

## ICANN BOARD PAPER NO. 2014.03.05.1a

**TITLE:** Mitigating the Risk of DNS Namespace Collisions

**PROPOSED ACTION:** For Board Review

### EXECUTIVE SUMMARY:

On 7 October 2013, the ICANN Board New gTLD Program Committee approved the New gTLD Collision Occurrence Management Plan (<http://www.icann.org/en/groups/board/documents/resolutions-new-gtld-annex-1-07oct13-en.pdf>). As part of this plan, ICANN committed to “commission a study to develop a Name Collision Occurrence Management Framework.” After a competitive bid process, JAS Global Advisors LLC ("JAS") was selected in November 2013 to lead the development of the Framework.

The first phase of the report was released for public comment on 26 Feb 2014 (<http://www.icann.org/en/news/announcements/announcement-26feb14-en.htm>). Over the course of the study, JAS found “*no evidence to suggest that the security and stability of the global Internet DNS itself is at risk*”. The report further confirms the results of the “DNS Stability String Review” performed on each string during Initial Evaluation pursuant to Section 2.2.1.3.1 of the Applicant Guidebook.

However, the report does state that: “*DNS namespace collisions are a complex and pervasive occurrence that manifest throughout the global Internet DNS namespace. Collisions in all TLDs and at all levels within the global Internet DNS namespace have the ability to expose potentially serious security and availability problems and deserve serious attention. While current efforts to expand the global DNS namespace have collision-related implications, the collision problem is bigger than new TLDs and must be viewed in this context.*”

The report includes a series of recommendations for mitigating risks associated with namespace collisions, including:

- ICANN should require new TLD registries to publish a “controlled interruption” zone (i.e., insert DNS wildcard records in the TLD zone file pointing to an address from the Loopback block – 127.0.53.53) immediately upon delegation and

extending for 120 days, during which activation of names will not be allowed, to help system administrators identify and remedy potential collision-related issues;

- For TLDs that have not been delegated there will be no further collision-related restrictions to activate second-level domains after the 120-day period.
  - TLDs that have chosen the Alternate Path to Delegation (<http://www.icann.org/en/about/agreements/registries/apd-reports-17nov13-en.zip>) and have already been delegated will be required to implement the 120-day controlled interruption for their blocked SLDs.
  - 25 proposed gTLDs had been found to be ineligible for the Alternate Path to Delegation (<http://newgtlds.icann.org/en/announcements-and-media/announcement-2-17nov13-en>). Of these, 24 gTLDs (with the exception of .mail) will now be eligible to proceed to delegation by implementing the 120-day controlled interruption.
- ICANN should have emergency response processes in place on 24x7x365 basis that include the ability to analyse and act upon reported problems that present “clear and present danger to human life”, including the use of the already existing name collision reporting mechanism, EBERO, and as a last resort, TLD removal;
  - The strings *.corp*, *.home* and *.mail* should be permanently reserved.

In the coming weeks ICANN will be conducting a webinar as well as a dedicated session in Singapore to present the report’s findings and to solicit additional feedback from the community. We will also continue our targeted outreach campaign to help minimize the potential impact to private networks, and to offer clear advice on dealing with the issue.

In studying collision data for the report, JAS uncovered a vulnerability that is “*not directly related to ICANN’s New gTLD Program nor to new TLDs in general but has the potential to impact end-systems*”. JAS and ICANN are working with affected vendors pursuant to ICANN’s Coordinated Vulnerability Disclosure Process (<https://www.icann.org/en/about/staff/security/vulnerability-disclosure-11mar13->

en.pdf). Due to the need to keep certain aspects of the discovered vulnerability confidential, as per the vulnerability disclosure process, JAS is reluctant to disclose experimental methods or data at this time. Additional components of the complete report will be published as soon as it is prudent. ICANN is actively seeking community input on the summary recommendations through ICANN's public comment processes.

**Signature Block:**

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# Mitigating the Risk of DNS Namespace Collisions

5 Mar 2014

# Where This Project Fits

ICANN has identified several phases of the broad DNS Name Collision Mitigation Strategy:

1. SLD Block List Strategy/Publication
2. Creation of the Collision Occurrence Management Framework
3. Applying the Framework to create per TLD Collision Risk Mitigation Plans

# Summary Findings

- Frequency of possible collisions has received substantial attention.
  - This report's primary objective is to focus on possible consequences - from theoretical to concrete.
- DNS namespace collisions occur routinely throughout the entire DNS namespace, including delegated space
- Collisions have occurred prior to delegation of every TLD since (at least) 2007
  - Collisions have been mentioned in research as early as 2003

# High Level Recommendations

- ICANN should require new TLD registries to publish a “controlled interruption” zone upon delegation and extending for 120 days, during which activation of names will not be allowed;
  - For TLDs that have not been delegated there will be no further collision-related restrictions to activate second-level domains after the 120-day period.
  - TLDs that have chosen the Alternate Path to Delegation (<http://www.icann.org/en/about/agreements/registries/apd-reports-17nov13-en.zip>) and have already been delegated will be required to implement the 120-day controlled interruption for their blocked SLDs.
  - 25 proposed gTLDs had been found to be ineligible for the Alternate Path to Delegation (<http://newgtlds.icann.org/en/announcements-and-media/announcement-2-17nov13-en>). Of these, 24 gTLDs (with the exception of .mail) will now be eligible to proceed to delegation by implementing the 120-day controlled interruption.
- The TLDs .corp, .home and .mail should be permanently reserved
- ICANN maintain emergency response processes to act upon reported problems that present “clear and present danger to human life”

## ICANN New gTLD Program Committee PAPER NO. 2014.03.05.NG2a - Revised

**TITLE:** Briefing on New gTLD Program Auction Rules

**PROPOSED ACTION:** For Information

### **EXECUTIVE SUMMARY:**

Contention sets are groups of applications containing identical or confusingly similar applied for gTLD strings. Contention sets must be resolved prior to the execution of a Registry Agreement for an applied-for gTLD string. An ICANN facilitated auction is a last resort for resolving String Contention Sets, as described in the [Applicant Guidebook \(AGB\)](#) section 4.3.

Auctions will be conducted over the Internet using a procedure known as an *ascending-clock* auction, where the auctioneer successively increases the start-of-round and end-of-round range of prices, on a per auction round basis. Applicants within the contention set must submit bids to indicate their willingness to pay an amount within the defined price range in the auction round. As the price ranges of the auction rounds increase, applicants may successively choose to exit the auction. When a sufficient number of applications have exited the auction process, so that the remaining application(s) are no longer in contention with one another, and all the relevant string(s) can be delegated as gTLDs, the auction will be deemed concluded. At this point, prevailing applicants that remained in the auction will pay the finalized price and proceed toward delegation.

The AGB describes the general auction approach including ascending-clock auction methodology. Additionally, many detailed rules and procedures to facilitate the execution of auctions had to be developed. This following describes those rules and the process which they were developed.

### **Developing Auction Rules through Community Consultation**

ICANN staff consulted with the community, including new gTLD applicants, to solicit input and develop a preliminary set of Auction Rules published on 31 October 2013. Staff presented these rules to the community through webinar as well as presentation at



ICANN 48 in Buenos Aires. Feedback and suggestions received were incorporated into a Final Draft set of Auction rules and Draft Bidder's Agreement published for Public Comment on 17 December 2013. The public comment period concluded on 4 February 2014. ICANN has reviewed and analyzed the input received during the public comment period and expects to publish a Final set of Auction Rules and a Final Bidder's Agreement in early March.

### **Auction Eligibility**

A String Contention Set will be eligible to enter into a New gTLD Program Auction only when all of the following criteria are met:

- All active applications in the contention set have:
  - Passed evaluation
  - Resolved any applicable GAC advice
  - Resolved any objections
  - Finalized any and all change requests
  - No Pending ICANN Accountability Mechanisms
- Each applied-for gTLD in the contention set is:
  - Not classified as "High-Risk" per the Name Collision Occurrence Management Plan
  - Has received the Name Collision Occurrence Assessment from ICANN, or has waived such

### **Auction Rules for Indirect Contention Sets**

The Auction Rules discussed above pertain exclusively to contention sets including direct contentions exclusively. At this time, these rules apply to 175 out of 179 anticipated contention sets. Rules for the conduct of Auctions for contention sets including indirect contentions are still under development. The procedures for indirect contention auctions are more complex and require further consultation with the ICANN community. It is anticipated that the rules for indirect Auctions will apply to 4 of the 179 anticipated contention sets. Direct contention auctions will proceed while indirect auction rules are finalized.

## Summary of Public Comments

Feedback during the public comment period generally fell into the following categories:

**1. *The use of Auctions or the Ascending Clock Auction method prescribed in the AGB to resolve string contention.***

Some comments suggested eliminating Auctions as the last-resort contention resolution method, while others suggested alternative types of auctions in lieu of the ascending-clock auction

**Response:** Numerous methods of contention resolution were considered during the development of the AGB. ICANN does not intend to modify the AGB at this juncture and intends to move forward with ascending-clock auctions.

**2. *Comments relating to timing, scheduling and Auction logistics.***

A comment expressed the opinion that a fixed auction start time (16.00 UTC) was unfair to auction participants in the Asia Pacific Region. Other commenters urged ICANN to complete all Auctions in 2014.

**Response:** ICANN will work with the Auction provider to identify at least two auction start times to be alternated, so as to better accommodate auction participants from around the world. ICANN intends to schedule and conduct auctions at a predictable pace. Presently, plans call for auctions of up to twenty (20) contention sets per month.

**3. *Suggestions to modify details of the Auction Rules and the Bidder's Agreement.***

Various suggestions were made to clarify the rules around anti-collusion, changes to rules, and remedies for violation of rules. A few comments including those from the NTAG suggest that the winner of an auction be given 9 months rather than 90 days, as per the AGB, to sign a Registry Agreement.

**Response:** ICANN is incorporating many of the suggestions to improve and clarify the terms and conditions of the auction rules. ICANN does not intend to extend the period which an auction winner has to sign a Registry Agreement. The AGB was written with a shortened timeline for contract execution of contended strings versus non-contended strings.

**4. *The use of Auction proceeds***

A few commenters urged ICANN to develop a plan for the use of Auction proceeds.

**Response:** The ICANN Board intends to engage with the community to develop plans for the use of auction proceeds.

**5. *The handling of contention sets with indirect contention relationships.***

Some comments suggested that ICANN publish the auction rules for Indirect Contention sets before holding any Auction events.

**Response:** While ICANN appreciates this perspective, rules for Indirect contention set Auctions are anticipated to pertain to four (4) contention sets out of 165. Staff will continue work to finalize indirect auction rules while moving forward with auctions for the remaining 161 direct content sets.

**Anticipated Auction Timeline**

- Early March 2014 - Publish public comment summary and Auction Materials
- Mid-March 2014 - Publish first set of Auction Dates and send Intent to Auction Notices
- Early May 2014 - Finalize Rules for Indirect Contention
- Late May 2014 - Conduct first Auctions

**STAFF RECOMMENDATION:**

Revised Auction rules and supporting documentation will be published in early March 2014.

Staff will be requesting in Singapore NGPC pre-approval to disperse funds to Power Auctions per the terms of the contract without additional NGPC approvals (similar to evaluation panel invoices)

No further action is recommended at this time.

**Signature Block:**

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# New gTLD Auctions Information Update 5 March 2014



# String Contention Resolution

- String Contention Sets
  - Applications for Identical or confusingly similar gTLDs
- AGB 4.3 prescribes Ascending Clock Auctions as the method of last resort to resolve string contention
- Detailed Rules and supporting documentation required for operational readiness

# Auction Rules Development

- Preliminary Rules Published 31 Oct 2013
- Community Input sought to finalize Rules
  - Webinar in November 2013
  - Auction Session at ICANN 48 BA
  - Multiple meetings with the NTAG
- Public Comment 17 December – 4 February
  - Rules updated based on initial feedback
- Rules Finalized for Implementation
  - To be published week of 3 March

# Summary & Analysis of Public Comment

1. Use of Auctions or Ascending Clock Auction Method to Resolve String Contention
  - Various methods of resolving contention considered during AGB development
  - ICANN does not intend to modify AGB, will move forward with Ascending Clock Auctions



# Summary & Analysis of Public Comment

## 2. Timing / Scheduling / Logistics

- Will utilize at least 2 start times for Auctions to better support global demand
- Auctions will be held ~ 1x per month
- Up to 20 contention sets per auction

# Summary & Analysis of Public Comment

## 3. Suggestions for Auction Rules & Bidder Agreement

- Incorporating several suggestions to clarify Ts & Cs
- Will not modify AGB requirement to execute Registry Agreement within 90 days after Auction completion

# Summary & Analysis of Public Comment

## 4. Use of Auction Proceeds

- ICANN Board should initiate community engagement to develop plans for use of Auction proceeds

# Summary & Analysis of Public Comment

## 5. Auction Rules for Indirect Contention

- Only 4 of the 179 contention sets have indirect contention
- Rules for Indirect Contention sets will be finalized in parallel with implementing operations for direct contention sets

# Anticipated Timeline

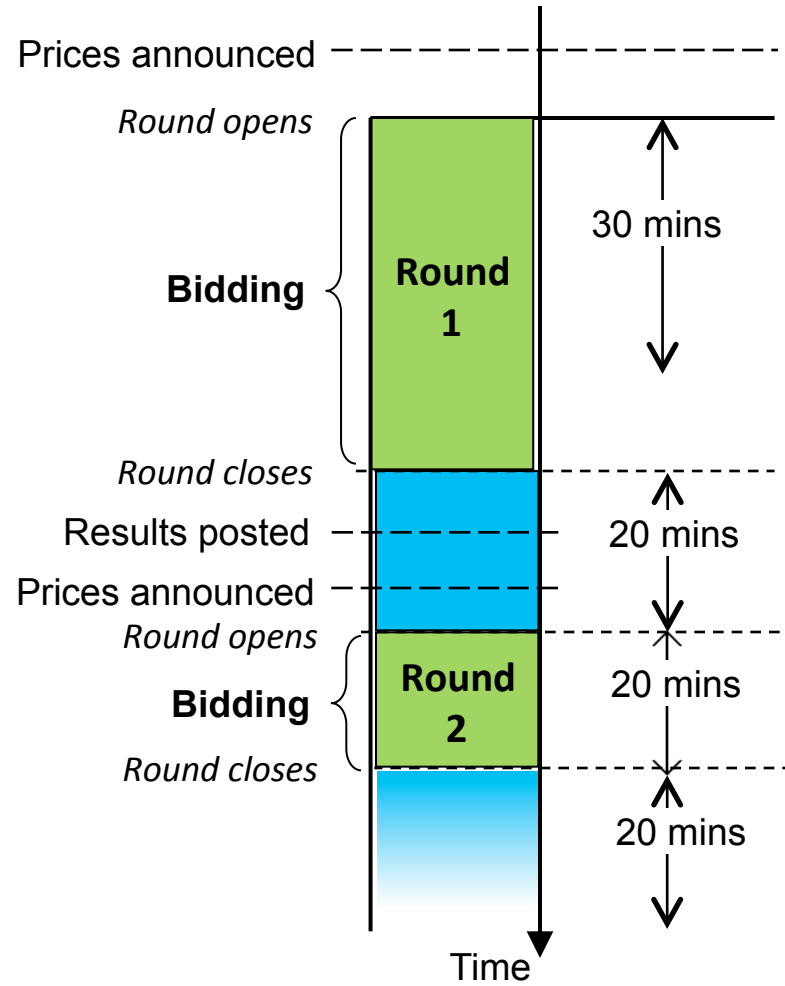
- Early March: Publish Auction Rules
- Mid March: Intent to Auction Notifications
  - Publish Auction Schedule
- Early May: Finalize Rules for Indirect Contention
- Late May: Conduct 1<sup>st</sup> Auctions

# New gTLD Auctions

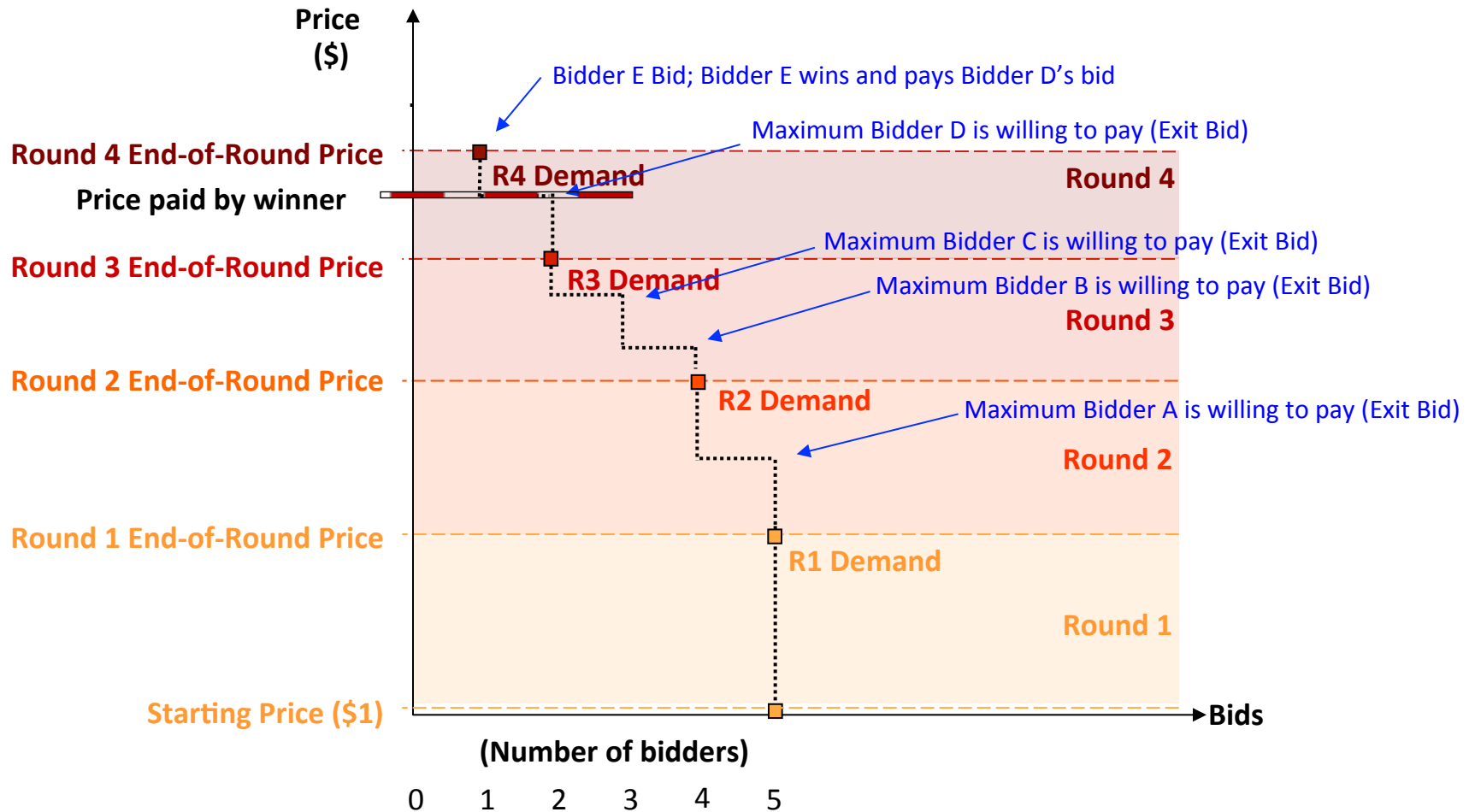


» Ascending Clock Auctions

# Ascending Clock Auction > Process Depiction



# Ascending Clock Auction > Visual Depiction





# New gTLD Auctions



» **Power Auctions LLC**

# Power Auctions LLC > ICANN's Auction Manager

## Power Auctions responsibilities

- + Auction Design
- + Customized Software
- + Auction Operations Management

## Consultancy specializing in auction design, auction software, and auction manager services

- + Telecommunications spectrum, electricity, natural gas, diamonds, offshore wind energy tracts, ...
- + Experience supporting Sellers and Bidders on six continents

## 150+ auctions on PA software platform since 2001

- + Meets governments' standards for stability and security

# ICANN's Contract with Power Auctions LLC

ICANN's contract with Power Auctions LLC specifies

- 4% of the winning price up to \$10M, and 2% of the winning price after the first \$10M
- Staff will be requesting in Singapore NGPC pre-approval to disperse funds to Power Auctions per the terms of the contract without additional NGPC approvals (similar to evaluation panel invoices)