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Timezone Information in HTTP  
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## Abstract

This document defines a HTTP header for clients to provide timezone information to web servers. An ABNF description of the corresponding header is provided.

Discussion

Discussion about this document takes place in http-wg mailing list (ietf-http-wg@w3.org). Please CC v13@v13.gr too.

Table of Contents

- [1. Introduction . . . . .](#) [4](#)
- [1.1. Purpose . . . . .](#) [4](#)
- [1.2. Requirements . . . . .](#) [4](#)
- [1.3. Terminology . . . . .](#) [4](#)
- [1.4. Considerations . . . . .](#) [5](#)
- [2. Definition . . . . .](#) [7](#)
- [2.1. Client support . . . . .](#) [7](#)
- [2.2. Server support . . . . .](#) [8](#)
- [2.3. Proxy considerations . . . . .](#) [8](#)
- [3. Security Considerations . . . . .](#) [9](#)
- [3.1. Client side . . . . .](#) [9](#)
- [3.2. Server side . . . . .](#) [9](#)
- [4. IANA Considerations . . . . .](#) [10](#)
- [5. Acknowledgements . . . . .](#) [11](#)
- [6. References . . . . .](#) [12](#)
- [6.1. Normative . . . . .](#) [12](#)
- [6.2. Informative . . . . .](#) [12](#)
- [Appendix A. Examples . . . . .](#) [13](#)
- [Author's Address . . . . .](#) [14](#)

## 1. Introduction

### 1.1. Purpose

Many web based applications could benefit from knowing the timezone of their visiting clients. Most of the dynamic content provider applications depend on user accounts to display time and date in the client's native timezone. This is a common problem and the current solution is not always possible or adequate for reasons including:

- o There may be no user accounts involved. News sites or RSS feeds for example don't require users to have accounts.
- o People may travel across timezone boundaries. Currently they need to update their web accounts to reflect their actual timezone information.

Furthermore, this is also the case for all HTTP-like or HTTP based protocols that make use of timestamps.

This document addresses this need by describing a header to be used by HTTP [[RFC2616](#)] so that interested clients may provide their current timezone information to web servers and thus to web based applications.

At the time of this writing GPS-enabled Internet access devices like mobile phones are being deployed. In the near future, those devices may be able to use GPS information and properly adjust their timezone information. This could be of great help for people that travel

across timezones.

## 1.2. Requirements

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

An implementation is not compliant if it fails to satisfy one or more of the MUST or REQUIRED level requirements. An implementation that satisfies all the MUST or REQUIRED level and all the SHOULD level requirements is said to be "unconditionally compliant"; one that satisfies all the MUST level requirements but not all the SHOULD level requirements is said to be "conditionally compliant".

## 1.3. Terminology

This document uses the following terms:

Harhalakis Expires January 28, 2010 [Page 4]

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Internet-Draft Timezone Information in HTTP July 2009

### HTTP client

Every client of the HTTP protocol. Commonly referred to as a web browser.

### Timezone string

A timezone string as described in this document.

### HTTP header

An HTTP header as described in [[RFC2616](#)].

The HTTP header specification of this document is presented in the augmented Backus-Naur Form that is described in [[RFC2616](#)].

## 1.4. Considerations

Because of the variety of systems on the Internet and the non-technical nature of timezone, there is no simple method for a client to provide timezone information to HTTP servers. During the writing of this document the following were considered:

- o Simplicity is a must. The specification needs to be as simple as possible or allow for partial handling in a simple manner.

- o There is a variety of timezone styles. Some countries don't experience Daylight Saving Time (DST). Other countries have very unstable DST.
- o Politics affect DST. This makes it a moving target.
- o DST settings may change from year to year. For example, in 2007 the DST start and end time in some states in USA were changed.
- o Complete past and future timezone information cannot be described using a simple string.
- o End user systems may have an invalid timezone configured.
- o There are systems without timezone information.
- o Not all systems have a time source.

This document tries to provide adequate data for applications that can take advantage of the Timezone information to fulfill their needs. There are different levels of requirements that applications may have or HTTP clients may be able to satisfy. Thus this document introduces a way for HTTP clients to provide:

- o The current client time.
- o The current time offset.
- o The current year's timezone information.
- o Complete timezone information.

depending on their abilities.

Simple server side applications may just use the current time offset and hope that it is correctly set. More advanced applications (like calendars) need to know when a DST change will occur to correctly represent future or past times. Even more advanced applications may need to know the exact client timezone which can only be described

using a reference to a timezone database entry. Finally, applications may choose to use the client's current time as reference time and optionally ignore client timezone information.

An issue that was discussed when proposing this header was the need of its existence. The alternative approach is to leave the time and timezone information handling to server side applications which can use geo-ip, user accounts, etc. This is not an option because:

- o Geo-ip is not suitable for HTTPS clients behind a proxy.
- o User accounts are not efficient for public pages like news sites, blogs, forums, search engines, etc.

HTTP-based protocols may also take advantage of this feature.

Another consideration is the validity of client-side time or timezone information. It seems that proper timezone information is gradually being adopted as common behavior. Even though this document attempts to help clients without timezone information and provide ultimate flexibility to server side applications, the validity of the timezone information is considered an existing precondition. This is in accordance with paragraph 4.4 of [[RFC3339](#)] "Unqualified Local Time" which considers systems with invalid timezone information as inappropriate for Internet communications.

## [2.](#) Definition

### [2.1.](#) Client support

HTTP clients MAY provide local timezone information to visiting web sites. This information is sent using the client-timezone HTTP header:

```
client-timezone = "Timezone" ":" tzdescr
tzdescr         = rfctime [ ";" posixtz [ ";" tznames ] ]
rfctime         = <local time>
posixtz        = <a POSIX 1003.1 timezone string>
tznames        = tzname *( "," tzname )
tzname         = <a timezone string from a timezone database>
```

Where:

rfctime      A local time string as specified in [[RFC3339](#)]. It includes the current time offset.

posixtz     A POSIX 1003.1 timezone string as specified in [[POSIXTZ](#)].

tzname      A timezone name. Many systems use a timezone name from a timezone database. This is one such string. More than one such strings may be provided. All of them MUST identify the same timezone.

HTTP clients SHOULD provide all three parts of the header unless they aren't able to do so or they are configured not to send timezone information.

If a client does not provide a part of the header and there is another part following that is provided, the client MUST use the empty string for the part that is not provided.

Clients that don't have a clock source MUST use zeroes for all digits of the datetime string except from the offset. "Z" MUST be used when the offset is also unavailable.

When multiple references to timezone databases are specified the server-side SHOULD perform a left-to-right search. This means that the server-side application first searches its database for the first

provided timezone. If the search fails the search continues for the



second timezone, etc. The search ends when a matching entry is found or there is no provided timezone database reference to search for. The client side MUST assume that the server side uses this search method.

## [2.2.](#) Server support

Compliant servers MAY validate the format of the provided information. Timezone strings that are not in a valid format MAY not be accepted. Validation checks MUST NOT be performed on the content of the Timezone string by servers. Only the format of the string may be checked. This way outdated servers will not filter out proper information.

## [2.3.](#) Proxy considerations

HTTP proxy servers MUST NOT alter this information. HTTP proxy servers MUST follow the same validation policy that was specified for servers.

Server side scripts that produce customized results based on the timezone information MUST return an appropriate "Vary" header as specified in paragraph 14.44 of [[RFC2616](#)].

### [3.](#) Security Considerations

#### [3.1.](#) Client side

Timezone information may consist personal information regarding the location of a person. HTTP clients **MUST NOT** provide this information without letting the user prevent it. Clients must either ask users or provide an option to enable/disable this feature. The later is **RECOMMENDED**.

In most cases Timezone information will not disclose more personal information than an IP address. HTTP clients **MAY** default in enabling this to improve user experience. It is also possible that client behavior regarding timezone information disclosure be controlled by implicit privacy settings.

#### [3.2.](#) Server side

Web based applications **MUST** treat this information as user input that may be invalid or malicious.

#### 4. IANA Considerations

This specification requires registration of a Message Header Field for HTTP [[RFC3864](#)].

Header field: Timezone

Applicable protocol: HTTP

Status: Experimental

Author/change controller:  
IETF ([iesg@ietf.org](mailto:iesg@ietf.org))  
Internet Engineering Task Force

Specification document:  
[ this document ]

## [5.](#) Acknowledgements

Timezone information in HTTP was also proposed by David Robinson in an email at HTTP Working Group back in 1995 but the replies he got were negative. It was believed that timezone information should be handled by CGI scripts and not by the Hypertext Transfer Protocol. The discussion can be found at http-wg mailing list archives: <http://www.hpl.hp.com/personal/ange/archives/archives-95/http-wg-archive/0521.html>.

This document was properly formed thanks to the remarks of Julian Reschke.

## [6.](#) References

### [6.1.](#) Normative

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Harhalakis

Expires January 28, 2010

[Page 12]

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Internet-Draft

Timezone Information in HTTP

July 2009

## [Appendix A](#). Examples

A complete timezone information header using the Olson timezone database:

Assuming that current time is 12:00, Jul 30, 1977. Time offset is +2 hours. The full timezone string in [[POSIXTZ](#)] format is EET2EEST3,M3.2.0/02:00,M11.1.0/02:00. The timezone database identifier string is Europe/Athens:

```
Timezone: 1977-07-30T12:00+0200;  
          EET2EEST3,M3.2.0/02:00,M11.1.0/02:00;  
          Europe/Athens
```

A partial one:

GMT/UTC timezone is noted as Z(ulu).

Timezone: 2007-06-12T23:48Z

A header from a clock-less client:

Timezone: 0000-00-00T00:00+0200;  
EET2EEST3,M3.2.0/02:00,M11.1.0/02:00;  
Europe/Athens

A header with multiple database references (Olson and Microsoft Windows timezone databases):

Timezone: 1977-07-30T12:00+0200;  
EET2EEST3,M3.2.0/02:00,M11.1.0/02:00;  
Europe/Athens;(GMT+02:00) Athens, Istanbul, Minsk

A header from a clock-less client without current offset information:

Timezone: 0000-00-00T00:00Z

A header with a missing part:

Timezone: 1977-07-30T12:00+0200;;Europe/Athens

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