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### ***Rocky Enterprise Linux 9.2 Manual Pages on command 'EVP\_MD\_meth\_set\_final.3ossl'***

***\$ man EVP\_MD\_meth\_set\_final.3ossl***

EVP\_MD\_METH\_NEW(3ossl)          OpenSSL          EVP\_MD\_METH\_NEW(3ossl)

#### NAME

EVP\_MD\_meth\_new, EVP\_MD\_meth\_dup, EVP\_MD\_meth\_free,  
EVP\_MD\_meth\_set\_input\_blocksize, EVP\_MD\_meth\_set\_result\_size,  
EVP\_MD\_meth\_set\_app\_datasize, EVP\_MD\_meth\_set\_flags,  
EVP\_MD\_meth\_set\_init, EVP\_MD\_meth\_set\_update, EVP\_MD\_meth\_set\_final,  
EVP\_MD\_meth\_set\_copy, EVP\_MD\_meth\_set\_cleanup, EVP\_MD\_meth\_set\_ctrl,  
EVP\_MD\_meth\_get\_input\_blocksize, EVP\_MD\_meth\_get\_result\_size,  
EVP\_MD\_meth\_get\_app\_datasize, EVP\_MD\_meth\_get\_flags,  
EVP\_MD\_meth\_get\_init, EVP\_MD\_meth\_get\_update, EVP\_MD\_meth\_get\_final,  
EVP\_MD\_meth\_get\_copy, EVP\_MD\_meth\_get\_cleanup, EVP\_MD\_meth\_get\_ctrl -  
Routines to build up legacy EVP\_MD methods

#### SYNOPSIS

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

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):

```
EVP_MD *EVP_MD_meth_new(int md_type, int pkey_type);
void EVP_MD_meth_free(EVP_MD *md);
EVP_MD *EVP_MD_meth_dup(const EVP_MD *md);

int EVP_MD_meth_set_input_blocksize(EVP_MD *md, int blocksize);
int EVP_MD_meth_set_result_size(EVP_MD *md, int resultsize);
int EVP_MD_meth_set_app_datasize(EVP_MD *md, int datasize);
int EVP_MD_meth_set_flags(EVP_MD *md, unsigned long flags);
int EVP_MD_meth_set_init(EVP_MD *md, int (*init)(EVP_MD_CTX *ctx));
int EVP_MD_meth_set_update(EVP_MD *md, int (*update)(EVP_MD_CTX *ctx,
              const void *data,
              size_t count));
int EVP_MD_meth_set_final(EVP_MD *md, int (*final)(EVP_MD_CTX *ctx,
              unsigned char *md));
int EVP_MD_meth_set_copy(EVP_MD *md, int (*copy)(EVP_MD_CTX *to,
              const EVP_MD_CTX *from));
int EVP_MD_meth_set_cleanup(EVP_MD *md, int (*cleanup)(EVP_MD_CTX *ctx));
int EVP_MD_meth_set_ctrl(EVP_MD *md, int (*ctrl)(EVP_MD_CTX *ctx, int cmd,
              int p1, void *p2));

int EVP_MD_meth_get_input_blocksize(const EVP_MD *md);
int EVP_MD_meth_get_result_size(const EVP_MD *md);
int EVP_MD_meth_get_app_datasize(const EVP_MD *md);
unsigned long EVP_MD_meth_get_flags(const EVP_MD *md);
int (*EVP_MD_meth_get_init(const EVP_MD *md))(EVP_MD_CTX *ctx);
int (*EVP_MD_meth_get_update(const EVP_MD *md))(EVP_MD_CTX *ctx,
              const void *data,
              size_t count);
int (*EVP_MD_meth_get_final(const EVP_MD *md))(EVP_MD_CTX *ctx,
              unsigned char *md);
```

```
int (*EVP_MD_meth_get_copy(const EVP_MD *md))(EVP_MD_CTX *to,  
                                               const EVP_MD_CTX *from);  
int (*EVP_MD_meth_get_cleanup(const EVP_MD *md))(EVP_MD_CTX *ctx);  
int (*EVP_MD_meth_get_ctrl(const EVP_MD *md))(EVP_MD_CTX *ctx, int cmd,  
                                               int p1, void *p2);
```

## DESCRIPTION

All of the functions described on this page are deprecated.

Applications should instead use the OSSL\_PROVIDER APIs.

The `EVP_MD` type is a structure for digest method implementation. It can also have associated public/private key signing and verifying routines.

`EVP_MD_meth_new()` creates a new `EVP_MD` structure. These `EVP_MD` structures are reference counted.

`EVP_MD_meth_dup()` creates a copy of `md`.

`EVP_MD_meth_free()` decrements the reference count for the `EVP_MD` structure. If the reference count drops to 0 then the structure is freed.

`EVP_MD_meth_set_input_blocksize()` sets the internal input block size for the method `md` to `blocksize` bytes.

`EVP_MD_meth_set_result_size()` sets the size of the result that the digest method in `md` is expected to produce to `resultsize` bytes.

The digest method may have its own private data, which OpenSSL will allocate for it. `EVP_MD_meth_set_app_datasize()` should be used to set the size for it to `datasize`.

`EVP_MD_meth_set_flags()` sets the flags to describe optional behaviours in the particular md. Several flags can be or'd together. The available flags are:

#### `EVP_MD_FLAG_ONESHOT`

This digest method can only handle one block of input.

#### `EVP_MD_FLAG_XOF`

This digest method is an extensible-output function (XOF) and supports the `EVP_MD_CTRL_XOF_LEN` control.

#### `EVP_MD_FLAG_DIGALGID_NULL`

When setting up a `DigestAlgorithmIdentifier`, this flag will have the parameter set to `NULL` by default. Use this for PKCS#1. Note: if combined with `EVP_MD_FLAG_DIGALGID_ABSENT`, the latter will override.

#### `EVP_MD_FLAG_DIGALGID_ABSENT`

When setting up a `DigestAlgorithmIdentifier`, this flag will have the parameter be left absent by default. Note: if combined with `EVP_MD_FLAG_DIGALGID_NULL`, the latter will be overridden.

#### `EVP_MD_FLAG_DIGALGID_CUSTOM`

Custom `DigestAlgorithmIdentifier` handling via `ctrl`, with `EVP_MD_FLAG_DIGALGID_ABSENT` as default. Note: if combined with `EVP_MD_FLAG_DIGALGID_NULL`, the latter will be overridden.

Currently unused.

#### `EVP_MD_FLAG_FIPS`

This digest method is suitable for use in FIPS mode. Currently unused.

`EVP_MD_meth_set_init()` sets the digest init function for md. The

digest init function is called by `EVP_Digest()`, `EVP_DigestInit()`,  
`EVP_DigestInit_ex()`, `EVP_SignInit`, `EVP_SignInit_ex()`, `EVP_VerifyInit()`  
and `EVP_VerifyInit_ex()`.

`EVP_MD_meth_set_update()` sets the digest update function for md. The  
digest update function is called by `EVP_Digest()`, `EVP_DigestUpdate()`  
and `EVP_SignUpdate()`.

`EVP_MD_meth_set_final()` sets the digest final function for md. The  
digest final function is called by `EVP_Digest()`, `EVP_DigestFinal()`,  
`EVP_DigestFinal_ex()`, `EVP_SignFinal()` and `EVP_VerifyFinal()`.

`EVP_MD_meth_set_copy()` sets the function for md to do extra  
computations after the method's private data structure has been copied  
from one `EVP_MD_CTX` to another. If all that's needed is to copy the  
data, there is no need for this copy function. Note that the copy  
function is passed two `EVP_MD_CTX *`, the private data structure is then  
available with `EVP_MD_CTX_get0_md_data()`. This copy function is called  
by `EVP_MD_CTX_copy()` and `EVP_MD_CTX_copy_ex()`.

`EVP_MD_meth_set_cleanup()` sets the function for md to do extra cleanup  
before the method's private data structure is cleaned out and freed.  
Note that the cleanup function is passed a `EVP_MD_CTX *`, the private  
data structure is then available with `EVP_MD_CTX_get0_md_data()`. This  
cleanup function is called by `EVP_MD_CTX_reset()` and `EVP_MD_CTX_free()`.

`EVP_MD_meth_set_ctrl()` sets the control function for md. See  
`EVP_MD_CTX_ctrl(3)` for the available controls.

`EVP_MD_meth_get_input_blocksize()`, `EVP_MD_meth_get_result_size()`,  
`EVP_MD_meth_get_app_datasize()`, `EVP_MD_meth_get_flags()`,  
`EVP_MD_meth_get_init()`, `EVP_MD_meth_get_update()`,  
`EVP_MD_meth_get_final()`, `EVP_MD_meth_get_copy()`,

EVP\_MD\_meth\_get\_cleanup() and EVP\_MD\_meth\_get\_ctrl() are all used to retrieve the method data given with the EVP\_MD\_meth\_set\_\*( ) functions above.

## RETURN VALUES

EVP\_MD\_meth\_new() and EVP\_MD\_meth\_dup() return a pointer to a newly created EVP\_MD, or NULL on failure. All EVP\_MD\_meth\_set\_\*( ) functions return 1. EVP\_MD\_get\_input\_blocksize(), EVP\_MD\_meth\_get\_result\_size(), EVP\_MD\_meth\_get\_app\_datasize() and EVP\_MD\_meth\_get\_flags() return the indicated sizes or flags. All other EVP\_CIPHER\_meth\_get\_\*( ) functions return pointers to their respective md function.

## SEE ALSO

EVP\_DigestInit(3), EVP\_SignInit(3), EVP\_VerifyInit(3)

## HISTORY

All of these functions were deprecated in OpenSSL 3.0.

The EVP\_MD structure was openly available in OpenSSL before version 1.1. The functions described here were added in OpenSSL 1.1. The EVP\_MD structure created with these functions became reference counted in OpenSSL 3.0.

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