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

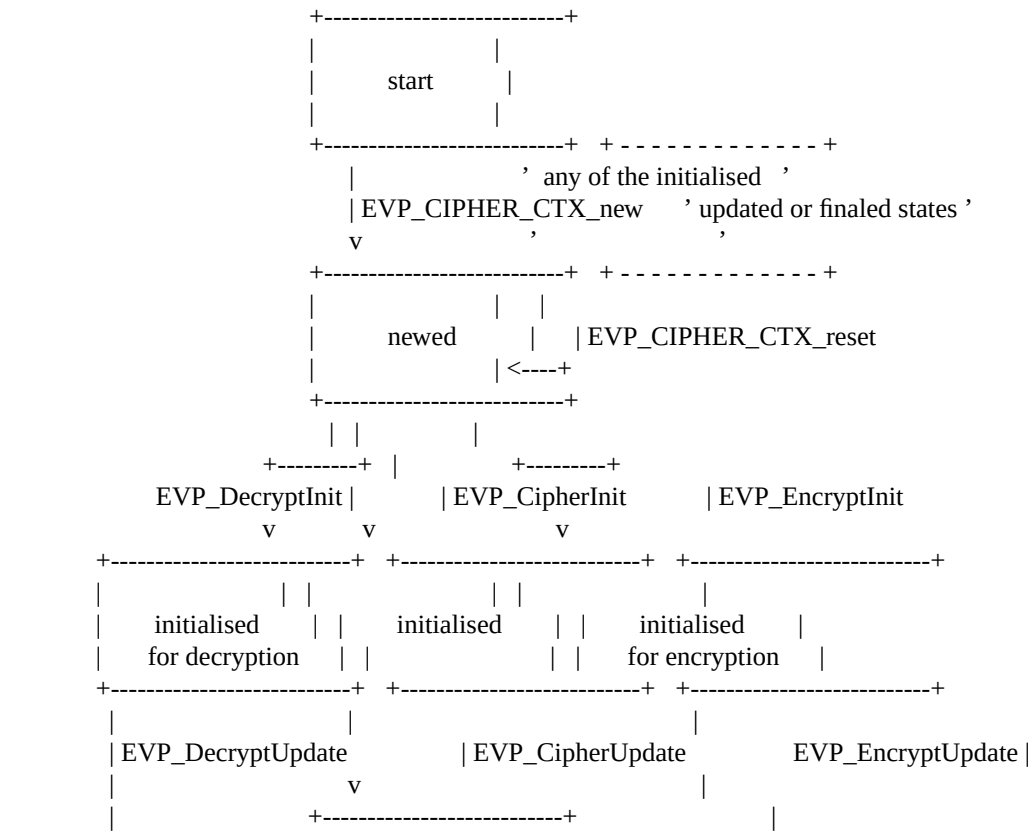
updated
: These states represent the CIPHER when it is set up and capable of processing additional input or generating output. The three possible states directly correspond to those for initialised above. The three different streams should not be mixed.

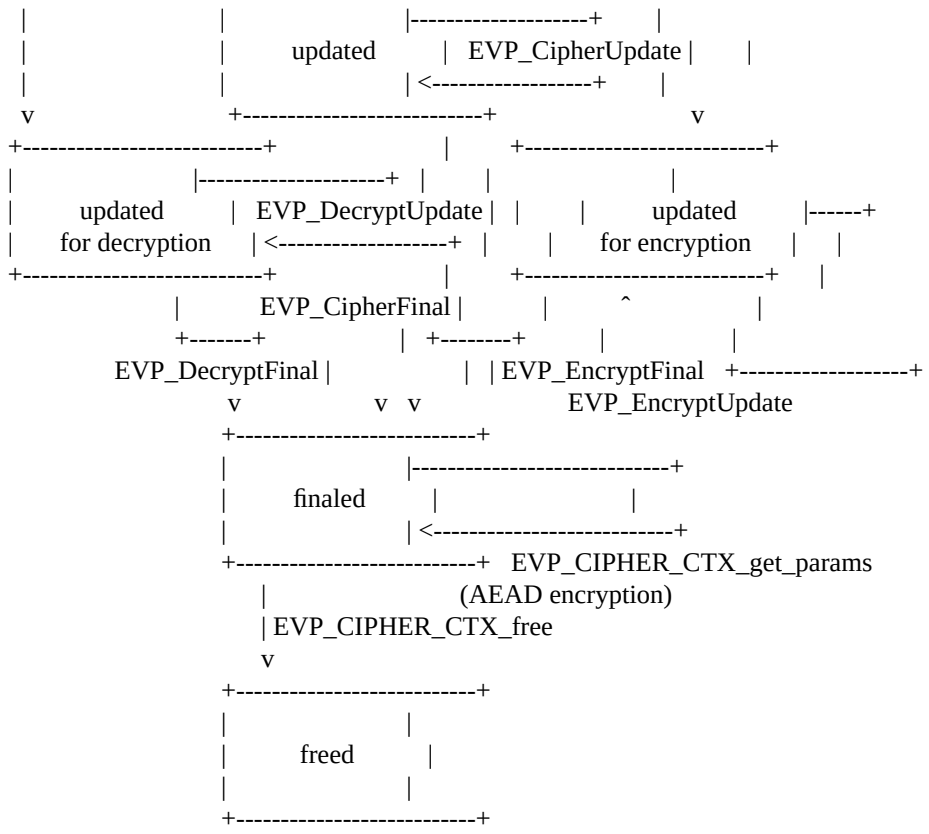
finaled
: This state represents the CIPHER when it has generated output.

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	Current State						
	start	newed	initialised	updated	finaled	initialised	updated	initialised	updated	freed
			decryption	decryption		encryption	encryption			
EVP_CIPHER_CTX_new	newed									
EVP_CipherInit	initialised	initialised	initialised	initialised	initialised	initialised	initialised	initialised	initialised	
EVP_DecryptInit	initialised	initialised	initialised	initialised	initialised	initialised	initialised	initialised	initialised	
	decryption	decryption	decryption	decryption	decryption	decryption	decryption	decryption	decryption	
EVP_EncryptInit	initialised	initialised	initialised	initialised	initialised	initialised	initialised	initialised	initialised	
	encryption	encryption	encryption	encryption	encryption	encryption	encryption	encryption	encryption	
EVP_CipherUpdate			updated	updated						
EVP_DecryptUpdate						updated	updated			
						decryption	decryption			
EVP_EncryptUpdate								updated	updated	
								encryption	encryption	
EVP_CipherFinal					finaled					
EVP_DecryptFinal							finaled			
EVP_EncryptFinal									finaled	
EVP_CIPHER_CTX_free	freed	freed	freed	freed	freed	freed	freed	freed	freed	freed

EVP_CIPHER_CTX_reset	newed	newed	newed	newed	newed	newed	newed	newed	
EVP_CIPHER_CTX_get_params	newed	initialised	updated	initialised	updated	initialised	updated		
				decryption	decryption	encryption	encryption		
EVP_CIPHER_CTX_set_params	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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