

TM-DataManager Application

* Installation and Operation Manual *

Version 1.0.4

Supporting Weather and Stock Quote Display for TimeMachines TimeZone Clock Displays

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1 Introduction

The TimeMachines TM-DataManager Windows application is used for querying the National Weather service and/or financial data through Mboum Financial services. Initial location information is entered into the application to setup weather reports. Stock, Index, and other financial data can be accessed and displayed real time on the clock display. Programmable options exist to allow periodic updates, options to restrict updates by time of day and to exclude weekends. The specific data reported by the weather and stock queries can be adjusted and directed to the VAR1-VAR5 variables in multiple TimeZone clocks. The TimeZone clocks can be setup to tailor the display of this information. These features further extend the use of of the TimeZone clocks.

The weather data comes from the National Weather Service system at weather.gov. This is a free site that can be used to access weather for US customers. It is completely free to use. The financial data comes from Mboum Financial services through the rapidapi.com system. An account must be setup to access this data and an API key is generated to allow access. Up to 500 queries can be requested per month at no cost. For higher frequency queries, there is a small cost.

2 Installation

Installation of the TM-DataManager application is like any other windows application. Launch the installer and follow the directions. Double-click the desktop icon to start the application and bring up the main window.

2.1 OpenSSL Installation

OpenSSL for Windows MUST also be installed for the https lookups to function in TM-DataManager. It can be found here:

https://slproweb.com/products/Win32OpenSSL.html

Download the OpenSSL v1.1.1 light 32 bit version, install it, and TM-DataManager should be good to go.

Win64 OpenSSL v1.1.1u Light <u>EXE</u> <u>MSI</u>	3MB Installer	Installs the most commonly used essentials of Win64 OpenSSL v1.1.1u (Recommended for users by the creators of <u>OpenSSL</u>). Only installs on 64-bit versions of Windows. Note that this is a default build of OpenSSL and is subject to local and state laws. More information can be found in the legal agreement of the installation.
Win64 OpenSSL v1.1.1u <u>EXE</u> <u>MSI</u>	63MB Installer	Installs Win64 OpenSSL v1.1.1 u (Recommended for software developers by the creators of <u>OpenSSL</u>). Only installs on 64-bit versions of Windows. Note that this is a default build of OpenSSL and is subject to local and state laws. More information can be found in the legal agreement of the installation.
Win32 OpenSSL v1.1.1u Light EXE MSI	3MB Installer	Installs the most commonly used essentials of Win32 OpenSSL v1.1.1u (Only install this if you need 32-bit OpenSSL for Windows. Note that this is a default build of OpenSSL and is subject to local and state laws. More information can be found in the legal agreement of the installation.
Win32 OpenSSL v1.1.1u <u>EXE</u> <u>MSI</u>	54MB Installer	Installs Win32 OpenSSL v1.1.1u (Only install this if you need 32-bit OpenSSL for Windows. Note that this is a default build of OpenSSL and is subject to local and state laws. More information can be found in the legal agreement of the installation.

Without OpenSSL installed, TM-DataManager will not function. For example, getting the list of local stations for weather, will return nothing.

2.2 Log Files

Log files are created, but location is dependent on Windows version. Some end up in the program directory, others will be in c:\users\username\AppData\Local\VirtualStore\Program Files (x86)\TMDataManager.

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3 Main Window Overview

The main window of the TM-DataManager, hereafter referred to as TMDM, shows the real time status of the data acquisition. The top half of the window is showing weather data and the lower half stock data. This data is updated on the intervals setup in the Setup dialog of the application.

3.1 Weather Setup

The initial setup of the weather is done by finding the GPS coordinates of desired location for the weather. This can be done in a number of ways. If you have a TimeMachines time server, the web page of the device will show the current location. Alternately, a quick Google search of the form, "GPS coordinates of place" will generally yield a good location.

W Dutawanager version 1.	0.5				U	
						its
	Latitude:	Longitude:		Choose Weather Statio	n:	
	40 .8106	-96 .6274	Get Stations		· ·	-
	ID: OAX Grid: 59,	40 Station: KLNK		Last Update	:2023-06-21T14:28:00	+
		Weather Variable	: Clock Variable:	Last Response:		
		Temperature	~>>VAR1	78 F		
		Wind	~>>VAR2	N-0 mph		
Get/Update Current Weather		None	~>>VAR3			
						_
		None	~>>VAR4			
	Clock IP Addresses 192.168.1.231, 1	None None s to Send Weather Dat 92.168.1.94	->>VAR4 ->>VAR5 ia to:			
	Clock IP Addresses 192. 168. 1.231, 1 Ticker Sym	None None s to Send Weather Dat 92. 168. 1.94	>>VAR4>>VAR5 ta to: Clock Variable:	Last Response:		
	Clock IP Addresses 192.168.1.231, 1 Ticker Sym	None None s to Send Weather Dat 92. 168. 1.94 Ibols:	->>VAR4 ->>VAR5 ia to: Clock Variable: ->>VAR1	Last Response:]	
	Clock IP Addresses 192.168.1.231, 1 Ticker Sym	None None s to Send Weather Dat 92. 168. 1.94	->>VAR4 ->>VAR5 ia to: Clock Variable: ->>VAR1 ->>VAR1	Last Response:		
Update Stocks Now	Clock IP Addresses 192.168.1.231, 1 Ticker Sym	None None s to Send Weather Dat 92. 168. 1.94 Ibols:	<pre>->>VAR4>>VAR5 a to: Clock Variable:>>VAR1>>VAR2>>VAR3</pre>	Last Response:		
Update Stocks Now	Clock IP Addresses 192.168.1.231, 1 Ticker Sym ^DJI NDAQ	None None s to Send Weather Dat 92. 168. 1.94	 ->>VAR4 ->>VAR5 clock Variable: ->>VAR1 ->>VAR2 ->>VAR3 ->>VAR4 	Last Response:		
Update Stocks Now	Clock IP Addresses 192.168.1.231, 1 Ticker Sym 	None None s to Send Weather Dat 92. 168. 1.94	 ->>VAR4 ->>VAR5 clock Variable: ->>VAR1 ->>VAR2 ->>VAR2 ->>VAR3 ->>VAR4 ->>VAR5 	Last Response: 34072.32 18.45 50.76 -0.86		
Update Stocks Now	Clock IP Addresses 192.168.1.231, 1 Ticker Sym ^DJI NDAQ	None None s to Send Weather Dat 92. 168. 1.94 bols:	 ->>VAR4 ->>VAR5 aa to: Clock Variable: ->>VAR1 ->>VAR2 ->>VAR3 ->>VAR3 ->>VAR4 ->>VAR5 	Last Response:		

Note that Google will return the longitude as a positive number, but the TMDM will expect it to be negative. The entry field will force the format of the entry.

Enter the GPS coordinates of the location in the latitude, longitude fields of TMDM, the "Get Stations" button can be clicked. This will query the NWS servers to find offices near the coordinates, which are populated into the "Choose Weather Station" pull down. Select the desired observation location. This location will be saved, even though the next time the application is closed and opened, the Choose Weather Station list will be empty, this is OK, only the Station ID is needed. The label under

gps coordinates of lincoln, ne	× 🌷 🔅 🤇
Maps Images Shopping News Videos Boo	oks Flights Finance
About 4,820,000 results (0.56 seconds)	
Lincoln / Coordinates	
40.8136° N, 96.7026° W	

the latitude, longitude entry fields shows the ID and the chosen station. In the above window, it is KLNK. From this point forward the weather information will be as observed by KLNK. The label under the Weather Station pull down shows the last update time of the Station, not TMDM. Weather stations update their data at different times and intervals. There is no issue querying for updates every 10 minutes. Within the stations update interval the data won't change, but when it does, it will be updated to the TimeZone display clocks.

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3.1.1 Get/Update Current Weather

This button will request a weather update and send the results to the TimeZone displays immediately.

3.1.2 Metric Units Checkbox

If checked, temperatures and wind speeds will be displayed in Celsius and km/h respectively.

3.1.3 Weather Variable to Clock Variable

This section is used to select which of the retrieved weather information is sent to to the TimeZone display. There are 5 different pieces of data retrieved:

- Current Conditions this returns a string containing all of the below, as well as a brief discription of conditions, i.e. cloudy, clear, mostly cloudy etc.
- Temperature Current temperature
- Dewpoint Current Dewpoint
- Wind Current windspeed and direction
- Humidity Current relative humidity

Each pull down will send its data to the specified VAR entry of the TimeZone display. In the example main window above, Temperature is being sent to VAR1, and the Wind information is being sent to VAR2. VAR3-5 are not sent weather information.

Whenever weather data is retrieve, the exact text that is being sent to the clocks will be displayed in the text boxes for VAR1-5. In the above screen shot, VAR1 has a temperate of 82F, and VAR2 is showing the wind at S-9mph.

3.1.4 Clock IP Addresses to Send Weather Data to

This text entry box is a comma delimited list of IP addresses that the variable data will be sent to. These should be the base IP addresses of the TimeZone Display/Clocks.

3.2 Finance Data Setup

See the Setup Button section for more information on setting up the financial provider API.

The finance data setup requires that the user know the ticker symbols for what they wish to gather data on. Multiple ticker symbols are allowed on each line by separating them with a comma. Typically this will result in needing to scroll the information when displayed on the TimeZone display. A couple of common tickers are shown on the prior page. "^DJI" retrieves the Dow Jones Industrial Average, and "^IXIC" is the Nasdaq Composite. Additional settings that affect the stock market quotes is in the Setup Dialog and accessing that dialog will be required before any quotes can be received.

3.2.1 Update Stocks Now

This button will request all stocks be retrieved. All ticker symbols are combined into a single request and then the individual data is parsed out.



3.2.2 Clock IP Addresses to Send Stock Data to

This text entry box is a comma delimited list of IP addresses that the variable data will be sent to.



?

X

4 Setup Button

The Setup button in the bottom left corner is used to further setup the TMDM application and is a required step for setting up the stock quotes. The setup dialog is shown here.

4.1 Weather Setup

The weather setup is the top portion of the dialog box and only is affecting when the TMDM will request data from the National Weather Service. Current between the hours of 7 AM and 6 PM, weather updates will be requested every 15 minutes and weekends will be skipped.

4.2 Stock Setup

4.2.1 Stock API Key

The first step in setting up the stock quotes request is to get an API Key from rapidapi.com and to activate the Mboum Finance API. Rapidapi.com will provide an API key that can then be used to access the quote information. Rough steps to get the API Key:

- 1) Open a web browser and communicate with <u>https://rapidapi.com</u>
- 2) Sign Up for an account
- 3) Select the Basic Pricing Plan for \$0.
- 4) Search for Mboum and select it from the returned list.
- 5) Choose the Subscribe to Test option and then select the \$0 Basic plan. Paid plans can always be selected later if more than 500



← → C	m-finance/ Manual Orders Ti 🥶 UPS	S 🦁 UPS Ground - ETA 🌔 Orders Errors 🛛 💸 Market Acces	ss Map
Rapid API & Search for J		API Hub	Or
Mboum Finance 📃	FREEMIUM		
Endpoints About Tutorials Discus	sions Pricing		
Q Search endpoints	< GET market/news	➡ Test Endpoint	Code
GET market/news	Recently publishe	ed stock news in all sectors.	(Noc
GET insider-trades GET market/news/[stock]	Rersonal A godfreylim	ccount	const const meti url
GET stock/data/{stock}/{modules} GET stock/history/[stock]/{interval}	RapidAPI App	default-application_8023768 V REQUIRED	hear ') ') }
> Screener	Description		}; try {
> Options	Request ORL	rapidapi.com V REQUIRED	CI CI
> Stock Data			} cation Control Contr
	 Header Parame 	ters	
	X-RapidAPI-Key	d09025b977msh5b3f9521ff6fa91p1c50f9jsna(
n	ENUM	REQUIRED	
	X-RapidAPI-Host	mboum-finance.p.rapidapi.com	

requests per month are used. The \$9.95, as of this writing, Pro plan allows 10,000 lookups per month which should be plenty. The X-RapidAPI-Key value on this screen should be copied and pasted into the Stock API Key field of the Setup Dialog.

4.2.2 Operation Times and Rates

The Start and End time of the quoting system can be set here as well as how often to do the updates and whether to skip weekends. The NYSE is open from 9:30AM to 4:00 PM EST. The TMDM operates on your local

7 Dialog



computers time so if the computer is not running Eastern Standard Time, these times can be adjusted to match stock market hours. By limiting these hours of quoting, and setting the delay interval, it is possible to stay on the free plan. It just depends on the desired granularity of data desired.

4.2.3 Ticker String Options

The ticker string options select which data gets reported in the VARs. Checked items are included in the variable information delivered to the TimeZone displays.

The VAR1-5 fields display exactly what is being sent to the TimeZone displays and can be immediately updated with the Update Quotes button on the main screen.



5 Displaying Data on TimeZone Clock Displays

The TimeZone Clocks have the ability to show many different types of data. Some of that data originates within the clock itself, such as the date, day of the week, year, static text, etc. TM-Manager is used to set this data into a wide range of formats utilizing variables names that are enclosed within '^' characters. See the clock manual for more information on what is available. In addition to the built in variables, the clock has the ability to display variable data that can be set through the API of the clock. (The API is documented and posted on the website as well on the Support page.) ^VAR1^ - ^VAR5^ can be set through the API and displayed as part of the TimeZone data. The TM-DataManager software sends the data retrieved from the internet, through the weather and financial APIs previously discussed, to these VAR variables. The VAR variables can then be included as part of the time zone display loop, to show externally updated information.

The screenshot in the Main Window section is sending data to four of the variables:

^VAR1^ - Temperature in Lincoln, NE

^VAR2^ - Windspeed in Lincoln, NE

^VAR3^ - DOW Jones Industrial Average

^VAR4^ - NDAQ stock symbol

5.1 Example TimeZone Clock Configuration

The below images show the configuration within TM-Manager for the Clock Settings dialog box. The displayed zone is incremented in each one. Notice that the Time Zone setting does not change from USA Central time in each dialog. This means the displayed time is not changing, but only the 2nd dot-matrix line.

Primary NTP Server:			ut	cnist.colora	do.edu	Time Zone:		ι	JSCT -	USA		~		
Secondary NTP Server:			time-a.tim	nefreq.bldrd	oc.gov	Custom Offset:				. ~	06	\sim	00	
Clock Resync Period (H	R:MIN):				0:10	Da <mark>yl</mark> ight Saving	Time S	etting		Auto	~		Fixed	Day
Timer Revert to Time Ti	meout (min)) (0=Disab	led):		30	Start Date:	1st	~	Sun	~	Jan	\sim	1st	
Use :	12-hour form	mat	24-hour M	lode Leading	Zero	Start Time:	00	\sim	00	\sim				
Clock Color H	HR:	Green	✓ MM:SS	Green	~	End Date:	1st	\sim	Sun	\sim	Jan	\sim	1st	2
Display Format:				4/6 Digits	~	End Time:	00	\sim	00	\sim				
Password:				tm	achine	Hour Bias:			ŀ	+ ~	00	\sim	00	
(Changing Passw Note: Leave Text Parar	(Changing Password here will require updating global app password) Leave Text Parameters Above Blank to make no change				i)	Display Time (se	ec):			ŗ	Dieplay	Tovt		
						Text Color:	Re	d	~		^Da^-	^Mor	1^ ^D'	、 、
						Scroll Direction:	No	ne	×					
			01	Gran		Scroll Speed:			70		llink	(Bold	I
		(OK up	UK dates all paramet	ers to dock	e))	Prev Zone		Zon	e= 1			Ne	xt Zon	e

This first zone is showing the default value of the date in the format Day-Month Year. These variables are sourced internally to the TimeZone clock display.

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Primary NTP Server:		_	ut	cnist.colora	do.edu	Time Zone:		l	JSCT		~			
Secondary NTP Server:			time-a.tim	efreg.bldrd	oc.gov	Custom Offset:				- ~	06	\sim	00	~
lock Resync Period (HF	:MIN):				0:10	Da <mark>y</mark> light Saving	Time S	etting	: [Auto	~		Fixed	Day
imer Revert to Time Tir	neout (mi	n) (0=Disable	ed):		30	Start Date:	1st	~	Sun	~	Jan	~	1st	
🕑 Use 1	2-hour fo	ormat	24-hour M	ode Leading	g Zero	Start Time:	00	\sim	00	\sim				
Clock Color H	R:	Green	✓ MM:SS	Green	~	End Date:	1st	\sim	Sun	\sim	Jan	\sim	1st	
isplay Format:				4/6 Digits	~	End Time:	00	~	00	\sim				
assword:				tn	nachine	Hour Bias:				+ ~	00	\sim	00	
(Changing Passw lote: Leave Text Paran	(Changing Password here will require updating global app password) : Leave Text Parameters Above Blank to make no change			i)	Display Time (se	:c):			[Display '	Text:			
						Text Color:	Re	d	~]	^VAR1	^		
						Scroll Direction:	No	ne	~					
						Scroll Speed:			55		link	(Bold	ł
		(OK upd	OK	Cance ers to clock	el (a))	Prev Zone		Zon	e=	2		Ne	xt Zon	e

The second zone is show ^VAR1^. It is not scrolling, it is simply centered. This is the outside temperature in Lincoln, NE at any given time as provided by the TM-DataManager software.

Primary NTP Server:	ut	tcnist.colorado.ed	Time Zone	2:		l	JSCT		~			
Secondary NTP Server:	time-a.tin	nefreq.bldrdoc.go	Custom C	ffset:				- ~	06	\sim	00	~
Clock Resync Period (HR:MIN):		0:1	Daylight S	Daylight Saving Time Setting: Auto							Fixed	Day
Timer Revert to Time Timeout (min) (0	Disabled):	30	Start Dat	e:	1st	~	Sun	~	Jan	~	1st	
Use 12-hour format	🗹 24-hour M	lode Leading Zero	Start Time	e:	00	\sim	00	\sim				
Clock Color HR: Gree	n V MM:SS	Green	End Date	:	1st	\sim	Sun	\sim	Jan	~	1st	2
Display Format:		4/6 Digits	End Time:		00	\sim	00	~				
Password:		tmachin	Hour Bias	:				+ ~	00	~	00	
(Changing Password here will re Note: Leave Text Parameters Above B	(Changing Password here will require updating global app password) :: Leave Text Parameters Above Blank to make no change			me (se	c):							8
			Text Colo	r:	Re	d	, ,		^VAR2	lext:		
			Scroll Dire	ction:	No	ne	~	2				
			Scroll Spe	ed:		0	55		Blink	(Bolo	ł
	OK undates all paramet	Cancel	Prev Z	one		Zon	e=	3		Ne	xt Zon	e

The third zone is showing ^VAR2^ which is the wind speed and direction in Lincoln, NE at a given time. It is also not set to scroll, but to display in the middle of the display.

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Primary NTP Server:	ut	tcnist.colora	do.edu	Time Zone:	Time Zone:					1	~			
Secondary NTP Server:	time-a.tin	nefreq.bldrd	loc.gov	Custom Offset:				- ~	06	~	00	~		
Clock Resync Period (HR:MIN):			0:10	Daylight Saving Time Setting: Auto ~							Fixed Day			
Timer Revert to Time Timeout (min) (0=Dis	abled):	<u>.</u>	30	Start Date:	1st	\sim	Sun	~	Jan	~	1st			
Use 12-hour format	24-hour M	lode Leading	g Zero	Start Time:	00	\sim	00	\sim						
Clock Color HR: Green	✓ MM:SS	Green	~	End Date:	1st	\sim	Sun	\sim	Jan	\sim	1st			
Display Format:		4/6 Digits	~	End Time:	00	\sim	00	\sim						
assword:		tn	nachine	Hour Bias:				+ ~	00	\sim	00			
(Changing Password here will requi lote: Leave Text Parameters Above Blan	(Changing Password here will require updating global app password) e: Leave Text Parameters Above Blank to make no change				ec):				Display	Text:		10		
				Text Color:	Re	d	~		Dow:^	VAR3	^			
				Scroll Direction:	Rig	ht to	L <mark>ef</mark> 丶	·						
	01		-	Scroll Speed:	_	0	55		Blink	(Bold	C.		
(0)	OK	Canc	ei	Prev Zone		Zor	ne=	4		Ne	xt Zon	e		

The 4th zone, is a bit more complicated. It is showing the ^VAR3^ value. However, there is some static text added "DOW:" and then along with the settings in TM-DataManager, it will display the DOW composite index along with the change since the opening bell of the exchange. This text is also set to scroll for 10 seconds because the overall text wouldn't fit on the display all at one time. The formatting of the text is completely up to the user to determine their preferred viewing method.

Primary NTP Server: ut	cnist.colorad	lo.edu	Time Zone:		1	ISCT -	LISA	Central			
			Think Editer		6	0001	UUN	centra	-		
Secondary NTP Server: time-a.tim	nefreq.bldrdd	oc.gov	Custom Offset:			-	· ~	06	\sim	00	2
Clock Resync Period (HR:MIN):		0:10	Daylight Saving	Time S	etting		Auto	~		Fixed	Da
Timer Revert to Time Timeout (min) (0=Disabled):		30	Start Date:	1st	\sim	Sun	~	Jan	\sim	1st	
🕑 Use 12-hour format 🛛 🗹 24-hour M	lode Leading	Zero	Start Time:	00	\sim	00	\sim				
Clock Color HR: Green \checkmark MM:SS	Green	~	End Date:	1st	\times	Sun	\sim	Jan	\sim	1st	2
Display Format:	4/6 Digits	~	End Time:	00	\sim	00	\sim				
Password:	tm	achine	Hour Bias:				+ ~	00	\sim	00	
(Changing Password here will require updating global ap	op password)	Display Time (sec):								
Note: Ecove rextra ameters Above blank to make no change							[Display T	Text:		
			Text Color:	Red	ł	~		Nasdaq	I: ^VA	R4^	
			Scroll Direction:	Rig	ht to L	ef ~					
			Scroll Speed:		ţ	55		Blink	C	Bold	ł
OK	Cance										

Finally the 5th zone is similar to the 4th, except it is showing a different ticker symbol. NDAQ in the case of the setup of the TM-DataManager main window. This is the ticker symbol for the Nasdaq company, not the index.

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