ICANN 73
VIRTUAL COMMUNITY FORUM

SSAC Activities Update
Rod Rasmussen, SSAC Chair | ICANN73 | March 2022

Agenda

- SSAC Overview

- Update on Name Collision Analysis Project

- Updates on SSAC Work Parties

- SSAC New Member Outreach

- Q&A

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
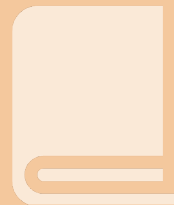
119 Publications since 2002

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**

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Review and Approve

←

Publish
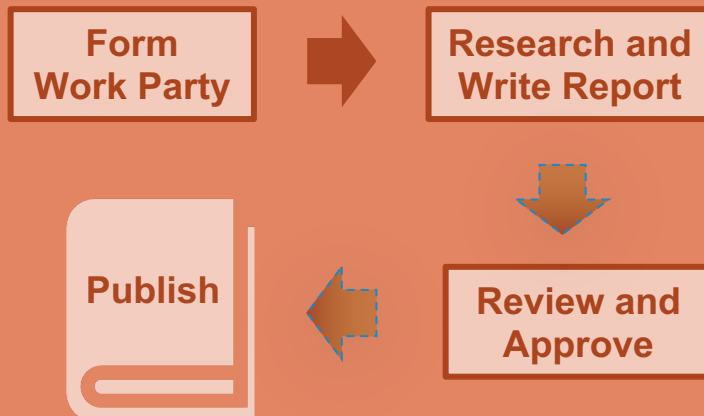
Consideration of SSAC Advice

(to the ICANN Board)

SSAC Submits Advice to ICANN Board

↓

Board Acknowledges & Studies the Advice

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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

Security and Stability Advisory Committee (SSAC)

Recent Publications

[SAC119]: Feedback to the GNSO Transfer Policy Review PDP WG

[SAC118v2]: SSAC Comments on Initial Report of the Expedited Policy Development Process (EPDP) on the Temporary Specification for gTLD Registration Data Team – PHASE 2A

[SAC117]: Report on Root Service Early Warning Systems

ICANN | SSAC

Security and Stability Advisory Committee

Outreach

🌐 ssac.icann.org and SSAC Intro: www.icann.org/news/multimedia/621

f www.facebook.com/pages/SSAC/432173130235645

▶ SAC067 SSAC Advisory on Maintaining the Security and Stability of the IANA Functions Through the Stewardship Transition and SAC068 SSAC Report on the IANA Functions Contract: www.icann.org/news/multimedia/729

Name Collision Analysis Project

James Galvin and Matthew Thomas
(NCAP Co-Chairs)

NCAP Background

- 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

NCAP - Recent Publications

- Case Study of Collision Strings

  - Studies of .corp, .home, .mail, .internal, .lan, and .local using DNS query data from A and J root servers.

  - Highlight changes over time of the properties of DNS queries and traffic alterations as a result of DNS evolution.

- A Perspective Study of DNS Queries for Nonexistent Top-Level Domains

  - Aims to understand the distribution of DNS name collision traffic throughout the DNS hierarchy

  - Provide insights into where and how DNS data can be collected and assessed.

NCAP - Key Findings so far

- Name collisions are and will continue to be an increasingly difficult problem; case study indicates impact has increased

- Critical Diagnostic Measurements (CDMs) are defined as a way to measure name collisions and assess their impact

- Any root server identifier is representative of the CDMs seen in the RSS

- Mitigation and remediation is problematic, increasingly difficult as the volume and diversity of CDMs increases

- Existing measurement platforms could be extended to help inform applicants

- DNS-SD protocols and suffix search lists are a continuing problem

NCAP - Critical Diagnostic Measurements

- Query Volume
- Query Origin Diversity
  - IP address distribution
  - ASN distribution
- Query TYPE Diversity
- Label Diversity
- Other characteristics
  - Open-Source Intelligence (OSINT)

- **Impact (or Harm) is determined by evaluating both Volume and Diversity across all CDMs**

NCAP - Work in Progress

- The NCAP discussion group is developing a framework to assess name collisions

  - How the Board is going to assess name collisions
  - Guidance on how to consider the risks of delegation given the existence of name collisions

- The initial framework, along with findings from other studies, will be published for public comment in 2Q2022.

NCAP - How to Participate

- Review the reports currently in public comment and submit comments

  - https://www.icann.org/en/public-comment/proceeding/name-collision-analysis-project-ncap-study-2-documents-27-01-2022

- Join the discussion group

  - https://docs.google.com/forms/d/1PDIX6sMldP4vLn1LLuefxsup78mLM0iDb8ybWhIw2T4/edit

Updates on SSAC Work Parties

Current Work Parties

- Name Collision Analysis Project

- Routing Security

- Reviewing Community Feedback on SAC114 [SubPro]

- EPDP-Temp Spec

- Registration Transfer Policy Review (TPR)

- DS Automation **NEW**

- Evolution of DNS Resolution **NEW**

- DNSSEC and Security Workshops (Ongoing)

- Membership Committee (Ongoing)

Routing Security

- The scope is to examine the security and stability implications of insecurities in the Internet's routing system, and ways network operators can address them

- The publication will provide a high level overview of

  - The Internet's routing system

  - Potential impacts of incorrect route announcements

  - The role of network operators in securing the Internet's routing system

  - The implications of routing security issues

- The focus is on the security and stability implications of routing incidents for the DNS and DNS operators

- Report expected by ICANN74

Reviewing Community Feedback on SAC114

- SSAC published SAC114: SSAC Comments on the GNSO New gTLD Subsequent Procedures Draft Final Report on 11 Feb 2021

- SAC114 contains commentary on both the final report of the GNSO Subsequent Procedures Working Group and observations and recommendations on wider issues tied to increasing future delegations of new gTLDs.

- SSAC received feedback from the ICANN Board, RySG, and community members during ICANN70

- SSAC is actively considering the language and recommendations in SAC114 to update our advice informed by the feedback received from the community and shaped by an SSR perspective

EPDP- Temp Spec

- SSAC published SAC118v2 on 17 November

- [Summary of v2 changes]

- Steve Crocker is participating in the GNSO Council's small group to discuss options for the SSAD

- SSAC is responding to ICANN org's understanding request on SAC118v2

Registration Transfer Policy Review (TPR)

- SSAC involvement via an invited subject matter expert

- Main focus of WG is consideration of authInfo code and loss of access to contact details

- We have raised the question of smooth transition of DNS operation, both signed and unsigned.

DS Automation

- **Goal:** Develop recommendations for automated management of DS records

- **Scope:** Investigate the current state of DNSSEC DS RRSet management, including the methods available currently, and to possibly recommend new methods that may more easily facilitate DS key updating

- **Deliverable:** An advisory that explains the issues, surveys the possible solutions, and provides recommendations to registries, registrars, and DNS service providers to facilitate the automatic initialization and updating of DS records

- **Intended Audience:** Registry, registrar, and DNS service provider industry

Evolution of DNS Resolution

- **Goal:** Discuss technologies that are changing the nature of DNS resolution and the implications of these changes on the DNS namespace, provisioners, and operators of DNS infrastructure

- **Scope:** Explore the current state and evolving nature of DNS resolution.

- **Deliverable:** An SSAC report that analyzes the effects of relevant new technologies. The report may also suggest methods to measure the implications of these technologies, and possibly propose instrumentation to provide measurements where there may be instrumentation gaps.

- **Intended Audience:** The ICANN community and the greater Internet community. This includes network operators, DNS software implementers, policy makers, and concerned Internet users.

Topics of Interest/Possible New Work

- Examining datasets available from ICANN for use in the investigation of SSR-related issues that fall within SSAC's remit

- Examining practices that can potentially expose registrants to domain name hijacking via lame delegations

- Technical implications of forced removal or transfer of a TLD

- Long-term implications of namespace expansion

SSAC Skills and Potential New Member Outreach

Julie Hammer

SSAC Member Skills

- The skills of SSAC members span the following categories:

  - Domain Name System
  - Security
  - Abuse
  - Root Server System
  - IP Addressing/Routing
  - Registration Services
  - Internationalized Domain Names
  - 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
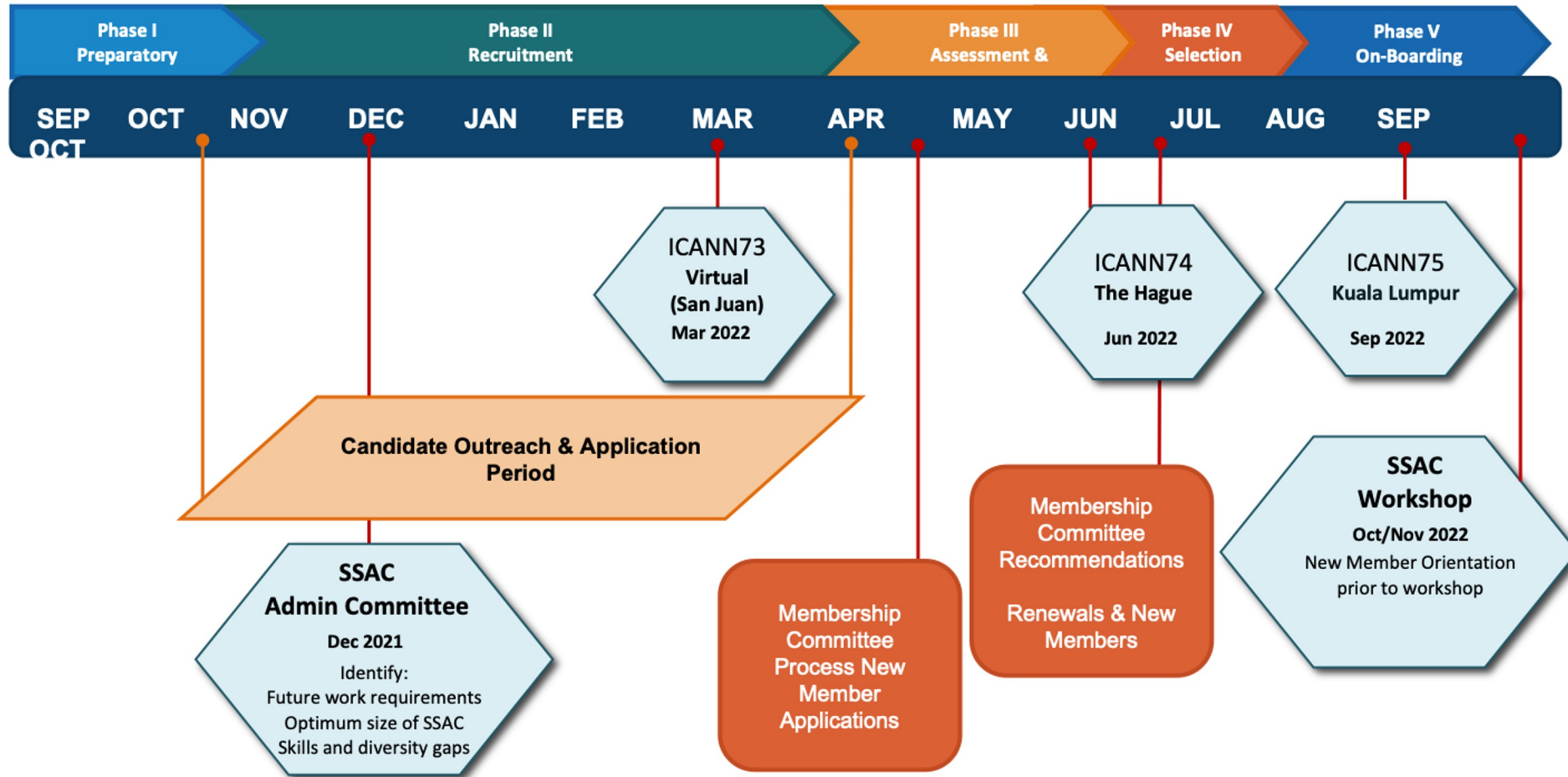
SSAC New Member Outreach

- SSAC is looking for motivated professionals who have skills in the SSAC skills categories and, in particular, expertise or background in:
  - ISP operations
  - Large-scale measurement
  - Large-scale Registrar Operations
  - Cloud/hosting experience
  - Browser Development/Testing
  - Mobile Apps Development/Testing
  - Low bandwidth resource-constrained Internet connectivity
  - Red Team experience
  - Law Enforcement experience
- The SSAC is interested in increasing membership from Africa, Latin America, and Asia-Pacific
- The SSAC is interested in increasing membership from an academic background

SSAC Membership Outreach – 2022 Timeline

Phase I Preparatory	Phase II Recruitment	Phase III Assessment &	Phase IV Selection	Phase V On-Boarding

SEP OCT	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP

ICANN73
Virtual
(San Juan)
Mar 2022

ICANN74
The Hague
Jun 2022

ICANN75
Kuala Lumpur
Sep 2022

Candidate Outreach & Application Period

SSAC Admin Committee
Dec 2021
Identify:
Future work requirements
Optimum size of SSAC
Skills and diversity gaps

Membership Committee Process New Member Applications

Membership Committee Recommendations
Renewals & New Members

SSAC Workshop
Oct/Nov 2022
New Member Orientation prior to workshop

Publicize Membership Gaps at all ICANN Meetings

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SSAC Contact for Potential New Members

- Individuals who are interested in enquiring about SSAC membership should:
  - Contact Rod Rasmussen or Julie Hammer,
  - Contact any member of SSAC Support Staff, or
  - Send an email to ssac-staff@icann.org

Questions to the Community

- What topics would you like SSAC to consider as work items?

- What would you like SSAC to comment on?

Thank you