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***Rocky Enterprise Linux 9.2 Manual Pages on command 'EVP\_PKEY\_get1\_encoded\_public\_key.3ossl'***

***\$ man EVP\_PKEY\_get1\_encoded\_public\_key.3ossl***

***EVP\_PKEY\_SET1\_ENCODED\_PUBLIC\_KEY(3osOpeEVP\_PKEY\_SET1\_ENCODED\_PUBLIC\_KEY(3ossl)***

#### NAME

***EVP\_PKEY\_set1\_encoded\_public\_key, EVP\_PKEY\_get1\_encoded\_public\_key, EVP\_PKEY\_set1\_tls\_encodedpoint, EVP\_PKEY\_get1\_tls\_encodedpoint - functions to set and get public key data within an EVP\_PKEY***

#### SYNOPSIS

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

```
int EVP_PKEY_set1_encoded_public_key(EVP_PKEY *pkey,  
                                     const unsigned char *pub, size_t publen);
```

```
size_t EVP_PKEY_get1_encoded_public_key(EVP_PKEY *pkey, unsigned char **ppub);
```

The following functions have been deprecated since OpenSSL 3.0, and can be hidden entirely by defining OPENSSL\_API\_COMPAT with a suitable version value, see openssl\_user\_macros(7):

```
int EVP_PKEY_set1_tls_encodedpoint(EVP_PKEY *pkey,
                                   const unsigned char *pt, size_t ptlen);

size_t EVP_PKEY_get1_tls_encodedpoint(EVP_PKEY *pkey, unsigned char **ppt);
```

## DESCRIPTION

`EVP_PKEY_set1_encoded_public_key()` can be used to set the public key value within an existing `EVP_PKEY` object. For the built-in OpenSSL algorithms this currently only works for those that support key exchange. Parameters are not set as part of this operation, so typically an application will create an `EVP_PKEY` first, set the parameters on it, and then call this function. For example setting the parameters might be done using `EVP_PKEY_copy_parameters(3)`.

The format for the encoded public key will depend on the algorithm in use. For DH it should be encoded as a positive integer in big-endian form. For EC it should be a point conforming to Sec. 2.3.4 of the SECG SEC 1 ("Elliptic Curve Cryptography") standard. For X25519 and X448 it should be encoded in a format as defined by RFC7748.

The key to be updated is supplied in `pkey`. The buffer containing the encoded key is pointed to be `pub`. The length of the buffer is supplied in `publen`.

`EVP_PKEY_get1_encoded_public_key()` does the equivalent operation except that the encoded public key is returned to the application. The key containing the public key data is supplied in `pkey`. A buffer containing the encoded key will be allocated and stored in `*ppub`. The length of the encoded public key is returned by the function. The application is responsible for freeing the allocated buffer.

The macro `EVP_PKEY_set1_tls_encodedpoint()` is deprecated and simply

calls `EVP_PKEY_set1_encoded_public_key()` with all the same arguments.

New applications should use `EVP_PKEY_set1_encoded_public_key()` instead.

The macro `EVP_PKEY_get1_tls_encodedpoint()` is deprecated and simply

calls `EVP_PKEY_get1_encoded_public_key()` with all the same arguments.

New applications should use `EVP_PKEY_get1_encoded_public_key()` instead.

## RETURN VALUES

`EVP_PKEY_set1_encoded_public_key()` returns 1 for success and 0 or a negative value for failure.

`EVP_PKEY_get1_encoded_public_key()` return 1

## EXAMPLES

See `EVP_PKEY_derive_init(3)` and `EVP_PKEY_derive(3)` for information about performing a key exchange operation.

Set up a peer's `EVP_PKEY` ready for a key exchange operation

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

int exchange(EVP_PKEY *ourkey, unsigned char *peer_pub, size_t peer_pub_len)
{
    EVP_PKEY *peerkey = EVP_PKEY_new();

    if (peerkey == NULL || EVP_PKEY_copy_parameters(peerkey, ourkey) <= 0)
        return 0;

    if (EVP_PKEY_set1_encoded_public_key(peerkey, peer_pub,
                                         peer_pub_len) <= 0)
        return 0;

    /* Do the key exchange here */
}
```

```
EVP_PKEY_free(peerkey);

return 1;
}
```

Get an encoded public key to send to a peer

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

int get_encoded_pub_key(EVP_PKEY *ourkey)
{
    unsigned char *pubkey;
    size_t pubkey_len;

    pubkey_len = EVP_PKEY_get1_encoded_public_key(ourkey, &pubkey);
    if (pubkey_len == 0)
        return 0;

    /*
     * Send the encoded public key stored in the buffer at "pubkey" and of
     * length pubkey_len, to the peer.
     */

    OPENSSL_free(pubkey);

    return 1;
}
```

#### SEE ALSO

EVP\_PKEY\_new(3), EVP\_PKEY\_copy\_parameters(3), EVP\_PKEY\_derive\_init(3),  
EVP\_PKEY\_derive(3), EVP\_PKEY-DH(7), EVP\_PKEY-EC(7), EVP\_PKEY-X25519(7),  
EVP\_PKEY-X448(7)

#### HISTORY

EVP\_PKEY\_set1\_encoded\_public\_key() and

EVP\_PKEY\_get1\_encoded\_public\_key() were added in OpenSSL 3.0.

EVP\_PKEY\_set1\_tls\_encodedpoint() and EVP\_PKEY\_get1\_tls\_encodedpoint() were deprecated in OpenSSL 3.0.

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