draft-friel-acme-subdomains

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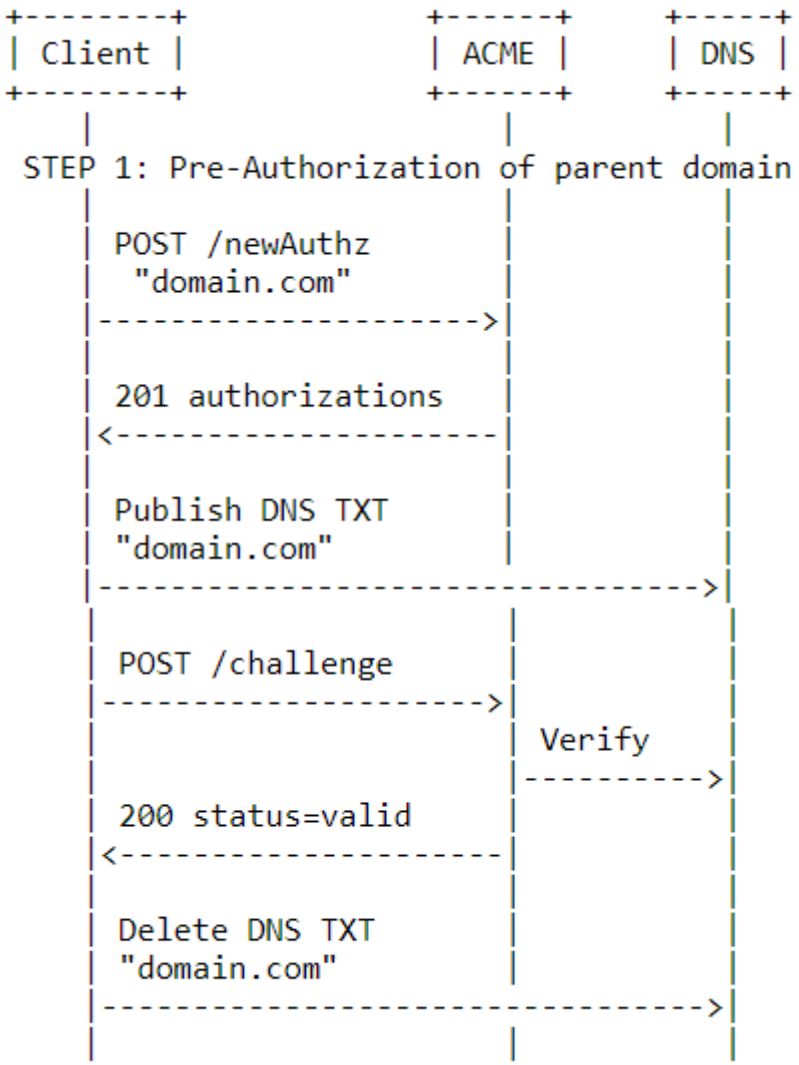
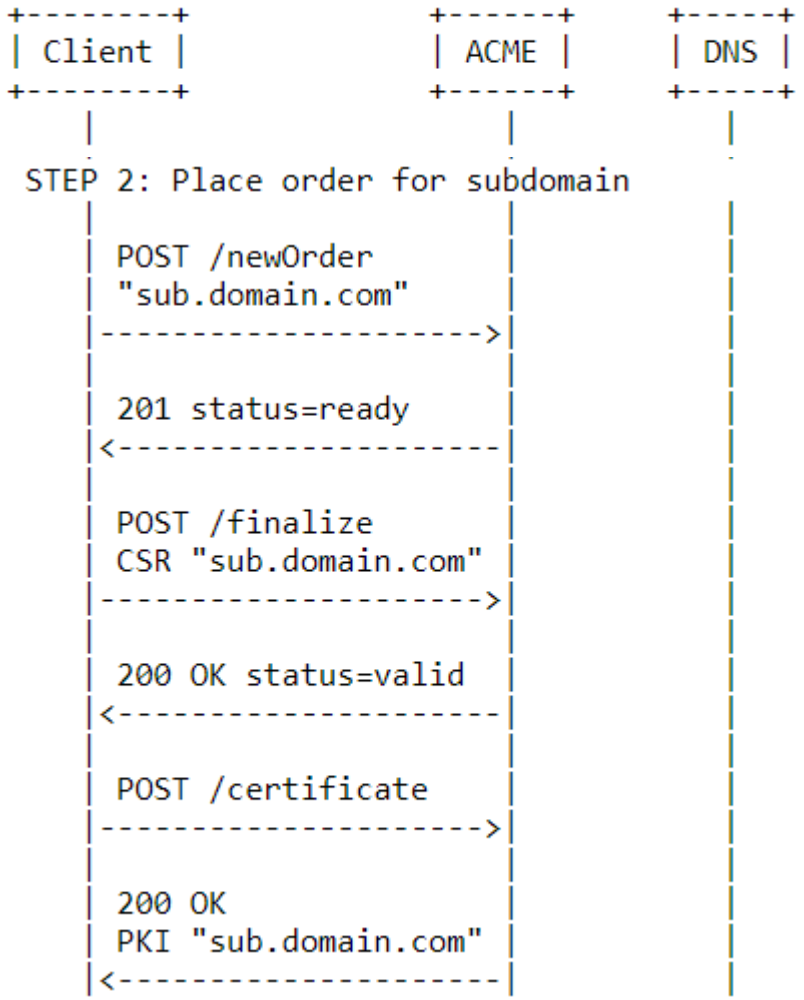
Sub-domain certificates

- ACME (RFC 8555) mandates that
  - The **identifier** in CSR must match **identifier** in **newOrder** request
  - The **identifier** in the **authorization** object must be used when fulfilling challenges via HTTP or DNS
- ACME does *not* mandate that
  - The **identifier** in a **newOrder** request matches the **identifier** in **authorization** object
- The specification therefore allows an ACME server to issue certificates for a given identifier (e.g. a subdomain) without requiring a challenge to be explicitly fulfilled against that identifier
  - An ACME server could issue a certificate for **sub.domain.com** where the ACME client has only fulfilled a challenge for **domain.com**
  - An ACME server could issue certificates for a number of sub-domain certificates and only require a single challenge to be fulfilled against the parent domain

Sub-domains with pre-authorization





3 Changes from RFC 8555

1 x Substantive

1 x Errata

1 x Minor Addition

Substantive Change: newAuthz handling

- RFC 8555 section “7.4.1 Pre-authorization” states:

```
If the server is willing to proceed, it builds a pending
authorization object from the inputs submitted by the client:
   o  "identifier" the identifier submitted by the client
```

  - i.e. the identifier in the authorization object MUST match that in the newAuthz request
- draft-friel-acme-subdomains states:

```
If the client submits a newAuthz request for a subdomain: The
server MUST return a status 201 (Created) response.  The response
body is a newly created authorization object for the parent domain
with status set to "pending“
```

  - i.e. the identifier in the authorization object matches that of the parent domain, even if a subdomain is specified in the newAuthz request

Errata 5861: 200 OK response where appropriate

- RFC 8555 mandates a 201 response to all newAuthz requests
- Errata 5861 proposes additional text in section “7.4.1 Pre-authorization”

> If a server receives a newAuthz request for an identifier where the authorization object already exists, whether created by CA provisioning on the ACME server or by the ACME server handling a previous newAuthz request from a client, the server returns a 200 (OK) response with the existing authorization URL in the Location header field and the existing JSON authorization object in the body.

  - i.e. return a 200 OK if the authorization object already exists
- draft-friel-acme-subdomains documents using a 200 OK where appropriate, which is a deviation from current RFC 8555

Minor Addition: New ACME Directory Metadata Field

- Directory field to advertise support for subdomains
- No field entry == no assumed default value

Field Name	Field Type	Reference
implicitSubdomainAuthorization	boolean	RFC XXXX

Next steps

- Missing security considerations
- Adoption?