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Rocky Enterprise Linux 9.2 Manual Pages on command 'provider-storemgmt.7ssl'

\$ man provider-storemgmt.7ssl

PROVIDER-STOREMGMT(7SSL) OpenSSL PROVIDER-STOREMGMT(7SSL)

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_load()` has these:

```
typedef void *(OSSL_OSSL_FUNC_store_load_fn)(void *provctx,  
                                             const OSSL_PARAM params[]);
```

```
static ossl_inline OSSL_OSSL_FUNC_store_load_fn
```

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

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

<code>OSSL_FUNC_store_open</code>	<code>OSSL_FUNC_STORE_OPEN</code>
<code>OSSL_FUNC_store_attach</code>	<code>OSSL_FUNC_STORE_ATTACH</code>
<code>OSSL_FUNC_store_settable_ctx_params</code>	<code>OSSL_FUNC_STORE_SETTABLE_CTX_PARAMS</code>
<code>OSSL_FUNC_store_set_ctx_params</code>	<code>OSSL_FUNC_STORE_SET_CTX_PARAMS</code>
<code>OSSL_FUNC_store_load</code>	<code>OSSL_FUNC_STORE_LOAD</code>
<code>OSSL_FUNC_store_eof</code>	<code>OSSL_FUNC_STORE_EOF</code>
<code>OSSL_FUNC_store_close</code>	<code>OSSL_FUNC_STORE_CLOSE</code>
<code>OSSL_FUNC_store_export_object</code>	<code>OSSL_FUNC_STORE_EXPORT_OBJECT</code>

Functions

`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.

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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