

**NAME**

SSL\_CTX\_set\_record\_padding\_callback, SSL\_set\_record\_padding\_callback,  
 SSL\_CTX\_set\_record\_padding\_callback\_arg, SSL\_set\_record\_padding\_callback\_arg,  
 SSL\_CTX\_get\_record\_padding\_callback\_arg, SSL\_get\_record\_padding\_callback\_arg,  
 SSL\_CTX\_set\_block\_padding, SSL\_set\_block\_padding - install callback to specify TLS 1.3 record padding

**SYNOPSIS**

```
#include <openssl/ssl.h>
```

```
void SSL_CTX_set_record_padding_callback(SSL_CTX *ctx, size_t (*cb)(SSL *s, int type, size_t len, void *arg));
int SSL_set_record_padding_callback(SSL *ssl, size_t (*cb)(SSL *s, int type, size_t len, void *arg));
```

```
void SSL_CTX_set_record_padding_callback_arg(SSL_CTX *ctx, void *arg);
void *SSL_CTX_get_record_padding_callback_arg(const SSL_CTX *ctx);
```

```
void SSL_set_record_padding_callback_arg(SSL *ssl, void *arg);
void *SSL_get_record_padding_callback_arg(const SSL *ssl);
```

```
int SSL_CTX_set_block_padding(SSL_CTX *ctx, size_t block_size);
int SSL_set_block_padding(SSL *ssl, size_t block_size);
```

**DESCRIPTION**

**SSL\_CTX\_set\_record\_padding\_callback()** or **SSL\_set\_record\_padding\_callback()** can be used to assign a callback function *cb* to specify the padding for TLS 1.3 records. The value set in **ctx** is copied to a new SSL by **SSL\_new()**. Kernel TLS is not possible if the record padding callback is set, and the callback function cannot be set if Kernel TLS is already configured for the current SSL object.

**SSL\_CTX\_set\_record\_padding\_callback\_arg()** and **SSL\_set\_record\_padding\_callback\_arg()** assign a value **arg** that is passed to the callback when it is invoked. The value set in **ctx** is copied to a new SSL by **SSL\_new()**.

**SSL\_CTX\_get\_record\_padding\_callback\_arg()** and **SSL\_get\_record\_padding\_callback\_arg()** retrieve the **arg** value that is passed to the callback.

**SSL\_CTX\_set\_block\_padding()** and **SSL\_set\_block\_padding()** pads the record to a multiple of the **block\_size**. A **block\_size** of 0 or 1 disables block padding. The limit of **block\_size** is `SSL3_RT_MAX_PLAIN_LENGTH`.

The callback is invoked for every record before encryption. The **type** parameter is the TLS record type

that is being processed; may be one of `SSL3_RT_APPLICATION_DATA`, `SSL3_RT_HANDSHAKE`, or `SSL3_RT_ALERT`. The `len` parameter is the current plaintext length of the record before encryption. The `arg` parameter is the value set via `SSL_CTX_set_record_padding_callback_arg()` or `SSL_set_record_padding_callback_arg()`.

## RETURN VALUES

The `SSL_CTX_get_record_padding_callback_arg()` and `SSL_get_record_padding_callback_arg()` functions return the `arg` value assigned in the corresponding set functions.

The `SSL_CTX_set_block_padding()` and `SSL_set_block_padding()` functions return 1 on success or 0 if `block_size` is too large.

The `cb` returns the number of padding bytes to add to the record. A return of 0 indicates no padding will be added. A return value that causes the record to exceed the maximum record size (`SSL3_RT_MAX_PLAIN_LENGTH`) will pad out to the maximum record size.

The `SSL_CTX_get_record_padding_callback_arg()` function returns 1 on success or 0 if the callback function is not set because Kernel TLS is configured for the SSL object.

## NOTES

The default behavior is to add no padding to the record.

A user-supplied padding callback function will override the behavior set by `SSL_set_block_padding()` or `SSL_CTX_set_block_padding()`. Setting the user-supplied callback to NULL will restore the configured block padding behavior.

These functions only apply to TLS 1.3 records being written.

Padding bytes are not added in constant-time.

## SEE ALSO

`ssl(7)`, `SSL_new(3)`

## HISTORY

The record padding API was added for TLS 1.3 support in OpenSSL 1.1.1.

The return type of `SSL_CTX_set_record_padding_callback()` function was changed to `int` in OpenSSL 3.0.

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