NAME

life_cycle−rand − The RAND algorithm life−cycle

DESCRIPTION

All random number generator (RANDs) go through a number of stages in their life-cycle:

start
: This state represents the RAND before it has been allocated. It is the starting state for any life-cycle transitions.

newed
: This state represents the RAND after it has been allocated but unable to generate any output.

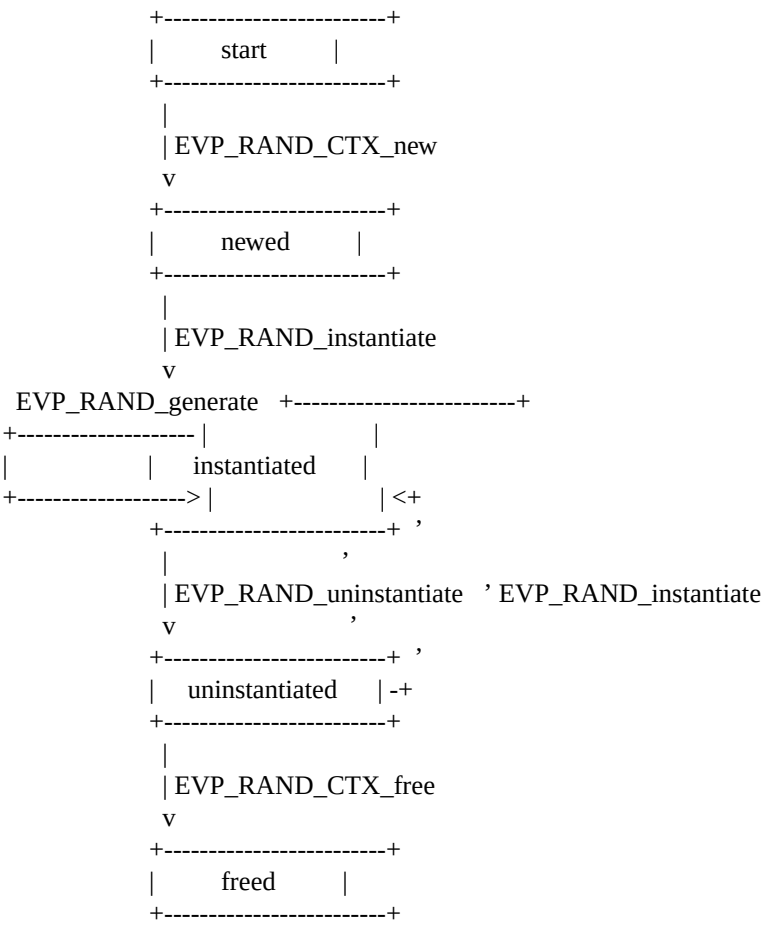
instantiated
: This state represents the RAND when it is set up and capable of generating output.

uninstantiated
: This state represents the RAND when it has been shutdown and it is no longer capable of generating output.

freed
: This state is entered when the RAND is freed. It is the terminal state for all life-cycle transitions.

State Transition Diagram

The usual life-cycle of a RAND is illustrated:



Formal State Transitions

This section defines all of the legal state transitions. This is the canonical list.

Function Call	Current State				
	start	newed	instantiated	uninstantiated	freed

EVP_RAND_CTX_new	newed			
EVP_RAND_instantiate	instantiated			
EVP_RAND_generate	instantiated			
EVP_RAND_uninstantiate	uninstantiated			
EVP_RAND_CTX_free	freed	freed	freed	freed
EVP_RAND_CTX_get_params	newed	instantiated	uninstantiated	freed
EVP_RAND_CTX_set_params	newed	instantiated	uninstantiated	freed
EVP_RAND_CTX_gettable_params	newed	instantiated	uninstantiated	freed
EVP_RAND_CTX_settable_params	newed	instantiated	uninstantiated	freed

NOTES

At some point the EVP layer will begin enforcing the transitions described herein.

SEE ALSO

provider−rand (7), **EVP_RAND** (3).

HISTORY

The provider RAND interface was introduced in OpenSSL 3.0.

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