

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

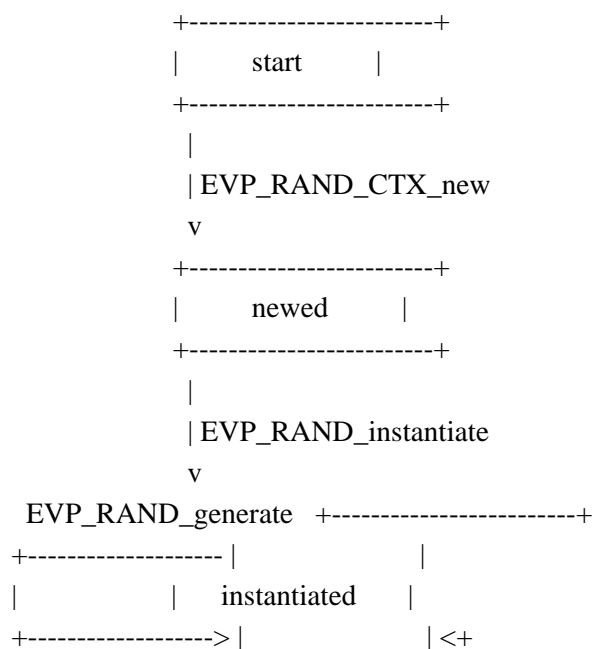
This state represents the RAND when it has been shutdown and it is no longer capable of generating output.

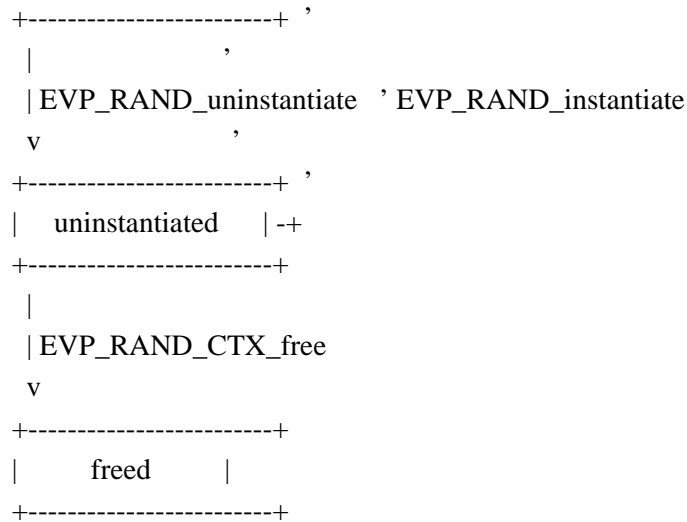
freed

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 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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