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Special Use Top Level Domain '.homenet'
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Abstract

This document specifies the behavior that is expected from the Domain Name System with regard to DNS queries for names ending with '.homenet.', and designates this top-level domain as a special-use domain name. The '.homenet' top-level domain replaces '.home' as the default domain used by the Home Networking Control Protocol (HNCP).

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Table of Contents

1. Introduction	2
2. General Guidance	3
3. Domain Name Reservation Considerations	3
4. Updates to Home Networking Control Protocol	4
5. Security Considerations	5
6. IANA Considerations	5
7. Acknowledgments	5
8. References	6
8.1. Normative References	6
8.2. Informative References	6
Authors' Addresses	7

1. Introduction

Users and devices within a home network require devices and services to be identified by names that are unique within the boundaries of the home network [RFC7368]. The naming mechanism needs to function without configuration from the user. While it may be possible for a name to be delegated by an ISP, home networks must also function in the absence of such a delegation. A default name with a scope limited to each individual home network needs to be used.

The '.homenet' top-level domain replaces '.home' which was specified in [RFC7788] as the default domain-name for home networks. '.home' had been selected as the most user-friendly option, but evidence indicates that '.home' queries frequently leak out and reach the root name servers [ICANN1] [ICANN2]. As a result, the use of '.home' has been deprecated; this document updates [RFC7788] to replace '.home' with '.homenet', while another document, [I-D.ietf-homenet-redact] deprecates the use of the '.home' TLD.

This document registers the top-level domain '.homenet.' as a special-use domain name [RFC6761] and specifies the behavior that is expected from the Domain Name System with regard to DNS queries for names whose rightmost non-terminal label is 'homenet'. Queries for names ending with '.homenet.' are of local significance within the scope of a home network, meaning that identical queries will result in different results from one home network to another. In other words, a name ending in '.homenet' is not globally unique.

2. General Guidance

The top-level domain name `'.homenet.'` is to be used for naming within a home network. Names ending with `'.homenet.'` MUST refer to services that are located within a home network (e.g., a printer, or a toaster).

DNS queries for names ending with `'.homenet.'` are resolved using local resolvers on the homenet. Such queries MUST NOT be recursively forwarded to servers outside the logical boundaries of the home network.

Although home networks most often provide one or more service discovery mechanisms, it is still expected that some users will see, remember, and sometimes even type, names ending with `'.homenet.'`. It is therefore desirable that users identify the top-level domain and understand that using it expresses the intention to connect to a service that is specific to the home network to which they are connected. Enforcing the fulfillment of this intention is out of scope for this document.

3. Domain Name Reservation Considerations

This section defines the behavior of systems involved in domain name resolution when serving queries for names ending with `'.homenet.'` (as per [RFC6761]).

1. Users can use names ending with `'.homenet.'` just as they would use any other domain name. The `'.homenet.'` name is chosen to be readily recognized by users as signifying that the name is addressing a service on the homenet to which the user's device is connected.
2. Applications SHOULD treat domain names ending with `'.homenet.'` just like any other FQDN, and MUST NOT make any assumption on the level of additional security implied by its presence.
3. Name resolution APIs and libraries MUST NOT recognize names ending with `'.homenet.'` as special and MUST NOT treat them differently. Name resolution APIs MUST send queries for such names to their configured caching DNS server(s). Using a caching server other than the server or servers offered by the home network will result in failure to correctly resolve queries for `'.homenet.'`.
4. Unless configured otherwise, Caching DNS servers MUST behave as described in Locally Served Zones ([RFC6303] Section 3). Caching DNS Servers that are part of a home network MAY be configured

manually or automatically (e.g., for auto-configuration purposes) to act differently, e.g., by querying another name server configured as authoritative for part of the domain, or proxying the request through a different mechanism.

5. Authoritative DNS Servers SHOULD recognize such names as special-use and SHOULD NOT, by default, attempt to look up NS records for these names. Servers that are part of a home network or providing name resolution services for a home network MAY be configured to act as authoritative for the whole top-level domain or a part of it.
6. DNS server operators should not configure DNS servers to act as authoritative for any name ending in '.homenet'.
7. DNS Registries/Registrars MUST NOT grant requests to register '.homenet' in the normal way to any person or entity. '.homenet' is registered in perpetuity to IANA:

```
Domain Name: HOMENET
Registrar: RESERVED-INTERNET ASSIGNED NUMBERS AUTHORITY
Whois Server: whois.iana.org
Referral URL: http://res-dom.iana.org
Name Server: A.IANA-SERVERS.NET
Name Server: B.IANA-SERVERS.NET
Status: clientDeleteProhibited
Status: clientTransferProhibited
Status: clientUpdateProhibited
```

4. Updates to Home Networking Control Protocol

The final paragraph of Homenet Considerations Protocol [RFC7788], section 8, is updated as follows:

OLD:

Names and unqualified zones are used in an HNCP network to provide naming and service discovery with local significance. A network-wide zone is appended to all single labels or unqualified zones in order to qualify them. ".home" is the default; however, an administrator MAY configure the announcement of a Domain-Name TLV (Section 10.6) for the network to use a different one. In case multiple are announced, the domain of the node with the greatest node identifier takes precedence.

NEW:

Names and unqualified zones are used in an HNCP network to provide naming and service discovery with local significance. A network-wide zone is appended to all single labels or unqualified zones in order to qualify them. ".homenet" is the default; however, an administrator MAY configure the announcement of a Domain-Name TLV (Section 10.6) for the network to use a different one. In case multiple are announced, the domain of the node with the greatest node identifier takes precedence.

The '.homenet' special-use name does not require a special resolution protocol. Names for which the rightmost non-terminal label is 'homenet' are resolved using the DNS protocol [RFC1035].

5. Security Considerations

Although a DNS record returned as a response to a query ending with '.homenet.' is expected to have local significance and be returned by a server involved in name resolution for the home network the device is connected in, such response MUST NOT be considered more trustworthy than would be a similar response for any other DNS query.

Because '.homenet' is not globally scoped and cannot be secured using DNSSEC based on the root domain's trust anchor, there is no way to tell, using a standard DNS query, in which home network scope an answer belongs. Consequently, users may experience surprising results with such names when roaming to different home networks. To prevent this from happening, it may be useful for the resolver to identify different home networks on which it has resolved names, but this is out of scope for this document.

6. IANA Considerations

IANA is requested to record the top-level domain ".homenet" in the Special-Use Domain Names registry [SUDN].

IANA is requested to set up insecure delegation for '.homenet' in the root zone pointing to the AS112 service [RFC7535], to break the DNSSEC chain of trust.

7. Acknowledgments

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8. References

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