

Service Discovery with WebFinger

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What is WebFinger?

- Specification: [draft-ietf-appsawg-webfinger](#)
- Used to discover information about people and things on the Internet
 - Uses HTTPS (TLS is mandatory)
 - Can be used to discover information about any URI
 - Does not rely on SRV records or URI records
 - Uses a well-known location (`/.well-known/webfinger`)
 - Returns a JSON object referred to as a JSON Resource Descriptor (JRD) that describes the entity queried

What is in a JRD?

- A JRD comprises
 - A subject (URI)
 - Aliases for the subject (also URIs)
 - Properties for URI (name/value pairs)
 - Links
 - Link relation type
 - Media type expected
 - A URI to the target resource (“href”)
 - Titles for the link (useful for blogs, etc.)
 - Properties for the link (name/value pairs)

Protocol Example

- Suppose you want to learn more about `paulej@packetizer.com`
- A client would issue a query for `acct:paulej@packetizer.com`

WebFinger may be used with any URI, but when discover information about people, it's suggested to use the "acct" URI

Protocol Example (cont)

- Client makes an HTTPS query to the well-known resource `/.well-known/webfinger` on `packetizer.com`

```
GET /.well-known/webfinger?resource=acct:paulej@packetizer.com  
Host: packetizer.com
```

Protocol Example (cont)

- Server returns a JRD for the subject queried

```
HTTP/1.1 200 OK
```

```
Access-Control-Allow-Origin: *
```

```
Content-Type: application/jrd+json
```

```
{  
  "subject" : "acct:paulej@packetizer.com",  
  "properties" :  
  {  
    "http://packetizer.com/ns/name" : "Paul E. Jones",  
    "http://packetizer.com/ns/name#zh-CN" : "保罗·琼斯"  
  },  
  ...  
}
```

Protocol Example (cont)

```
...
"links" :
[
  {
    "rel" : "http://webfinger.net/rel/avatar",
    "type" : "image/jpeg",
    "href" : "http://www.packetizer.com/people/paulej/images/paulej.jpg"
  },
  {
    "rel" : "http://openid.net/specs/connect/1.0/issuer",
    "href" : "https://openid.packetizer.com"
  },
  {
    "rel" : "http://packetizer.com/rel/blog",
    "type" : "text/html",
    "href" : "http://www.packetizer.com/people/paulej/blog/"
  }
]
}
```

Service Discovery with WebFinger

- WebFinger returns an ordered array of links
- WebFinger returns very little directly consumable information (though “properties” might be defined for the subject or link relations)
- Links point to information of interest (typically web resources), which might be
 - public resources (e.g., a blog or identity provider)
 - private resources (e.g., contact list or service configuration information)

Mail Server Configuration Example (possible approach)

- Link to a service description document

```
...  
{  
  "rel" : "service-smtp",  
  "type" : "application/aggsrv+json",  
  "href" : "https://packetizer.com/aggsrv/smtp/paulej"  
},  
...
```

- WebFinger does not define a resource representation for any link relation type (that's defined by whatever specification defines the link relation type)
- Private information is kept private through standard web authentication mechanisms (not dictated by WebFinger)

The WebFinger Client Could Aggregate Service Information

```
{
  "subject" : "acct:paulej@packetizer.com",
  "links" :
  [
    {
      "rel" : "service-smtp",
      "type" : "application/aggsrv+json",
      "href" : "https://packetizer.com/aggsrv/smtp/paulej"
    },
    {
      "rel" : "service-xmpp",
      "type" : "application/aggsrv+json",
      "href" : "https://paulej.xmpp-provider.com/aggsrv"
    },
    {
      "rel" : "service-contacts",
      "type" : "application/aggsrv+json",
      "href" : "https://contact-service.com/users/paulej"
    }
  ]
}
```

The Domain Owner Could Aggregate Service Information

```
{
  "subject" : "acct:paulej@packetizer.com",
  "links" :
  [
    {
      "rel" : "aggsrv",
      "type" : "application/aggsrv+json",
      "href" : "https://packetizer.com/aggsrv/paulej"
    }
  ]
}
```

Summary

- WebFinger
 - Defines a JSON object contains
 - Properties
 - Links that can point to other web resources
 - Is designed for the web and uses HTTPS
- Work is needed to define
 - Link relation types (e.g., “service-smtp” or even non-service type link relations)
 - Property identifiers and values
 - Resource representations (e.g., service description document format)
- aggsrv is a great use case for WebFinger