SAC078 SSAC Advisory on Uses of the Shared Global Domain Name Space

An Advisory from the ICANN Security and Stability Advisory Committee (SSAC)
16 February 2016

Preface

This is an Advisory of the Security and Stability Advisory Committee (SSAC).

The SSAC focuses on matters relating to the security and integrity of the Internet's naming and address allocation systems. This includes operational matters (e.g., pertaining to the correct and reliable operation of the root zone publication system), administrative matters (e.g., pertaining to address allocation and Internet number assignment), and registration matters (e.g., pertaining to registry and registrar services). SSAC engages in ongoing threat assessment and risk analysis of the Internet naming and address allocation services to assess where the principal threats to stability and security lie, and advises the ICANN community accordingly. The SSAC has no authority to regulate, enforce, or adjudicate. Those functions belong to other parties, and the advice offered here should be evaluated on its merits.

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1. Uses of the Shared Global Domain Name Space

It is widely known that the Domain Name System (DNS) includes both a set of rules for constructing syntactically valid domain names (the "domain name space") and a protocol for associating domain names with data such as IP addresses ("domain name resolution"). It is less widely understood, however, that DNS name resolution coexists with other name resolution systems that also use domain names. In many cases these other name resolution systems deliberately use domain names, rather than some other naming scheme, for compatibility with the widely deployed infrastructure of the DNS. They depend on the ability of DNS name resolution protocols and interface conventions to recognize their domain names but treat them in some special way.

Examples of this coexistence include the name resolution systems for domain names that include the top-level labels **local** (used by the mDNS resolution system[1]), **example** (reserved for use in documentation[2]), and most recently **onion** (reserved for use by the Tor project[3]). Other names are also being considered for reservation in the future.[4] These names exist in the domain name space, but they use methods of resolution other than the DNS. The name resolution protocols they use are based on Internet Engineering Task Force (IETF) standards, or standards established by other groups, or in various code bases, open source or proprietary. Their common denominator is the expectation that their use of domain names will be compatible with DNS name resolution.

The SSAC wishes to ensure that the ICANN Board and ICANN community are aware of discussions and ongoing work in multiple venues to more fully define what a namespace is, and how to avoid potential side effects, including name collisions, across the broad set of name resolution systems and expectations for their use.

The purpose of this Advisory is to inform the ICANN Board and Community that SSAC has formed a work party to investigate the implications of this work as it pertains to the security and stability of the DNS. This work party will study the security and stability issues associated with multiple uses of the domain name space, including those outlined above.

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[1] See https://tools.ietf.org/rfc/rfc6762.txt.
[2] See https://tools.ietf.org/rfc/rfc6761.txt.
[3] See https://tools.ietf.org/rfc/rfc7686.txt.
[4] See https://www.ietf.org/proceedings/93/slides/slides-93-dnsop-5.pdf.

2. Acknowledgments, Disclosures of Interest, Dissents, and Withdrawals

In the interest of transparency, these sections provide the reader with information about four aspects of the SSAC process. The Acknowledgments section lists the SSAC members, outside experts, and ICANN staff who contributed directly to this particular document. The Disclosures of Interest section points to the biographies of all SSAC members, which disclose any interests that might represent a conflict—real, apparent, or potential—with a member's participation in the preparation of this Advisory. The Dissents section provides a place for individual members to describe any disagreement that they may have with the content of this document or the process for preparing it. The Withdrawals section identifies individual members who have recused themselves from discussion of the topic with which this Report is concerned. Except for members listed in the Dissents and Withdrawals sections, this document has the consensus approval of all of the members of SSAC.

2.1 Acknowledgments

The committee wishes to thank the following SSAC members and external experts for their time, contributions, and review in producing this Advisory.

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2.2 Disclosures of Interest

SSAC member biographical information and Disclosures of Interest are available at: https://www.icann.org/resources/pages/ssac-biographies-2016-02-10-en.

2.3 Dissents

There were no dissents.

2.4 Withdrawals

There were no withdrawals.