

NAME

EVP_SIGNATURE, EVP_SIGNATURE_fetch, EVP_SIGNATURE_free, EVP_SIGNATURE_up_ref, EVP_SIGNATURE_is_a, EVP_SIGNATURE_get0_provider, EVP_SIGNATURE_do_all_provided, EVP_SIGNATURE_names_do_all, EVP_SIGNATURE_get0_name, EVP_SIGNATURE_get0_description, EVP_SIGNATURE_gettable_ctx_params, EVP_SIGNATURE_settable_ctx_params - Functions to manage EVP_SIGNATURE algorithm objects

SYNOPSIS

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

```
typedef struct evp_signature_st EVP_SIGNATURE;
```

```
EVP_SIGNATURE *EVP_SIGNATURE_fetch(OSSL_LIB_CTX *ctx, const char *algorithm,
                                   const char *properties);
```

```
void EVP_SIGNATURE_free(EVP_SIGNATURE *signature);
```

```
int EVP_SIGNATURE_up_ref(EVP_SIGNATURE *signature);
```

```
const char *EVP_SIGNATURE_get0_name(const EVP_SIGNATURE *signature);
```

```
int EVP_SIGNATURE_is_a(const EVP_SIGNATURE *signature, const char *name);
```

```
OSSL_PROVIDER *EVP_SIGNATURE_get0_provider(const EVP_SIGNATURE *signature);
```

```
void EVP_SIGNATURE_do_all_provided(OSSL_LIB_CTX *libctx,
```

```
    void (*fn)(EVP_SIGNATURE *signature,
```

```
            void *arg),
```

```
    void *arg);
```

```
int EVP_SIGNATURE_names_do_all(const EVP_SIGNATURE *signature,
```

```
    void (*fn)(const char *name, void *data),
```

```
    void *data);
```

```
const char *EVP_SIGNATURE_get0_name(const EVP_SIGNATURE *signature);
```

```
const char *EVP_SIGNATURE_get0_description(const EVP_SIGNATURE *signature);
```

```
const OSSL_PARAM *EVP_SIGNATURE_gettable_ctx_params(const EVP_SIGNATURE *sig);
```

```
const OSSL_PARAM *EVP_SIGNATURE_settable_ctx_params(const EVP_SIGNATURE *sig);
```

DESCRIPTION

EVP_SIGNATURE_fetch() fetches the implementation for the given **algorithm** from any provider offering it, within the criteria given by the **properties**. The algorithm will be one offering functions for performing signature related tasks such as signing and verifying. See "ALGORITHM FETCHING" in **crypto(7)** for further information.

The returned value must eventually be freed with **EVP_SIGNATURE_free()**.

EVP_SIGNATURE_free() decrements the reference count for the **EVP_SIGNATURE** structure. Typically this structure will have been obtained from an earlier call to **EVP_SIGNATURE_fetch()**. If the reference count drops to 0 then the structure is freed.

EVP_SIGNATURE_up_ref() increments the reference count for an **EVP_SIGNATURE** structure.

EVP_SIGNATURE_is_a() returns 1 if *signature* is an implementation of an algorithm that's identifiable with *name*, otherwise 0.

EVP_SIGNATURE_get0_provider() returns the provider that *signature* was fetched from.

EVP_SIGNATURE_do_all_provided() traverses all SIGNATURE implemented by all activated providers in the given library context *libctx*, and for each of the implementations, calls the given function *fn* with the implementation method and the given *arg* as argument.

EVP_SIGNATURE_get0_name() returns the algorithm name from the provided implementation for the given *signature*. Note that the *signature* may have multiple synonyms associated with it. In this case the first name from the algorithm definition is returned. Ownership of the returned string is retained by the *signature* object and should not be freed by the caller.

EVP_SIGNATURE_names_do_all() traverses all names for *signature*, and calls *fn* with each name and *data*.

EVP_SIGNATURE_get0_description() returns a description of the *signature*, meant for display and human consumption. The description is at the discretion of the *signature* implementation.

EVP_SIGNATURE_gettable_ctx_params() and **EVP_SIGNATURE_settable_ctx_params()** return a constant **OSSL_PARAM(3)** array that describes the names and types of key parameters that can be retrieved or set by a signature algorithm using **EVP_PKEY_CTX_get_params(3)** and **EVP_PKEY_CTX_set_params(3)**.

RETURN VALUES

EVP_SIGNATURE_fetch() returns a pointer to an **EVP_SIGNATURE** for success or **NULL** for failure.

EVP_SIGNATURE_up_ref() returns 1 for success or 0 otherwise.

EVP_SIGNATURE_names_do_all() returns 1 if the callback was called for all names. A return value of 0 means that the callback was not called for any names.

EVP_SIGNATURE_gettable_ctx_params() and **EVP_SIGNATURE_settable_ctx_params()** return a constant **OSSL_PARAM(3)** array or **NULL** on error.

SEE ALSO

"ALGORITHM FETCHING" in **crypto(7)**, **OSSL_PROVIDER(3)**

HISTORY

The functions described here were added in OpenSSL 3.0.

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