



## **Red Hat Enterprise Linux Release 9.2 Manual Pages on 'provider-storemgmt.7oss1' command**

**\$ man provider-storemgmt.7oss1**

PROVIDER-STOREMGMT(7oss1)      OpenSSL      PROVIDER-STOREMGMT(7oss1)

NAME

provider-storemgmt - The OSSL\_STORE library <-> provider functions

SYNOPSIS

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

/*
 * None of these are actual functions, but are displayed like this for
 * the function signatures for functions that are offered as function
 * pointers in OSSL_DISPATCH arrays.
 */

void *OSSL_FUNC_store_open(void *provctx, const char *uri);
void *OSSL_FUNC_store_attach(void *provctx, OSSL_CORE_BIO *bio);
const OSSL_PARAM *store_settable_ctx_params(void *provctx);
int OSSL_FUNC_store_set_ctx_params(void *loaderctx, const OSSL_PARAM[]);
int OSSL_FUNC_store_load(void *loaderctx,
                        OSSL_CALLBACK *object_cb, void *object_cbarg,
                        OSSL_PASSPHRASE_CALLBACK *pw_cb, void *pw_cbarg);
int OSSL_FUNC_store_eof(void *loaderctx);
int OSSL_FUNC_store_close(void *loaderctx);
int OSSL_FUNC_store_export_object
(void *loaderctx, const void *objref, size_t objref_sz,
 OSSL_CALLBACK *export_cb, void *export_cbarg);
```

DESCRIPTION

The STORE operation is the provider side of the `ossl_store(7)` API.

The primary responsibility of the STORE operation is to load all sorts of objects from a container indicated by URI. These objects are given to the OpenSSL library in provider-native object abstraction form (see `provider-object(7)`). The OpenSSL library is then responsible for passing on that abstraction to suitable provided functions.

Examples of functions that the OpenSSL library can pass the abstraction to include `OSSL_FUNC_keymgmt_load()` (`provider-keymgmt(7)`), `OSSL_FUNC_store_export_object()` (which exports the object in parameterized form).

All "functions" mentioned here are passed as function pointers between `libcrypto` and the provider in `OSSL_DISPATCH` arrays via `OSSL_ALGORITHM` arrays that are returned by the provider's `provider_query_operation()` function (see "Provider Functions" in `provider-base(7)`).

All these "functions" have a corresponding function type definition named `OSSL_FUNC_{name}_fn`, and a helper function to retrieve the function pointer from a `OSSL_DISPATCH` element named `OSSL_get_{name}`.

For example, the "function" `OSSL_FUNC_store_attach()` has these:

```
typedef void *(OSSL_FUNC_store_attach_fn)(void *provctx,  
                                           OSSL_CORE_BIO * bio);  
  
static ossl_inline OSSL_FUNC_store_attach_fn
```

```
    OSSL_FUNC_store_attach(const OSSL_DISPATCH *opf);
```

`OSSL_DISPATCH` arrays are indexed by numbers that are provided as macros in `openssl-core_dispatch.h(7)`, as follows:

```
OSSL_FUNC_store_open           OSSL_FUNC_STORE_OPEN  
OSSL_FUNC_store_attach        OSSL_FUNC_STORE_ATTACH  
OSSL_FUNC_store_settable_ctx_params OSSL_FUNC_STORE_SETTABLE_CTX_PARAMS  
OSSL_FUNC_store_set_ctx_params OSSL_FUNC_STORE_SET_CTX_PARAMS  
OSSL_FUNC_store_load          OSSL_FUNC_STORE_LOAD  
OSSL_FUNC_store_eof           OSSL_FUNC_STORE_EOF  
OSSL_FUNC_store_close         OSSL_FUNC_STORE_CLOSE  
OSSL_FUNC_store_export_object OSSL_FUNC_STORE_EXPORT_OBJECT
```

OSSL\_FUNC\_store\_open() should create a provider side context with data based on the input uri. The implementation is entirely responsible for the interpretation of the URI.

OSSL\_FUNC\_store\_attach() should create a provider side context with the core BIO bio attached. This is an alternative to using a URI to find storage, supporting OSSL\_STORE\_attach(3).

OSSL\_FUNC\_store\_settable\_ctx\_params() should return a constant array of descriptor OSSL\_PARAM, for parameters that

OSSL\_FUNC\_store\_set\_ctx\_params() can handle.

OSSL\_FUNC\_store\_set\_ctx\_params() should set additional parameters, such as what kind of data to expect, search criteria, and so on. More on those below, in "Load Parameters". Whether unrecognised parameters are an error or simply ignored is at the implementation's discretion.

Passing NULL for params should return true.

OSSL\_FUNC\_store\_load() loads the next object from the URI opened by OSSL\_FUNC\_store\_open(), creates an object abstraction for it (see provider-object(7)), and calls object\_cb with it as well as object\_cbarg. object\_cb will then interpret the object abstraction and do what it can to wrap it or decode it into an OpenSSL structure. In case a passphrase needs to be prompted to unlock an object, pw\_cb should be called.

OSSL\_FUNC\_store\_eof() indicates if the end of the set of objects from the URI has been reached. When that happens, there's no point trying to do any further loading.

OSSL\_FUNC\_store\_close() frees the provider side context ctx.

When a provider-native object is created by a store manager it would be unsuitable for direct use with a foreign provider. The export function allows for exporting the object to that foreign provider if the foreign provider supports the type of the object and provides an import function.

OSSL\_FUNC\_store\_export\_object() should export the object of size objref\_sz referenced by objref as an OSSL\_PARAM array and pass that to the export\_cb as well as the given export\_cbarg.

## Load Parameters

"expect" (OSSL\_STORE\_PARAM\_EXPECT) <integer>

Is a hint of what type of data the OpenSSL library expects to get.

This is only useful for optimization, as the library will check that the object types match the expectation too.

The number that can be given through this parameter is found in <openssl/store.h>, with the macros having names starting with "OSSL\_STORE\_INFO\_". These are further described in "SUPPORTED OBJECTS" in OSSL\_STORE\_INFO(3).

"subject" (OSSL\_STORE\_PARAM\_SUBJECT) <octet string>

Indicates that the caller wants to search for an object with the given subject associated. This can be used to select specific certificates by subject.

The contents of the octet string is expected to be in DER form.

"issuer" (OSSL\_STORE\_PARAM\_ISSUER) <octet string>

Indicates that the caller wants to search for an object with the given issuer associated. This can be used to select specific certificates by issuer.

The contents of the octet string is expected to be in DER form.

"serial" (OSSL\_STORE\_PARAM\_SERIAL) <integer>

Indicates that the caller wants to search for an object with the given serial number associated.

"digest" (OSSL\_STORE\_PARAM\_DIGEST) <UTF8 string>

"fingerprint" (OSSL\_STORE\_PARAM\_FINGERPRINT) <octet string>

Indicates that the caller wants to search for an object with the given fingerprint, computed with the given digest.

"alias" (OSSL\_STORE\_PARAM\_ALIAS) <UTF8 string>

Indicates that the caller wants to search for an object with the given alias (some call it a "friendly name").

"properties" (OSSL\_STORE\_PARAM\_PROPERTIES) <utf8 string>

Property string to use when querying for algorithms such as the OSSL\_DECODER decoder implementations.

"input-type" (OSSL\_STORE\_PARAM\_INPUT\_TYPE) <utf8 string>

Type of the input format as a hint to use when decoding the objects in the store.

Several of these search criteria may be combined. For example, to search for a certificate by issuer+serial, both the "issuer" and the "serial" parameters will be given.

#### SEE ALSO

provider(7)

#### HISTORY

The STORE interface was introduced in OpenSSL 3.0.

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