

# The SCO Streams Runtime System

Release and Installation Notes

Version 1.0

The Santa Cruz Operation, Inc.

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# **SCO Streams Runtime System Release and Installation Notes Version 1.0**

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SCO Streams  
Runtime System  
Version 1.0  
Release and Installation Notes  
July 11, 1988

## 1. Preface

These notes explain how to install the SCO Streams Runtime System on a computer running SCO XENIX System V, release 2.3.0 or higher, on a 386 computer. Do not attempt this installation on a computer running an earlier version of XENIX, or on a 286 computer.

The Streams Runtime System includes three streams utilities:

strace  
strerr  
strclean

These utilities are placed in the */usr/bin* directory. Manual pages for them are included with these Release and Installation Notes.

## 2. Installation

Follow the steps outlined below to install the SCO Streams Runtime System:

1. As *root*, activate *custom* by entering:  
**custom**
2. Select *Add a Supported Product*
3. You are prompted to insert distribution volume 1. Insert the streams diskette and press <Return>.
4. You see a menu. Select *Install one or more packages*.

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5. You see another menu. Enter **runtime** and press <Return>.
6. You are prompted to insert the SCO Streams Runtime volume 1. Press <Return>. Files are extracted.
7. You see copyright information and are prompted to enter your serial number. Enter your SCO Streams Runtime System serial number and press <Return>.
8. You are prompted for your activation key. Enter your SCO Streams Runtime System activation key and press <Return>.
9. Streams kernel parameters are displayed and you are asked if you want to relink the kernel. You must relink the kernel to use the streams module. Press <y>.
10. You are asked if you want to new kernel to boot by default. If you press <y> */xenix* is copied to */xenix.old* and the relinked kernel, */usr/sys/conf/xenix*, is copied to */xenix*. Press <y>.
11. You are returned to a *custom* menu. Press <q> to return to the XENIX prompt.

The installation of streams is complete. You must now reboot your system to use the new kernel. Do so by entering **/etc/shutdown**.

You can modify the streams parameters that displayed during the installation. If you are interested in doing this, refer to Chapter 8 of the *XENIX System Administrator's Guide* and to *configure(ADM)*.

### 3. Removing Streams

Follow the steps outlined below to remove the SCO Streams Runtime System from your computer:

1. As *root*, activate *custom* by entering the following command:

**custom**

2. Select *SCO Streams Runtime*.
3. Select *Remove one or more packages*.
4. Enter **runtime** and press <Return> .
5. Information about streams kernel parameters is displayed and you are asked if you want to relink the kernel. Press <y>.
6. You are asked if you want to new kernel to boot by default. Press <y>.
7. You are returned to a *custom* menu. Press <q> to return to the XENIX prompt.

You must now reboot the new kernel. Do so by entering **/etc/shutdown**.

#### 4. Distribution

The Streams Runtime System diskette contains the following files:

```
./tmp/_lbl/prd=streamsrt/typ=k386/rel=1.0.0a/vol=01
./tmp/perms/streamsrt
./usr/lib/custom/streamsrt.rmv
./usr/sys/str/libstr.a
./usr/bin/strace
./usr/bin/strclean
./usr/bin/strerr
./shlib/libnsl_s
./tmp/init.streamsr
```

**Name**

`strace` – Prints STREAMS trace messages.

**Syntax**

`strace [ mid sid level ] ...`

**Description**

*strace* without arguments writes all STREAMS event trace messages from all drivers and modules to its standard output. These messages are obtained from the STREAMS log driver [*log(M)*]. If arguments are provided they must be in triplets of the form *mid*, *sid*, *level*, where *mid* is a STREAMS module id number, *sid* is a sub-id number, and *level* is a tracing priority level. Each triplet indicates that tracing messages are to be received from the given module/driver, sub-id (usually indicating minor device), and priority level equal to or less than the given level. The token *all* may be used for any member to indicate no restriction for that attribute.

The format of each trace message output is:

<seq> <time> <ticks> <level> <flags> <mid> <sid> <text>

<seq> trace sequence number

<time> time of message in hh:mm:ss

<ticks> time of message in machine ticks since boot

<level> tracing priority level

<flags> E : message is also in the error log  
 F : indicates a fatal error  
 N : mail was sent to the system administrator

<mid> module id number of source

<sid> sub-id number of source

<text> formatted text of the trace message

Once initiated, *strace* will continue to execute until terminated by the user.

**Examples**

Output all trace messages from the module or driver whose module

id is 41:

```
strace 41 all all
```

Output those trace messages from driver/module id 41 with sub-ids 0, 1, or 2:

```
strace 41 0 1 41 1 1 41 2 0
```

Messages from sub-ids 0 and 1 must have a tracing level less than or equal to 1. Those from sub-id 2 must have a tracing level of 0.

### See Also

log(M)  
*STREAMS Programmer's Guide.*

### Diagnostics

Due to performance considerations, only one *strace* process is permitted to open the STREAMS log driver at a time. The log driver has a list of the triplets specified in the command invocation, and compares each potential trace message against this list to decide if it should be formatted and sent up to the *strace* process. Hence, long lists of triplets will have a greater impact on overall STREAMS performance. Running *strace* will have the most impact on the timing of the modules and drivers generating the trace messages that are sent to the *strace* process. If trace messages are generated faster than the *strace* process can handle them, then some of the messages will be lost. This last case can be determined by examining the sequence numbers on the trace messages output.



**Name**

strerr - STREAMS error logger daemon.

**Syntax**

strerr

**Description**

*strerr* receives error log messages from the STREAMS log driver [*log(M)*] and appends them to a log file. The error log files produced reside in the directory */usr/adm/streams*, and are named **error.mm-dd**, where *mm* is the month and *dd* is the day of the messages contained in each log file.

The format of an error log message is:

<seq> <time> <ticks> <flags> <mid> <sid> <text>

<seq> error sequence number

<time> time of message in hh:mm:ss

<ticks> time of message in machine ticks since boot priority level

<flags> T : the message was also sent to a tracing process  
 F : indicates a fatal error  
 N : send mail to the system administrator

<mid> module id number of source

<sid> sub-id number of source

<text> formatted text of the error message

Messages that appear in the error log are intended to report exceptional conditions that require the attention of the system administrator. Those messages which indicate the total failure of a STREAMS driver or module should have the F flag set. Those messages requiring the immediate attention of the administrator will have the N flag set, which causes the error logger to send the message to the system administrator via *mail(C)*. The priority level usually has no meaning in the error log but will have meaning if the message is also sent to a tracer process.

Once initiated, *strerr* will continue to execute until terminated by the user. Commonly, *strerr* would be executed asynchronously.

**Notes**

Only one *strerr* process at a time is permitted to open the STREAMS log driver.

If a module or driver is generating a large number of error messages, running the error logger will cause a degradation in STREAMS performance. If a large burst of messages are generated in a short time, the log driver may not be able to deliver some of the messages. This situation is indicated by gaps in the sequence numbering of the messages in the log files.

**Files**

*/usr/adm/streams/error.mm-dd*

**See Also**

log(M)  
*STREAMS Programmer's Guide.*

**Name**

strclean - STREAMS error logger cleanup program.

**Syntax**

```
strclean [ -d logdir ] [-a age ]
```

**Description**

*strclean* is used to clean up the STREAMS error logger directory on a regular basis (for example, by using *cron*(C)). By default, all files with names matching **error.\*** in **/usr/adm/streams** that have not been modified in the last 3 days are removed. A directory other than **/usr/adm/streams** can be specified using the **-d** option. The maximum age in days for a log file can be changed using the **-a** option.

**Example**

```
strclean -d /usr/adm/streams -a 3
```

has the same result as running *strclean* with no arguments.

**Notes**

*strclean* is typically run from *cron*(C) on a daily or weekly basis.

**Files**

**/usr/adm/streams/error.\***

**See Also**

**cron**(C), **strerr**(ADM)  
*STREAMS Programmer's Guide*.