



CHAPTER

14

SAS System Return Codes

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Introduction

Many of the SCL functions that interface to external databases and file systems return special values called *SAS system return codes*. These return codes report the success or failure of a function, and they report error and warning conditions. You can use these system return codes to include sophisticated error checking in your applications.

Using SAS System Return Codes

The value of a SAS system return code can be interpreted as:

0	The operation was completed successfully.
>0	An error condition was detected during the operation.
<0	The operation was completed, but a warning or a note was generated.

Not all SCL functions that return completion code values return SAS system return codes. Some functions return a completion code value that reports the success or failure of the requested operation (usually 1 for success or 0 for failure). These values are referred to in this book simply as return codes because they do not have the special property of SAS system return codes described above.

Obtaining a SAS System Return Code

Some functions — notably OPEN, DOPEN, FOPEN, and MOPEN — return values other than SAS system return codes. For these functions, use the SYSRC function to obtain the SAS system return code for the operation. SAS software retains the value of the return code for the most recent warning or error condition, and the SYSRC function reads the stored value.

The following example assigns the SAS system return code to the variable ERRNUM if the OPEN operation fails:

```
tableid=open('prices','I');
if tableid=0 then do;
  errnum=sysrc();
  put "Open failed" errnum;
end;
```

Note: If you call the SYSRC function after executing a function that returns a SAS system return code, the value that the SYSRC function returns is the same as the value that the original function returned. Δ

Obtaining the Message for a SAS System Return Code

In many cases, knowing the value of a SAS system return code enables you to determine whether an operation succeeded or failed. However, in some cases warning messages can be useful for informing users of special situations that may need to be corrected.

You can use the SYSMSG function to return the text of the error message that was produced by the most recent SCL warning or error.

For example, the following statements display the SAS system message for the error condition that is produced when the FETCH function returns a nonzero return code:

```
rc=fetch(dsid);
if rc then _msg_=sysmsg();
```

The message string that SYSMSG() returns is reset to blank after each call to SYSMSG() until the next error or warning condition occurs.

Testing for a Particular Error or Warning Condition

When an SCL function returns a nonzero SAS system return code, you can use the %SYSRC macro to determine whether the code indicates one of a defined set of error and warning conditions. The %SYSRC macro is provided in the autocall library that is supplied by SAS Institute.

Note: In order for you to use autocall macros, the MAUTOSOURCE system option must be in effect, and the SASAUTOS= system option must point to the Institute-supplied autocall macro library. For more information about the autocall facility, see *SAS Macro Language: Reference* and the online Help for the SAS Macro Language. Δ

To test whether a specific return code is one of the documented conditions, pass a mnemonic name for the condition to the %SYSRC macro. The syntax is

```
rc=%SYSRC(mnemonic);
```

Mnemonics consist of up to eight characters, as follows:

- an underscore (_) for the first character
- S for the second character
- E (for error conditions) or W (for warning conditions) for the third character
- a shortened version of the name of the error for the remaining characters.

For example, `_SWEOF` is the mnemonic for the end-of-file warning condition.

Note: The return code for an end-of-file condition is a warning (`_SWEOF`). The value of the return code is `-1`. This is a special return code that is explicitly documented in this book. △

Mnemonics are assigned only to error or warning conditions that are considered relevant to an application developer. In some cases, SCL returns values that do not have a corresponding mnemonic. In these cases, a negative value indicates a warning condition, and a positive value indicates an error condition. For example, the following statements can be used to test whether the row requested by the `FETCH` function was successfully locked:

```
rc=fetch(dsid);
if (rc) then
  do;
    if (rc=%sysrc(_swnoupd)) then _msg_=
      'Another user has locked the requested row.';
    else
      /* fetch failed for another reason*/
      _msg_=sysmsg();
  end;
```

Mnemonics for SAS System Return Codes

Table 14.1 on page 229 lists the mnemonics for SAS system return codes along with the value and a description of the error or warning condition. This table is sorted by the mnemonic name, and the codes are grouped into general categories of operations that can produce the conditions. Table 14.2 on page 232 presents the codes sorted by the return code value.

Table 14.1 Warning and Error Conditions Sorted Alphabetically by Mnemonic

Mnemonic	Value	Description
Library Assign/Deassign Messages		
<code>_SEDUPLB</code>	70004	The libref refers to the same physical library as another libref.
<code>_SEIBASN</code>	70006	The specified libref is not assigned.
<code>_SEINUSE</code>	70025	The library or member is not available for use.
<code>_SEINVLB</code>	70002	The library is not in a valid format for the access method.
<code>_SEINVLN</code>	20014	The libref is not valid.
<code>_SELBACC</code>	70029	The action requested cannot be performed because you do not have the required access level on the library.
<code>_SELBUSE</code>	70025	The library is still in use.
<code>_SELGASN</code>	70006	The specified libref is not assigned.
<code>_SENOASN</code>	20004	The libref is not assigned.
<code>_SENOLNM</code>	20031	The libref is not available for use.
<code>_SESEQLB</code>	630032	The library is in sequential (tape) format.

Mnemonic	Value	Description
_SWDUPLB	-70004	The libref refers to the same physical file as another libref.
_SWNOLIB	-70008	The library does not exist.
Fileref Messages		
_SELOGNM	20002	The fileref is assigned to an invalid file.
_SWLNASN	-20004	The fileref is not assigned.
SAS Table Messages		
_SEBAUTH	70045	The data set has passwords.
_SEBDIND	630009	The index name is not a valid SAS name.
_SEDSMOD	70018	The data set is not open in the correct mode for the specified operation.
_SEDTLEN	20012	The data length is invalid.
_SEINDCF	630008	The new name conflicts with an index name.
_SEINVMD	20015	The open mode is invalid.
_SEINVPN	20017	The physical name is invalid.
_SEMBACC	70030	You do not have the level of access required to open the data set in the requested mode.
_SENLCK	630053	A record-level lock is not available.
_SENOMAC	660025	Member-level access to the data set is denied.
_SENOsas	70037	The file is not a SAS data set.
_SEVARCF	630019	The new name conflicts with an existing variable name.
_SWBOF	-570001	You tried to read the previous observation when you are on the first observation.
_SWNOWHR	-630004	The record no longer satisfies the WHERE clause.
_SWSEQ	-630032	The task requires reading observations in a random order, but the engine you are using allows only sequential access.
_SWSWAUG	-580016	The WHERE clause has been augmented.
_SWWCLR	-580017	The WHERE clause has been cleared.
_SWWREP	-580015	The WHERE clause has been replaced.
SAS File Open and Update Messages		
_SEBDSNM	630087	The filename is not a valid SAS name.
_SEDLREC	630049	The record has been deleted from the file.
_SEFOPEN	20036	The file is currently open.
_SEINVON	70022	The option name is invalid.
_SEINVOV	70023	The option value is invalid.
_SEINVPS	20018	The value of the File Data Buffer pointer is invalid.
_SELOCK	70031	The file is locked by another user.
_SENOACC	20029	You do not have the level of access required to open the file in the requested mode.

Mnemonic	Value	Description
_SENOALL	630100	_ALL_ is not allowed as part of a filename in this release.
_SENOCHN	630058	The record was not changed because it would cause a duplicate value for an index that does not allow duplicates.
_SENODEL	10011	Records cannot be deleted from this file.
_SENODLT	20030	The file could not be deleted.
_SENOERT	20035	The file is not open for writing.
_SENOOAC	70030	You are not authorized for the requested open mode.
_SENOOPN	20037	The file or directory is not open.
_SENOPF	20006	The physical file does not exist.
_SENORD	20032	The file is not opened for reading.
_SENORDX	630066	The file is not radix addressable.
_SENOTRD	570002	No record has been read from the file yet.
_SENOUPD	630006	The file cannot be opened for update because the engine is read-only.
_SENOWRT	70040	You do not have write access to the member.
_SEOBJLK	20025	The file or directory is in exclusive use by another user.
_SERECRD	630052	No records have been read from the input file.
_SWACMEM	-630032	Access to the directory will be provided one member at a time.
_SWEOF	-1	End of file.
_SWNOFLE	-20006	The file does not exist.
_SWNOPF	-70008	The file or directory does not exist.
_SWNOREP	-630002	The file was not replaced because of the NOREPLACE option.
_SWNOTFL	-20002	The item pointed to exists but is not a file.
_SWNOUPD	-630054	This record cannot be updated at this time.
Library/Member/Entry Messages		
_SEBDMT	70015	The member type specification is invalid.
_SEDLT	70033	The member was not deleted.
_SELKUSR	630097	The library or library member locked by another user.
_SEMLEN	70028	The member name is too long for this system.
_SENOLKH	630099	The library or library member is not currently locked.
_SENOMEM	70009	The member does not exist.
_SWKNXL	-670212	You have locked a library, member, or entry that does not exist yet.
_SWLKUSR	-630097	The library or library member is locked by another user.
_SWLKYOU	-630098	You have already locked the library or library member.
_SWNOLKH	-630099	The library or library member is not currently locked.
Miscellaneous Operations		
_SEDEVOF	10008	The device is offline or unavailable.

Mnemonic	Value	Description
_SEDSKFL	70039	The disk or tape is full.
_SEINVDV	20011	The device type is invalid.
_SENORNG	20034	There is no write ring in the tape opened for write access.
_SOK	0	The function was successful.
_SWINVCC	-20001	The carriage-control character is invalid.
_SWNODSK	-20005	The device is not a disk.
_SWPAUAC	-630104	Pause in I/O, process accumulated data up to this point.
_SWPAUSL	-630105	Pause in I/O, slide data window forward and process accumulated data up to this point.
_SWPAUU1	-630106	Pause in I/O, extra user control point 1.
_SWPAUU2	-630107	Pause in I/O, extra user control point 2.

Table 14.2 Warning and Error Conditions Sorted by Value

Value	Mnemonic	Description
-1	_SWEOF	End of file.
-20001	_SWINVCC	The carriage control character is invalid.
-20002	_SWNOTFL	The item pointed to exists but is not a file.
-20004	_SWLNASN	The fileref is not assigned.
-20005	_SWNODSK	The device is not a disk.
-20006	_SWNOFLE	The file does not exist.
-70004	_SWDUPLB	The libref refers to the same physical file as another libref.
-70008	_SWNOPF	The file or directory does not exist.
-70008	_SWNOLIB	The library does not exist.
-570001	_SWBOF	You tried to read the previous observation when you are on the first observation.
-580015	_SWWREP	The WHERE clause has been replaced.
-580016	_SWWAUG	The WHERE clause has been augmented.
-580017	_SWWCLR	The WHERE clause has been cleared.
-630002	_SWNOREP	The file was not replaced because of the NOREPLACE option.
-630004	_SWNOWHR	The record no longer satisfies the WHERE clause.
-630032	_SWSEQ	The task requires reading observations in a random order, but the engine you are using allows only sequential access.
-630032	_SWACMEM	Access to the directory will be provided one member at a time.
-630054	_SWNOUPD	This record cannot be updated at this time.
-630097	_SWLKUSR	The library or library member is locked by another user.
-630098	_SWLKYOU	You have already locked the library or library member.

Value	Mnemonic	Description
-630099	_SWNOLKH	The library or library member is not currently locked.
-630104	_SWPAUAC	Pause in I/O, process accumulated data up to this point.
-630105	_SWPAUSL	Pause in I/O, slide data window forward and process accumulated data up to this point.
-630106	_SWPAUU1	Pause in I/O, extra user control point 1.
-630107	_SWPAUU2	Pause in I/O, extra user control point 2.
-670212	_SWKNXL	You have locked a library, member, or entry that does not exist yet.
0	_SOK	The function was successful.
10008	_SEDEVOF	The device is offline or unavailable.
10011	_SENODEL	Records cannot be deleted from this file.
20002	_SELOGNM	The fileref is assigned to an invalid file.
20004	_SENOASN	The libref is not assigned.
20006	_SENOFP	The physical file does not exist.
20011	_SEINVDV	The device type is invalid.
20012	_SEDTLEN	The data length is invalid.
20014	_SEINVLN	The libref is not valid.
20015	_SEINVMD	The open mode is invalid.
20017	_SEINVPN	The physical name is invalid.
20018	_SEINVPS	The value of the File Data Buffer pointer is invalid.
20025	_SEOBJLK	The file or directory is in exclusive use by another user.
20029	_SENOACC	You do not have the level of access required to open the file in the requested mode.
20030	_SENODLT	The file could not be deleted.
20031	_SENOLNM	The libref is not available for use.
20032	_SENO RD	The file is not opened for reading.
20034	_SENO R NG	There is no write ring in the tape opened for write access.
20035	_SENOERT	The file is not open for writing.
20036	_SEFO PEN	The file is currently open.
20037	_SENOOPN	The file or directory is not open.
70002	_SEINVLB	The library is not in a valid format for the access method.
70004	_SEDUPLB	The libref refers to the same physical library as another libref.
70006	_SEIBASN	The specified libref is not assigned.
70006	_SELGASN	The specified libref is not assigned.
70009	_SENO MEM	The member does not exist.
70015	_SEBDMT	The member type specification is invalid.
70018	_SEDSMOD	The data set is not open in the correct mode for the specified operation.
70022	_SEINVON	The option name is invalid.

Value	Mnemonic	Description
70023	_SEINVOV	The option value is invalid.
70025	_SEINUSE	The library or member is not available for use.
70025	_SELBUSE	The library is still in use.
70028	_SEMLEN	The member name is too long for this system.
70029	_SELBACC	The action requested cannot be performed because you do not have the required access level on the library.
70030	_SEMBACC	You do not have the level of access required to open the data set in the requested mode.
70030	_SENOOAC	You are not authorized for the requested open mode.
70031	_SELOCK	The file is locked by another user.
70033	_SEDLT	The member was not deleted.
70037	_SENOsas	The file is not a SAS data set.
70039	_SEDSKFL	The disk or tape is full.
70040	_SENOWRT	You do not have write access to the member.
70045	_SEBAUTH	The data set has passwords.
570002	_SENOTRD	No record has been read from the file yet.
630006	_SENOUPD	The file cannot be opened for update because the engine is read-only.
630008	_SEINDCF	The new name conflicts with an index name.
630009	_SEBDIND	The index name is not a valid SAS name.
630019	_SEVARCF	The new name conflicts with an existing variable name.
630032	_SESEQLB	The library is in sequential (tape) format.
630049	_SEDLREC	The record has been deleted from the file.
630052	_SERECRD	No records have been read from the input file.
630053	_SENOLOCK	A record-level lock is not available.
630058	_SENOCHN	The record was not changed because it would cause a duplicate value for an index that does not allow duplicates.
630066	_SENOIDX	The file is not radix addressable.
630087	_SEBDSNM	The filename is not a valid SAS name.
630097	_SELKUSR	The library or library member locked by another user.
630099	_SENOLOCKH	The library or library member is not currently locked.
630100	_SENOALL	_ALL_ is not allowed as part of a filename in this release.
660025	_SENOACC	Member-level access to the data set is denied.

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