
ANALOG, An Interactive, Browser-Based and Business-Oriented SAS Log Checker

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Why was this tool developed?

- Developing an **interactive** application to check SAS logs
 - Inspired by SAS Enterprise Guide's log checker
 - Targeting **SAS Base** users
 - A more customized log summarization **not limited to** SAS ERROR/WARNING messages
 - Covering **industry-specific log messages**
- Why called ANALOG?
 - A tool for **ANAL**ysis of SAS **LOG**s

Technology behind this tool

- Client-side web programming (DHTML)
 - Building blocks: **HTML5**
 - Interactivity: **JavaScript / Cascading Style Sheets**
 - Text parsing: **Regular Expressions** (regex) language

Why web technology?

- There are already SAS macros capable of log checking:
 - %Log_check. [Pande Y., SAS Global Forum, 2012](#)
 - %SASLOG_Summarizer. [Stojanovic M, SESUG, 2008](#)
- Advantages of web technology to macros in SAS:
 - More interactive/user friendly
 - Graphical user interface
 - Independent of SAS installation
 - Browsers available everywhere

Tool Functions

SAS Log Check

- Summarizes **SAS** log messages
 - Errors/Warnings
 - Distinguishes **Significant NOTEs** from other SAS log NOTEs.
 - Examples:
 - NOTE: Variable PCHGCV is **uninitialized**.
 - NOTE: The data set WORK.FAMH has **0 observations** and 3 variables.
- Summarizes **Industry-Specific log** messages i.e. produced by industry-specific SAS macros.
 - Examples:
 - ALERT: Multiple DS death records exist; only one will be taken.
 - ALERT: E-Sub program "esubadalb.sas" has lines > 256 chars.

Tool Functions

SAS Log Check

- By default **shows** only **more important log messages**
 - SAS ERRORS / WARNINGS / Significant NOTES
 - More important industry-specific log messages
 - **Hides:** Less important SAS NOTES, and industry-specific log messages
- Shows messages in **chronological** order as they happened
- Click each message to interactively **scroll** to relevant log area
- Interactively **toggle (hide/show) message categories**

Tool Functions

Input / Output List (Experimental)

- ANALOG also produces a list of inputs/outputs of a SAS program
 - Datasets used/created
 - SAS Macro used
 - SAS Procedures used
- Useful for:
 - Getting a quick overview of a SAS program
 - Enriching your program's documentation

Program's input/output summary from log (experimental):

```
* .....  
* >>> Data Used  
* .....  
* [sas]sdtm.ds  
* [sas]sdtm.dm  
* [sas]sdtm.ex  
* [sas]sdtm.vs  
* [sas]sdtm.ae  
* [sas]sdtm.cm  
* [sas]sdtm.xp  
* [sas]sdtm.za  
* [sas]sdtm.zb  
* .....  
* >>> Data Created  
* .....  
* [sas]ana.as1--[n=28--vars=78]  
* .....  
* >>> Reports/Files/Outputs Produced  
* .....  
* None  
* ..
```

Screenshot

ANALOG Analyze SAS Logs ? Help

Choose SAS Log File (.log): Clear Re-Check Last Log

or paste your SAS log here:

```
ERROR 180-322: Statement is not valid or it is used out of proper order.

MPrint(STR_UTIL_WRITECHECKMSG);
MPrint(STR_UTIL_PAGESIZE);
MPrint(STR_UTIL_WRITEEESUBCOMMENT);
MPrint(STR_UTIL_WRITEEESUBCOMMENT);
MPrint(STR_UTIL_WRITEEESUBCOMMENT);
NOTE 137-205: Line generated by the invoked macro "STR_UTIL_PAGESIZE".
1251 %str_util_writesubcomment(Set size of page) options linesize = &ls pagesize = &ps ;
18-----
ERROR 18-12: Option value for SAS option LINESIZE must be between 64 and 256.

NOTE 137-205: Line generated by the invoked macro "STR_UTIL_PAGESIZE".
1251 %str_util_writesubcomment(Set size of page) options linesize = &ls pagesize = &ps ;
13-----
ERROR 13-12: Unrecognized SAS option name =.
```

SAS Industry Specific

ERRORS (13)

WARNINGS (9)

Sig. NOTES** (36)

NOTES (665)

COMMENTS (30)

ALERTS (1)

CRITICALS (2)

WARNING: Apparent symbolic reference MACRONAME not resolved.	5649
WARNING: Apparent symbolic reference MACRONAME not resolved.	5649
WARNING: Apparent symbolic reference MACRONAME not resolved.	5650
CRITICAL: Invalid pagesize SASL8 specified. Valid values are:	5652
WARNING: Apparent symbolic reference MACRONAME not resolved.	5664
WARNING: Apparent symbolic reference MACRONAME not resolved.	5665
ERROR: 180-322: Statement is not valid or it is used out of proper order.	5675
ERROR: 18-12: Option value for SAS option LINESIZE must be between 64 and 256.	5686
ERROR: 13-12: Unrecognized SAS option name =.	5692
WARNING: Apparent symbolic reference __PGMNAME not resolved.	5716
ALERT: The filename pointed by parameter [subpgm] should not include underscores for e-submission.	5717
ERROR: 391-185: Expecting a variable length specification.	5732
ERROR: 202-322: The option or parameter is not recognized and will be ignored.	5734
ERROR: 22-322: Expecting a numeric constant.	5738
WARNING: Apparent symbolic reference __PGMNAME not resolved.	5739
ERROR: Errors printed on pages 74,75,95,96,97.	5778

Screenshot

Example log from ADSL (subject level analysis dataset) showing no errors/warnings, but important industry-specific log messages alerting about findings in DS (disposition) domain.

ANALOG Analyze SAS Logs ? Help

Choose SAS Log File (.log): No file chosen

or paste your SAS log here:

```

ALERT - Multiple DS death records exist; only one will be taken.
ALERT - STUDYID=G030140, USUBJID=G030140-291065-101004.
+++++
ALERT - [STR UTIL DEATH INFO] -
ALERT - Multiple DS death records exist; only one will be taken.
The SAS System
ALERT - STUDYID=G030140, USUBJID=G030140-291879-101012.
+++++
ALERT - [STR UTIL DEATH INFO] -
ALERT - Multiple DS death records exist; only one will be taken.
ALERT - STUDYID=G030140, USUBJID=G030140-291879-101035.
+++++
  
```

SAS Industry Specific

ERRORS (0) WARNINGS (0) Sig. NOTES** (181) NOTES (1244) COMMENTS (29) ALERTS (13) CRITICALS (0) No Errors, No Warnings.

Type	Line
NOTE**:	3416
Missing values were generated as a result of performing an operation on missing values.	
ALERT:	3903
Multiple DS death records exist; only one will be taken.	
ALERT:	3909
Multiple DS death records exist; only one will be taken.	
ALERT:	3917
Multiple DS death records exist; only one will be taken.	
ALERT:	3923
Multiple DS death records exist; only one will be taken.	
ALERT:	3929
Multiple DS death records exist; only one will be taken.	
ALERT:	3935
Multiple DS death records exist; only one will be taken.	
ALERT:	4819
Multiple DS death records exist; only one will be taken.	
ALERT:	4825
Multiple DS death records exist; only one will be taken.	
ALERT:	4831
Multiple DS death records exist; only one will be taken.	
ALERT:	4837
Multiple DS death records exist; only one will be taken.	
ALERT:	4843
Multiple DS death records exist; only one will be taken.	
ALERT:	4849
Multiple DS death records exist; only one will be taken.	
NOTE**:	4986
There were 0 observations read from the data set WORK__MAX_SF_3_1.	
NOTE**:	5056
Missing values were generated as a result of performing an operation on missing values.	

Important
industry-
specific
macro's log
messages

No errors or
warnings, but ...

Demo



ANALOG Analyze SAS Logs ? Help

Choose SAS Log File (.log): Choose File No file chosen Clear Re-Check Last Log

or paste your SAS log here:

SAS

Industry Specific

ERRORS

WARNINGS

Sig. NOTES**

NOTES

COMMENTS

ALERTS

CRITICALS

Program's input/output summary from log (experimental):

SAS “Significant” Notes

Phrase Detected

1. 'is uninitialized'
2. 'Missing values were generated'
3. 'MERGE statement'
4. 'DATA STEP stopped'
5. 'Division by zero'
6. 'Invalid'
7. 'Statement not executed'
8. 'The query requires remerging'
9. 'SAS went to a new line when'
10. 'format was too small for the number'
11. 'No observation'
12. 'values have been converted'
13. 'repeats of BY values'
14. 'Character values have'
15. 'no observations'
16. 'SAS went to a new line when INPUT statement'
17. 'LOST CARD'
18. 'Statement not executed'
19. 'has never been referenced'
20. 'DATA STEP stopped due to looping'
21. ' 0 observations'
22. 'input data set is empty'
23. 'was not found or could not be loaded'
24. 'export cancelled'
25. 'no variables to transpose'



***Doing now what patients need
next***