

Another Question on Using SAS® FORMATS and SAS INFORMATS

Jonas V. Bilenas
July 1, 2023

Introduction

A couple of weeks ago a SAS® user posted a question for help on a question:

“I have a numeric value of 1686024000 and I need to change it to Datevalue”.

I first thought the numeric value looked like a phone number but I checked on an Android App, “Area Codes”, which stated that (686) was not a valid area code.

So, we may need SAS FORMATS and/or INFORMATS to get the users Date value look like a real date. There are many SAS FORMATS and INFORMATS for dates and time.

INFORMATS are used to read the data variables and FORMATS are used for outputting and/or formatting the data variable. See Table 1 for how we use FORMATS and INFORMATS based on my previous presentations on “The Power of PROC FORMAT”.

CONCEPT	APPLICATION	USAGE IN A DATA STEP	USAGE IN A PROC
INFORMAT	INPUT Data	Use with INPUT, ATTRIB, or INFORMAT statements. Use with INPUT, INPUTN, and/or INPUTC Functions.	INFORMAT statements are rarely used in PROCS. Exceptions are PROCS that are used to input data such as PROC FSEDIT.
FORMAT	OUTPUT Data or Format Data in reports	Use with PUT, ATTRIB, or FORMAT statements. Use with PUT, PUTN, and/or PUTC Functions.	Use ATTRIB or FORMAT Statements

Table 1

Let’s test some of the INFORMATS and FORMATS on The Single Numeric Value Question

I hope this is not a question in a classroom for a final project. But let us try testing a few answers I have seen to this question.

```

10 /* first attempt*/
11 DATA numdt;
12   INPUT question 10.;
13   converted = question;
14   FORMAT converted DATE9.;
15 DATALINES4;
16 1686024000
17 ;;;;;;
18 RUN;
19
20 PROC CONTENTS DATA=numdt NODetails;
21 RUN;
22
23 PROC PRINT data=numdt;
24 RUN;

```

CODE 1. Note that *INFORMATs* and *FORMATs* typically ends with a “.”

The SAS log on SAS “On Demand for Academics” has no errors but the output PRINT look unusual:

Obs	question	converted
1	1686024000	*****

Output 1

What if we try to increase the width of the DATE format in LINE 14 in the code to see if that would work?

FORMAT converted DATE14.;

That did not work. The log clip:

```
72      DATA numdt;
73          INPUT question 10.;
74          converted = question;
75          FORMAT converted DATE14.;
                                     29
ERROR 29-185: Width specified for format DATE is invalid.

76      DATALINES4;

NOTE: The SAS System stopped processing this step because of errors.
SAS LOG1
```

The **DATE n** . FORMAT is the SAS FORMAT for dates as documented in <https://support.sas.com/>.

Hmm, wait a second. Maybe the **1686024000** value is a DATETIME variable having both the **DATE** and **TIME** values in a single numeric variable? Lots of combinations for dealing with date and time variables and the SAS FORMATS and INFORMATS (See Morgan, D. 2006, 2011, and Bilenas, J. 2007).

```
49  /* what about datetime format for the value?*/
50  DATA numdt;
51      INPUT question 10.;
52      datetime = question;
53      FORMAT datetime datetime20.;
54  DATALINES4;
55  1686024000
56  ;;;;
57  RUN;
58
59  PROC PRINT DATA=numdt;
60  RUN;
```

CODE 2

Code output did work:

DATETIME		
Obs	question	datetime
1	1686024000	05JUN2013:04:00:00

Output 2

Wait, we may not be done. If we use DATETIME variables in additional DATE variable with date function calculations we may need to separate the DATE component from the TIME component in the datetime generated variable.

```
65 /* Pull out DATE from DATEPART variable */
66 DATA numdt;
67   INPUT question 10.;
68   datetime = question;
69   just_date_from_datetime = DATEPART(datetime);
70   FORMAT just_date_from_datetime DATE9.;
71   FORMAT datetime datetime20.;
72   FORMAT just_date_from_datetime DATE9.;
73   DATALINES4;
74 1686024000
75 ;;;;;
76 RUN;
77
78 TITLE NUMERIC DATA FORMAT;
79 PROC PRINT data=numdt;
80 RUN;
81 TITLE;
```

Code 3

NUMERIC DATA FORMAT			
Obs	question	datetime	just_date_from_datetime
1	1686024000	05JUN2013:04:00:00	05JUN2013

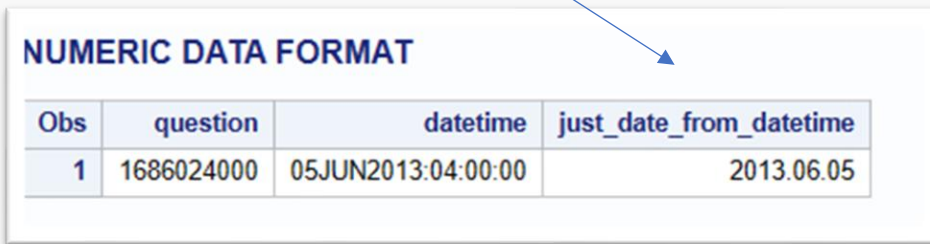
Output 3

If you are using SAS 9.4 there are a large amount of DATE FORMATS to use:

[DATE Format :: SAS\(R\) 9.4 Formats and Informats: Reference](#)

Try:

```
FORMAT just_date_from_datetime yymmddp10.;
```

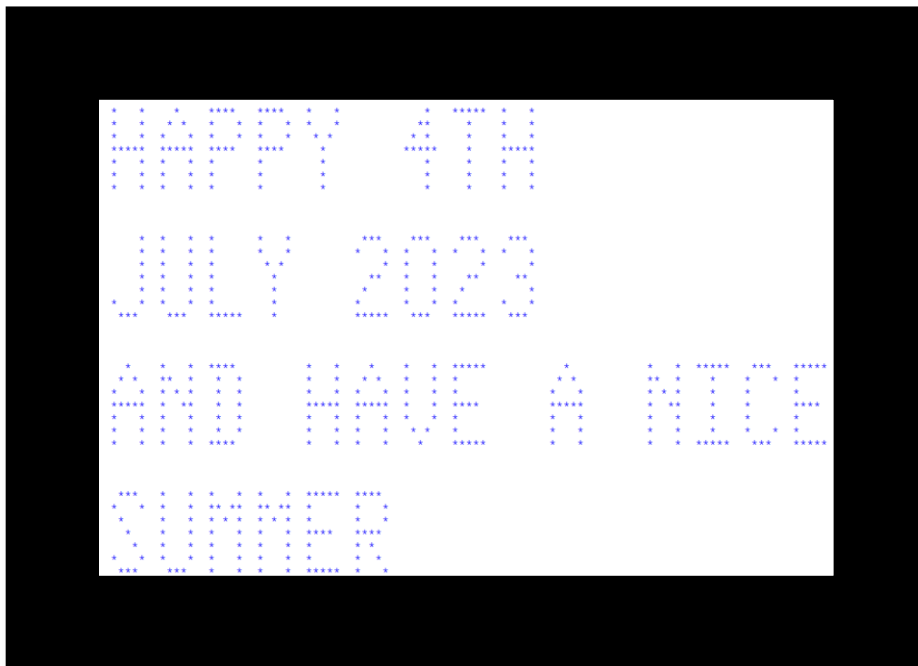


Obs	question	datetime	just_date_from_datetime
1	1686024000	05JUN2013:04:00:00	2013.06.05

Output 4

Also, if you are using different versions of SAS the default cutoff dates for dealing with 2 digit in years.

[46368 - The default value for the YEARCUTOFF= system option has changed in SAS® 9.4 and beyond](#)



There may be a trivia question that I will post on LinkedIn with this quick tip after a day or so. References are listed on the next page.

SAS® is a registered trademark of SAS Institute Inc., Cary, NC USA. This web site has no affiliation with, not sponsored by, or endorsed by SAS INSTITUTE INC. #SAS

The contents of this paper are the work of the author and do not necessarily represent the opinions, recommendations, or practices of current or previous employers. I ran the information for the training blog using SAS on Demand.

No warranty on the code is provided.

References

- Bilenas, J. V. (2007) "Using SAS® Dates and Times – A Tutorial" [226-2007: Using SAS® Dates and Times—A Tutorial](#)
- Morgan, D. (2006) "The Essential Guide to SAS Dates and Times", **SAS Press**. 2006
- Morgan, D. (2011) "The Essentials of SAS® Dates and Times" [Microsoft Word - date_essentials_2011v5.docx \(mwsug.org\)](#)