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ACME IP Identifier Validation Extension
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Abstract

This document specifies identifiers and challenges required to enable the Automated Certificate Management Environment (ACME) to issue certificates for IP addresses.

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[1.](#) Introduction

The Automatic Certificate Management Environment (ACME) [[RFC8555](#)] only defines challenges for validating control of DNS host name identifiers which limits its use to being used for issuing certificates for DNS identifiers. In order to allow validation of IPv4 and IPv6 identifiers for inclusion in X.509 certificates this document specifies how challenges defined in the original ACME specification and the TLS-ALPN extension specification [[I-D.ietf-acme-tls-alpn](#)] can be used to validate IP identifiers.

[2.](#) Terminology

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

[3.](#) IP Identifier

[[RFC8555](#)] only defines the identifier type "dns" which is used to refer to fully qualified domain names. If a ACME server wishes to request proof that a user controls a IPv4 or IPv6 address it MUST create an authorization with the identifier type "ip". The value

The existing "dns-01" challenge MUST NOT be used to validate IP identifiers.

8. IANA Considerations

8.1. Identifier Types

Adds a new type to the "ACME Identifier Types" registry defined in [Section 9.7.7 of \[RFC8555\]](#) with Label "ip" and Reference "I-D.ietf-acme-ip".

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8.2. Challenge Types

Adds two new entries to the "ACME Validation Methods" registry defined in [Section 9.7.8 of \[RFC8555\]](#). These entries are defined below:

Label	Identifier Type	ACME	Reference
http-01	ip	Y	I-D.ietf-acme-ip
tls-alpn-01	ip	Y	I-D.ietf-acme-ip

9. Security Considerations

The extensions to ACME described in this document do not deviate from the broader threat model described in [\[RFC8555\] Section 10.1](#).

9.1. CA Policy Considerations

This document only specifies how a ACME server may validate that a certificate applicant controls a IP identifier at the time of validation. The CA may wish to perform additional checks not specified in this document. For example if the CA believes an IP identifier belongs to a ISP or cloud service provider with short delegation periods they may wish to impose additional restrictions on certificates requested for that identifier.

10. Acknowledgments

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