

# 1 IDN WG “Reader’s Digest”

2 Draft 20 November 2006, ON

## 4 Introduction

5 The GNSO Council, at a conference call 16 November 2006, adopted a Charter for the  
6 GNSO IDN Working Group which included the following statement:

7  
8 “The purpose of the GNSO IDN Working Group is to identify and specify any policy issues that should be  
9 considered by the GNSO via a policy development process that have not already been considered within  
10 PDP-Dec05. It should do this using the following steps:

11  
12 (i) review the draft recommendations on new gTLDs (which include IDN gTLDs) from the GNSO's  
13 Committee on new gTLDs

14  
15 (ii) review the current status and outcomes from the laboratory tests,

16  
17 (iii) review the ICANN staff issues report,

18  
19 (iv) review the IAB document (RFC4690)

20  
21 (v) liaise with the ccNSO working Group to discuss any policy issues which they have identified”

22  
23 This identifies three documents for the working group to consider, notably:

- 24  
25 1. [The Draft Recommendations from the New gTLD PDP Committee](#)
- 26 2. [The Draft IDN Issues Report](#)
- 27 3. [RFC 4690](#)

28 Another document of obvious usefulness in this context is

- 29  
30 4. [The ICANN IDN Guidelines](#)

31  
32 The purpose of this paper is to facilitate the work of the IDN Working Group by  
33 providing relevant excerpts of these documents in one place. It should be noted that this  
34 paper a) does not substitute for reading the documents in full, and b) is a draft attempting  
35 to make suitable excerpts, without pretensions of full adequateness or completeness but  
36 with a hope of receiving corrections from the group on material to include or delete.

37  
38 Also, as already stated in the Terms of Reference for the working group adopted by the  
39 GNSO Council on 19 October, it should be noted that recent developments in the New  
40 gTLD PDP have obviated some issues listed in the Draft IDN Issues Report.

41  
42 Clicking on the titles above leads directly to the corresponding headings in this paper.

43  
44 Page and line numbers have been added to further facilitate references in discussions.

## 1 **1. The Draft Recommendations from the New gTLD PDP Committee**

2 The GNSO has a Committee developing policy recommendations on new  
3 gTLDs, as part of a policy development process called PDP-Dec05. The  
4 policies developed for new gTLDs apply to new gTLDs that use the IDN standards. See:  
5 <http://www.gns0.icann.org/issues/new-gtlds/> for more information.  
6

7 The latest draft of this document, dated 14 November 2006, features the following  
8 principles:

### 9 Principles

10 The following Recommendations have been derived from the work of the GNSO Committee on  
11 the introduction of new top-level domains in accordance with the Terms of Reference set by the  
12 GNSO, with reference to ICANN's Mission and Core Values.  
13

- 14 a) That new generic top-level domains (gTLDs) should be introduced in an orderly, timely and  
15 predictable way.
- 16 b) That some new generic top-level domains will be internationalised domain names (IDNs).  
17
- 18 c) That the principal objectives of the introduction of new top-level domains are to permit market  
19 mechanisms to support useful online identities that permeate international markets as well as to  
20 support competition, innovation and consumer choice.
- 21 d) That a set of technical criteria for a new gTLD registry applicant be used to minimise the risk of  
22 harming the operational stability, security and global interoperability of the Internet.  
23
- 24 e) That a set of business capability criteria for a new gTLD registry applicant be used to provide  
25 an assurance that an applicant has the capability to meets its business ambitions.  
26

27 The recommendations are as follows, related to the four headings in the Terms of  
28 Reference for the New gTLD Committee:  
29

### 30 Whether to introduce new top-level domains

31 Additional new generic top-level domains should be introduced and work should proceed to  
32 enable the introduction of new generic top-level domains, taking into account the  
33 recommendations found in the following sections.  
34

### 35 Selection Criteria

36 2.1 The process for introducing new top-level domains will follow a pre-published application  
37 system including the levying of an application fee to recover the costs of the application process.  
38 The application process will also include probity rules and clear timelines for applicants that will  
39 be published prior to the beginning of any application cycle.  
40

41 2.2 Application fees will be set at the start of the process and application materials will be  
42 available prior to any application cycle. The cost to evaluate individual applications may differ.  
43 Therefore, different fees may be levied depending on what stage in the process the application  
44 reaches. It should also be noted that the possible extra costs that might result from the  
45 differences in the applicant's working language as well as legal systems should not be held  
46 against the applicant.  
47  
48  
49  
50  
51  
52  
53

1 In order to reduce the effect of the application fee becoming a barrier to entry, ICANN could have  
2 a system of grants to assist applicants. This grant would only allow the applicant to apply, without  
3 any presumption that the application would be successful. Grant applications would go through  
4 an evaluation process. ICANN should evaluate options for funding the grants.  
5

6 In addition to considering grant options, other options for ICANN to address should be organizing  
7 periodic awareness and training workshops for interested stakeholders on new top-level domains;  
8 reducing avoidable indirect costs for the applicant (including shortening and improving the  
9 approval process with fixed timelines, standardized contracts and public pre-evaluation hearings).  
10

11 2.3 Technical criteria will include compliance with a minimum set of technical standards such  
12 as IETF Request for Comments related to the operation of the DNS and other technical  
13 standards. Standards may include RFC3730-3735, RFC2246, RFC1035, RFC2181, RFC2182,  
14 and the ICANN Guidelines for the Implementation of Internationalized Domain Names.  
15

16 2.4 Applicants must comply with all current ICANN Consensus Policies and new Consensus  
17 Policies that are approved by the ICANN Board. [move this to contractual conditions section]  
18

19 2.5 The character strings of new top-level domains must comply with the string requirements  
20 listed below.  
21

22 2.5.1 ICANN will use the following process for TLD string checks.  
23

24 2.5.1.1 ICANN Staff may make a preliminary determination on whether the application complies  
25 with the string requirements and may engage appropriate expert advice in order to make a  
26 preliminary determination.  
27

28 2.5.1.2 ICANN will establish public comment processes (which may include input from  
29 governments or the Governmental Advisory Committee) that are specific to the criteria for the  
30 proposed string.  
31

32 2.5.1.3 In the event that ICANN reasonably believes that the application for a particular string is  
33 not compliant with the string requirements, ICANN will notify the applicant immediately and the  
34 application will be eliminated from consideration pending any reconsideration process that might  
35 apply. If ICANN is unable to make a definitive determination whether or not a string is compliant  
36 with the string requirements, then ICANN will refer the issue to a panel of experts with appropriate  
37 backgrounds.  
38

39 2.5.2 String Criteria  
40

41 2.5.2.1 The gTLD string should not be visually or [phonetically] confusingly similar to an existing  
42 TLD string.  
43

44 2.5.2.2 The applicant must warrant that the proposed string does not infringe the legal rights of  
45 any third party (consistent with the current requirements of Registered Name Holders – see  
46 Clause 3.7.7.9 of the gTLD Registrar Accreditation Agreement).  
47

48 2.5.2.3 The string should not cause any technical issues that have an impact on the stability and  
49 security of the Internet.  
50

51 2.5.2.4 The string should not be contrary to public policy or accepted principles of morality or be  
52 of such a nature as to deceive the public. [The Committee expects to receive advice from the  
53 GAC on this draft recommendation and the policy recommendation should be consistent with  
54 GAC principles.]  
55

56 2.5.2.5 The string should not be a reserved word (for example, as set out in RFC2606).

1  
2 2.5.3 Dispute resolution with respect to ICANN accepting a new string.  
3

4 2.5.3.1 ICANN must establish a dispute resolution process, using independent arbitrators, where  
5 existing registry operators could challenge a decision made by ICANN regarding whether a new  
6 gTLD string is confusingly similar to an existing gTLD string. If a string application is successfully  
7 challenged as being confusingly similar, then no other operator may subsequently apply for it  
8 except in cases where affected parties mutually agree to terms allowing such registration.  
9

10 2.5.3.2 ICANN may establish a new dispute resolution process, using independent arbitrators,  
11 where existing trademark holders could challenge an ICANN decision regarding a string. This  
12 new dispute resolution process could be modelled on the existing Uniform Domain Name Dispute  
13 Resolution Processes (UDRP).  
14

15 2.6 An applicant for a new gTLD must use ICANN accredited registrars to provide registration  
16 services to Registered Name Holders (registrants). [move to contractual conditions section]  
17

18 2.7 An applicant must demonstrate that they have the capability to operate a new gTLD that  
19 meets the minimum technical criteria to preserve the operational stability, reliability, security, and  
20 global interoperability of the Internet.  
21

22 2.8 The applicant must provide a financial and business plan demonstrating that the  
23 applicant has the capability to meet its business ambitions.  
24

#### 25 Allocation Methods 26

27 3.1 To ensure an orderly introduction of new TLDs, the applications should be assessed in  
28 rounds to allow issues of contention to be resolved between applicants for the same string. First  
29 come first served (FCFS) is the preferred method of assessing applications within an initial round.  
30 Subsequently, processes may be developed that would enable an "apply as you go" system.  
31 This could be decided after an evaluation period.  
32

33 3.1.1 The start date for the round should be at least four months after the ICANN Board has  
34 issued the Request for Proposal. ICANN must promote the opening time and details of the new  
35 round of applications to the broader worldwide Internet community.  
36

37 3.1.2 Applications will be date stamped as they are received and will form a queue, giving  
38 ICANN the ability to work on multiple applications in parallel.  
39

40 3.1.3 The closing date for the first cycle of new applications should be at least thirty days after  
41 the start date.  
42

43 3.1.4 Applications for strings are not published until after the application cycle closing date.  
44

45 3.2 The following process should be used to resolve contention between multiple applicants  
46 for the same new gTLD string.  
47

48 3.2.1. Establish a timeframe for a mediation process amongst the applicants to identify a  
49 solution amongst competing applications. Possible solutions are for the applicants to choose  
50 different TLD strings to avoid the conflict, or for the applicants to combine their resources.  
51

52 3.2.2 If there is no agreement between the applicants, ICANN will evaluate the additional  
53 criteria of the level of support of the community of potential registrants within that TLD to resolve  
54 contention. Both applicants would have a timeframe (for example, ninety days) to supply this  
55 additional material for evaluation. ICANN will determine what evidence is acceptable, and the

1 evidence must be measurable and verifiable. An applicant that is not successful will need to  
2 wait until the next application cycle to submit a new application.

3  
4 3.2.3 If ICANN staff are unable to distinguish between the level of support for each applicant  
5 for the gTLD, then the Board will make a choice based on the ICANN Mission and Core Values  
6 which include introducing and promoting competition in the registration of domain names where  
7 practical and beneficial in the public interest; and supporting the functional, geographic and  
8 cultural diversity of the Internet. An applicant that is not successful will need to wait until the  
9 next application cycle to submit a new application.

10  
11 3.3 An applicant who is granted a gTLD string has an obligation to begin using it within an  
12 appropriate time-frame. [needs further clarification about what constitutes 'use' and 'appropriate  
13 time frames]

#### 14 Policies for Contractual Conditions

15  
16  
17 4.1 There should be a base contract to provide some level of consistency (for example, as for  
18 the Registrars' Accreditation Agreement) amongst gTLD agreements, with the ability for staff to  
19 have delegated authority to approve. Any material alterations to the base contract, will be  
20 subject to public comments before approval by the ICANN Board.

21  
22 4.2 The contract should strike the right balance between ensuring certainty for market  
23 players and preserving flexibility of ICANN to accommodate the rapidly changing market,  
24 technological and policy conditions.

25  
26 4.3 The initial term of the new gTLD agreement should be of commercially reasonable length  
27 (for example, default ten years, although that may be changed on a case-by-case basis).

28  
29 4.4 There should be renewal expectancy. A contract would be renewed provided that the  
30 contracted party is not in material breach of the contract or has not been found in repeated non-  
31 performance of the contract, and provided the registry or sponsor agrees to any new base  
32 contract conditions that are reasonably acceptable. Any new base contract would take into  
33 account the Consensus Policies in place at that time.

34  
35 4.5 There should be a clear sanctions process outlined within the base contract to terminate  
36 a contract if the new gTLD operator has been found in repeated non-performance of the contract.

37  
38 4.6 During the term of the agreement, the registry must comply with [existing] new or  
39 changed consensus policies to one or more of the following areas:

40 (1) issues for which uniform or coordinated resolution is reasonably necessary to  
41 facilitate interoperability, security and/or stability of the Internet or DNS;  
42 (2) functional and performance specifications for the provision of Registry Services  
43 (3) security and stability of the registry database for the TLD;  
44 (4) registry policies reasonably necessary to implement Consensus Policies relating  
45 to registry operations or registrars, or

46  
47 (5) resolution of disputes regarding the registration of domain names (as opposed to  
48 the use of such domain names)

49  
50 4.7 Any deviation from consensus policies should be explicitly stated in the agreement.

51  
52 4.8 Where a registry provides IDNs, the contract should require that the registry adhere to  
53 IDN standards, and ICANN guidelines for IDNs.

54

1 4.9 ICANN may rely on the appropriate external competition and anti-trust authorities to  
2 ensure compliance with applicable competition law in particular, laws relating to market power or  
3 pricing power.

4  
5 4.10 ICANN should take a consistent approach with respect to registry fees, taking into  
6 account differences in regional, economic and business models.

7  
8 4.11 Use of personal data is limited to the purpose for which it is collected, and the registry  
9 operator must define the extent to which it is made available to third parties.

10

11

1 **2. The Draft IDN Issues Report**

2 The ICANN staff have produced a draft issues report on IDN at the top-level dated 2  
3 August 2006 available at: <http://www.gnso.icann.org/issues/idn-tlds/issues-report-02aug06.htm>. Its section D features Policy Issues and is copied in full below.

5 **D. Policy Issues**

6 During the discussions in Wellington, possible scenarios were identified as a starting point for  
7 analyzing the issues involved:

8 a) A gTLD registry operator wishes to introduce an IDN based string that relates to the existing  
9 gTLD.

10 b) A ccTLD registry operator wishes to introduce an IDN based string that relates to the existing  
11 ccTLD.

12 c) A party may wish to introduce an IDN based string that relates to a gTLD, in competition with  
13 the gTLD registry operator.

14 d) A party may wish to introduce an IDN based string that relates to a ccTLD in competition with  
15 the ccTLD.

16 e) A party wishes to introduce a new IDN string with no relationship to an existing TLD.

17 These issues have been discussed in other fora. Notably, an Internationalized Domain Name  
18 Committee was established by ICANN Board resolution 01.94 and served until October 2003 as a  
19 general coordination body for the work on policy issues related to IDN. The IDN Committee  
20 issued a series of reports and recommendations regarding IDN and related issues that should be  
21 consulted during the discussion of these issues.

22 These scenarios may need individual, independent consideration and may imply different issues  
23 and different preferred solutions. With a general presumption that an introduction of IDN at the  
24 root is feasible, potential policy issues are listed in question form below. Some of these issues  
25 relate only to certain scenarios above while others relate to all.

26 As mentioned previously, guiding principles for assessing the issues would include achieving  
27 timely benefit for Internet users, ensuring that user expectations are met and providing a good  
28 user experience. Issues are listed below related to the identified issue areas of the ongoing policy  
29 development process regarding new gTLDs, in order to connect to this process. This mapping is  
30 not stringent, though, as many issues relate to more than one of these areas.

31 **Issues of relevance for selection criteria**

32 Does the operation of an IDN TLD registry require particular additional competences that should  
33 be reflected in selection criteria?

34 How far is it essential to safeguard against business failure of new IDN TLDs? Do such risks for a  
35 new IDN TLD differ from those involved in a new TLD in general?

36 How should the choice of the IDN string or strings be governed? How would the approaches for  
37 gTLDs and for ccTLDs differ?

- 1 Is it from a policy standpoint advisable to create internationalized equivalents of existing TLDs?  
2 How could an introduction of internationalized equivalents of existing TLDs best promote  
3 competition and choice for end-users?
- 4 What selection and approval processes should apply for translation and/or transliteration of an  
5 existing <.tld> to its script equivalent(s) <.idn-tld>? Should any transliteration be phonetic (=   
6 transcription) or definitional/literal? Should a registry be able to determine its own equivalent(s),  
7 subject to an approval process involving input from the community, including governments? How  
8 should public policy aspects be reflected in such an approval process? How can the identified  
9 need for consistency between different national character tables for the same language best be  
10 achieved?
- 11 How should the number of IDN top-level labels per existing TLD be determined? If limits should  
12 apply, how many IDN strings should be allowed per existing TLD, and based upon what criteria?  
13 Are there reasons to have conservative limits initially, with a view to easing them as experience is  
14 gained?
- 15 Should entities other than the existing TLD registry be entitled to run an IDN equivalent or  
16 equivalents of this TLD? If so, under what policies should the 'new' registry manage the <.idn-  
17 tld>? Conversely, should an existing registry be prevented from operating a related IDN TLD on  
18 the grounds of promoting competition? Are there special considerations required in these regards  
19 concerning TLDs with eligibility requirements? Reference: GNSO mailing list for the questions in  
20 this paragraph and similar questions.
- 21 Should the IDN based string relate to an official language within the country of the ccTLD? In  
22 cases when a language can be represented in multiple scripts, should each script be entitled to a  
23 separate IDN based string?
- 24 What is the accepted representation of a country name in non-ASCII scripts?
- 25 What considerations need to be made for languages and scripts used across multiple countries?
- 26 What are the advantages and drawbacks of having <.idn-tld> map into <.tld>? (This, for example,  
27 means that www.example.tld and www.example.idn-tld will resolve to the same website.)
- 28 Given that the ultimate user experience has been identified as an overall priority, how can any  
29 risks for end user confusion best be counteracted? Various risks, issues and aspects of user  
30 experience must be a priority. Acceptable user experience levels must be discussed and  
31 targeted.
- 32 Issues of relevance for allocation methods
- 33 If more than one party apply for the same IDN top-level label, on what grounds should a single  
34 applicant be selected? This is similar to having two applications for the same ascii-tld. There are  
35 additional complexities such as if an applicant wishes to introduce and <.idn-tld> that is a  
36 translation or transliteration of an existing gTLD.
- 37 Similarly, what measures should ICANN take into consideration when selecting between more  
38 than one application for different IDN top-level labels that have a similar or identical purposes?  
39 What importance should be given to the sequential order in which such applications are received  
40 in relation to other possible aspects?



1 How should conflicts between a proposed IDN top-level label and a trademark be resolved? Does  
2 a specific dispute resolution mechanism need to be put in place to resolve such conflicts? In this  
3 scenario ICANN is effectively the registrar for the root zone. The policy should address the issue  
4 of determining which, if either, of two countries requesting the same name is designated as the  
5 TLD.

6 In what order should applications for IDN top-level labels be handled in case that: (i) countries or  
7 ccTLDs are determined to be entitled to one or more IDN-based TLDs and (ii) more applications  
8 appear at the same time than can effectively be processed?

#### 9 Issues of relevance for contractual conditions

10 What particular contractual provisions are required for an <.idn-tld> in addition to those normally  
11 required for any <.tld>? How could IETF IDN standards and ICANN's IDN Guidelines best be  
12 incorporated in the contractual conditions?

13 To what extent are current established policies adequate for IDN? Are modifications of the  
14 existing UDRP required to address disputes concerning IDN labels? Are modifications needed to  
15 facilitate usability of WHOIS information for end-users with different scripts?

16 Provided that an internationalized equivalent of a TLD exists as <idn-tld> in some script, should  
17 there be a policy for what script(s) may be used at the second level, such as <idn-domain>.<idn-  
18 tld>? In other words, should the script used on the second level match the script used in the top-  
19 level? Given that, with specific exceptions, mixing of scripts is prohibited on the second level,  
20 should the same rule apply to the top-level?

21 Should a registrant in <.tld> have a prior right to register in the IDN version <.idn-tld>? Would  
22 current domain name holders feel that they are forced to register in the IDN equivalent for brand  
23 protection? Does an intellectual property rights holder in one or more jurisdictions have a prior  
24 right to register in an IDN version?

25 What rules should govern timing and sequencing of the launch of IDN top-level domains? Is there  
26 a need for sunrise periods? Is there a need for concurrent launch of multiple IDN top-level  
27 domains for fair competition reasons?

#### 28 Other aspects

29 The above examples of issue areas and aspects are not exhaustive. There are certainly other IDN aspects to  
30 consider that may affect policy preferences, like email interoperability and browser appearance of v  
31 arious identifiers. As an example; even though ASCII encodings of IDN may be introduced into the domain name  
32 strings – there are still issues in using such domain names in email and websites. Such issues may indeed  
33 be of major importance from the user perspective – even to the extent of degrading the user experience  
34 considerably. While such issues clearly fall outside the remit of GNSO, they deserve to be kept in mind for  
35 a full perspective of the ultimate user experience.

### 1 3. RFC 4690

2 External to ICANN, the Internet Architecture Board (IAB) has released a document  
3 (RFC4690: <http://www.rfc-editor.org/rfc/rfc4690.txt>) which provides a review and  
4 recommendations for Internationalized Domain Names.

5  
6 This document features a particular section, 4.2., titled “Issues that fall within the  
7 purview of ICANN”. This section is copied in its entirety below.

#### 8 9 4.2. Issues That Fall within the Purview of ICANN

##### 10 11 4.2.1. Dispute Resolution

12  
13 IDNs create new types of collisions between trademarks and domain  
14 names as well as collisions between domain names. These have impact  
15 on dispute resolution processes used by registries and otherwise. It  
16 is important that deployment of IDNs evolve in parallel with review  
17 and updating of ICANN or registry-specific dispute resolution  
18 processes.

##### 19 20 4.2.2. Policy at Registries

21  
22 The IAB recommends that registries use an inclusion-based model when  
23 choosing what characters to allow at the time of registration. This  
24 list of characters is in turn to be a subset of what is allowed  
25 according to the updated IDNA standard. The IAB further recommends  
26 that registries develop their inclusion-based models in parallel with  
27 dispute resolution process at the registry itself.

28  
29 Most established policies for dealing with claimed or apparent  
30 confusion or conflicts of names are based on dispute resolution.  
31 Decisions about legitimate use or registration of one or more names  
32 are resolved at or after the time of registration on a case-by-case  
33 basis and using policies that are specific to the particular DNS zone  
34 or jurisdiction involved. These policies have generally not been  
35 extended below the level of the DNS that is directly controlled by  
36 the top-level registry.

37  
38 Because of the number of conflicts that can be generated by the  
39 larger number of available and confusable characters in Unicode, we  
40 recommend that registration-restriction and dispute resolution  
41 policies be developed to constrain registration of IDNs and zone  
42 administrators at all levels of the DNS tree. Of course, many of  
43 these policies will be less formal than others and there is no  
44 requirement for complete global consistency, but the arguments for  
45 reduction of confusable characters and other issues in TLDs should  
46 apply to all zones below that specific TLD.

47  
48 Consistency across all zones can obviously only be accomplished by  
49 changes to the protocols. Such changes should be considered by the  
50 IETF if particular restrictions are identified that are important and  
51 consistent enough to be applied globally.

52  
53 Some potential protocol changes or changes to character-mapping  
54 tables might, if adopted, have profound registry policy implications.  
55 See Section 4.1.4.

##### 56 57 4.2.3. IDNs at the Top Level of the DNS

58  
59 The IAB has concluded that there is not one issue with IDNs at the  
60 top level of the DNS (IDN TLDs) but at least three very separate

ones:

- o If IDNs are to be entered in the root zone, decisions must first be made about how these TLDs are to be named and delegated. These decisions fall within the traditional IANA scope and are ICANN issues today.
- o There has been discussion of permitting some or all existing TLDs to be referenced by multiple labels, with those labels presumably representing some understanding of the "name" of the TLD in different languages. If actual aliases of this type are desired for existing domains, the IETF may need to consider whether the use of DNAME records in the root is appropriate to meet that need, what constraints, if any, are needed, whether alternate approaches, such as those of [RFC4185], are appropriate or whether further alternatives should be investigated. But, to the extent to which aliases are considered desirable and feasible, decisions presumably must be made as to which, if any, root IDN labels should be associated with DNAME records and which ones should be handled by normal delegation records or other mechanisms. That decision is one of DNS root-level namespace policy and hence falls to ICANN although we would expect ICANN to pay careful attention to any technical, operational, or security recommendations that may be produced by other bodies.
- o Finally, if IDN labels are to be placed in the root zone, there are issues associated with how they are to be encoded and deployed. This area may have implications for work that has been done, or should be done, in the IETF.

Furthermore, there are other sections featuring issues of interest, notably:

#### 5.4. Databases of Registered Names

In addition to their presence in the DNS, IDNs introduce issues in other contexts in which domain names are used. In particular, the design and content of databases that bind registered names to information about the registrant (commonly described as "whois" databases) will require review and updating. For example, the whois protocol itself [RFC3912] has no standard capability for handling non-ASCII text: one cannot search consistently for, or report, either a DNS name or contact information that is not in ASCII characters. This may provide some additional impetus for a switch to IRIS [RFC3981] [RFC3982] but also raises a number of other questions about what information, and in what languages and scripts, should be included or permitted in such databases.

Also, the following references could be useful for considering conditions for top-level IDN strings:

- 1.6.2.1 (on the need for homogeneity in defined character repertoires),
- 2.2.1 (on handling of variants),
- 2.2.3 (on combining characters and confusables, on risks of mismatches in lookup),
- 2.2.5 (on bidirectional text),
- 2.2.6 (on confusable characters),
- 2.2.7 (on policy for accepted scripts etc),
- 3.2.2 (on combining characters)

#### 1 **4. The ICANN IDN Guidelines**

2 There has been a working group of gTLD registries and ccTLD registries to create a set  
3 of technical Guidelines for the Implementation of IDNs at the second level. See  
4 <http://www.icann.org/general/idn-guidelines-22feb06.htm> for version 2.1 of the  
5 Guidelines dated - 22 Feb 2006. It is copied in full below.

#### 6 **Introduction**

7 The initial [Version 1.0 of the Guidelines for the Implementation of Internationalized Domain](#)  
8 [Names](#), was published on 20 June 2003, coinciding with the initiation of IDN deployment in  
9 accordance with the IETF Proposed Standard for Internationalized Domain Names in Applications  
10 as stated in RFCs [3454](#), [3490](#), [3491](#), and [3492](#). The implementation approach set forth in the  
11 Version 1.0 Guidelines was endorsed by the ICANN Board on [27 March 2003](#). That document  
12 stated the conditions under which a TLD registry requiring ICANN's authorization to accept IDN  
13 registration could begin doing so. The Guidelines were further intended as a support document  
14 for other registries establishing IDN policies.

15 The experience gathered in actual registry practice would then serve as a basis for the revision of  
16 the Guidelines whenever such need was apparent. During the course of the review preceding the  
17 present revision, and as indicated in the comments received on the resulting draft, the initial  
18 version of the Guidelines required extensive modification. The requisite changes could not readily  
19 be made by simple incremental changes to the initial text. However, given the urgent nature of  
20 some IDN concerns and the corresponding need for rapid response, the working group assigned  
21 to the task decided to produce a revised version of the Guidelines retaining their initial format as  
22 rapidly as possible, and then proceed with an alternate instrument with which to replace them  
23 altogether.

24 The text presented below does not address all of the concerns that currently attach to IDN. (A list  
25 of such issues has been extracted from the public comments on the draft text, and will be posted  
26 separately.) The next intended editorial action is to reframe the Guidelines in a manner that is  
27 amenable to further development as a Best Current Practices (BCP) document, for which formal  
28 IETF status will also be sought.

29 The Guidelines as presented below have no direct conformance implications with respect to the  
30 IDN standards referenced below. The term "will" is not to be read as it would be in a formal  
31 normative instrument. Although the Guidelines apply directly to the gTLD registries, they are  
32 intended to be suitable for implementation in other registries on the second and lower levels. Any  
33 residual lack of clarity that may be inherent in the present wording will be dealt with in the  
34 successor BCP.

#### 35 **Guidelines**

36 1. Top-level domain registries that implement internationalized domain name capabilities will do  
37 so in strict compliance with the technical requirements described in RFCs [3454](#), [3490](#), [3491](#), and  
38 [3492](#) (collectively, the "IDN standards").

39 2. In implementing the IDN standards, top-level domain registries will employ an "inclusion-  
40 based" approach (meaning that code points which are not explicitly permitted by the registry are  
41 prohibited) for identifying permissible sets of code points from among the full Unicode repertoire,  
42 as described below.

43 3. (a) In implementing the IDN standards, top-level domain registries will associate each label in a  
44 registered internationalized domain name, as it appears in their registry with a single script This

1 restriction is intended to limit the set of permitted characters within a label. If greater specificity is  
2 needed, the association may be made by combining descriptors for both language and script.  
3 Alternatively, a label may be associated with a set of languages, or with more than one  
4 designator under the conditions described below. (b) A registry will publish the aggregate set of  
5 code points that it makes available in clearly identified IDN-specific character tables, and will  
6 define equivalent character variants if registration policies are established on their basis. Any  
7 such table will be designated in a manner that indicates the script(s) and/or language(s) it is  
8 intended to support. (c) All code points in a single label will be taken from the same script as  
9 determined by the Unicode Standard Annex #24: Script Names at  
10 <http://www.unicode.org/reports/tr24>. Exception to this is permissible for languages with  
11 established orthographies and conventions that require the commingled use of multiple scripts. In  
12 such cases, visually confusable characters from different scripts will not be allowed to co-exist in  
13 a single set of permissible codepoints unless a corresponding policy and character table is clearly  
14 defined. (d) All registry policies based on these considerations will be documented and publicly  
15 available, including a character table for each permissible set of code points, before the  
16 registration of any IDN associated with such an aggregate may be accepted.

17 4. Permissible code points will not include: (a) line symbol-drawing characters (as those in the  
18 Unicode Box Drawing block), (b) symbols and icons that are neither alphanumeric nor  
19 ideographic language characters, such as typographic and pictographic dingbats, (c) characters  
20 with well-established functions as protocol elements, (d) punctuation marks used solely to  
21 indicate the structure of sentences. (e) Punctuation marks that are used within words may only be  
22 permitted if they are not excluded by any of the preceding points, are essential to the language of  
23 the IDN registration, and are associated with explicit prescriptive rules about the context in which  
24 they may be used. (f) Under corresponding conditions, a single specified character may be used  
25 as a separator within a label, either by allowing the hyphen-minus to appear together with non-  
26 Latin scripts, or by designating a functionally equivalent punctuation mark from within the script.

27 When a pre-existing registered name requires a registry to make transitional exception to any of  
28 these rules, the terms of that action will be made readily available online. A registry may not even  
29 by exception permit code points that are prohibited by the IDN standards.

30 5. A registry will define an IDN registration in terms of both its Unicode and ASCII-encoded  
31 representations. The availability of a given Unicode sequence is currently determined by its  
32 encodability into the scheme defined in RFC 3491, and changes to that component of the IDN  
33 standard can have disruptive consequences for the operability of a Unicode name. Since the  
34 appearance of hyphens in the third and fourth positions of a label indicates an encoding scheme,  
35 the registration of any label containing hyphens in these positions must not be permitted unless  
36 the hyphens follow a two-letter designator for a sanctioned scheme and the label conforms to the  
37 corresponding specifications.

38 6. Top-level domain registries will work collaboratively with relevant stakeholders to develop IDN-  
39 specific registration policies, with the objective of achieving consistent approaches to IDN  
40 implementation for the benefit of DNS users worldwide. Top-level domain registries will work  
41 collaboratively with each other to address common issues, for example by forming or appointing a  
42 consortium to coordinate contact with external communities, elicit the assistance of support  
43 groups, and establish global fora.

44 7. Top-level domain registries will make definitions of what constitutes an IDN registration and  
45 associated registration rules available to the IANA Registry for IDN Tables. If material  
46 fundamental to the understanding of a registry's IDN policies is not published by the IANA, it will  
47 otherwise be made readily available online by the registry, which should also ensure that its  
48 registrars call the attention of prospective holders of IDN names to it.

1 8. The top-level domain registries should provide resources containing information about the  
2 sources and references that were used in the formation of the corresponding IDN registration  
3 policies for all languages and scripts in which they offer IDN registrations.

4 9. The UseSTD3ASCIIRules flag described in RFC 3490 must be set when performing ToASCII  
5 conversions to produce ACE names.

6 **Additional remarks**

7 The deceptive use of visually confusable characters from different scripts is discussed in detail in  
8 the Unicode Technical Report #36 on 'Unicode Security Conditions' at  
9 <http://www.unicode.org/reports/tr36/> and in a draft Unicode Technical Report #39 at  
10 <http://www.unicode.org/reports/tr39/>. Limitations to the character repertoire available for IDNs are  
11 suggested in UTR#36 in tables presented under the heading "Data files".

12 The current restriction of top-level labels to the 26-letter basic Latin alphabet makes it necessary  
13 to determine the language attributes of an IDN without consideration of the top-level label. The  
14 discussion that is in progress about permitting a more extensive character repertoire in top-level  
15 labels may change this, as well as raise need for guidelines specific to the new condition.