Updating Go Installations  
with the  
Latest IANA Time Zone Data

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## Introduction

### IANA Time Zone Information

The *Go* programming language relies on time zone information provided by the IANA Time Zone database. This database is widely recognized as the leading authority on world time zones.

Reference:

<https://en.wikipedia.org/wiki/List_of_tz_database_time_zones>

<https://en.wikipedia.org/wiki/Tz_database>

The IANA Time Zone data base and reference information is located at:

<https://www.iana.org/time-zones>.

### Go Relies on IANA Time Zone Database

The *Go* Programming Language uses IANA Time Zones in date-time calculations.

Reference:

<https://golang.org/pkg/time/#LoadLocation>

<https://golang.org/pkg/time/>

### Go Provides for IANA Database Updates

The IANA Time Zone database is updated throughout the year as warranted by time zone modifications initiated by nation states. In order to stay current with time zone modifications, the end-user has the option of updating the local *Go* installation with the latest version of the IANA Database. *Go* does not automatically update the time zone data base. This task is therefore left as manual operation to be performed by the end-user.

## Existing Go Time Zone Configuration

### Configuration Overview

Go is typically installed on a drive in the *Go* directory or folder. A common Windows installation would install *Go* on C-Drive as follows:

C:\Go

Time zone information is stored in this directory structure under the

*Go\lib\time* directory. Following the example above this would be styled as follows:

**C:\Go\lib\time**

All time zone information is contained within a file residing in the *Go\Lib\time* directory named, *zoneinfo.zip* (a.k.a. C:\Go\lib\time\zoneifno.zip).

This directory is also referred to as:

$GOROOT/lib/time/zoneinfo.zip

### Upgrading Go Time Zone Configuration

To upgrade the time zone data for your Go installation, the file *zoneinfo.zip* must be upgraded using the bash script *update.bash,* which is also located in the time directory, *Go\lib\time*.

## Cygwin Setup

### Start Up Command

C:\cygwin64\bin\mintty.exe -i /Cygwin-Terminal.ico –

You can also use the [ConEmu](#_ConEmu_Configured_for) terminal discussed below.

### Change Directories to D Drive

cd /cygdrive/d

cd ./TimeZones

### ConEmu Configured for Cygwin

ConEmu now has a task named Cygwin.

## tz Database Site

<http://www.internetassignednumbersauthority.org/time-zones>

[TimeZoneInfo](http://www.internetassignednumbersauthority.org/time-zones)

The tz or time zone database (aka zoneinfo database) can be acquired from the [INA site](http://www.internetassignednumbersauthority.org/time-zones) shown above. The time zone database arguably contains the most accurate international time zone information on the planet.

Note: The code below will ftp and download the latest version of the database automatically. However, you also have the option of downloading the code and data which will allow you to build the zoneinfo.zip file from this site.

## Objectives

The objective is to create a file named zoneinfo.zip which can be used by Go to correctly process time zones anywhere in the world.

When you finish building the latest version of the zoneinfo.zip file, make sure it is copied to the Go directory:

C:\Go\lib\time

## ReadMe File

This is the README file that typically accompanies the tz database. Be sure to read the latest versions for the commands necessary to build the zoneinfo.zip aka Time Zone database.

### README for the tz distribution

"What time is it?" -- Richard Deacon as The King

"Any time you want it to be." -- Frank Baxter as The Scientist

(from the Bell System film "About Time")

The Time Zone Database (often called tz or zoneinfo) contains code and data that represent the history of local time for many representative locations around the globe. It is updated periodically to reflect changes made by political bodies to time zone boundaries, UTC offsets, and daylight-saving rules.

Here is a recipe for acquiring, building, installing, and testing the tz distribution on a GNU/Linux or similar host.

mkdir tz

cd tz

wget --retr-symlinks 'ftp://ftp.iana.org/tz/tz\*-latest.tar.gz'

gzip -dc tzcode-latest.tar.gz | tar -xf -

gzip -dc tzdata-latest.tar.gz | tar -xf -

Be sure to read the comments in "Makefile" and make any changes needed to make things right for your system, especially if you are using some platform other than GNU/Linux. Then run the following commands, substituting your desired installation directory for "$HOME/tzdir":

make TOPDIR=$HOME/tzdir install

$HOME/tzdir/etc/zdump -v America/Los\_Angeles

Historical local time information has been included here to:

* provide a compendium of data about the history of civil time that is useful even if not 100% accurate;
* give an idea of the variety of local time rules that have existed in the past and thus an idea of the variety that may be expected in the future;
* provide a test of the generality of the local time rule description system.

The information in the time zone data files is by no means authoritative; fixes and enhancements are welcome. Please see the file CONTRIBUTING for details.

Thanks to these Time Zone Caballeros who've made major contributions to the time conversion package: Keith Bostic; Bob Devine; Paul Eggert; Robert Elz; Guy Harris; Mark Horton; John Mackin; and Bradley White. Thanks also to Michael Bloom, Art Neilson, Stephen Prince, John Sovereign, and Frank Wales for testing work, and to Gwillim Law for checking local mean time data.

Thanks in particular to Arthur David Olson, the project's founder and first maintainer, to whom the time zone community owes the greatest debt of all.

None of them are responsible for remaining errors.

Look in <ftp://ftp.iana.org/tz/releases/> for updated versions of these files.

Please send comments or information to tz@iana.org.

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This file is in the public domain, so clarified as of 2009-05-17 by Arthur David Olson. The other files in this distribution are either public domain or BSD licensed; see the file LICENSE for details.

## Create zoneinfo.zip

1. Download and unzip the make files:

mkdir tz

cd tz

wget --retr-symlinks 'ftp://ftp.iana.org/tz/tz\*-latest.tar.gz'

gzip -dc tzcode-latest.tar.gz | tar -xf -

gzip -dc tzdata-latest.tar.gz | tar -xf -

1. Be sure to read the comments in "Makefile" and make any changes needed to make things right for your system.

Substitute your timezone in the following line:

From: LOCALTIME= GMT

To: LOCALTIME= America/Chicago

1. Everything gets put in subdirectories of. . .

From: TOPDIR= /usr/local

To: TOPDIR= /cygdrive/d/TimeZoneDb

1. Issue the Make Command:

make TOPDIR=/cygdrive/d/TimeZoneDb install

/cygdrive/d/TimeZoneDb/etc/zdump -v America/Los\_Angeles

1. These commands will create the following directory:

D:/TimeZoneDb/etc/zoneinfo

1. Now create a zip file containing the zoneinfo directory shown in Step # 5 above.

* cd zoneinfo – Change directory to the zoneinfo directory
* Execute bash script

zip -0 -r ../../zoneinfo.zip \*

* The zoneinfo.zip will be copied two directories up from zoneinfo directory.
* You can open the zoneinfo.zip file in WinRar.
* OS = Unix
* No Compression – Original size = compressed size.

1. Finally, copy the new zoneinfo.zip file to the Go lib directory:

C:\Go\lib\time

## func LoadLocation

The Go Time Package contains a function named [LoadLocation](http://golang-jp.org/pkg/time/#LoadLocation). This function is used to load

func LoadLocation(name string) (\*Location, error)

LoadLocation returns the Location with the given name.

If the name is "" or "UTC", LoadLocation returns UTC. If the name is "Local", LoadLocation returns Local.

Otherwise, the name is taken to be a location name corresponding to a file in the [IANA Time Zone database](http://www.internetassignednumbersauthority.org/time-zones), such as "America/New\_York".

The time zone database needed by LoadLocation may not be present on all systems, especially non-Unix systems. LoadLocation looks in the directory or uncompressed zip file named by the ZONEINFO environment variable, if any, then looks in known installation locations on Unix systems, and finally looks in $GOROOT/lib/time/zoneinfo.zip.