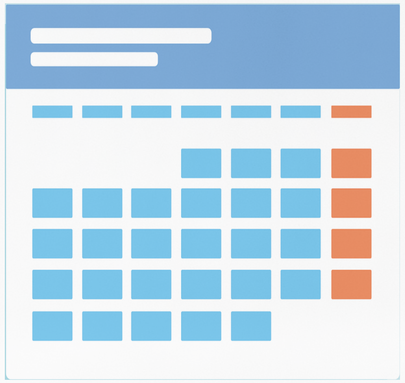

Handling Dates and Times in Stata

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Convert string variables to Stata **date/time** variables.

Format Stata date/time variables to **display** how you want.

Imported string date/time variables are **automatically** converted.

Format Stata date/time to display exactly how you want

Day *e.g. 1 or Tuesday*	Month *e.g. June*	Year *e.g. 500 A.D.*	Hours *e.g. 9am or 11pm*	Minutes *e.g. 9*	Seconds *e.g. 3.307*
Dayname – Tuesday	Mon – Jun	CCYY – 0500	HH – 09 or 23	MM – 09	SS – 03
Day – Tue	Month – June	ccYY – 500	Hh – 09 or11	Mm – 9	ss – 3
Da – Tu	mon - jun	CCyy – 050	hH – 9 or 23		.s – .3
day – tue	month - june	ccyy - 50	hh – 9 or11		.ss – .30
da – tu	NN - 06				.sss – .307
DD - 01	nn - 6				
dd - 1					

Half-Year 1/2	Quarter 1 to 4	Week 8	Day in Year 21	AM/PM	Display Grammar
h – 1	q – 1	WW – 08	JJJ – 021	am – am/pm	Period – .
h – 2	q – 2	ww – 8	jjj – 21	a.m. – a.m./p.m.	Colon – :
	q – 3			AM – AM/PM	Hyphen – -
	q – 4			A.M. – A.M./P.M	Space – _
					Slash – /
					Backslash – \
					Display character – !c

Example	Format
01 April 2020	%tdDD_Month_CCYY
December 2 2020	%tdMonth_dd_CCYY
2020/02/7	%tdCCYY/NN/dd
23:02	%tcHH:MM
08:24:33pm	%tcHh:MM:SSam
11pm	%tcHham
31min	%tcMM!m!i!n
3.307sec	%tcss.sss!s!e!c
Monday 21 July 1969 at 12:56pm	%tcDay_DD_Month_CCYY_!at!_Hh:MMam
December 12 2020 23:21:33.307	%tcMonth_DD_CCYY_HH:MM:SS.sss

To add a format – format variable_name %t…

Note 1: The # in the code in the red table (right) denotes the presence of text that is not related to the date, time or datetime. You are telling Stata there is text surrounding (either before or after) the datetime information Stata is looking to extract.

Note 2: If you need your seconds in an hms time variable to be transferred *exactly* as they appear in the string you will need to tell Stata to store the new variable as a double. This is because Stata stores time as the number of milliseconds since midnight 00:00:00.000. To maintain an accurate time to the second, the variable must be a double.

Note 3: Since datetime is stored as the number of milliseconds since 1 Jan 1960 at 00:00:00.000 it is recommended that you *always* specify your datetime variables as doubles. If you do not, you will find the time part of the variable becoming more and more inaccurate the further away it is from 1 Jan 1960.

You can combine any of the items in the orange and blue tables (left) to create the format you want shown in the Results Pane and the Stata Data Editor screen. Your format cannot be more than 48 characters in length. To format a date you always start with %td; to format a time or datetime always start with %tc; for a week use %tw; for a month use %tm; for a quarter use %tq; for a half-year use %th; and for a year use %ty.

Convert string to Stata date/time

Date String	Date Format	Command
Tuesday 01 April 2020	#DMY	generate date_var = date(string_var, "#DMY")
December 2 2020	MDY	generate date_var = date(string_var, "MDY")
2020/12/31	YMD	generate date_var = date(string_var, "YMD")
31/12/2020	DMY	generate date_var = date(string_var, "DMY")

Time String	Time Format	Command
23:02	hm	generate time_var = clock(string_var, "hm")
08:24:33pm	hms	generate double time_var = clock(string_var, "hms")
11pm	h	generate time_var = clock(string_var, "h")
31min	m#	generate time_var = clock(new_string, "m#")
3.307sec	s#	generate time_var = clock(new_string, "s#")

Date/Time String	Date/Time Format	Command
01 April 2020 12:20pm	DMYhm	generate double datetime_var = clock(string_var, "DMYhm")
December 12 2020 23:21:33.307	MDYhms	generate double datetime_var = clock(string_var, "MDYhms")
Tue 14 May 2019 at 12:59pm	#DMY#hm	generate double datetime_var = clock(string_var, "#DMY#hm")

Example	Command
Monday 21 July 1969	generate newdate = date(stringvar, "#DMY")
12:56pm	generate newtime = clock(stringvar, "hm")
Monday 21 July 1969 at 12:56pm AEST *Man first walks on the moon*	generate double newdatetime = dock(stringvar, "#DMY#hm#")

Convert Stata date variable to panel data time variable (tsset, xtset, etc.) and vice versa

Date to Time Variable	Function	Command	Format
Time (in milliseconds)	cofd()	generate double datetime_var = cofd(date_var)	%tc
Weekly	wofd()	generate week_var = wofd(date_var)	%tw
Monthly	mofd()	generate month_var = mofd(date_var)	%tm
Quarterly	qofd()	generate quarter_var = qofd(date_var)	%tq
Half-yearly	hofd()	generate half_year_var = hofd(date_var)	%th
Yearly	yofd()	generate year_var = yofd(date_var)	%ty

Time to Date Variable	Function	Command	Format
Time (in milliseconds)	dofc()	generate date_var = dofc(datetime_var)	%td
Weekly	dofw()	generate date_var = dofw(week_var)	%td
Monthly	dofm()	generate date_var = dofm(month_var)	%td
Quarterly	dofq()	generate date_var = dofq(quarter_var)	%td
Half-yearly	dofh()	generate date_var = dofh(half_year_var)	%td
Yearly	dofy()	generate date_var = dofy(year_var)	%td

Variable Type	Example	Format
Weekly	05 April 2019 (w14)	%twDD_Month_CCYY_!(!wWW!)
Monthly	Apr2019	%tmMonCCYY
Quarterly	Q1 2019	%tq!Qq_CCYY
Half-yearly	January 2019	%thMonth_CCYY
Yearly	'19	%ty!'yy

Note 4: When applying a Stata date format (e.g. %td, %tm, etc.), Stata assumes the numeric variable is representing the number of x since 1 January 1960, where x can be milliseconds, days, weeks, months, quarters, or half-years. So if you are applying the %tm format, for example, Stata assumes the numeric variable is the number of months since 1 January 1960.

Stata **date** and **time** variables can be used to make calculations such as how many days there are between dates, or to pull out information such as **day of the week** or just the **year**, **month** or **day** by itself

You can **combine** a **month** variable with a separate **day** and separate **year** variable into a single Stata date variable using the **mdy() function**

Example: generate date_var = mdy(month_var, day_var, year_var)

Stata can account for **leap seconds** if your datetime variable contains leap seconds – just use a capital C for "Clock()" ,"%tC" and "dofC()"

Example 1: generate datetime_var = Clock(string_var, DMY) Example 2: format datetime_var %tCdd/nn/ccYY