The Time Zone Data Distribution Service (TZDIST) Geolocate Extension
draft-murchison-tzdist-geolocate-00

Abstract

This document defines an extension to the Time Zone Data Distribution Service (RFC 7808) to allow a client to determine the correct time zone for a geographic point location using a 'geo' URI (RFC 5870).

Open Issues

- Does the 'geo' URI value have to be percent-encoded?
- Should we advertise the supported coordinate reference systems (and if so, how?) or simply mandate crs=wgs84?
- Should we discuss territorial and/or international waters?
- What, if any, additional security and privacy concerns are introduced by this extension?

Status of This Memo

This Internet-Draft is submitted in full conformance with the provisions of BCP 78 and BCP 79.

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This Internet-Draft will expire on April 17, 2017.
1. Introduction

Clients using a Time Zone Data Distribution Service (TZDIST), particularly mobile clients, may not have prior knowledge of which time zone is appropriate for a particular geographic region. This specification defines a new TZDIST service action to allow a client to query a server with a geographic point location and have that server determine if the location lies within the boundaries of an existing time zone and return the corresponding time zone identifiers.

This specification does not define the source of the time zone boundary data. It is assumed that a reliable and accurate source is available. Two such sources are [TZSHAPE] and [TZBB].
2. Conventions Used in This Document

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "NOT RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [RFC2119].

3. "geolocate" Action

Name: gelocate

Request-URI Template:
{/service-prefix,data-prefix}/zones/?location

Description: This action allows a client to query the time zone data distribution service for the time zone identifier corresponding to the given geographic point location, specified as a ‘geo’ URI [RFC5870].

If the ‘geo’ URI specifies an uncertainty value (";u=" parameter), the server MUST return the time zone identifiers for all time zones whose boundary passes through the radius of uncertainty. In the absence of a client-supplied uncertainty value, the server MAY use an implicit uncertainty to coincide with any uncertainty in the time zone boundary data that it uses.

If the ‘geo’ URI specifies a coordinate reference system (";crs=" parameter) that is unsupported by the server, the server SHOULD return a JSON "problem details" object [RFC7807] in the response body including a "type" member with an "invalid-location" errorURN as defined below.

Parameters:

location=<geo-URI> REQUIRED, and MUST occur only once.

Response: The response has the same format as the "list" and "find" actions (see [RFC7808] Section 6.2), with one result object for each geolocated time zone. If for any reason the server can not determine a time zone in which the point is located (e.g. uninhabited location), it MUST return a "list" response containing zero time zone objects.

Possible Error Codes

urn:ietf:params:tzdist:error:invalid-location The "location" URI query parameter is missing, has an incorrect/unsupported value, or appears more than once.
3.1. Examples: geolocate action

The examples below presume that the timezone context path has been discovered (see [RFC7808] Section 4.2.1) to be "/tzdist".

In this example the client asks for the time zone corresponding to Carnegie Mellon University.

>> Request <<

GET /tzdist/zones?location=geo:40.44388,-79.94199 HTTP/1.1
Host: tz.example.com

>> Response <<

HTTP/1.1 200 OK
Date: Fri, 30 Sep 2016 12:28:03 GMT
Content-Type: application/json; charset="utf-8"
Content-Length: xxxx

{
   "synctoken": "890939292-1466089793",
   "timezones": [
      {
         "tzid": "America/New_York",
         "etag": "6602582-1466089793",
         "last-modified": "2016-06-16T15:09:53Z",
         "publisher": "IANA Time Zone Database",
         "version": "2016e",
         "aliases": [
            "US/Eastern"
         ]
      }
   ]
}
In this example the client asks for the timezone corresponding to the Hoover Dam with an uncertainty of 25m. Note that the dam straddles the Nevada/Arizona state line and therefore a time zone boundary.

>> Request <<

GET /tzdist/zones?location=geo:36.01596,-114.73748;u=25 HTTP/1.1
Host: tz.example.com

>> Response <<

HTTP/1.1 200 OK
Date: Fri, 30 Sep 2016 12:28:03 GMT
Content-Type: application/json; charset="utf-8"
Content-Length: xxxx

{
    "synctoken": "890939292-1466089793",
    "timezones": [
        {
            "tzid": "America/Los_Angeles",
            "etag": "52807330-1466089793",
            "last-modified": "2016-06-16T15:09:53Z",
            "publisher": "IANA Time Zone Database",
            "version": "2016e",
            "aliases": ["US/Pacific"
        }
    ],
    {
        "tzid": "America/Phoenix",
        "etag": "3297940-1466089793",
        "last-modified": "2016-06-16T15:09:53Z",
        "publisher": "IANA Time Zone Database",
        "version": "2016e",
        "aliases": ["US/Arizona"
    }
}

4. Security Considerations

This specification does not introduce any additional security concerns beyond those described in [RFC7808]
5. Privacy Considerations

This specification does not introduce any additional privacy concerns beyond those described in [RFC7808].

6. IANA Considerations

6.1. Service Action Registration

This document defines the following new TZDIST Service Action to be added to the registry defined in Section 10.3.1 of [RFC7808]:

+-------------+--------------------+
| Action Name | Reference          |
+-------------+--------------------+
| geolocate   | RFCXXXX, Section 3 |
+-------------+--------------------+

6.2. Registration of invalid-location Error URN

This section registers the "urn:ietf:params:tzdist:error:invalid-location" URN in the "TZDIST Identifiers" registry defined in Section 10.4 of [RFC7808].

URN: urn:ietf:params:tzdist:error:invalid-location

Specification: RFCXXXX, Section 3


Contact: IESG <iesg@ietf.org>

Index value: N/A.

7. Acknowledgments

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8. References

8.1. Normative References

Informative References


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