

globus gsi cert utils Reference Manual

6.6

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Contents

1	Globus GSI Certificate Handling Utilities	1
2	globus gsi cert utils Module Index	1
3	globus gsi cert utils Module Documentation	1

1 Globus GSI Certificate Handling Utilities

The Globus GSI Certificate Handling Utilities library. This library contains helper functions for dealing with certificates.

- [Activation](#)
- [Cert Utils Functions](#)
- [Cert Utils Constants](#)

2 globus gsi cert utils Module Index

2.1 globus gsi cert utils Modules

Here is a list of all modules:

Activation	1
Cert Utils Functions	2
Cert Utils Constants	2

3 globus gsi cert utils Module Documentation

3.1 Activation

Globus GSI Cert Utils uses standard Globus module activation and deactivation.

Defines

- #define [GLOBUS_GSI_CERT_UTILS_MODULE](#)

3.1.1 Detailed Description

Globus GSI Cert Utils uses standard Globus module activation and deactivation.

Before any Globus GSI Cert Utils functions are called, the following function must be called:

```
globus_module_activate(GLOBUS_GSI_CERT_UTILS_MODULE)
```

This function returns `GLOBUS_SUCCESS` if Globus GSI Credential was successfully initialized, and you are therefore allowed to subsequently call Globus GSI Cert Utils functions. Otherwise, an error code is returned, and Globus GSI Cert Utils functions should not be subsequently called. This function may be called multiple times.

To deactivate Globus GSI Cert Utils, the following function must be called:

```
globus_module_deactivate(GLOBUS_GSI_CERT_UTILS_MODULE)
```

This function should be called once for each time Globus GSI Cert Utils was activated.

3.1.2 Define Documentation

3.1.2.1 #define GLOBUS_GSI_CERT_UTILS_MODULE

Module descriptor.

3.2 Cert Utils Functions

A generic set of utility functions for manipulating OpenSSL objects, such as X509 certificates.

Functions

- `globus_result_t globus_gsi_cert_utils_get_eec (STACK_OF(X509)*cert_chain, X509 **eec)`

3.2.1 Detailed Description

A generic set of utility functions for manipulating OpenSSL objects, such as X509 certificates.

3.2.2 Function Documentation

3.2.2.1 `globus_result_t globus_gsi_cert_utils_get_eec (STACK_OF(X509)* cert_chain, X509 ** eec)`

Get the end-entity certificate associated with a certificate chain.

Parameters:

cert_chain Certificate chain to inspect.

eec Pointer to be set to the EEC value from within the cert chain. Must freed by the caller.

3.3 Cert Utils Constants

Typedefs

- typedef enum `globus_gsi_cert_utils_cert_type_e globus_gsi_cert_utils_cert_type_t`

Enumerations

- enum `globus_gsi_cert_utils_error_t` {
 `GLOBUS_GSI_CERT_UTILS_ERROR_SUCCESS` = 0,
 `GLOBUS_GSI_CERT_UTILS_ERROR_GETTING_NAME_ENTRY_OF_SUBJECT` = 1,
 `GLOBUS_GSI_CERT_UTILS_ERROR_COPYING_SUBJECT` = 2,

```

    GLOBUS_GSI_CERT_UTILS_ERROR_GETTING_CN_ENTRY = 3,
    GLOBUS_GSI_CERT_UTILS_ERROR_ADDING_CN_TO_SUBJECT = 4,
    GLOBUS_GSI_CERT_UTILS_ERROR_OUT_OF_MEMORY = 5,
    GLOBUS_GSI_CERT_UTILS_ERROR_UNEXPECTED_FORMAT = 6,
    GLOBUS_GSI_CERT_UTILS_ERROR_NON_COMPLIANT_PROXY = 7,
    GLOBUS_GSI_CERT_UTILS_ERROR_DETERMINING_CERT_TYPE = 8,
    GLOBUS_GSI_CERT_UTILS_ERROR_LAST = 9 }
• enum globus_gsi_cert_utils_cert_type_e {
    GLOBUS_GSI_CERT_UTILS_TYPE_DEFAULT = 0,
    GLOBUS_GSI_CERT_UTILS_TYPE_EEC = (1 << 0),
    GLOBUS_GSI_CERT_UTILS_TYPE_CA = (1 << 1),
    GLOBUS_GSI_CERT_UTILS_TYPE_GSI_2 = (1 << 2),
    GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3 = (1 << 3),
    GLOBUS_GSI_CERT_UTILS_TYPE_RFC = (1 << 4),
    GLOBUS_GSI_CERT_UTILS_TYPE_FORMAT_MASK,
    GLOBUS_GSI_CERT_UTILS_TYPE_IMPERSONATION_PROXY = (1 << 5),
    GLOBUS_GSI_CERT_UTILS_TYPE_LIMITED_PROXY = (1 << 6),
    GLOBUS_GSI_CERT_UTILS_TYPE_RESTRICTED_PROXY = (1 << 7),
    GLOBUS_GSI_CERT_UTILS_TYPE_INDEPENDENT_PROXY = (1 << 8),
    GLOBUS_GSI_CERT_UTILS_TYPE_PROXY_MASK,
    GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_IMPERSONATION_PROXY,
    GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_INDEPENDENT_PROXY,
    GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_LIMITED_PROXY,
    GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_RESTRICTED_PROXY,
    GLOBUS_GSI_CERT_UTILS_TYPE_GSI_2_PROXY,
    GLOBUS_GSI_CERT_UTILS_TYPE_GSI_2_LIMITED_PROXY,
    GLOBUS_GSI_CERT_UTILS_TYPE_RFC_IMPERSONATION_PROXY,
    GLOBUS_GSI_CERT_UTILS_TYPE_RFC_INDEPENDENT_PROXY,
    GLOBUS_GSI_CERT_UTILS_TYPE_RFC_LIMITED_PROXY,
    GLOBUS_GSI_CERT_UTILS_TYPE_RFC_RESTRICTED_PROXY }

```

3.3.1 Typedef Documentation

3.3.1.1 typedef enum globus_gsi_cert_utils_cert_type_e globus_gsi_cert_utils_cert_type_t

Certificate Types.

These certificate types are used to describe some properties of a certificate and to specify what type of proxy should be generated in the proxy core code. There are two non-proxy types of certificates understood by Globus: EEC (End-Entity Certificate) and CA (Certificate Authority Certificates), three proxy formats (GSI 2 "legacy" proxies, GSI 3 "Draft" proxies, and RFC 3820-compliant proxies), and four types of proxy (limited, impersonation "full", restricted, and independent). The latter two types are not expressible in the GSI 2 format.

In addition to enumerations for the concrete renderings of certificate format and type combined, there are default, formats-without-types and types-without-formats so that application logic which uses the proxy library can request default proxy formats which are compatible with the issuing certificate.

3.3.2 Enumeration Type Documentation

3.3.2.1 enum [globus_gsi_cert_utils_error_t](#)

Cert Utils Error Codes.

Enumerator:

- GLOBUS_GSI_CERT_UTILS_ERROR_SUCCESS*** Success - never used.
- GLOBUS_GSI_CERT_UTILS_ERROR_GETTING_NAME_ENTRY_OF_SUBJECT*** Failed to retrieve a subcomponent of the subject.
- GLOBUS_GSI_CERT_UTILS_ERROR_COPYING_SUBJECT*** A error occurred while trying to copy a X.509 subject.
- GLOBUS_GSI_CERT_UTILS_ERROR_GETTING_CN_ENTRY*** Failed to retrieve a CN subcomponent of the subject.
- GLOBUS_GSI_CERT_UTILS_ERROR_ADDING_CN_TO_SUBJECT*** Failed to add a CN component to a X.509 subject name.
- GLOBUS_GSI_CERT_UTILS_ERROR_OUT_OF_MEMORY*** Out of memory.
- GLOBUS_GSI_CERT_UTILS_ERROR_UNEXPECTED_FORMAT*** Something unexpected happen while converting a string subject to a X509_NAME structure.
- GLOBUS_GSI_CERT_UTILS_ERROR_NON_COMPLIANT_PROXY*** Proxy does not comply with the expected format.
- GLOBUS_GSI_CERT_UTILS_ERROR_DETERMINING_CERT_TYPE*** Couldn't determine the certificate type.
- GLOBUS_GSI_CERT_UTILS_ERROR_LAST*** Last marker - never used.

3.3.2.2 enum [globus_gsi_cert_utils_cert_type_e](#)

Certificate Types.

These certificate types are used to describe some properties of a certificate and to specify what type of proxy should be generated in the proxy core code. There are two non-proxy types of certificates understood by Globus: EEC (End-Entity Certificate) and CA (Certificate Authority Certificates), three proxy formats (GSI 2 "legacy" proxies, GSI 3 "Draft" proxies, and RFC 3820-compliant proxies), and four types of proxy (limited, impersonation "full", restricted, and independent). The latter two types are not expressible in the GSI 2 format.

In addition to enumerations for the concrete renderings of certificate format and type combined, there are default, formats-without-types and types-without-formats so that application logic which uses the proxy library can request default proxy formats which are compatible with the issuing certificate.

Enumerator:

- GLOBUS_GSI_CERT_UTILS_TYPE_DEFAULT*** Default proxy type.
- GLOBUS_GSI_CERT_UTILS_TYPE_EEC*** A end entity certificate.
- GLOBUS_GSI_CERT_UTILS_TYPE_CA*** A CA certificate.
- GLOBUS_GSI_CERT_UTILS_TYPE_GSI_2*** Legacy Proxy Format.
- GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3*** X.509 Proxy Certificate Profile (draft) Proxy Format.
- GLOBUS_GSI_CERT_UTILS_TYPE_RFC*** X.509 Proxy Certificate Profile Compliant Proxy Format.
- GLOBUS_GSI_CERT_UTILS_TYPE_FORMAT_MASK*** Proxy certificate formats mask.
- GLOBUS_GSI_CERT_UTILS_TYPE_IMPERSONATION_PROXY*** Impersonation proxy type.
- GLOBUS_GSI_CERT_UTILS_TYPE_LIMITED_PROXY*** Limited proxy type.
- GLOBUS_GSI_CERT_UTILS_TYPE_RESTRICTED_PROXY*** Restricted proxy type.
- GLOBUS_GSI_CERT_UTILS_TYPE_INDEPENDENT_PROXY*** Independent proxy type.

GLOBUS_GSI_CERT_UTILS_TYPE_PROXY_MASK Proxy types mask.

GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_IMPERSONATION_PROXY A X.509 Proxy Certificate Profile (pre-RFC) compliant impersonation proxy.

GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_INDEPENDENT_PROXY A X.509 Proxy Certificate Profile (pre-RFC) compliant independent proxy.

GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_LIMITED_PROXY A X.509 Proxy Certificate Profile (pre-RFC) compliant limited proxy.

GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_RESTRICTED_PROXY A X.509 Proxy Certificate Profile (pre-RFC) compliant restricted proxy.

GLOBUS_GSI_CERT_UTILS_TYPE_GSI_2_PROXY A legacy Globus impersonation proxy.

GLOBUS_GSI_CERT_UTILS_TYPE_GSI_2_LIMITED_PROXY A legacy Globus limited impersonation proxy.

GLOBUS_GSI_CERT_UTILS_TYPE_RFC_IMPERSONATION_PROXY A X.509 Proxy Certificate Profile RFC compliant impersonation proxy.

GLOBUS_GSI_CERT_UTILS_TYPE_RFC_INDEPENDENT_PROXY A X.509 Proxy Certificate Profile RFC compliant independent proxy.

GLOBUS_GSI_CERT_UTILS_TYPE_RFC_LIMITED_PROXY A X.509 Proxy Certificate Profile RFC compliant limited proxy.

GLOBUS_GSI_CERT_UTILS_TYPE_RFC_RESTRICTED_PROXY A X.509 Proxy Certificate Profile RFC compliant restricted proxy.

Index

Activation, [1](#)

Cert Utils Constants, [2](#)

Cert Utils Functions, [2](#)

globus_gsi_cert_utils

 globus_gsi_cert_utils_get_eec, [2](#)

globus_gsi_cert_utils_activation

 GLOBUS_GSI_CERT_UTILS_MODULE, [2](#)

globus_gsi_cert_utils_cert_type_e

 globus_gsi_cert_utils_constants, [4](#)

globus_gsi_cert_utils_cert_type_t

 globus_gsi_cert_utils_constants, [3](#)

globus_gsi_cert_utils_constants

 GLOBUS_GSI_CERT_UTILS_ERROR_-

 ADDING_CN_TO_SUBJECT, [4](#)

 GLOBUS_GSI_CERT_UTILS_ERROR_-

 COPYING_SUBJECT, [4](#)

 GLOBUS_GSI_CERT_UTILS_ERROR_-

 DETERMINING_CERT_TYPE, [4](#)

 GLOBUS_GSI_CERT_UTILS_ERROR_-

 GETTING_CN_ENTRY, [4](#)

 GLOBUS_GSI_CERT_UTILS_ERROR_-

 GETTING_NAME_ENTRY_OF_-

 SUBJECT, [3](#)

 GLOBUS_GSI_CERT_UTILS_ERROR_LAST,

[4](#)

 GLOBUS_GSI_CERT_UTILS_ERROR_NON_-

 COMPLIANT_PROXY, [4](#)

 GLOBUS_GSI_CERT_UTILS_ERROR_OUT_-

 OF_MEMORY, [4](#)

 GLOBUS_GSI_CERT_UTILS_ERROR_-

 SUCCESS, [3](#)

 GLOBUS_GSI_CERT_UTILS_ERROR_-

 UNEXPECTED_FORMAT, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_CA, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_-

 DEFAULT, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_EEC, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_-

 FORMAT_MASK, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_GSI_2, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_GSI_2_-

 LIMITED_PROXY, [5](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_GSI_2_-

 PROXY, [5](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_-

 IMPERSONATION_PROXY, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_-

 INDEPENDENT_PROXY, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_-

 LIMITED_PROXY, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_-

 RESTRICTED_PROXY, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_-

 IMPERSONATION_PROXY, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_-

 INDEPENDENT_PROXY, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_-

 LIMITED_PROXY, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_PROXY_-

 MASK, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_-

 RESTRICTED_PROXY, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_RFC, [4](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_RFC_-

 IMPERSONATION_PROXY, [5](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_RFC_-

 INDEPENDENT_PROXY, [5](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_RFC_-

 LIMITED_PROXY, [5](#)

 GLOBUS_GSI_CERT_UTILS_TYPE_RFC_-

 RESTRICTED_PROXY, [5](#)

globus_gsi_cert_utils_constants

 globus_gsi_cert_utils_cert_type_e, [4](#)

 globus_gsi_cert_utils_cert_type_t, [3](#)

 globus_gsi_cert_utils_error_t, [3](#)

GLOBUS_GSI_CERT_UTILS_ERROR_ADDING_-

 CN_TO_SUBJECT

 globus_gsi_cert_utils_constants, [4](#)

GLOBUS_GSI_CERT_UTILS_ERROR_COPYING_-

 SUBJECT

 globus_gsi_cert_utils_constants, [4](#)

GLOBUS_GSI_CERT_UTILS_ERROR_-

 DETERMINING_CERT_TYPE

 globus_gsi_cert_utils_constants, [4](#)

GLOBUS_GSI_CERT_UTILS_ERROR_GETTING_-

 CN_ENTRY

 globus_gsi_cert_utils_constants, [4](#)

GLOBUS_GSI_CERT_UTILS_ERROR_GETTING_-

 NAME_ENTRY_OF_SUBJECT

 globus_gsi_cert_utils_constants, [3](#)

GLOBUS_GSI_CERT_UTILS_ERROR_LAST

 globus_gsi_cert_utils_constants, [4](#)

GLOBUS_GSI_CERT_UTILS_ERROR_NON_-

 COMPLIANT_PROXY

 globus_gsi_cert_utils_constants, [4](#)

GLOBUS_GSI_CERT_UTILS_ERROR_OUT_OF_-

 MEMORY

 globus_gsi_cert_utils_constants, [4](#)

GLOBUS_GSI_CERT_UTILS_ERROR_SUCCESS

 globus_gsi_cert_utils_constants, [3](#)

globus_gsi_cert_utils_error_t

 globus_gsi_cert_utils_constants, [3](#)

GLOBUS_GSI_CERT_UTILS_ERROR_-
UNEXPECTED_FORMAT
globus_gsi_cert_utils_constants, 4
globus_gsi_cert_utils_get_eec
globus_gsi_cert_utils, 2
GLOBUS_GSI_CERT_UTILS_MODULE
globus_gsi_cert_utils_activation, 2
GLOBUS_GSI_CERT_UTILS_TYPE_CA
globus_gsi_cert_utils_constants, 4
GLOBUS_GSI_CERT_UTILS_TYPE_DEFAULT
globus_gsi_cert_utils_constants, 4
GLOBUS_GSI_CERT_UTILS_TYPE_EEC
globus_gsi_cert_utils_constants, 4
GLOBUS_GSI_CERT_UTILS_TYPE_FORMAT_-
MASK
globus_gsi_cert_utils_constants, 4
GLOBUS_GSI_CERT_UTILS_TYPE_GSI_2
globus_gsi_cert_utils_constants, 4
GLOBUS_GSI_CERT_UTILS_TYPE_GSI_2_-
LIMITED_PROXY
globus_gsi_cert_utils_constants, 5
GLOBUS_GSI_CERT_UTILS_TYPE_GSI_2_-
PROXY
globus_gsi_cert_utils_constants, 5
GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3
globus_gsi_cert_utils_constants, 4
GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_-
IMPERSONATION_PROXY
globus_gsi_cert_utils_constants, 4
GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_-
INDEPENDENT_PROXY
globus_gsi_cert_utils_constants, 4
GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_-
LIMITED_PROXY
globus_gsi_cert_utils_constants, 4
GLOBUS_GSI_CERT_UTILS_TYPE_GSI_3_-
RESTRICTED_PROXY
globus_gsi_cert_utils_constants, 4
GLOBUS_GSI_CERT_UTILS_TYPE_-
IMPERSONATION_PROXY
globus_gsi_cert_utils_constants, 4
GLOBUS_GSI_CERT_UTILS_TYPE_-
INDEPENDENT_PROXY
globus_gsi_cert_utils_constants, 4
GLOBUS_GSI_CERT_UTILS_TYPE_LIMITED_-
PROXY
globus_gsi_cert_utils_constants, 4
GLOBUS_GSI_CERT_UTILS_TYPE_PROXY_-
MASK
globus_gsi_cert_utils_constants, 4
GLOBUS_GSI_CERT_UTILS_TYPE_-
RESTRICTED_PROXY
globus_gsi_cert_utils_constants, 4
GLOBUS_GSI_CERT_UTILS_TYPE_RFC
globus_gsi_cert_utils_constants, 4

GLOBUS_GSI_CERT_UTILS_TYPE_RFC_-
IMPERSONATION_PROXY
globus_gsi_cert_utils_constants, 5
GLOBUS_GSI_CERT_UTILS_TYPE_RFC_-
INDEPENDENT_PROXY
globus_gsi_cert_utils_constants, 5
GLOBUS_GSI_CERT_UTILS_TYPE_RFC_-
LIMITED_PROXY
globus_gsi_cert_utils_constants, 5
GLOBUS_GSI_CERT_UTILS_TYPE_RFC_-
RESTRICTED_PROXY
globus_gsi_cert_utils_constants, 5