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Moving MCAST.NET into the ARPA infrastructure top level domain  
draft-ietf-mboned-mcast-arpa-03

## Abstract

This document proposes to migrate the MCAST.NET domain into the ARPA top level domain, which is dedicated to infrastructure support. It also provides a maintenance policy for the new MCAST.ARPA domain, related registrations in IN-ADDR.ARPA and describes the migration process. This document updates RFC 5771 and forms part of BCP 51.

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## **[1. Introduction](#)**

This document describes the migration strategy from the MCAST.NET domain to MCAST.ARPA, which MUST contains DNS names for a subset of the multicast groups assigned by the IANA. It also specifies a maintenance policy for the MCAST.ARPA domain.

## **[2. Terminology](#)**

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in BCP 14, [\[RFC2119\]](#).

## **[3. The ARPA top level domain](#)**

[\[RFC3172\]](#) designates the ARPA top level domain as "Address and Routing Parameters Area" to be used for infrastructure applications.

The MCAST.NET second level domain fulfills the criteria set out in section 2.1 of [\[RFC3172\]](#). However, there is no standards track document explicitly designating this domain to a multicast group name to multicast group address mapping.

The assignment of IPv4 multicast addresses is governed by BCP51 [\[RFC5771\]](#). IPv6 multicast address assignment is dealt with in [\[RFC3307\]](#) and section 2.7 of [\[RFC4291\]](#).

## **[4. Current Use](#)**

Currently the zone MCAST.NET reflects the contents of parts the IANA IPv4 multicast address registry. However, some names are missing from the DNS zone and some names used differ from the description that appears in the registry file. Entries in the IPv6 multicast address registry are not reflected in the MCAST.NET zone.

With few exceptions, only multicast group addresses from 224.0.0/24 and 224.0.1/24 are listed in MCAST.NET. Addresses outside 224/8 do not appear at all.

## **[5. Registration Policy](#)**

Names within MCAST.ARPA will consist of one additional label and MUST adhere to the hostname syntax requirements of [\[RFC1123\]](#). These names MUST own a single A RR, a single AAAA RR, or both. Addresses will be in the IPv4 or IPv6 multicast address space and recorded in the registry.

### **5.1. Names and Addresses eligible for Registration in MCAST.ARPA**

Only IANA multicast address registrations are eligible for being listed in MCAST.ARPA.

For IPv4, only multicast groups from 224.0.0/24 (Local Network Control Block) and 224.0.1/24 (Internetwork Control Block) will have names assigned.

For IPv6, only multicast groups from FF01::/16 (Node-Local Scope Multicast Addresses) and FF02::/16 (Link-Local Scope Multicast Addresses) will have names assigned.

### **5.2. Subdomains of MCAST.ARPA**

The namespace under MCAST.ARPA is considered flat, i.e., all direct descendants of MCAST.ARPA are leaves in the DNS tree. Future extensions might want to define subdomains that serve special purposes. Any such designation needs IETF consensus [\[RFC5226\]](#).

### **5.3. Corresponding Reverse Mapping**

The DNS Reverse Mapping for those multicast groups that appear as addresses in MCAST.ARPA MUST remain consistent with the forward namespace.

#### **5.3.1. Reverse Mapping for 224/4**

A single DNS PTR record will be entered at the corresponding owner within the 224.IN-ADDR.ARPA domain that points to the multicast group name within MCAST.ARPA.

The zones 225.IN-ADDR.ARPA through 239.IN-ADDR.ARPA will be delegated but MUST remain empty except for necessary infrastructure RRs. The one exception is 233.IN-ADDR.ARPA. A mechanism for the delegation of reverse mapping for GLOP space [\[RFC3180\]](#) will be specified and documented on the IANA web site.

#### **5.3.2. Reverse Mapping for ff00::/8**

Directions for this will be published as a separate document.

## **6. Migration Issues**

As described below, the current content of the MCAST.NET zone MUST be brought in line with the multicast address registry.

Since legacy systems are likely to use MCAST.NET for quite some time, there needs to be a mapping/forwarding solution to answer those queries in a useful manner without discouraging migration.

RFCs mentioning MCAST.NET are [\[RFC3261\]](#) and [\[RFC3678\]](#).

An updated multicast address architecture appears in [\[RFC6308\]](#).

## **6.1. Migration Strategies**

After the move, several options are available for the future handling of MCAST.NET.

[[The working group needs to choose one of the options.]]

### **6.1.1. Freeze**

The current MCAST.NET zone could be frozen, so that no additions, deletions or changes to the content (apart from those necessary for maintenance, e.g. SOA and NS RRs) would be performed. New registrations would only be available in MCAST.ARPA, so this could be an incentive for querying clients to alter their behavior as well.

### **6.1.2. Removing Registrations from MCAST.NET while maintaining operational stability**

MCAST.NET will only see deletions but even after the last record has been deleted, the domain MUST be kept registered by the IANA. and should be operated in parallel using a DNAME RR, as described in [\[RFC2672\]](#).

## **7. Security Considerations**

The usual Security Considerations for the DNS [\[RFC3833\]](#) apply. The MCAST.ARPA., MCAST.NET., and the Reverse mapping zones mentioned in this document MUST be DNSSEC signed by the IANA under direction from the IAB.

There is no security problem associated with the migration itself.  
{This section needs more work.}

## **8. IANA Considerations**

This document amends [\[RFC5771\]](#) to add a mandatory entry in the MCAST.ARPA domain and a corresponding reverse mapping entry, with relevant DNS names published in the registry. The officially registered multicast group name is made subject to DNS hostname syntax rules.

## **9. Acknowledgements**

The authors would like to thank David Conrad and Joe Abley for their input.

## **10. References**

### **10.1. Normative References**

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<b>[RFC1035]</b>	

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[RFC2119]	Bradner, S., " <a href="#">Key words for use in RFCs to Indicate Requirement Levels</a> ", BCP 14, RFC 2119, March 1997.
[RFC3172]	Huston, G., " <a href="#">Management Guidelines &amp; Operational Requirements for the Address and Routing Parameter Area Domain ("arpa")</a> ", BCP 52, RFC 3172, September 2001.
[RFC3180]	Meyer, D. and P. Lothberg, " <a href="#">GLOP Addressing in 233/8</a> ", BCP 53, RFC 3180, September 2001.
[RFC3307]	Haberman, B., " <a href="#">Allocation Guidelines for IPv6 Multicast Addresses</a> ", RFC 3307, August 2002.
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[RFC5771]	Cotton, M., Vegoda, L. and D. Meyer, " <a href="#">IANA Guidelines for IPv4 Multicast Address Assignments</a> ", BCP 51, RFC 5771, March 2010.
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[RFC2672]	Crawford, M., " <a href="#">Non-Terminal DNS Name Redirection</a> ", RFC 2672, August 1999.
[RFC3678]	Thaler, D., Fenner, B. and B. Quinn, " <a href="#">Socket Interface Extensions for Multicast Source Filters</a> ", RFC 3678, January 2004.
[RFC3833]	Atkins, D. and R. Austein, " <a href="#">Threat Analysis of the Domain Name System (DNS)</a> ", RFC 3833, August 2004.
[I-D.ietf-mboned-addrarch]	Savola, P., " <a href="#">Overview of the Internet Multicast Addressing Architecture</a> ", Internet-Draft draft-ietf-mboned-addrarch-07, October 2010.

## **Appendix A. Document Revision History**

This section is to be removed should the draft be published.

### **Appendix A.1. Changes from -2 to -03**

Added text on reverse delegation to the abstract

Updated the order of text in the introduction

Added a requirements to publish DNS names in the assignment registry in section 5

Consigned ff0::/12 reverse delegation issues to a separate document

Merged 6.1.2 and 6.1.3 with updated text

### **Appendix A.2. Changes from -01 to -02**

Added text about v6 multicast.

Added text about GLOP space

Added terminology section and RFC 2119 language

### **Appendix A.3. Changes from -00 to -01**

Added text about DNS reverse mapping. Eligibility for an MCAST.ARPA name now restricted to 224.0.0/24 and 224.0.1/24. Stronger requirement for MCAST.ARPA subdomains.

### **Appendix A.4. Initial Document**

First draft, taking over with only little changes from draft-koch-mboned-mcast-arpa-00.txt

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