SSAC work party members
  - 23 community observers
  - Chaired by James Galvin and Matt Thomas



# Current Work Parties

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- Name Collision Analysis Project
- DS Automation
- Evolution of DNS Resolution
- DNSSEC and Security Workshops (Ongoing)
- Membership Committee (Ongoing)

# SSAC Member Skills, hunting for new community members

- The skills of SSAC members span the following categories:

Domain Name System	IP Addressing/Routing
Security	Registration Services
Abuse	Internationalized Domain Names
Root Server System	Information Technology
Non-Technical (e.g., legal, risk management, business skills)	

- The [SSAC Skills Survey](#) is used to document the skills of all existing and potential SSAC Members