# TEST 1

## Error conditions handled smoothly

In most cases tests should include confirmation that the macro handle invalid or error conditions smoothly, with a clear message to the user, and an appropriate return value to the calling program.

For example, given an invalid data set name, a macro should set the global macro variable CONTINUE to 0 (See [Project Programming Guidelines](http://www.phusewiki.org/wiki/index.php?title=WG5_P02_Programming_Guidelines) for further discussion).

## Checks

1. Invalid parameter produces clear message
   1. Missing/Invalid data set
   2. Invalid visit variable
   3. Invalid treatment variable
2. Unexpected Missing Values for CHAR variables
   1. Missing VISIT values included in dset
   2. Missing TREATMENT values included in dset
   3. Both VISIT and TREATMENT include MISSING values
3. Repeat b. with NUMERIC variables

# TEST 2

## Title of this macro-specific test

Brief description and justification of this test.

For example, illustrate the need for this test using an example from clinical trials analysis.

## Checks

1. MAX 10 boxes per page for rectangular data set (consistent number of TREATMENTs for every VISIT)
   1. Numeric VISIT and TREATMENT variables
   2. Character VISIT and TREATMENT variables
2. MAX 10 boxes per page for data set with gaps (some TREATMENTs missing from some VISITs)
   1. Numeric VISIT and TREATMENT variables
   2. Character VISIT and TREATMENT variables
3. REPEAT a. for 3 boxes per page, specifically 3 is smaller than the number of treatments (4)
   1. Expect macro to keep all 4 treatments together on one page
4. REPEAT b. for 3 boxes per page, specifically 3 is smaller than the number of treatments (4)
   1. Expect macro to keep all 4 treatments together on one page
5. REPEAT a. for 20 boxes per page
6. REPEAT b. for 20 boxes per page

# TEST 3

## Confirm expected log messages

In most cases tests will include failure scenarios, which should produce log messages. The following log messages are EXPECTED due to test design (testing failure conditions):

WARNING: (TEST\_UTIL\_BOXPLOT\_VISIT\_RANGES) User must ensure PhUSE/CSS utilities are in the AUTOCALL path.

ERROR: (ASSERT\_DSET\_EXIST) Result is FAIL. Data set DSET\_DNE is NOT accessible. Try another data set.

ERROR: (ASSERT\_DEPEND) Data set DSET\_DNE is not available.

ERROR: (ASSERT\_DEPEND) Result is FAIL. Dependencies for this program not met. Expect problems.

ERROR: (ASSERT\_VAR\_EXIST) Result is FAIL. "VISVAR\_DNE" is NOT a variable on data set SASHELP.HEART.

ERROR: (ASSERT\_DEPEND) Data set SASHELP.HEART does not contain required variable VISVAR\_DNE.

ERROR: (ASSERT\_DEPEND) Result is FAIL. Dependencies for this program not met. Expect problems.

ERROR: (ASSERT\_VAR\_EXIST) Result is FAIL. "TRTVAR\_DNE" is NOT a variable on data set SASHELP.HEART.

ERROR: (ASSERT\_DEPEND) Data set SASHELP.HEART does not contain required variable TRTVAR\_DNE.

ERROR: (ASSERT\_DEPEND) Result is FAIL. Dependencies for this program not met. Expect problems.

ERROR: (ASSERT\_VAR\_EXIST) Result is FAIL. "VISVAR\_DNE" is NOT a variable on data set SASHELP.HEART.

ERROR: (ASSERT\_DEPEND) Data set SASHELP.HEART does not contain required variable VISVAR\_DNE.

ERROR: (ASSERT\_VAR\_EXIST) Result is FAIL. "TRTVAR\_DNE" is NOT a variable on data set SASHELP.HEART.

ERROR: (ASSERT\_DEPEND) Data set SASHELP.HEART does not contain required variable TRTVAR\_DNE.

ERROR: (ASSERT\_DEPEND) Result is FAIL. Dependencies for this program not met. Expect problems.

WARNING: (ASSERT\_VAR\_NONMISSING) Result is FAIL. Variable "SMOKING\_STATUS" on data set "SASHELP.HEART" does have missing values (where=).

WARNING: (UTIL\_BOXPLOT\_VISIT\_RANGES) Variable "SASHELP.HEART.SMOKING\_STATUS" has missing values. Results may be unexpected.

WARNING: (UTIL\_BOXPLOT\_VISIT\_RANGES) Expecting NUMERIC visit numbers, not CHAR $17. Results may be unexpected.

WARNING: (ASSERT\_VAR\_NONMISSING) Result is FAIL. Variable "SMOKING\_STATUS" on data set "SASHELP.HEART" does have missing values (where=).

WARNING: (UTIL\_BOXPLOT\_VISIT\_RANGES) Variable "SASHELP.HEART.SMOKING\_STATUS" has missing values. Results may be unexpected.

WARNING: (UTIL\_BOXPLOT\_VISIT\_RANGES) Expecting NUMERIC visit numbers, not CHAR $7. Results may be unexpected.

WARNING: (ASSERT\_VAR\_NONMISSING) Result is FAIL. Variable "WEIGHT\_STATUS" on data set "SASHELP.HEART" does have missing values (where=).

WARNING: (UTIL\_BOXPLOT\_VISIT\_RANGES) Variable "SASHELP.HEART.WEIGHT\_STATUS" has missing values. Results may be unexpected.

WARNING: (ASSERT\_VAR\_NONMISSING) Result is FAIL. Variable "SMOKING\_STATUS" on data set "SASHELP.HEART" does have missing values (where=).

WARNING: (UTIL\_BOXPLOT\_VISIT\_RANGES) Variable "SASHELP.HEART.SMOKING\_STATUS" has missing values. Results may be unexpected.

WARNING: (UTIL\_BOXPLOT\_VISIT\_RANGES) Expecting NUMERIC visit numbers, not CHAR $11. Results may be unexpected.

WARNING: (ASSERT\_VAR\_NONMISSING) Result is FAIL. Variable "VISNUM\_MISS" on data set "RECTANGULAR" does have missing values (where=).

WARNING: (UTIL\_BOXPLOT\_VISIT\_RANGES) Variable "RECTANGULAR.VISNUM\_MISS" has missing values. Results may be unexpected.

WARNING: (ASSERT\_VAR\_NONMISSING) Result is FAIL. Variable "TRTNUM\_MISS" on data set "RECTANGULAR" does have missing values (where=).

WARNING: (UTIL\_BOXPLOT\_VISIT\_RANGES) Variable "RECTANGULAR.TRTNUM\_MISS" has missing values. Results may be unexpected.

WARNING: (ASSERT\_VAR\_NONMISSING) Result is FAIL. Variable "VISNUM\_MISS" on data set "RECTANGULAR" does have missing values (where=).

WARNING: (UTIL\_BOXPLOT\_VISIT\_RANGES) Variable "RECTANGULAR.VISNUM\_MISS" has missing values. Results may be unexpected.

WARNING: (ASSERT\_VAR\_NONMISSING) Result is FAIL. Variable "TRTNUM\_MISS" on data set "RECTANGULAR" does have missing values (where=).

WARNING: (UTIL\_BOXPLOT\_VISIT\_RANGES) Variable "RECTANGULAR.TRTNUM\_MISS" has missing values. Results may be unexpected.

WARNING: (UTIL\_BOXPLOT\_VISIT\_RANGES) Expecting NUMERIC visit numbers, not CHAR $5. Results may be unexpected.

WARNING: (UTIL\_BOXPLOT\_VISIT\_RANGES) Expecting NUMERIC visit numbers, not CHAR $5. Results may be unexpected.

WARNING: (UTIL\_BOXPLOT\_VISIT\_RANGES) Treatment count (4) is greater than Max boxes per page (3). Keeping treatments together, Max boxes per page is effectively 4.

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