

NAME

life_cycle-cipher - The cipher algorithm life-cycle

DESCRIPTION

All symmetric ciphers (CIPHERs) go through a number of stages in their life-cycle:

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

newed

This state represents the CIPHER after it has been allocated.

initialised

These states represent the CIPHER when it is set up and capable of processing input. There are three possible initialised states:

initialised using `EVP_CipherInit`

initialised for decryption using `EVP_DecryptInit`

initialised for encryption using `EVP_EncryptInit`

updated

These states represent the CIPHER when it is set up and capable of processing additional input or generating output. The three possible states directly correspond to those for initialised above. The three different streams should not be mixed.

finalised

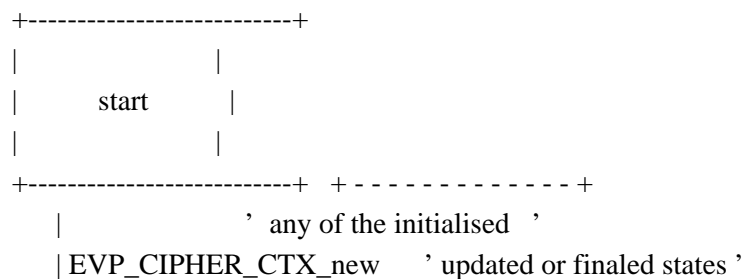
This state represents the CIPHER when it has generated output.

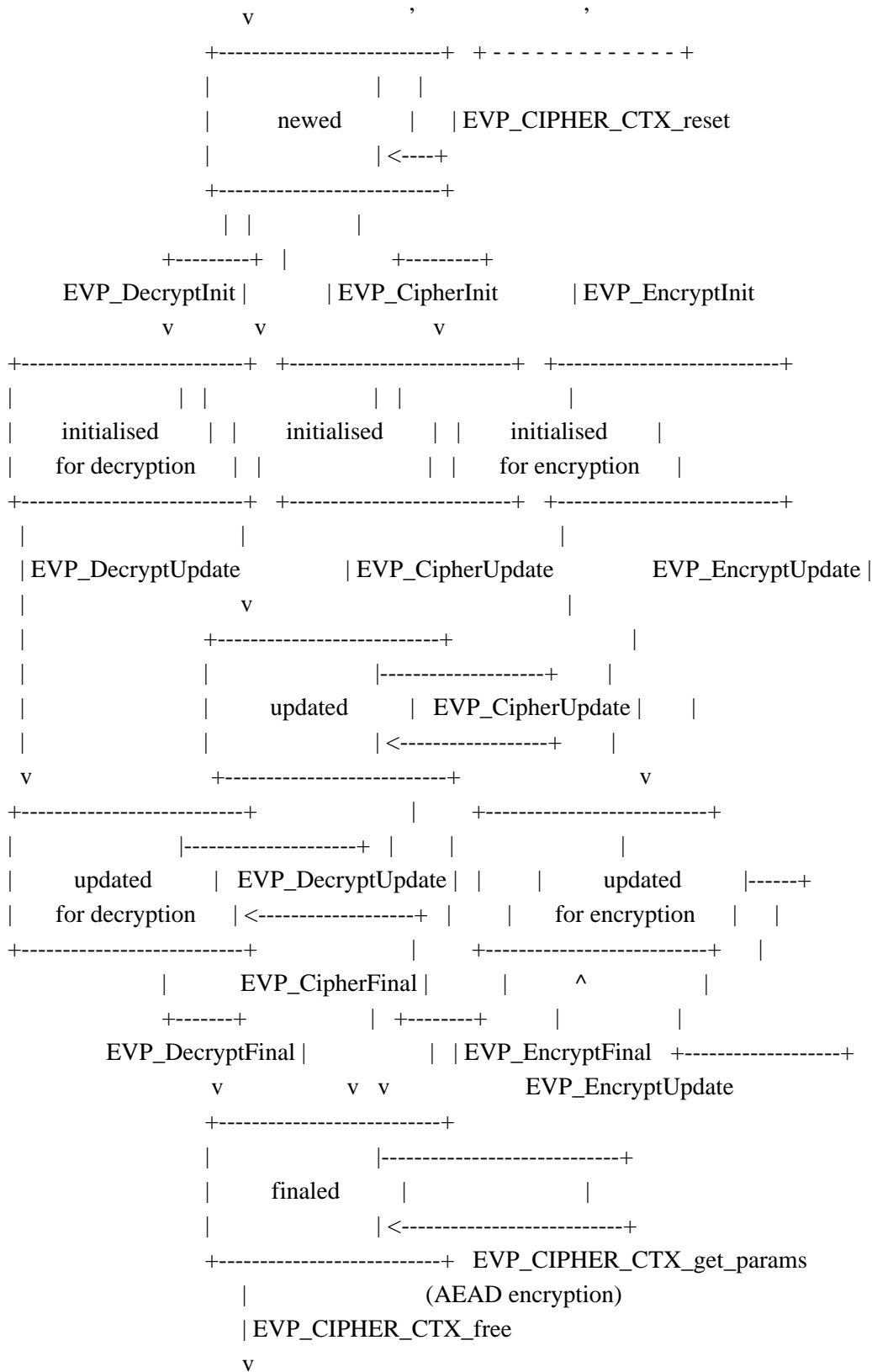
freed

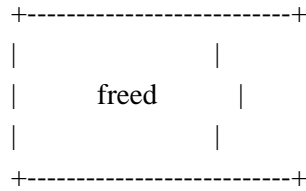
This state is entered when the CIPHER is freed. It is the terminal state for all life-cycle transitions.

State Transition Diagram

The usual life-cycle of a CIPHER is illustrated:







Formal State Transitions

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

Function Call	start	newed	initialised	updated	finalised	initialised	updated	initialised
updated freed								
					decryption	decryption	encryption	encryption
EVP_CIPHER_CTX_new		newed						
EVP_CipherInit	initialised	initialised	initialised	initialised	initialised	initialised	initialised	initialised
EVP_DecryptInit	initialised	initialised	initialised	initialised	initialised	initialised	initialised	initialised
	decryption	decryption	decryption	decryption	decryption	decryption	decryption	decryption
EVP_EncryptInit	initialised	initialised	initialised	initialised	initialised	initialised	initialised	initialised
	encryption	encryption	encryption	encryption	encryption	encryption	encryption	encryption
EVP_CipherUpdate			updated	updated				
EVP_DecryptUpdate					updated	updated		
EVP_EncryptUpdate							updated	updated
							encryption	encryption
EVP_CipherFinal				finalised				
EVP_DecryptFinal					finalised			
EVP_EncryptFinal							finalised	
EVP_CIPHER_CTX_free	freed	freed	freed	freed	freed	freed	freed	freed
EVP_CIPHER_CTX_reset		newed	newed	newed	newed	newed	newed	newed
EVP_CIPHER_CTX_get_params	newed	newed	initialised	updated			initialised	updated
EVP_CIPHER_CTX_set_params					decryption	decryption	encryption	encryption
		newed	initialised	updated			initialised	updated

initialised updated

		decryption	decryption	encryption	encryption
EVP_CIPHER_CTX_gettable_params	newed	initialised	updated	initialised	updated
initialised	updated				

		decryption	decryption	encryption	encryption
EVP_CIPHER_CTX_settable_params	newed	initialised	updated	initialised	updated
initialised	updated				

decryption decryption encryption encryption

NOTES

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

SEE ALSO

provider-cipher(7), **EVP_EncryptInit(3)**

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