Internationalized Domain Names Expedited Policy Development Process

A9 & A10 Discussion

EPDP on IDNs Team Call #16 | 17 December 2021

Charter Questions A9 & A10

A9: A given label in an Internationalized Domain Label (IDL) set may be in one of the following non-exhaustive status: delegated, withheld-same-entity, blocked, allocated, rejected. The WG and the SubPro IRT to coordinate and develop a consistent definition of variant label status in the IDL set.

A10: What is the procedure to change the label status for individual variant labels?

Why are these questions asked?

- Variant labels may take **a range of possible states and corresponding actions**. A variant management mechanism could encompass both **active use of labels and prevention of labels from use in the DNS**

- **Consistency**: have consistent understanding of what different label states entail and use consistent terminology for defining them

- Label states result in **different user experiences and impact various Internet stakeholders**:
  - ICANN
  - Registry operators
  - Registrants
  - Software developers
  - Law enforcement and security
  - End users

- Ensure the **stable and secure operation of the DNS** and avoid failures related to **DNS resolution** or inconsistent resolution

Possible States for Variant Labels

- **Integrated Issues Report** - A Study of Issues Related to the Management of IDN Variant TLDs (Feb 2012)
  - Blocked
  - Withheld
  - Allocated
  - Activated/Active
  - Delegated
  - Mirrored

- **Variant Management Staff Paper** - Section 3.4 TLD Label States (Jan 2019)
  - Blocked
  - Withheld-same-entity
  - Rejected
  - Allocated
  - Delegated

The list of possible states in Staff Paper was built on the earlier work done in the Integrated Issues Report

Proposed Definition Details in Staff Paper

Blocked: A status of some label with respect to a zone, according to which the label is unavailable for allocation to anyone. The term “to block” denotes the registry (the zone operator) taking this action.

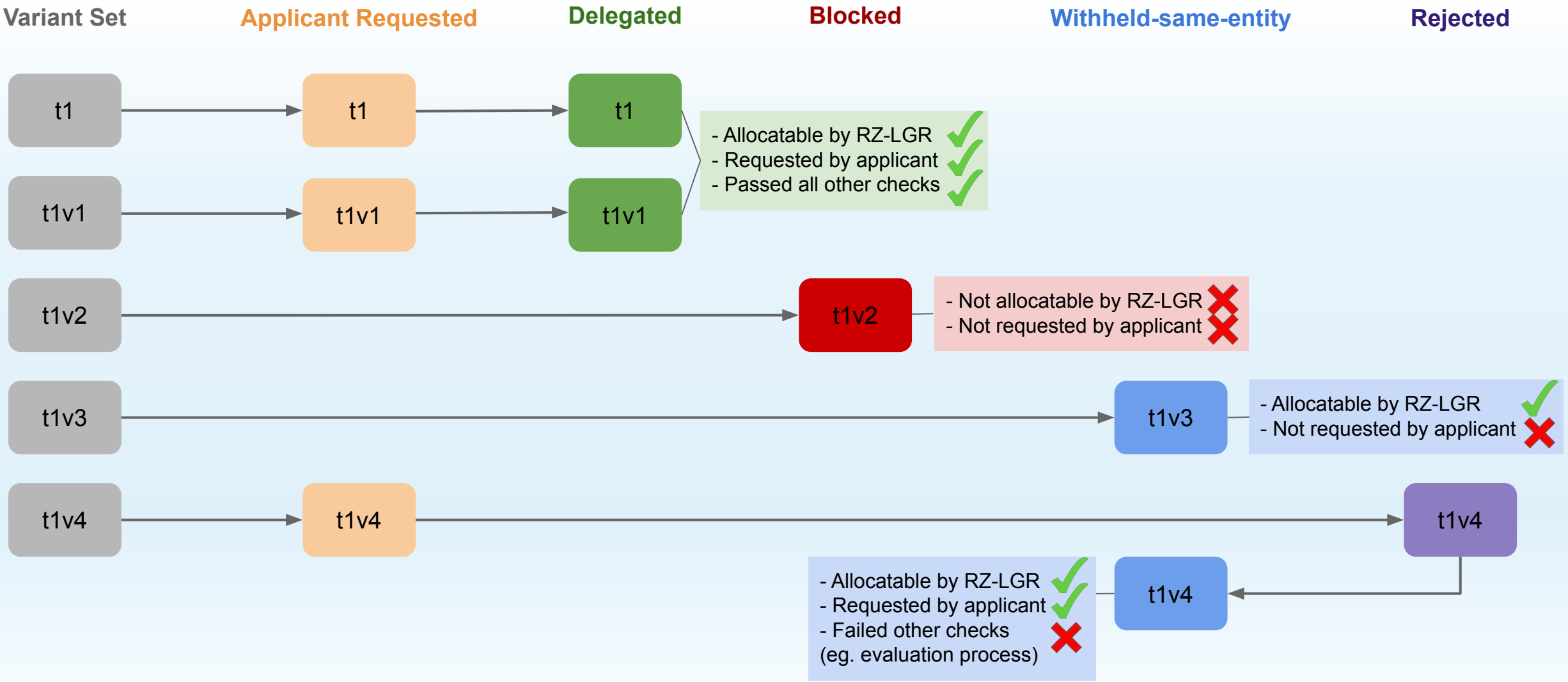
Withheld-same-entity: A Withheld label is set aside for possible allocation only to the same entity of the other labels in the variant set. This is a special case of “withheld”, with the condition made explicit. Note that this status does not guarantee that the label in question will in fact be allocated (because the label is also subject to other application conditions).

Rejected: A Rejected label is set aside on administrative grounds outside the ordinary LGR procedures. In the gTLD application states, this state encompasses both “Not Approved” and “Will Not Proceed”. Labels that cannot be allocated on visual confusability grounds, based on the string similarity review step in the TLD application process, are also Rejected. If a single label in an IDL set is Rejected, it can return to Withheld-same-entity, but the condition is only satisfied if the Rejected status can be removed.

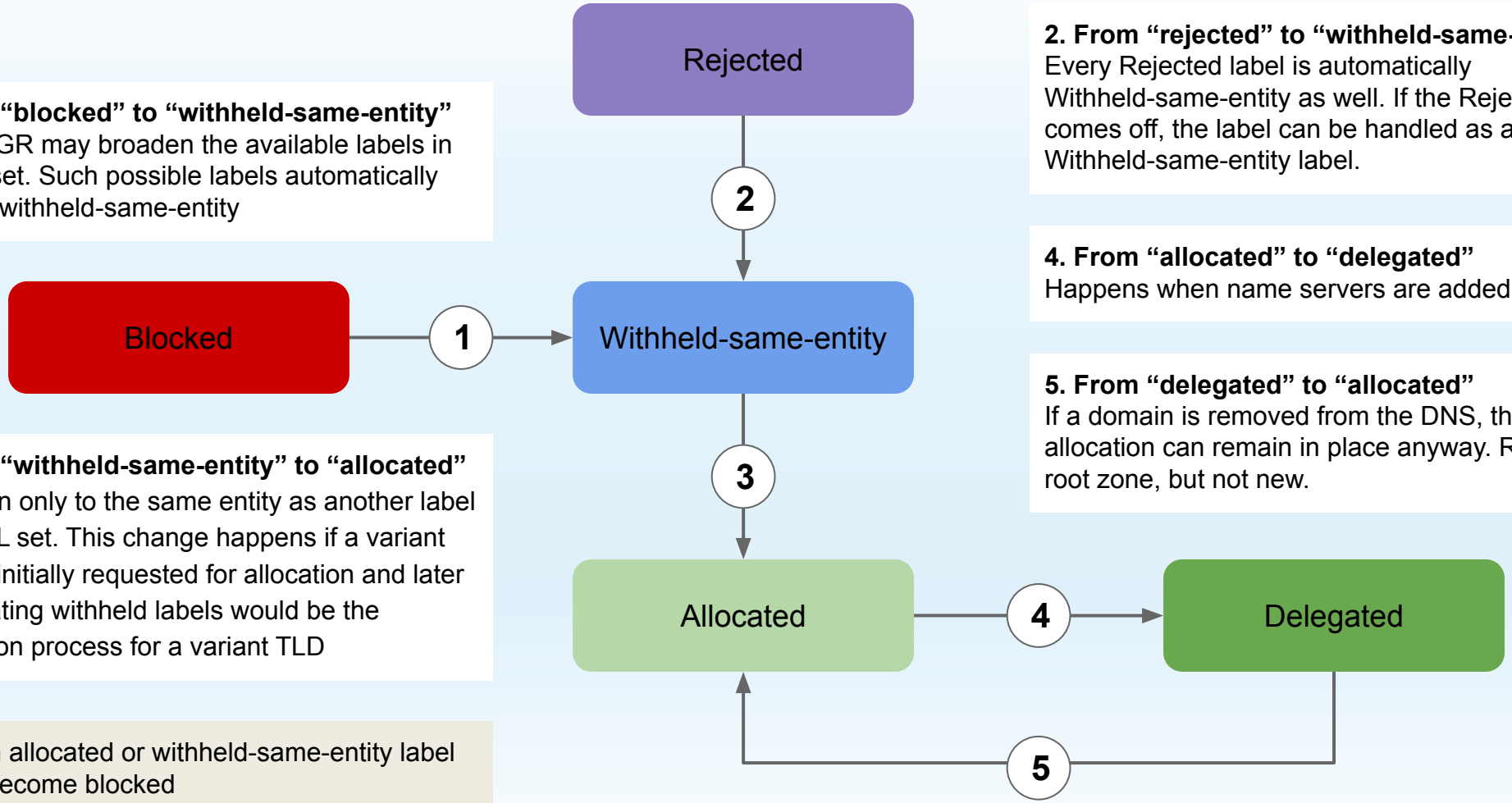
Allocated: A status of some label with respect to a zone, whereby the label is associated administratively to some entity that has requested the label. This term (and its cognates “allocation” and “to allocate”) represents the first step on the way to delegation in the DNS. When the registry (zone operator) allocates the label, it is effectively making a label a candidate for activation. Allocation does not, however, affect the DNS at all.

Delegated: A status of some label with respect to a zone, indicating that in that zone there are NS resource records at the label. The NS resource records create a zone cut, and require an SOA record for the same owner name and corresponding NS resource records in the subordinate zone. The act of entering the NS records in the zone at the parent side of the zone cut is delegation, and to do that is to delegate. This definition is largely based on RFC 1034; the reader should consult RFC 1034 for detailed discussion of how the DNS is broken into zones.

Example


Variant Set
Applicant Requested
Delegated
Blocked
Withheld-same-entity
Rejected
t1
t1
t1
- Allocatable by RZ-LGR
- Requested by applicant
- Passed all other checks
t1v1
t1v1
t1v1
t1v2
t1v2
- Not allocatable by RZ-LGR
- Not requested by applicant
t1v3
t1v3
- Allocatable by RZ-LGR
- Not requested by applicant
t1v4
t1v4
t1v4
- Allocatable by RZ-LGR
- Requested by applicant
- Failed other checks
(eg. evaluation process)
t1v4

Possible Label State Transitions



1. From “blocked” to “withheld-same-entity”
A later LGR may broaden the available labels in the IDL set. Such possible labels automatically become withheld-same-entity

2. From “rejected” to “withheld-same-entity”
Every Rejected label is automatically Withheld-same-entity as well. If the Rejected status comes off, the label can be handled as any other Withheld-same-entity label.

4. From “allocated” to “delegated”
Happens when name servers are added (Not new.)

5. From “delegated” to “allocated”
If a domain is removed from the DNS, the allocation can remain in place anyway. Rare in the root zone, but not new.

3. From “withheld-same-entity” to “allocated”
Allocation only to the same entity as another label in the IDL set. This change happens if a variant was not initially requested for allocation and later is. Allocating withheld labels would be the application process for a variant TLD

Note: an allocated or withheld-same-entity label cannot become blocked

Distilling Charter Questions A9 & A10

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1. Do you agree with the label states and their definitions proposed in Staff Paper?

A10: What is the procedure to change the label status for individual variant labels?

1. Do you agree with the label state transitions between states defined in the Staff Paper?

Appendix: Additional Label States in Integrated Issues Report

Withheld: A status of some label with respect to a zone, whereby the label is set aside for possible allocation to some entity. In this strict sense, a withheld name is not actually allocated. The term “to withhold” denotes the registry (the zone operator) performing the setting aside.

Activated/Active: A status of some label with respect to a zone, indicating that there are DNS resource records at that node name; or else that there are subordinate names to that name, even though there are no resource records at that node name. In the case where there are resource records at the node name, any resource record will do. In the case where there are subordinate names but no resource records (except those to support DNSSEC), the label names an empty non-terminal. A registry (zone operator) setting the active status activates the name, or performs activation.

Mirrored: A status of some active label with respect to a zone, indicating the isomorphism of the namespace beginning with that label, and at least one other namespace beginning with another active label in the zone. If two domain names are mirrored, then for a namespace starting with one, the namespace starting with the other is isomorphic to the first, subject to the usual DNS loose consistency strictures. The act of setting two or more labels to be mirrored and maintaining the namespace correctly is mirroring. Currently, there are two different techniques for this. The first is aliasing: CNAME, DNAME, and other such techniques that redirect a name or a tree, effectively substituting one label for another during DNS lookup. The second is by using provisioning constraints, such that an underlying provisioning system always effects a change in all of the names whenever that change is effected in one of the names. The set of domain names (not labels) that are supposed to be the beginning of isomorphism are mirrors. Mirrors whose namespaces have not been maintained to preserve isomorphism are broken mirrors.