AGGREGATED SERVICE DISCOVERY

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• draft-daboo-aggregated-service-discovery

• User input is an account identifier (typically their email address, and password - perhaps prompted on-demand).

• _servicediscovery._tcp SRV lookup to determine an HTTP server to connect to (this could be an optional step).

• An HTTP well-known resource from which a JSON document can be retrieved (authentication & SSL required).

• The JSON document contains the aggregated service information provided by the domain hosting the well-known resource.
JSON DOCUMENT FORMAT #1

• Single JSON object with two members:

1. Encapsulates information about the service provider (name, contacts details, logo, etc).

2. A list of service objects, each service: type, name, connectivity details (URI or host, port), security setup (user TLS, certificates).

• Each service also contains a "group" member to group a bunch of services together (IMAP and POP3), and a "priority" member to indicate the preferred choice of protocols when more than one alternative exists.
JSON DOCUMENT FORMAT #2

• JSON content rules (draft-newton-json-content-rules) are used to describe/document the format:

    ; root object
    root {
      provider,
      entries
    }

    ; ----- provider -----  
    ; Contains information describing the service provider, that can be used by clients to "group"  
    ; individual services together under a common name or section when presenting details to the user.
    provider "provider" {
      provider_name,
      ?description,
      ?image,
      ?contact,
      ?manage,
      ?password_reset,
      ?ttl
    }

    ; ----- entries -----  
    ; List of services.
    entries "entries" [ *entry ]

    entry {
      name,
      service,
      ?(group, priority),
      uri / (host, ?port),
      ?tls,
      ?auth,
    }
• JSON content rules (draft-newton-json-content-rules) are used to describe/document the format:

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; root object
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  entries
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; ----- provider -----
; Contains information describing the service provider, that can be used by clients to "group" individual services together under a common name or section when presenting details to the user.
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entry {
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}
```
JSON DOCUMENT FORMAT #2

- JSON content rules (draft-newton-json-content-rules) are used to describe/document the format:

```json
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root {
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; individual services together under a common name or section when presenting details to the user.
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; ----- entries ----- 
; List of services.
entries "entries" [ *entry ]
entry {
  name,
  service,
  ?(group, priority),
  uri / (host, ?port),
  ?tls,
  ?auth,
}
```
JSON DOCUMENT FORMAT #3

• Extensions handled by adding members to “provider” or “entry” elements:

  • IANA registered names

  • Vendor names (using “{...}xyz” style namespacing) - i.e., any member starting with “{” is a vendor name.

• Service names:

  • IANA registered values (ports registry)

  • Vendor names (using “{...}xyz” style namespacing).
Service priority example:

```json
{
    "name" : "Corporate Mail",
    "service" : "imap",
    "group" : "mail-access-1",
    "priority" : 2,
    "uri" : "imap:imap.example.com",
    "tls" : {
        "required" : true
    },
    "auth" : ["CRAM-MD5"]
},

{
    "name" : "Corporate Mail",
    "service" : "pop3",
    "group" : "mail-access-1",
    "priority" : 1,
    "host" : "mail.example.com",
    "port" : 110,
    "tls" : {
        "required" : true
    },
    "auth" : ["CRAM-MD5"]
}
```
Service priority example:

```json
{
    "name" : "Corporate Mail",
    "service" : "imap",
    "group" : "mail-access-1",
    "priority" : 2,
    "uri" : "imap:imap.example.com",
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    "group" : "mail-access-1",
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• Service priority example:

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  "tls" : {
    "required" : true
  },
  "auth" : ["CRAM-MD5"]
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  "name" : "Corporate Mail",
  "service" : "pop3",
  "group" : "mail-access-1",
  "priority" : 1,
  "host" : "mail.example.com",
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    "required" : true
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    "priority": 1,
    "host": "mail.example.com",
    "port": 110,
    "tls": {
        "required": true
    },
    "auth": ["CRAM-MD5"]
}
```

IMAP has higher priority
EXAMPLE PROTOCOL

GET /.well-known/servicediscovery?id=cyrus@example.com HTTP/1.1
Host:example.com:443
Authorization: basic QmFzZTY0IGlzIGVhc3kgdG8gZGVjb2Rl

HTTP/1.1 200 OK
Date: Wed, 20 Feb 2013 09:32:12 GMT
Content-Type: application/json
Content-Length: xxx

{
    "provider" : {
        "name" : "Super-duper ISP",
        "contact" : { "email" : "superduper@example.com" },
        "manage" : "http://www.example.com/myaccount.html",
        "ttl" : 2592000
    },
    "entries" : [
        {
            "name" : "Corporate Mail",
            "service" : "imap",
            "uri" : "imap:imap.example.com",
            "tls" : { "required" : true },
            "auth" : ["CRAM-MD5"]
        },
        {
            "name" : "Corporate Mail",
            "service" : "submission",
            "host" : "mail.example.com",
            "port" : 587,
            "tls" : { "required" : true },
            "auth" : ["CRAM-MD5"]
        }
    ]
}
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Content-Type: application/json
Content-Length: xxx

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  "provider": {
    "name": "Super-duper ISP",
    "contact": { "email": "superduper@example.com" },
    "manage": "http://www.example.com/myaccount.html",
    "ttl": 2592000
  },
  "entries": [
    {
      "name": "Corporate Mail",
      "service": "imap",
      "uri": "imap:imap.example.com",
      "tls": { "required": true },
      "auth": ["CRAM-MD5"]
    },
    {
      "name": "Corporate Mail",
      "service": "submission",
      "host": "mail.example.com",
      "port": 587,
      "tls": { "required": true },
      "auth": ["CRAM-MD5"]
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      "auth" : ["CRAM-MD5"]
    },
    {  
      "name" : "Corporate Mail",
      "service" : "submission",
      "host" : "mail.example.com",
      "port" : 587,
      "tls" : { "required" : true },
      "auth" : ["CRAM-MD5"]
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    "ttl": 2592000
  },
  "entries": [
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      "name": "Corporate Mail",
      "service": "imap",
      "uri": "imap:imap.example.com",
      "tls": { "required": true },
      "auth": ["CRAM-MD5"]
    },
    {  
      "name": "Corporate Mail",
      "service": "submission",
      "host": "mail.example.com",
      "port": 587,
      "tls": { "required": true },
      "auth": ["CRAM-MD5"]
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EXAMPLE PROTOCOL

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    ]
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SUMMARY

• Simple discovery using a JSON document format to describe services.

• Extensible via IANA or vendor names.

• Can be implemented as a “static” document at the .well-known URI (deployment becomes trivial).

• Could support delegation of service information via “links”, though preference is to minimize the number of requests a client would need to make.

• Security context well-defined - the .well-known resource is used only for service discovery content and not for other information that may be of a different nature.