

VOMS C API Reference Manual

1.5.0

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Chapter 1

VOMS C API Hierarchical Index

1.1 VOMS C API Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

attribute	7
contactdata	8
data	10
voms	11
vomsdata	14

Chapter 2

VOMS C API Data Structure Index

2.1 VOMS C API Data Structures

Here are the data structures with brief descriptions:

attribute	7
contactdata	8
data (User's characteristics: can be repeated)	10
voms	11
vomsdata	14

Chapter 3

VOMS C API File Index

3.1 VOMS C API File List

Here is a list of all files with brief descriptions:

voms_apic.h	17
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Chapter 4

VOMS C API Data Structure Documentation

4.1 attribute Struct Reference

```
#include <voms_apic.h>
```

Data Fields

- const char * [name](#)
- const char * [value](#)
- const char * [qualifier](#)

4.1.1 Detailed Description

Definition at line 39 of file voms_apic.h.

4.1.2 Field Documentation

4.1.2.1 const char* [attribute::name](#)

Definition at line 40 of file voms_apic.h.

4.1.2.2 const char* [attribute::qualifier](#)

Definition at line 42 of file voms_apic.h.

4.1.2.3 const char* [attribute::value](#)

Definition at line 41 of file voms_apic.h.

The documentation for this struct was generated from the following file:

- [voms_apic.h](#)

4.2 contactdata Struct Reference

```
#include <voms_apic.h>
```

Data Fields

- char * [nick](#)
- char * [host](#)
- char * [contact](#)
- char * [vo](#)
- int [port](#)
- char * [reserved](#)
- int [version](#)

4.2.1 Detailed Description

Definition at line 45 of file voms_apic.h.

4.2.2 Field Documentation

4.2.2.1 char* [contactdata::contact](#)

The subject of the server's certificate

Definition at line 50 of file voms_apic.h.

4.2.2.2 char* [contactdata::host](#)

The hostname of the server

Definition at line 49 of file voms_apic.h.

4.2.2.3 char* [contactdata::nick](#)

< You must never allocate directly this structure. Its sizeof() is subject to change without notice. The only supported way to obtain it is via the VOMS_FindBy* functions. The alias of the server

Definition at line 48 of file voms_apic.h.

4.2.2.4 int [contactdata::port](#)

The port on which the server is listening

Definition at line 52 of file voms_apic.h.

4.2.2.5 char* [contactdata::reserved](#)

HANDS OFF!

Definition at line 53 of file voms_apic.h.

4.2.2.6 int [contactdata::version](#)

The version of Globus on which this server runs.

Definition at line 54 of file voms_apic.h.

4.2.2.7 char* [contactdata::vo](#)

The VO served by this server

Definition at line 51 of file voms_apic.h.

The documentation for this struct was generated from the following file:

- [voms_apic.h](#)

4.3 data Struct Reference

User's characteristics: can be repeated.

```
#include <voms_apic.h>
```

Data Fields

- char * [group](#)
- char * [role](#)
- char * [cap](#)

4.3.1 Detailed Description

User's characteristics: can be repeated.

<

Definition at line 33 of file voms_apic.h.

4.3.2 Field Documentation

4.3.2.1 char* [data::cap](#)

user's capability

Definition at line 36 of file voms_apic.h.

4.3.2.2 char* [data::group](#)

user's group

Definition at line 34 of file voms_apic.h.

4.3.2.3 char* [data::role](#)

user's role

Definition at line 35 of file voms_apic.h.

The documentation for this struct was generated from the following file:

- [voms_apic.h](#)

4.4 voms Struct Reference

```
#include <voms_apic.h>
```

Data Fields

- int [siglen](#)
- char * [signature](#)
- char * [user](#)
- char * [userca](#)
- char * [server](#)
- char * [serverca](#)
- char * [voname](#)
- char * [uri](#)
- char * [date1](#)
- char * [date2](#)
- int [type](#)
- data ** [std](#)
- char * [custom](#)
- int [datalen](#)
- int [version](#)
- char ** [fqan](#)
- char * [serial](#)
- AC * [ac](#)
- X509 * [holder](#)

4.4.1 Detailed Description

Definition at line 65 of file voms_apic.h.

4.4.2 Field Documentation

4.4.2.1 AC* [voms::ac](#)

Definition at line 85 of file voms_apic.h.

4.4.2.2 char* [voms::custom](#)

The data returned by an S command

Definition at line 78 of file voms_apic.h.

4.4.2.3 int [voms::datalen](#)

Definition at line 79 of file voms_apic.h.

4.4.2.4 char* voms::date1

Beginning of validity of the user info

Definition at line 74 of file voms_apic.h.

4.4.2.5 char* voms::date2

End of validity of the user info

Definition at line 75 of file voms_apic.h.

4.4.2.6 char voms::fqan**

User's attributes in compact format

Definition at line 81 of file voms_apic.h.

4.4.2.7 X509* voms::holder

Definition at line 86 of file voms_apic.h.

4.4.2.8 char* voms::serial

Serial number. Only significant if coming from AC. Null otherwise

Definition at line 82 of file voms_apic.h.

4.4.2.9 char* voms::server

The VOMS server DN, as from its certificate

Definition at line 70 of file voms_apic.h.

4.4.2.10 char* voms::serverca

The CA which signed the VOMS certificate

Definition at line 71 of file voms_apic.h.

4.4.2.11 int voms::siglen

The length of the VOMS server signature

Definition at line 66 of file voms_apic.h.

4.4.2.12 char* voms::signature

The VOMS server signature

Definition at line 67 of file voms_apic.h.

4.4.2.13 struct [data voms::std](#)**

User's characteristics

Definition at line 77 of file voms_apic.h.

4.4.2.14 int [voms::type](#)

The type of data returned

Definition at line 76 of file voms_apic.h.

4.4.2.15 char* [voms::uri](#)

The URI of the VOMS server

Definition at line 73 of file voms_apic.h.

4.4.2.16 char* [voms::user](#)

The user's DN, as from his certificate

Definition at line 68 of file voms_apic.h.

4.4.2.17 char* [voms::userca](#)

The CA which signed the user's certificate

Definition at line 69 of file voms_apic.h.

4.4.2.18 int [voms::version](#)

Definition at line 80 of file voms_apic.h.

4.4.2.19 char* [voms::vname](#)

The name of the VO to which the VOMS belongs

Definition at line 72 of file voms_apic.h.

The documentation for this struct was generated from the following file:

- [voms_apic.h](#)

4.5 vomsdata Struct Reference

```
#include <voms_apic.h>
```

Data Fields

- char * [cdir](#)
- char * [vdir](#)
- voms ** [data](#)
- char * [workvo](#)
- char * [extra_data](#)
- int [volen](#)
- int [extralen](#)
- vomsdata * [real](#)

4.5.1 Detailed Description

Definition at line 129 of file voms_apic.h.

4.5.2 Field Documentation

4.5.2.1 char* [vomsdata::cdir](#)

Definition at line 130 of file voms_apic.h.

4.5.2.2 struct voms** [vomsdata::data](#)

User's info, as in the certificate extension. It may contain data gathered from more than one VOMS server,
Definition at line 132 of file voms_apic.h.

4.5.2.3 char* [vomsdata::extra_data](#)

The data specified by the user with the `-include` switch. Note that this field doesn't contain the result of a request to the VOMS server, but instead data specified by the user. The reason for the introduction of this extension is to let a user include important data into his proxy certificate, like, for example, a kerberos ticket

Definition at line 137 of file voms_apic.h.

4.5.2.4 int [vomsdata::extralen](#)

Definition at line 147 of file voms_apic.h.

4.5.2.5 struct vomsdata* [vomsdata::real](#)

Definition at line 149 of file voms_apic.h.

4.5.2.6 char* [vomsdata::vdir](#)

Definition at line 131 of file voms_apic.h.

4.5.2.7 int [vomsdata::volen](#)

Definition at line 146 of file voms_apic.h.

4.5.2.8 char* [vomsdata::workvo](#)

The value of the -vo option of the voms-proxy-init command

Definition at line 135 of file voms_apic.h.

The documentation for this struct was generated from the following file:

- [voms_apic.h](#)

Chapter 5

VOMS C API File Documentation

5.1 voms_apic.h File Reference

```
#include <openssl/x509.h>
#include <time.h>
#include "newformat.h"
```

Data Structures

- struct [data](#)
User's characteristics: can be repeated.
- struct [attribute](#)
- struct [contactdata](#)
- struct [voms](#)
- struct [vomsdata](#)

Defines

- #define [TYPE_NODATA](#) 0
- #define [TYPE_STD](#) 1
- #define [TYPE_CUSTOM](#) 2
- #define [RECURSE_CHAIN](#) 0
- #define [RECURSE_NONE](#) 1
- #define [VERIFY_FULL](#) 0xffffffff
- #define [VERIFY_NONE](#) 0x00000000
- #define [VERIFY_DATE](#) 0x00000001
- #define [VERIFY_NOTARGET](#) 0x00000002
- #define [VERIFY_KEY](#) 0x00000004
- #define [VERIFY_SIGN](#) 0x00000008
- #define [VERIFY_ORDER](#) 0x00000010
- #define [VERIFY_ID](#) 0x00000020
- #define [VERIFY_CERTLIST](#) 0x00000040
- #define [VERR_NONE](#) 0

Error codes.

- #define [VERR_NOSOCKET](#) 1
- #define [VERR_NOIDENT](#) 2
- #define [VERR_COMM](#) 3
- #define [VERR_PARAM](#) 4
- #define [VERR_NOEXT](#) 5
- #define [VERR_NOINIT](#) 6
- #define [VERR_TIME](#) 7
- #define [VERR_IDCHECK](#) 8
- #define [VERR_EXTRAINFO](#) 9
- #define [VERR_FORMAT](#) 10
- #define [VERR_NODATA](#) 11
- #define [VERR_PARSE](#) 12
- #define [VERR_DIR](#) 13
- #define [VERR_SIGN](#) 14
- #define [VERR_SERVER](#) 15
- #define [VERR_MEM](#) 16
- #define [VERR_VERIFY](#) 17
- #define [VERR_TYPE](#) 18
- #define [VERR_ORDER](#) 19
- #define [VERR_SERVERCODE](#) 20
- #define [VERR_NOTAVAIL](#) 21

Typedefs

- typedef void * [gss_cred_id_t](#)
- typedef void * [gss_ctx_id_t](#)

Functions

- [contactdata](#) ** [VOMS_FindByAlias](#) (struct [vomsdata](#) *vd, char *alias, char *system, char *user, int *error)
- [contactdata](#) ** [VOMS_FindByVO](#) (struct [vomsdata](#) *vd, char *vo, char *system, char *user, int *error)
- void [VOMS_DeleteContacts](#) (struct [contactdata](#) **list)
- [vomsdata](#) * [VOMS_Init](#) (char *voms, char *cert)
- [voms](#) * [VOMS_Copy](#) (struct [voms](#) *v, int *error)
- [vomsdata](#) * [VOMS_CopyAll](#) (struct [vomsdata](#) *vd, int *error)
- void [VOMS_Delete](#) (struct [voms](#) *v)
- int [VOMS_AddTarget](#) (struct [vomsdata](#) *vd, char *target, int *error)
- void [VOMS_FreeTargets](#) (struct [vomsdata](#) *vd, int *error)
- char * [VOMS_ListTargets](#) (struct [vomsdata](#) *vd, int *error)
- int [VOMS_SetVerificationType](#) (int type, struct [vomsdata](#) *vd, int *error)
- int [VOMS_SetLifetime](#) (int length, struct [vomsdata](#) *vd, int *error)
- void [VOMS_Destroy](#) (struct [vomsdata](#) *vd)
- int [VOMS_ResetOrder](#) (struct [vomsdata](#) *vd, int *error)
- int [VOMS_Ordering](#) (char *order, struct [vomsdata](#) *vd, int *error)
- int [VOMS_Contact](#) (char *hostname, int port, char *servsubject, char *command, struct [vomsdata](#) *vd, int *error)

- int [VOMS_ContactRaw](#) (char *hostname, int port, char *servsubject, char *command, void **data, int *datalen, int *version, struct [vomsdata](#) *vd, int *error)
- int [VOMS_Retrieve](#) (X509 *cert, STACK_OF(X509)*chain, int how, struct [vomsdata](#) *vd, int *error)
- int [VOMS_Import](#) (char *buffer, int buflen, struct [vomsdata](#) *vd, int *error)
- int [VOMS_Export](#) (char **buffer, int *buflen, struct [vomsdata](#) *vd, int *error)
- voms * [VOMS_DefaultData](#) (struct [vomsdata](#) *vd, int *error)
- char * [VOMS_ErrorMessage](#) (struct [vomsdata](#) *vd, int error, char *buffer, int len)
- int [VOMS_RetrieveEXT](#) (X509_EXTENSION *ext, struct [vomsdata](#) *vd, int *error)
- int [VOMS_RetrieveFromCred](#) (gss_cred_id_t cred, int how, struct [vomsdata](#) *vd, int *error)
- int [VOMS_RetrieveFromFile](#) (FILE *file, int how, struct [vomsdata](#) *vd, int *error)
- int [VOMS_RetrieveFromCtx](#) (gss_ctx_id_t ctx, int how, struct [vomsdata](#) *vd, int *error)
- int [VOMS_RetrieveFromProxy](#) (int how, struct [vomsdata](#) *vd, int *error)
- int [VOMS_GetAttributeSourcesNumber](#) (struct [voms](#) *v, struct [vomsdata](#) *vd, int *error)
- int [VOMS_GetAttributeSourceHandle](#) (struct [voms](#) *v, int num, struct [vomsdata](#) *vd, int *error)
- const char * [VOMS_GetAttributeGrantor](#) (struct [voms](#) *v, int handle, struct [vomsdata](#) *vd, int *error)
- int [VOMS_GetAttributesNumber](#) (struct [voms](#) *v, int handle, struct [vomsdata](#) *vd, int *error)
- int [VOMS_GetAttribute](#) (struct [voms](#) *v, int handle, int num, struct [attribute](#) *at, struct [vomsdata](#) *vd, int *error)
- vomsdata * [VOMS_Duplicate](#) (struct [vomsdata](#) *vd)
- AC * [VOMS_GetAC](#) (struct [voms](#) *v)
- int [getMajorVersionNumber](#) (void)
- int [getMinorVersionNumber](#) (void)
- int [getPatchVersionNumber](#) (void)
- int [VOMS_SetVerificationTime](#) (time_t verificationtime, struct [vomsdata](#) *vd, int *error)
- char ** [VOMS_GetTargetsList](#) (struct [voms](#) *v, struct [vomsdata](#) *vd, int *error)
- void [VOMS_FreeTargetsList](#) (char **)
- int [VOMS_SetTimeout](#) (int t, struct [vomsdata](#) *vd, int *error)

5.1.1 Define Documentation

5.1.1.1 #define RECURSE_CHAIN 0

Definition at line 90 of file voms_apic.h.

5.1.1.2 #define RECURSE_NONE 1

Definition at line 91 of file voms_apic.h.

5.1.1.3 #define TYPE_CUSTOM 2

result of an S command

Definition at line 62 of file voms_apic.h.

5.1.1.4 #define TYPE_NODATA 0

no data

Definition at line 60 of file voms_apic.h.

5.1.1.5 #define TYPE_STD 1

group, role, capability triplet

Definition at line 61 of file voms_apic.h.

5.1.1.6 #define VERIFY_CERTLIST 0x00000040

Definition at line 101 of file voms_apic.h.

5.1.1.7 #define VERIFY_DATE 0x00000001

Definition at line 95 of file voms_apic.h.

5.1.1.8 #define VERIFY_FULL 0xffffffff

Definition at line 93 of file voms_apic.h.

5.1.1.9 #define VERIFY_ID 0x00000020

Definition at line 100 of file voms_apic.h.

5.1.1.10 #define VERIFY_KEY 0x00000004

Definition at line 97 of file voms_apic.h.

5.1.1.11 #define VERIFY_NONE 0x00000000

Definition at line 94 of file voms_apic.h.

5.1.1.12 #define VERIFY_NOTARGET 0x00000002

Definition at line 96 of file voms_apic.h.

5.1.1.13 #define VERIFY_ORDER 0x00000010

Definition at line 99 of file voms_apic.h.

5.1.1.14 #define VERIFY_SIGN 0x00000008

Definition at line 98 of file voms_apic.h.

5.1.1.15 #define VERR_COMM 3

Server problem

Definition at line 108 of file voms_apic.h.

5.1.1.16 #define VERR_DIR 13

Directory error

Definition at line 119 of file voms_apic.h.

5.1.1.17 #define VERR_EXTRAINFO 9

VO name and URI missing

Definition at line 115 of file voms_apic.h.

5.1.1.18 #define VERR_FORMAT 10

Wrong data format

Definition at line 116 of file voms_apic.h.

5.1.1.19 #define VERR_IDCHECK 8

User data in extension different from the real ones

Definition at line 113 of file voms_apic.h.

5.1.1.20 #define VERR_MEM 16

Memory problems

Definition at line 122 of file voms_apic.h.

5.1.1.21 #define VERR_NODATA 11

Empty extension

Definition at line 117 of file voms_apic.h.

5.1.1.22 #define VERR_NOEXT 5

VOMS extension missing

Definition at line 110 of file voms_apic.h.

5.1.1.23 #define VERR_NOIDENT 2

Cannot identify itself (certificate problem)

Definition at line 107 of file voms_apic.h.

5.1.1.24 #define VERR_NOINIT 6

Initialization error

Definition at line 111 of file voms_apic.h.

5.1.1.25 #define VERR_NONE 0

Error codes.

Definition at line 105 of file voms_apic.h.

5.1.1.26 #define VERR_NOSOCKET 1

Socket problem

Definition at line 106 of file voms_apic.h.

5.1.1.27 #define VERR_NOTAVAIL 21

Method not available

Definition at line 127 of file voms_apic.h.

5.1.1.28 #define VERR_ORDER 19

Ordering different than required

Definition at line 125 of file voms_apic.h.

5.1.1.29 #define VERR_PARAM 4

Wrong parameters

Definition at line 109 of file voms_apic.h.

5.1.1.30 #define VERR_PARSE 12

Parse error

Definition at line 118 of file voms_apic.h.

5.1.1.31 #define VERR_SERVER 15

Unidentifiable VOMS server

Definition at line 121 of file voms_apic.h.

5.1.1.32 #define VERR_SERVERCODE 20

Error from the server

Definition at line 126 of file voms_apic.h.

5.1.1.33 #define VERR_SIGN 14

Signature error

Definition at line 120 of file voms_apic.h.

5.1.1.34 `#define VERR_TIME 7`

Error in time checking

Definition at line 112 of file voms_apic.h.

5.1.1.35 `#define VERR_TYPE 18`

Returned data of unknown type

Definition at line 124 of file voms_apic.h.

5.1.1.36 `#define VERR_VERIFY 17`

Generic verification error

Definition at line 123 of file voms_apic.h.

5.1.2 Typedef Documentation

5.1.2.1 `typedef void* gss_cred_id_t`

Definition at line 20 of file voms_apic.h.

5.1.2.2 `typedef void* gss_ctx_id_t`

Definition at line 21 of file voms_apic.h.

5.1.3 Function Documentation

5.1.3.1 `int getMajorVersionNumber (void)`

5.1.3.2 `int getMinorVersionNumber (void)`

5.1.3.3 `int getPatchVersionNumber (void)`

5.1.3.4 `int VOMS_AddTarget (struct vomsdata * vd, char * target, int * error)`

Adds a target to the AC.

Parameters:

vd The vomsdata structure.

target The target to add. It should be a FQDN.

error RETURN PARAMETER: qualifies the error message.

Returns:

failure (0) or success (>0)

5.1.3.5 **int VOMS_Contact** (char * *hostname*, int *port*, char * *servsubject*, char * *command*, struct *vomsdata* * *vd*, int * *error*)

Contacts a VOMS server to get a certificate

It is the equivalent of the `voms_proxy_init` command, but without the `--include` functionality.

Parameters:

hostname FQDN of the VOMS server
port the port on which the VOMS server is listening
servsubject the subject of the server's certificate
command Command
vd RETURN PARAMETER: contains the data returned by the connection
error RETURN PARAMETER: Qualifies the error message

Returns:

failure (0) or success (<>0)

5.1.3.6 **int VOMS_ContactRaw** (char * *hostname*, int *port*, char * *servsubject*, char * *command*, void ** *data*, int * *datalen*, int * *version*, struct *vomsdata* * *vd*, int * *error*)

The same as `VOMS_Contact`, except that instead of starting the verification process, the data is returned as is in the

Parameters:

data and *datalen* fields.
hostname FQDN of the VOMS server
port the port on which the VOMS server is listening
servsubject the subject of the server's certificate
command the command sent to the server
version is the version number of the data.
vd RETURN PARAMETER: contains the data returned by the connection
error RETURN PARAMETER: Qualifies the error message

Returns:

failure (0) or success (<>0)

5.1.3.7 **struct voms* VOMS_Copy** (struct *voms* * *v*, int * *error*)

Copies a voms structure. N.B: This is the ONLY way to correctly initialize a voms structure as a copy of another voms structure.

Parameters:

v The structure to copy.
error RETURN PARAMETER: qualifies the error message.

Returns:

NULL (error) or the new voms structure.

5.1.3.8 struct vomsdata* VOMS_CopyAll (struct vomsdata * *vd*, int * *error*)

Copies a vomsdata structure. N.B: This is the ONLY way to correctly initialize a vomsdata structure as a copy of another vomsdata structure.

Parameters:

vd The structure to copy.

error RETURN PARAMETER: qualifies the error message.

Returns:

NULL (error) or the new vomsdata structure.

5.1.3.9 struct voms* VOMS_DefaultData (struct vomsdata * *vd*, int * *error*)

Gets the default attributes from a vomsdata structure.

Parameters:

vd the vomsdata structure to analyze

error RETURN PARAMETER: Qualifies the error message

Returns:

a pointer to the relevant voms structure. DO NOT modify the fields.

5.1.3.10 void VOMS_Delete (struct voms * *v*)

Deletes a voms structure

Parameters:

v Pointer to the structure to delete.

5.1.3.11 void VOMS_DeleteContacts (struct contactdata ** *list*)

Frees a contactdata vector.

Parameters:

list The vector to free.

Returns:

NONE

5.1.3.12 void VOMS_Destroy (struct vomsdata * *vd*)

Destroys a proper vomsdata structure /param *vd* The structure to deallocate.

5.1.3.13 `struct vomsdata* VOMS_Duplicate (struct vomsdata * vd)`

5.1.3.14 `char* VOMS_ErrorMessage (struct vomsdata * vd, int error, char * buffer, int len)`

Gets a textual description of the error.

Parameters:

vd The vomsdata structure to analyze

error The error returned by the last function

buffer A pointer to a buffer where the error message will be written. If NULL, then memory is allocated by the function, and will have to be free()ed by the caller.

len The length of the memory pointed to by the buffer parameter.

Returns:

A pointer to the error message.

5.1.3.15 `int VOMS_Export (char ** buffer, int * buflen, struct vomsdata * vd, int * error)`

Converts data into a test format

Parameters:

buffer OUTPUT PARAMETER contains the converted data

buflen OUTPUT PARAMETER contains the length of buffer

vd contains the data to convert

error RETURN PARAMETER Qualifies the error message

Returns:

failure (0) or success (>0)

5.1.3.16 `struct contactdata** VOMS_FindByAlias (struct vomsdata * vd, char * alias, char * system, char * user, int * error)`

Gets a list of VOMS servers which share an alias.

Parameters:

vd The correctly initialized vomsdata structured.

alias The alias to look for.

system The directory in which to look for the system configuration files. If NULL, defaults to /opt/edc/etc/vomses

user The directory in which to look for the user configuration files. Defaults to \$VOMS_USERCONF if NULL. Again defaults to \$HOME/.edg/vomses if the latter is NULL, or to ~/.edg/vomses as a last resort.

error RETURN PARAMETER: qualifies the error message.

Returns:

NULL, or a NULL-terminated vector of contactdata structures. The only supported way to free this array is via the VOMS_DeleteContacts function. Note also that the order in which the servers are returned is unspecified.

5.1.3.17 struct **contactdata**** VOMS_FindByVO (struct **vomsdata** * *vd*, char * *vo*, char * *system*, char * *user*, int * *error*)

Gets a list of VOMS servers which serve the same VO.

Parameters:

vd The correctly initialized vomsdata structured.

vo The VO to look for.

system The directory in which to look for the system configuration files. If NULL, defaults to /opt/edc/etc/vomses

user The directory in which to look for the user configuration files. Defaults to \$VOMS_USERCONF if NULL. Again defaults to \$HOME/.edg/vomses if the latter is NULL, or to ~/.edg/vomses as a last resort.

error RETURN PARAMETER: qualifies the error message.

Returns:

NULL, or a NULL-terminated vector of contactdata structures. The only supported way to free this array is via the VOMS_DeleteContacts function. Note also that the order in which the servers are returned is unspecified.

5.1.3.18 void VOMS_FreeTargets (struct **vomsdata** * *vd*, int * *error*)

Delete the targets from the AC.

Parameters:

vd The vomsdata structure.

error RETURN PARAMETER: qualifies the error message.

- 5.1.3.19** void VOMS_FreeTargetsList (char **)
- 5.1.3.20** AC* VOMS_GetAC (struct voms * v)
- 5.1.3.21** int VOMS_GetAttribute (struct voms * v, int handle, int num, struct attribute * at, struct vomsdata * vd, int * error)
- 5.1.3.22** const char* VOMS_GetAttributeGrantor (struct voms * v, int handle, struct vomsdata * vd, int * error)
- 5.1.3.23** int VOMS_GetAttributesNumber (struct voms * v, int handle, struct vomsdata * vd, int * error)
- 5.1.3.24** int VOMS_GetAttributeSourceHandle (struct voms * v, int num, struct vomsdata * vd, int * error)
- 5.1.3.25** int VOMS_GetAttributeSourcesNumber (struct voms * v, struct vomsdata * vd, int * error)
- 5.1.3.26** char** VOMS_GetTargetsList (struct voms * v, struct vomsdata * vd, int * error)
- 5.1.3.27** int VOMS_Import (char * buffer, int buflen, struct vomsdata * vd, int * error)

Converts data from the format used for inclusion into a certificate to the internal format

The function does verify the data.

Parameters:

- buffer* contains the data to be converted
- buflen* contains the length of buffer
- vd* RETURN PARAMETER: contains the data returned by the connection
- error* RETURN PARAMETER: Qualifies the error message

Returns:

- failure (0) or success (>0)

- 5.1.3.28** struct vomsdata* VOMS_Init (char * voms, char * cert)

Initializes a vomsdata structure for use by the other functions. N.B: This is the ONLY way to correctly initialize a vomsdata structure. It is also forbidden to directly take the sizeof() of this structure.

Parameters:

- voms* The directory which contains the certificates of the VOMS servers
- cert* The directory which contains the CA certificates

If voms_dir is empty, the value of the environment variable X509_VOMS_DIR is taken

If cert_dir is empty, the value of the environment variable X509_CERT_DIR is taken

Returns:

- NULL for failure, or a pointer to a properly initialized structure.

5.1.3.29 `char* VOMS_ListTargets (struct vomsdata * vd, int * error)`

5.1.3.30 `int VOMS_Ordering (char * order, struct vomsdata * vd, int * error)`

Further specified the order of the returned attributes. Please do note that calls are cumulative unless `VOMS_ResetOrder()` is called.

Parameters:

order the group:role attribute.

vd RETURN PARAMETER: contains the modified data.

error RETURN PARAMETER: Qualifies the error message

Returns:

failure (0) or success (<>0)

5.1.3.31 `int VOMS_ResetOrder (struct vomsdata * vd, int * error)`

Unsets the return order of the attributes.

Parameters:

vd RETURN PARAMETER: contains the modified data.

error RETURN PARAMETER: Qualifies the error message

Returns:

failure (0) or success (<>0)

5.1.3.32 `int VOMS_Retrieve (X509 * cert, STACK_OF(X509)* chain, int how, struct vomsdata * vd, int * error)`

Extracts the VOMS extension from an X.509 certificate.

The function doesn't check the validity of the certificates, but it does check the content of the user data.

Parameters:

cert The certificate with the VOMS extensions

chain The chain of the validation certificates (only the intermediate ones)

how Recursion type

vd RETURN PARAMETER: contains the data returned by the connection

error RETURN PARAMETER: Qualifies the error message

Returns:

failure (0) or success (<>0)

5.1.3.33 int VOMS_RetrieveEXT (X509_EXTENSION * *ext*, struct vomsdata * *vd*, int * *error*)

Gets VOMS information from the given extension

Parameters:

ext The extension to parse.

vd RETURN PARAMETER: contains the data returned by the connection

error RETURN PARAMETER: Qualifies the error message

Returns:

failure (0) or success (<>0)

5.1.3.34 int VOMS_RetrieveFromCred (gss_cred_id_t *cred*, int *how*, struct vomsdata * *vd*, int * *error*)

Gets VOMS information from the given globus credential

Parameters:

cred The credential from which to retrieve the certificate.

how Recursion type

vd RETURN PARAMETER: contains the data returned by the connection

error RETURN PARAMETER: Qualifies the error message

Returns:

failure (0) or success (<>0)

5.1.3.35 int VOMS_RetrieveFromCtx (gss_ctx_id_t *ctx*, int *how*, struct vomsdata * *vd*, int * *error*)

Gets VOMS information from the given globus context

Parameters:

ctx The context from which to retrieve the certificate.

how Recursion type

vd RETURN PARAMETER: contains the data returned by the connection

error RETURN PARAMETER: Qualifies the error message

Returns:

failure (0) or success (<>0)

5.1.3.36 int VOMS_RetrieveFromFile (FILE * *file*, int *how*, struct vomsdata * *vd*, int * *error*)

Gets VOMS information from the given globus credential

Parameters:

file The file from which to retrieve the certificate.

how Recursion type

vd RETURN PARAMETER: contains the data returned by the connection

error RETURN PARAMETER: Qualifies the error message

Returns:

failure (0) or success (<>0)

5.1.3.37 int VOMS_RetrieveFromProxy (int *how*, struct vomsdata * *vd*, int * *error*)

Gets VOMS information from an existing globus proxy

Parameters:

how Recursion type

vd RETURN PARAMETER: contains the data returned by the connection

error RETURN PARAMETER: Qualifies the error message

Returns:

failure (0) or success (<>0)

5.1.3.38 int VOMS_SetLifetime (int *length*, struct vomsdata * *vd*, int * *error*)

Set requested lifetime for [VOMS_Contact\(\)](#) calls.

Parameters:

length Lifetime requested.

vd RETURN PARAMETER: contains the modified data.

error RETURN PARAMETER: Qualifies the error message

Returns:

failure (0) or success (<>0)

5.1.3.39 int VOMS_SetTimeout (int *t*, struct vomsdata * *vd*, int * *error*)

5.1.3.40 int VOMS_SetVerificationTime (time_t *verificationtime*, struct vomsdata * *vd*, int * *error*)

5.1.3.41 int VOMS_SetVerificationType (int *type*, struct vomsdata * *vd*, int * *error*)

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