

# Let's stop using DNS64 for NAT64 prefix discovery

Or, how we propose to deprecate RFC 7050

<https://datatracker.ietf.org/doc/draft-buraglio-deprecate7050/>

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# What are we talking about here?

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## Discovery of the IPv6 Prefix Used for IPv6 Address Synthesis

### Abstract

This document describes a method for detecting the presence of DNS64 and for learning the IPv6 prefix used for protocol translation on an access network. The method depends on the existence of a well-known IPv4-only fully qualified domain name "ipv4only.arpa." The information learned enables nodes to perform local IPv6 address synthesis and to potentially avoid NAT64 on dual-stack and multi-interface deployments.

# Operationally, what does RFC 7050 mean?

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Clients need to rely on DNS in order to do multiple things:

- Know that the network is IPv6-only\*
- Activate CLAT\*
- Translate DNS responses from IPv4 to IPv6

# Could there be a better way?

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Why, yes!

RFC8781; pref64

Because we have a standard, deployable, supportable, and [arguably] more simple way to do all three of those tasks, we should encourage its use!

# Could there be a better way?

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**RFC8781 provides a mechanism for the network to provide that information in a router advertisement.**

# What does this mean?

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pref64 solves a number of problems, simplifies the reliance on external services for IPv6-only networks without the intrusiveness and overhead of a DNS64 resolver.

Let's promote that as the preferred manner for signaling the existence of an IPv6-only environment.

# Existing issues with 7050

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- Dependency on Network-Provided Recursive Resolvers
- Network Stack Initialization Delay
- Lack of flexibility
- Vaguely defined definition of “secure channel with no known working implementations

# So what are we proposing?

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- Recommendation of pref64 as preferred discovery mechanism
- In the absence of pref64 provided by the network, a host MAY choose to fall back to RFC7050



# Deprecation of DNS64 for Discovery of NAT64 Prefix

## draft-buraglio-deprecate7050

← → ↻ ietf.org/archive/id/draft-buraglio-deprecate7050-00.html#name-deployment-recommendations



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### 4.1. Deployment Recommendations

Operators deploying NAT64 networks SHOULD provide PREF64 information in Router Advertisements as per [RFC8781].

### 4.2. Clients Implementation Recommendations

Clients SHOULD obtain PREF64 information from Router Advertisements as per [RFC8781] instead of using [RFC7050] method. In the absense of the PREF64 information in RAs, a client MAY choose to fall back to RFC7050.

## 5. Security Considerations

Obtaining PREF64 information from Router Advertisements improves the overall security of an IPv6-only client as it mitigates all attack vectors related to spoofed or rogue DNS response, as discussed in Section 7 of [RFC7050]. Security considerations related to obtaining PREF64 information from RAs are discussed in Section 7 of [RFC8781].

## 6. IANA Considerations

It is expected that there will be a long tail of both clients and networks still relying on [RFC7050] as a sole mechanism to discover PREF64 information. Therefore IANA still need to maintain "ipv4only.arpa." as described in [RFC7050] and this document has no IANA actions.

### Table of Contents

- 1. Introduction
- 2. Conventions and Definitions
- 3. Existing issues with RFC 7050
  - 3.1. Dependency on Network-Provided Recursive Resolvers
  - 3.2. Network Stack Initialization Delay
  - 3.3. Inflexibility
  - 3.4. Security Implications
    - 3.4.1. Definition of secure channel
    - 3.4.2. Secure channel example of IPsec
    - 3.4.3. Secure channel example of link layer encryption
- 4. Recommendations for PREF64 Discovery
  - 4.1. Deployment Recommendations
  - 4.2. Clients Implementation Recommendations
- 5. Security Considerations

— QUESTION TO THE GROUP:  
ARE THERE REASONS TO NOT DO THIS?

NEXT STEPS?  
WG ADOPTION?