

NAME COLLISION OCCURRENCE MANAGEMENT FRAMEWORK

A component of the New gTLD Collision Occurrence Management Plan



1. INTRODUCTION

A name collision occurs when a user unknowingly accesses a name that has been delegated in the public DNS when the user's intent is to access a resource identified by the same name in a private network. Circumstances like these, where the administrative boundaries of private and public namespaces overlap and name resolution yields unintended results, present concerns and should be avoided if possible.

On 7 October 2013 the ICANN Board's New gTLD Program Committee passed a resolution adopting the New gTLD Collision Occurrence Management Plan¹ aimed at mitigating the risk of name collisions in new gTLDs. Among other elements, the Plan calls for ICANN to commission a study to develop a name collision occurrence management framework. The framework will specify a set of name collision occurrence assessments and corresponding mitigation measures for ICANN and/or TLD applicants to implement. On November 2013 ICANN engaged JAS Global Advisors ("JAS") to develop a draft framework as a recommendation to ICANN on this regard. JAS developed a draft report that underwent public comment from 26 February to 21 April 2014. The final version of the report ("the JAS report") was published on 6 June 2014².

ICANN has considered the recommendations in the JAS report, the public comment forum, and SSAC advice in SAC 062³ and SAC 066⁴. This paper describes a proposal for the Name Collision Occurrence Management Framework requested in the Plan. For full detail on the measures, the reader is referred to the JAS report. This Framework contains measures to be implemented by ICANN and new gTLD registry operators. Measures directed at registry operators are legally binding per the new gTLD registry agreement, Specification 6, Section 6.2.1.

¹ <https://features.icann.org/new-gtld-collision-occurrence-management>

² <https://www.icann.org/en/system/files/files/name-collision-mitigation-study-06jun14-en.pdf>

³ <https://www.icann.org/en/groups/ssac/documents/sac-062-en.pdf>

⁴ <https://www.icann.org/en/system/files/files/sac-066-en.pdf>

PART A – MEASURES TO BE IMPLEMENTED BY REGISTRIES

Unless otherwise indicated in this section, all registry obligations remain (e.g., provide WHOIS and web-based Directory services).

2. NAME COLLISION REPORT HANDLING

Regarding the name collision report handling provision described in Section 6.3 of Specification 6 of the new gTLD Registry Agreement, Registry Operator shall act on requests from ICANN within 2 hours of receipt.

3. CONTROLLED INTERRUPTION

ICANN is interested in maintaining the reliability, security and stability of the DNS and the Internet. As such, ICANN is interested in providing a good notification measure for those parties that may be leaking queries intended for private namespaces to the public DNS. However, ICANN is also aware of the privacy and legal risks associated with the honeypot approach described in SAC 062 and 066 and the JAS report. ICANN has decided on balancing the good notification features offered by using the loopback address option with its superior privacy protection vs. the use of a honeypot.

SSAC recommends an intermittent controlled interruption, but also acknowledges that every approach to controlled interruption involves balancing trade-offs and exercising judgment. From an operational perspective the intermittent approach presents more risk for registries and ICANN to implement and ensure correct functioning. On the other hand, continuous controlled interruption presents a simpler approach operationally and provides for an easier way to diagnose and troubleshoot, it is also a better way to indicate the need for changes in an affected party's network configuration. Additionally, an intermittent controlled interruption approach in theory would allow an affected party to have temporary relief while the controlled interruption is in the "off" cycle. It should be noted that there is already a mechanism in place (name collision reporting) for affected parties to find temporary relief from name collision harm, if needed, making the intermittent approach an unnecessary burden.

Registry Operators will implement a period of, at least, 90 days of continuous controlled interruption. ICANN will monitor and time the implementation of the measure, primarily using the zone files that are transferred to ICANN from new gTLD registries once they are delegated (per Specification 4 of the new gTLD Registry Agreement).

If at some point in the future a solution is found for IPv6 that has similar properties to the loopback address used for IPv4, registries will include the additional DNS record(s) as instructed by ICANN. This addition will not increase the duration of the controlled interruption period.

3.1. WILDCARDED CONTROLLED INTERRUPTION

For new gTLDs that are delegated on a day to be specified by ICANN ("the cutoff date") and later, the Registry Operator will implement controlled interruption for 90 days by inserting the following records in its TLD zone file (substituting "<TLD>" with its respective TLD):

```
<TLD>. 3600 IN MX 10 your-dns-needs-immediate-attention.<TLD>.
* 3600 IN MX 10 your-dns-needs-immediate-attention.<TLD>.
<TLD>. 3600 IN SRV 10 10 0 your-dns-needs-immediate-attention.<TLD>.
* 3600 IN SRV 10 10 0 your-dns-needs-immediate-attention.<TLD>.
<TLD>. 3600 IN TXT "Your DNS configuration needs immediate attention see
https://icann.org/namecollision"
* 3600 IN TXT "Your DNS configuration needs immediate attention see
https://icann.org/namecollision"
<TLD>. 3600 IN A 127.0.53.53
* 3600 IN A 127.0.53.53
```

During this period, ICANN hereby extends a temporary waiver to the Registry Operator with respect to Section 2.2 of Specification 6 of the new gTLD Registry Agreement (e.g., to allow the use of wildcard records). ICANN also extends a temporary waiver to the Registry Operator with respect to Section 1 of Exhibit A of the new gTLD Registry Agreement (e.g., to allow the use of TXT, SRV, and MX records). The waivers are only for purposes of implementing the controlled interruption measure and will cease upon termination of the controlled interruption measure in the TLD.

Registry Operator is permitted to delegate the second level domain name "nic" during the controlled interruption period. Per the new gTLD registry agreement, Registry Operator is expected, among other things, to offer RDDS services at "whois.nic.<TLD>", where "<TLD>" is the registry's TLD. During this period Registry Operator will not activate any other names under the TLD.

Registry Operators for TLDs that have been delegated prior to "the cutoff day" may implement this option only if they have not activated names under the TLD with the exception of "nic". Interested Registry Operators that meet these criteria must notify and obtain ICANN consent through the GDD portal before implementing the measure.

3.2. RELEASING NAMES IN THE SLD BLOCK LIST

For new gTLDs that have been delegated prior to "the cutoff day" and have activated names under the TLD other than "nic", the Registry Operator will implement controlled interruption for 90 days by inserting A, MX, TXT and SRV records for each of the names in its SLD block list that it wishes to release from its SLD Block List. Registry Operator will insert the following records in its TLD zone file for each label in the List of SLDs to Block (substituting "<TLD>" with its respective TLD and "<label>" appropriately):

```
<label>.<TLD>. 3600 IN A 127.0.53.53
<label>.<TLD>. 3600 IN SRV 10 10 0 your-dns-needs-immediate-attention.<TLD>.
<label>.<TLD>. 3600 IN MX 10 your-dns-needs-immediate-attention.<TLD>.
<label>.<TLD>. 3600 IN TXT "Your DNS configuration needs immediate attention see
https://icann.org/namecollision"
your-dns-needs-immediate-attention.<TLD>. 3600 IN A 127.0.53.53
```

ICANN extends a temporary waiver to the Registry Operator with respect to Section 1 of Exhibit A of the new gTLD Registry Agreement (e.g., to allow the use of SRV, TXT, and MX records). The waivers are only for purposes of implementing the controlled interruption measure and will cease upon termination of the controlled interruption measure in the TLD.

4. INTERIM EMERGENCY BACK-END REGISTRY OPERATOR

Registry Operator agrees that ICANN may designate an interim emergency back-end registry operator for its TLD in case the Registry Operator is unable or unwilling to comply with a measure to avoid harm from name collision in a timely manner as described in Section 2 above.

PART B – MEASURES TO BE IMPLEMENTED BY ICANN

5. HIGH-RISK STRINGS (MAIL)

Following the recommendation from SSAC to identify strings that should be reserved for private use and the proposal in the JAS report, ICANN will treat **mail** the same as **home** and **corp**, i.e., defer delegating this string indefinitely. The JAS report identifies **mail** as exhibiting "*prevalent, widespread use at a level materially greater than all other applied-for TLDs*".

ICANN will collaborate with the technical and security community to identify the best way to handle these strings, e.g., reserve them permanently through IETF process.

6. INFORMATIONAL MATERIALS

ICANN will produce informational materials as needed and link to existing information regarding name collision. ICANN will work to make this information available to parties potentially affected by name collision. Particularly, ICANN will work to ensure that web search engine results for name collision key terms (e.g., 127.0.53.53) provide useful information to potentially affected parties.

7. EMERGENCY RESPONSE

ICANN will limit emergency response for name collision reports to situations where there is a reasonable belief that the name collision presents a clear and present danger to human life. ICANN acknowledges SSAC advice with respect to expanding the range of situations that would trigger an emergency response. However, ICANN notes that the severity of this risk (as in other cases) can be measured from multiple points of view; necessarily, there will be a decision between various impacted parties (i.e., the party that was using the domain name before it was delegated in the public DNS and the party that registered the name). Commercial interests could attempt to “game” a broader mechanism for competitive advantage. Concepts like “national security,” “law and order”, and “key economic processes” are not easily agreeable on a global basis. On the other hand, focusing on danger to human life is a more objective standard.

In the unlikely case that a newly delegated gTLD creates a clear and present danger to human life as a result of colliding use as a dotless name, ICANN would work with the registry operator and ICANN's root zone management partners to reverse the new delegation. This would only happen during the 90-day wildcarded controlled interruption, during which there would be no names active (except “nic”) under the TLD. Once the harm is mitigated, the gTLD registry operator may request again delegation.

8. IPV6 SUPPORT IN CONTROLLED INTERRUPTION

ICANN will work within the IETF and with other relevant technical communities to identify a mechanism for IPv6 that provides similar functionality to that available in IPv4's "Loopback" reserved prefix.

9. ROOT SERVER MEASUREMENTS

The JAS report contains two recommendations (11 and 12) with respect to measurements and storage of root-server data traffic. ICANN notes that the Board already instructed ICANN to work on this on a resolution on 21 November 2013⁵. ICANN will consider JAS recommendations when implementing the aforementioned resolution.

10. CONCLUSION

ICANN's mission and core values call on ICANN to preserve and enhance the operational stability, reliability, security, and global interoperability of the Internet's system of unique identifiers (names, IP numbers, and protocol parameters). ICANN is fully committed to the delegation of new gTLDs in accordance with its mission and core values. ICANN appreciates the community's involvement in the process and looks forward to further collaboration on the remaining work.

⁵ <https://features.icann.org/ssac-advisory-and-ngpc-recommendations-name-collision>