

# VOMS C API Reference Manual

## 1.5.0

Generated by Doxygen 1.3.5

Tue Oct 20 07:24:40 2009



# Contents

- 1 VOMS C API Data Structure Index 1
  - 1.1 VOMS C API Data Structures. . . . . 1
- 2 VOMS C API File Index 3
  - 2.1 VOMS C API File List . . . . . 3
- 3 VOMS C API Data Structure Documentation 5
  - 3.1 attribute Struct Reference. . . . . 5
  - 3.2 contactdata Struct Reference. . . . . 6
  - 3.3 data Struct Reference . . . . . 8
  - 3.4 voms Struct Reference . . . . . 9
  - 3.5 vomsdata Struct Reference. . . . . 12
- 4 VOMS C API File Documentation 15
  - 4.1 voms\_apic.h File Reference . . . . . 15



# Chapter 1

## VOMS C API Data Structure Index

### 1.1 VOMS C API Data Structures

Here are the data structures with brief descriptions:

<a href="#">attribute</a>	5
<a href="#">contactdata</a>	6
<a href="#">data</a> (User's characteristics: can be repeated )	8.
<a href="#">voms</a>	9
<a href="#">vomsdata</a>	12



## Chapter 2

# VOMS C API File Index

### 2.1 VOMS C API File List

Here is a list of all files with brief descriptions:

<a href="#">voms_apic.h</a> . . . . .	15
---------------------------------------	----





## Chapter 3

# VOMS C API Data Structure Documentation

### 3.1 attribute Struct Reference

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

#### Data Fields

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

#### 3.1.1 Field Documentation

##### 3.1.1.1 const char [attribute::name](#)

Definition at line 40 of file voms\_apic.h.

##### 3.1.1.2 const char [attribute::qualifier](#)

Definition at line 42 of file voms\_apic.h.

##### 3.1.1.3 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](#)

## 3.2 contactdata Struct Reference

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

### Data Fields

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

### 3.2.1 Field Documentation

#### 3.2.1.1 char [contactdata::contact](#)

The subject of the server's certificate  
Definition at line 50 of file voms\_apic.h.

#### 3.2.1.2 char [contactdata::host](#)

The hostname of the server  
Definition at line 49 of file voms\_apic.h.

#### 3.2.1.3 char [contactdata::nick](#)

The alias of the server  
Definition at line 48 of file voms\_apic.h.

#### 3.2.1.4 int [contactdata::port](#)

The port on which the server is listening  
Definition at line 52 of file voms\_apic.h.

#### 3.2.1.5 char [contactdata::reserved](#)

HANDS OFF!  
Definition at line 53 of file voms\_apic.h.

#### 3.2.1.6 int [contactdata::version](#)

The version of Globus on which this server runs.  
Definition at line 54 of file voms\_apic.h.

### 3.2.1.7 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](#)

## 3.3 data Struct Reference

User's characteristics: can be repeated.

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

### Data Fields

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

#### 3.3.1 Detailed Description

User's characteristics: can be repeated.

<

Definition at line 33 of file voms\_apic.h.

#### 3.3.2 Field Documentation

##### 3.3.2.1 char [data::cap](#)

user's capability

Definition at line 36 of file voms\_apic.h.

##### 3.3.2.2 char [data::group](#)

user's group

Definition at line 34 of file voms\_apic.h.

##### 3.3.2.3 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](#)

## 3.4 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](#)

### 3.4.1 Field Documentation

#### 3.4.1.1 AC [voms::ac](#)

Definition at line 85 of file `voms_apic.h`.

#### 3.4.1.2 char [voms::custom](#)

The data returned by an S command

Definition at line 78 of file `voms_apic.h`.

#### 3.4.1.3 int [voms::datalen](#)

Definition at line 79 of file `voms_apic.h`.

#### 3.4.1.4 char [voms::date1](#)

Beginning of validity of the user info

Definition at line 74 of file `voms_apic.h`.

#### 3.4.1.5 char [voms::date2](#)

End of validity of the user info

Definition at line 75 of file voms\_apic.h.

#### 3.4.1.6 char [voms::fqan](#)

User's attributes in compact format

Definition at line 81 of file voms\_apic.h.

#### 3.4.1.7 X509 [voms::holder](#)

Definition at line 86 of file voms\_apic.h.

#### 3.4.1.8 char [voms::serial](#)

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

Definition at line 82 of file voms\_apic.h.

#### 3.4.1.9 char [voms::server](#)

The VOMS server DN, as from its certificate

Definition at line 70 of file voms\_apic.h.

#### 3.4.1.10 char [voms::serverca](#)

The CA which signed the VOMS certificate

Definition at line 71 of file voms\_apic.h.

#### 3.4.1.11 int [voms::siglen](#)

The length of the VOMS server signature

Definition at line 66 of file voms\_apic.h.

#### 3.4.1.12 char [voms::signature](#)

The VOMS server signature

Definition at line 67 of file voms\_apic.h.

#### 3.4.1.13 struct [data](#) [voms::std](#)

User's characteristics

Definition at line 77 of file voms\_apic.h.

#### 3.4.1.14 `int voms::type`

The type of data returned

Definition at line 76 of `le voms_apic.h`.

#### 3.4.1.15 `char voms::uri`

The URI of the VOMS server

Definition at line 73 of `le voms_apic.h`.

#### 3.4.1.16 `char voms::user`

The user's DN, as from his certificate

Definition at line 68 of `le voms_apic.h`.

#### 3.4.1.17 `char voms::userca`

The CA which signed the user's certificate

Definition at line 69 of `le voms_apic.h`.

#### 3.4.1.18 `int voms::version`

Definition at line 80 of `le voms_apic.h`.

#### 3.4.1.19 `char voms::voname`

The name of the VO to which the VOMS belongs

Definition at line 72 of `le voms_apic.h`.

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

- `voms_apic.h`

## 3.5 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](#)

### 3.5.1 Field Documentation

#### 3.5.1.1 char [vomsdata::cdir](#)

Definition at line 130 of file `voms_apic.h`.

#### 3.5.1.2 struct [voms\\_data](#) [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`.

#### 3.5.1.3 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`.

#### 3.5.1.4 int [vomsdata::extralen](#)

Definition at line 147 of file `voms_apic.h`.

#### 3.5.1.5 struct [vomsdata\\_real](#) [vomsdata::real](#)

Definition at line 149 of file `voms_apic.h`.

#### 3.5.1.6 char [vomsdata::vdir](#)

Definition at line 131 of file `voms_apic.h`.



#### 3.5.1.7 int [vomsdata::volen](#)

Definition at line 146 of file [voms\\_apic.h](#).

#### 3.5.1.8 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 4

# VOMS C API File Documentation

### 4.1 voms\_apic.h File Reference

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

#### Data Structures

- struct [attribute](#)
- struct [contactdata](#)
- struct [data](#)
  - User's characteristics: can be repeated.
- 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\\_FreeTarget](#)(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\\_RetrieveFromCredential](#)(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\\_RetrieveFromContext](#)(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)

#### 4.1.1 De ne Documentation

##### 4.1.1.1 #de ne RECURSE\_CHAIN 0

De nition at line 90 of le voms\_apic.h.

##### 4.1.1.2 #de ne RECURSE\_NONE 1

De nition at line 91 of le voms\_apic.h.

##### 4.1.1.3 #de ne TYPE\_CUSTOM 2

result of an S command

De nition at line 62 of le voms\_apic.h.

##### 4.1.1.4 #de ne TYPE\_NODATA 0

no data

De nition at line 60 of le voms\_apic.h.

#### 4.1.1.5 #define TYPE\_STD 1

group, role, capability triplet

Definition at line 61 of file voms\_apic.h.

#### 4.1.1.6 #define VERIFY\_CERTLIST 0x00000040

Definition at line 101 of file voms\_apic.h.

#### 4.1.1.7 #define VERIFY\_DATE 0x00000001

Definition at line 95 of file voms\_apic.h.

#### 4.1.1.8 #define VERIFY\_FULL 0xffffffff

Definition at line 93 of file voms\_apic.h.

#### 4.1.1.9 #define VERIFY\_ID 0x00000020

Definition at line 100 of file voms\_apic.h.

#### 4.1.1.10 #define VERIFY\_KEY 0x00000004

Definition at line 97 of file voms\_apic.h.

#### 4.1.1.11 #define VERIFY\_NONE 0x00000000

Definition at line 94 of file voms\_apic.h.

#### 4.1.1.12 #define VERIFY\_NOTARGET 0x00000002

Definition at line 96 of file voms\_apic.h.

#### 4.1.1.13 #define VERIFY\_ORDER 0x00000010

Definition at line 99 of file voms\_apic.h.

#### 4.1.1.14 #define VERIFY\_SIGN 0x00000008

Definition at line 98 of file voms\_apic.h.

#### 4.1.1.15 #define VERR\_COMM 3

Server problem

Definition at line 108 of file voms\_apic.h.

#### 4.1.1.16 #define VERR\_DIR 13

Directory error

Definition at line 119 of file voms\_apic.h.

#### 4.1.1.17 #define VERR\_EXTRINFO 9

VO name and URI missing

Definition at line 115 of file voms\_apic.h.

#### 4.1.1.18 #define VERR\_FORMAT 10

Wrong data format

Definition at line 116 of file voms\_apic.h.

#### 4.1.1.19 #define VERR\_IDCHECK 8

User data in extension different from the real ones

Definition at line 113 of file voms\_apic.h.

#### 4.1.1.20 #define VERR\_MEM 16

Memory problems

Definition at line 122 of file voms\_apic.h.

#### 4.1.1.21 #define VERR\_NODATA 11

Empty extension

Definition at line 117 of file voms\_apic.h.

#### 4.1.1.22 #define VERR\_NOEXT 5

VOMS extension missing

Definition at line 110 of file voms\_apic.h.

#### 4.1.1.23 #define VERR\_NOIDENT 2

Cannot identify itself (certificate problem)

Definition at line 107 of file voms\_apic.h.

#### 4.1.1.24 #define VERR\_NOINIT 6

Initialization error

Definition at line 111 of file voms\_apic.h.

#### 4.1.1.25 #define VERR\_NONE 0

Error codes.

Definition at line 105 of file voms\_apic.h.

#### 4.1.1.26 #define VERR\_NOSOCKET 1

Socket problem

Definition at line 106 of file voms\_apic.h.

#### 4.1.1.27 #define VERR\_NOTAVAIL 21

Method not available

Definition at line 127 of file voms\_apic.h.

#### 4.1.1.28 #define VERR\_ORDER 19

Ordering different than required

Definition at line 125 of file voms\_apic.h.

#### 4.1.1.29 #define VERR\_PARAM 4

Wrong parameters

Definition at line 109 of file voms\_apic.h.

#### 4.1.1.30 #define VERR\_PARSE 12

Parse error

Definition at line 118 of file voms\_apic.h.

#### 4.1.1.31 #define VERR\_SERVER 15

Unidentifiable VOMS server

Definition at line 121 of file voms\_apic.h.

#### 4.1.1.32 #define VERR\_SERVERCODE 20

Error from the server

Definition at line 126 of file voms\_apic.h.

#### 4.1.1.33 #define VERR\_SIGN 14

Signature error

Definition at line 120 of file voms\_apic.h.



#### 4.1.1.34 #define VERR\_TIME 7

Error in time checking

Definition at line 112 of file voms\_apic.h.

#### 4.1.1.35 #define VERR\_TYPE 18

Returned data of unknown type

Definition at line 124 of file voms\_apic.h.

#### 4.1.1.36 #define VERR\_VERIFY 17

Generic verification error

Definition at line 123 of file voms\_apic.h.

### 4.1.2 Typedef Documentation

#### 4.1.2.1 typedef void gss\_cred\_id\_t

Definition at line 20 of file voms\_apic.h.

#### 4.1.2.2 typedef void gss\_ctx\_id\_t

Definition at line 21 of file voms\_apic.h.

### 4.1.3 Function Documentation

#### 4.1.3.1 int getMajorVersionNumber (void)

#### 4.1.3.2 int getMinorVersionNumber (void)

#### 4.1.3.3 int getPatchVersionNumber (void)

#### 4.1.3.4 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)

4.1.3.5 `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)

4.1.3.6 `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)

4.1.3.7 `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.

#### 4.1.3.8 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.

#### 4.1.3.9 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.

#### 4.1.3.10 void VOMS\_Delete (struct `voms` v)

Deletes a voms structure

Parameters:

v Pointer to the structure to delete.

#### 4.1.3.11 void VOMS\_DeleteContacts (struct `contactdata` list)

Frees a contactdata vector.

Parameters:

list The vector to free.

Returns:

NONE

#### 4.1.3.12 void VOMS\_Destroy (struct `vomsdata` vd)

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

4.1.3.13 struct [vomsdata](#) VOMS\_Duplicate (struct [vomsdata](#) vd)

4.1.3.14 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.

4.1.3.15 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

bu en 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)

4.1.3.16 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 /opt/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.

4.1.3.17 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 /opt/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.

4.1.3.18 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.

- 4.1.3.19 void VOMS\_FreeTargetsList (char )
- 4.1.3.20 AC VOMS\_GetAC (struct voms v)
- 4.1.3.21 int VOMS\_GetAttribute (struct voms v, int handle, int num, struct attribute at, struct vomsdata vd, int error)
- 4.1.3.22 const char VOMS\_GetAttributeGrantor (struct voms v, int handle, struct vomsdata vd, int error)
- 4.1.3.23 int VOMS\_GetAttributesNumber (struct voms v, int handle, struct vomsdata vd, int error)
- 4.1.3.24 int VOMS\_GetAttributeSourceHandle (struct voms v, int num, struct vomsdata vd, int error)
- 4.1.3.25 int VOMS\_GetAttributeSourcesNumber (struct voms v, struct vomsdata vd, int error)
- 4.1.3.26 char VOMS\_GetTargetsList (struct voms v, struct vomsdata vd, int error)
- 4.1.3.27 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
- bu en 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)

- 4.1.3.28 struct vomsdata VOMS\_Init (char voms\_dir, char cert\_dir)

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.

4.1.3.29 char VOMS\_ListTargets (struct [vomsdata](#) vd, int error)

4.1.3.30 int VOMS\_Ordering (char order, struct [vomsdata](#) vd, int error)

Further specifies 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)

4.1.3.31 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)

4.1.3.32 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)

4.1.3.33 `int VOMS_RetrieveEXT (X509_EXTENSION ext, struct vomldata 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)

4.1.3.34 `int VOMS_RetrieveFromCred (gss\_cred\_id\_t cred, int how, struct vomldata 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)

4.1.3.35 `int VOMS_RetrieveFromCtx (gss\_ctx\_id\_t ctx, int how, struct vomldata 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)

4.1.3.36 `int VOMS_RetrieveFromFile (FILE file, int how, struct vomldata 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)

4.1.3.37 int VOMS\_RetrieveFromProxy (inhow, 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)

4.1.3.38 int VOMS\_SetLifetime (intlength, 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)

4.1.3.39 int VOMS\_SetTimeout (intt, struct [vomsdata](#) vd, int error)

4.1.3.40 int VOMS\_SetVerificationTime (time\_t verificationtime, struct [vomsdata](#) vd, int error)

4.1.3.41 int VOMS\_SetVerificationType (int type, struct [vomsdata](#) vd, int error)

# Index

ac  
    voms, [9](#)  
attribute, [5](#)  
    name, [5](#)  
    qualifier, [5](#)  
    value, [5](#)  
  
cap  
    data, [8](#)  
cdir  
    vomsdata, [12](#)  
contact  
    contactdata, [6](#)  
contactdata, [6](#)  
    contact, [6](#)  
    host, [6](#)  
    nick, [6](#)  
    port, [6](#)  
    reserved, [6](#)  
    version, [6](#)  
    vo, [6](#)  
custom  
    voms, [9](#)  
  
data, [8](#)  
    cap, [8](#)  
    group, [8](#)  
    role, [8](#)  
    vomsdata, [12](#)  
datalen  
    voms, [9](#)  
date1  
    voms, [9](#)  
date2  
    voms, [9](#)  
  
extra\_data  
    vomsdata, [12](#)  
extralen  
    vomsdata, [12](#)  
  
fqan  
    voms, [10](#)  
  
getMajorVersionNumber  
    voms\_apic.h, [21](#)  
  
getMinorVersionNumber  
    voms\_apic.h, [21](#)  
getPatchVersionNumber  
    voms\_apic.h, [21](#)  
group  
    data, [8](#)  
gss\_cred\_id\_t  
    voms\_apic.h, [21](#)  
gss\_ctx\_id\_t  
    voms\_apic.h, [21](#)  
  
holder  
    voms, [10](#)  
host  
    contactdata, [6](#)  
  
name  
    attribute, [5](#)  
nick  
    contactdata, [6](#)  
  
port  
    contactdata, [6](#)  
  
qualifier  
    attribute, [5](#)  
  
real  
    vomsdata, [12](#)  
RECURSE\_CHAIN  
    voms\_apic.h, [17](#)  
RECURSE\_NONE  
    voms\_apic.h, [17](#)  
reserved  
    contactdata, [6](#)  
role  
    data, [8](#)  
  
serial  
    voms, [10](#)  
server  
    voms, [10](#)  
serverca  
    voms, [10](#)  
siglen  
    voms, [10](#)

- signature
  - voms, [10](#)
- std
  - voms, [10](#)
- type
  - voms, [10](#)
- TYPE\_CUSTOM
  - voms\_apic.h, [17](#)
- TYPE\_NODATA
  - voms\_apic.h, [17](#)
- TYPE\_STD
  - voms\_apic.h, [17](#)
- uri
  - voms, [11](#)
- user
  - voms, [11](#)
- userca
  - voms, [11](#)
- value
  - attribute, [5](#)
- vdir
  - vomsdata, [12](#)
- VERIFY\_CERTLIST
  - voms\_apic.h, [18](#)
- VERIFY\_DATE
  - voms\_apic.h, [18](#)
- VERIFY\_FULL
  - voms\_apic.h, [18](#)
- VERIFY\_ID
  - voms\_apic.h, [18](#)
- VERIFY\_KEY
  - voms\_apic.h, [18](#)
- VERIFY\_NONE
  - voms\_apic.h, [18](#)
- VERIFY\_NOTARGET
  - voms\_apic.h, [18](#)
- VERIFY\_ORDER
  - voms\_apic.h, [18](#)
- VERIFY\_SIGN
  - voms\_apic.h, [18](#)
- VERR\_COMM
  - voms\_apic.h, [18](#)
- VERR\_DIR
  - voms\_apic.h, [18](#)
- VERR\_EXTRAINFO
  - voms\_apic.h, [19](#)
- VERR\_FORMAT
  - voms\_apic.h, [19](#)
- VERR\_IDCHECK
  - voms\_apic.h, [19](#)
- VERR\_MEM
  - voms\_apic.h, [19](#)
- VERR\_NODATA
  - voms\_apic.h, [19](#)
- VERR\_NOEXT
  - voms\_apic.h, [19](#)
- VERR\_NOIDENT
  - voms\_apic.h, [19](#)
- VERR\_NOINIT
  - voms\_apic.h, [19](#)
- VERR\_NONE
  - voms\_apic.h, [19](#)
- VERR\_NOCKET
  - voms\_apic.h, [20](#)
- VERR\_NOTAVAIL
  - voms\_apic.h, [20](#)
- VERR\_ORDER
  - voms\_apic.h, [20](#)
- VERR\_PARAM
  - voms\_apic.h, [20](#)
- VERR\_PARSE
  - voms\_apic.h, [20](#)
- VERR\_SERVER
  - voms\_apic.h, [20](#)
- VERR\_SERVERCODE
  - voms\_apic.h, [20](#)
- VERR\_SIGN
  - voms\_apic.h, [20](#)
- VERR\_TIME
  - voms\_apic.h, [20](#)
- VERR\_TYPE
  - voms\_apic.h, [21](#)
- VERR\_VERIFY
  - voms\_apic.h, [21](#)
- version
  - contactdata, [6](#)
  - voms, [11](#)
- vo
  - contactdata, [6](#)
- volen
  - vomsdata, [12](#)
- voms, [9](#)
  - ac, [9](#)
  - custom, [9](#)
  - datalen, [9](#)
  - date1, [9](#)
  - date2, [9](#)
  - fqan, [10](#)
  - holder, [10](#)
  - serial, [10](#)
  - server, [10](#)
  - serverca, [10](#)
  - siglen, [10](#)
  - signature, [10](#)
  - std, [10](#)

- type, [10](#)
- uri, [11](#)
- user, [11](#)
- userca, [11](#)
- version, [11](#)
- voname, [11](#)
- VOMS\_AddTarget
  - voms\_apic.h [21](#)
- voms\_apic.h [15](#)
  - getMajorVersionNumber [21](#)
  - getMinorVersionNumber [21](#)
  - getPatchVersionNumber [21](#)
  - gss\_cred\_id\_t [21](#)
  - gss\_ctx\_id\_t [21](#)
  - RECURSE\_CHAIN, [17](#)
  - RECURSE\_NONE, [17](#)
  - TYPE\_CUSTOM, [17](#)
  - TYPE\_NODATA, [17](#)
  - TYPE\_STD, [17](#)
  - VERIFY\_CERTLIST, [18](#)
  - VERIFY\_DATE, [18](#)
  - VERIFY\_FULL, [18](#)
  - VERIFY\_ID, [18](#)
  - VERIFY\_KEY, [18](#)
  - VERIFY\_NONE, [18](#)
  - VERIFY\_NOTARGET, [18](#)
  - VERIFY\_ORDER, [18](#)
  - VERIFY\_SIGN, [18](#)
  - VERR\_COMM, [18](#)
  - VERR\_DIR, [18](#)
  - VERR\_EXTRAINFO, [19](#)
  - VERR\_FORMAT, [19](#)
  - VERR\_IDCHECK, [19](#)
  - VERR\_MEM, [19](#)
  - VERR\_NODATA, [19](#)
  - VERR\_NOEXT, [19](#)
  - VERR\_NOIDENT, [19](#)
  - VERR\_NOINIT, [19](#)
  - VERR\_NONE, [19](#)
  - VERR\_NOCKET, [20](#)
  - VERR\_NOTAVAIL, [20](#)
  - VERR\_ORDER, [20](#)
  - VERR\_PARAM, [20](#)
  - VERR\_PARSE, [20](#)
  - VERR\_SERVER, [20](#)
  - VERR\_SERVERCODE, [20](#)
  - VERR\_SIGN, [20](#)
  - VERR\_TIME, [20](#)
  - VERR\_TYPE, [21](#)
  - VERR\_VERIFY, [21](#)
  - VOMS\_AddTarget [21](#)
  - VOMS\_Contact [21](#)
  - VOMS\_ContactRaw [22](#)
  - VOMS\_Copy, [22](#)
  - VOMS\_CopyAll, [22](#)
  - VOMS\_DefaultData [23](#)
  - VOMS\_Delete [23](#)
  - VOMS\_DeleteContacts [23](#)
  - VOMS\_Destroy [23](#)
  - VOMS\_Duplicate [23](#)
  - VOMS\_ErrorMessage [24](#)
  - VOMS\_Export, [24](#)
  - VOMS\_FindByAlias, [24](#)
  - VOMS\_FindByVO, [24](#)
  - VOMS\_FreeTargets [25](#)
  - VOMS\_FreeTargetsList [25](#)
  - VOMS\_GetAC, [26](#)
  - VOMS\_GetAttribute [26](#)
  - VOMS\_GetAttributeGrantor [26](#)
  - VOMS\_GetAttributesNumber [26](#)
  - VOMS\_GetAttributeSourceHandle [26](#)
  - VOMS\_GetAttributeSourcesNumber [26](#)
  - VOMS\_GetTargetsList [26](#)
  - VOMS\_Import, [26](#)
  - VOMS\_Init, [26](#)
  - VOMS\_ListTargets [26](#)
  - VOMS\_Ordering [27](#)
  - VOMS\_ResetOrder [27](#)
  - VOMS\_Retrieve [27](#)
  - VOMS\_RetrieveEXT [27](#)
  - VOMS\_RetrieveFromCred [28](#)
  - VOMS\_RetrieveFromCtx [28](#)
  - VOMS\_RetrieveFromFile [28](#)
  - VOMS\_RetrieveFromProxy [29](#)
  - VOMS\_SetLifetime [29](#)
  - VOMS\_SetTimeout [29](#)
  - VOMS\_SetVerificationTime [29](#)
  - VOMS\_SetVerificationType [29](#)
  - VOMS\_Contact
    - voms\_apic.h [21](#)
  - VOMS\_ContactRaw
    - voms\_apic.h [22](#)
  - VOMS\_Copy
    - voms\_apic.h [22](#)
  - VOMS\_CopyAll
    - voms\_apic.h [22](#)
  - VOMS\_DefaultData
    - voms\_apic.h [23](#)
  - VOMS\_Delete
    - voms\_apic.h [23](#)
  - VOMS\_DeleteContacts
    - voms\_apic.h [23](#)
  - VOMS\_Destroy
    - voms\_apic.h [23](#)
  - VOMS\_Duplicate
    - voms\_apic.h [23](#)
  - VOMS\_ErrorMessage
    - voms\_apic.h [24](#)

VOMS\_Export  
    voms\_apic.h[24](#)  
VOMS\_FindByAlias  
    voms\_apic.h[24](#)  
VOMS\_FindByVO  
    voms\_apic.h[24](#)  
VOMS\_FreeTargets  
    voms\_apic.h[25](#)  
VOMS\_FreeTargetsList  
    voms\_apic.h[25](#)  
VOMS\_GetAC  
    voms\_apic.h[26](#)  
VOMS\_GetAttribute  
    voms\_apic.h[26](#)  
VOMS\_GetAttributeGrantor  
    voms\_apic.h[26](#)  
VOMS\_GetAttributesNumber  
    voms\_apic.h[26](#)  
VOMS\_GetAttributeSourceHandle  
    voms\_apic.h[26](#)  
VOMS\_GetAttributeSourcesNumber  
    voms\_apic.h[26](#)  
VOMS\_GetTargetsList  
    voms\_apic.h[26](#)  
VOMS\_Import  
    voms\_apic.h[26](#)  
VOMS\_Init  
    voms\_apic.h[26](#)  
VOMS\_ListTargets  
    voms\_apic.h[26](#)  
VOMS\_Ordering  
    voms\_apic.h[27](#)  
VOMS\_ResetOrder  
    voms\_apic.h[27](#)  
VOMS\_Retrieve  
    voms\_apic.h[27](#)  
VOMS\_RetrieveEXT  
    voms\_apic.h[27](#)  
VOMS\_RetrieveFromCred  
    voms\_apic.h[28](#)  
VOMS\_RetrieveFromCtx  
    voms\_apic.h[28](#)  
VOMS\_RetrieveFromFile  
    voms\_apic.h[28](#)  
VOMS\_RetrieveFromProxy  
    voms\_apic.h[29](#)  
VOMS\_SetLifetime  
    voms\_apic.h[29](#)  
VOMS\_SetTimeout  
    voms\_apic.h[29](#)  
VOMS\_SetVerificationTime  
    voms\_apic.h[29](#)  
VOMS\_SetVerificationType  
    voms\_apic.h[29](#)  
vomsdata,[12](#)  
    cdir, [12](#)  
    data, [12](#)  
    extra\_data,[12](#)  
    extralen,[12](#)  
    real, [12](#)  
    vdir, [12](#)  
    volen, [12](#)  
    workvo, [13](#)  
voname  
    voms, [11](#)  
workvo  
    vomsdata,[13](#)