

util-vserver (libvserver) Reference Manual  
0.30.215

Generated by Doxygen 1.5.1

Mon Mar 31 19:06:23 2008

## Contents

<a href="#">1</a>	<a href="#">util-vserver (libvserver) Module Index</a>	<a href="#">1</a>
<a href="#">2</a>	<a href="#">util-vserver (libvserver) Data Structure Index</a>	<a href="#">1</a>
<a href="#">3</a>	<a href="#">util-vserver (libvserver) File Index</a>	<a href="#">2</a>
<a href="#">4</a>	<a href="#">util-vserver (libvserver) Module Documentation</a>	<a href="#">2</a>
<a href="#">5</a>	<a href="#">util-vserver (libvserver) Data Structure Documentation</a>	<a href="#">10</a>
<a href="#">6</a>	<a href="#">util-vserver (libvserver) File Documentation</a>	<a href="#">19</a>

## 1 util-vserver (libvserver) Module Index

### 1.1 util-vserver (libvserver) Modules

Here is a list of all modules:

<a href="#">Syscall wrappers</a>	<a href="#">2</a>
<a href="#">Helper functions</a>	<a href="#">8</a>

## 2 util-vserver (libvserver) Data Structure Index

### 2.1 util-vserver (libvserver) Data Structures

Here are the data structures with brief descriptions:

<a href="#">Mapping_uint32</a>	<a href="#">10</a>
<a href="#">Mapping_uint64</a>	<a href="#">11</a>
<a href="#">vc_ctx_caps</a> (Capabilities of process-contexts )	<a href="#">11</a>
<a href="#">vc_ctx_dlimit</a>	<a href="#">12</a>
<a href="#">vc_ctx_flags</a> (Flags of process-contexts )	<a href="#">12</a>
<a href="#">vc_ctx_stat</a> (Statistics about a context )	<a href="#">13</a>
<a href="#">vc_err_listparser</a> (Information about parsing errors )	<a href="#">13</a>
<a href="#">vc_ip_mask_pair</a>	<a href="#">14</a>
<a href="#">vc_net_addr</a>	<a href="#">14</a>
<a href="#">vc_net_caps</a>	<a href="#">14</a>

<a href="#">vc_net_flags</a>	15
<a href="#">vc_nx_info</a>	15
<a href="#">vc_rlimit</a> (The limits of a resources )	15
<a href="#">vc_rlimit_mask</a> (Masks describing the supported limits )	16
<a href="#">vc_rlimit_stat</a> (Statistics for a resource limit )	16
<a href="#">vc_sched_info</a>	17
<a href="#">vc_set_sched</a>	17
<a href="#">vc_virt_stat</a> (Contains further statistics about a context )	18
<a href="#">vc_vx_info</a>	18

### 3 util-vserver (libvserver) File Index

#### 3.1 util-vserver (libvserver) File List

Here is a list of all documented files with brief descriptions:

<a href="#">internal.h</a> (Declarations which are used by util-vserver internally )	19
<a href="#">vserver.h</a> (The public interface of the the libvserver library )	20

### 4 util-vserver (libvserver) Module Documentation

#### 4.1 Syscall wrappers

##### Functions

- [int vc\\_syscall](#) (uint32\_t cmd, [xid\\_t](#) xid, void \*data)  
*The generic vserver syscall.*
- [int vc\\_get\\_version](#) ()  
*Returns the version of the current kernel API.*
- [vc\\_vci\\_t vc\\_get\\_vci](#) ()  
*Returns the kernel configuration bits.*
- [xid\\_t vc\\_new\\_s\\_context](#) ([xid\\_t](#) ctx, unsigned int remove\_cap, unsigned int flags)  
*Moves current process into a context.*
- [int vc\\_set\\_ipv4root](#) (uint32\_t bcast, size\_t nb, struct [vc\\_ip\\_mask\\_pair](#) const \*ips)  
*Sets the ipv4root information.*
- [xid\\_t vc\\_ctx\\_create](#) ([xid\\_t](#) xid, struct [vc\\_ctx\\_flags](#) \*flags)

*Creates a context without starting it.*

- `int vc_ctx_migrate (xid_t xid, uint_least64_t flags)`  
*Moves the current process into the specified context.*
- `int vc_ctx_stat (xid_t xid, struct vc_ctx_stat *stat)`  
*Get some statistics about a context.*
- `int vc_virt_stat (xid_t xid, struct vc_virt_stat *stat)`  
*Get more statistics about a context.*
- `int vc_ctx_kill (xid_t ctx, pid_t pid, int sig)`  
*Sends a signal to a context/pid.*
- `xid_t vc_get_task_xid (pid_t pid)`  
*Returns the context of the given process.*
- `int vc_wait_exit (xid_t xid)`  
*Waits for the end of a context.*
- `int vc_get_rlimit (xid_t xid, int resource, struct vc_rlimit *lim)`  
*Returns the limits of resource.*
- `int vc_set_rlimit (xid_t xid, int resource, struct vc_rlimit const *lim)`  
*Sets the limits of resource.*
- `int vc_rlimit_stat (xid_t xid, int resource, struct vc_rlimit_stat *stat)`  
*Returns the current stats of resource.*
- `int vc_reset_minmax (xid_t xid)`  
*Resets the minimum and maximum observed values of all resources.*
- `int vc_get_iattr (char const *filename, xid_t *xid, uint_least32_t *flags, uint_least32_t *mask)`  
*Returns information about attributes and assigned context of a file.*
- `xid_t vc_getfilecontext (char const *filename)`  
*Returns the context of filename.*

### 4.1.1 Detailed Description

Functions which are calling the vserver syscall directly.

### 4.1.2 Function Documentation

#### 4.1.2.1 `xid_t vc_ctx_create (xid_t xid, struct vc_ctx_flags *flags)`

Creates a context without starting it.

This functions initializes a new context. When already in a freshly created context, this old context will be discarded.

**Parameters:**

*xid* The new context; special values are:

- VC\_DYNAMIC\_XID which means to create a dynamic context

**Returns:**

the xid of the created context, or VC\_NOCTX on errors. `errno` will be set appropriately.

**4.1.2.2 int vc\_ctx\_kill (xid\_t ctx, pid\_t pid, int sig)**

Sends a signal to a context/pid.

Special values for *pid* are:

- -1 which means every process in ctx except the init-process
- 0 which means every process in ctx inclusive the init-process

**4.1.2.3 int vc\_ctx\_migrate (xid\_t xid, uint\_least64\_t flags)**

Moves the current process into the specified context.

**Parameters:**

*xid* The new context

*flags* The flags, see VC\_VXM\_\*

**Returns:**

0 on success, -1 on errors

**4.1.2.4 int vc\_ctx\_stat (xid\_t xid, struct vc\_ctx\_stat \* stat)**

Get some statistics about a context.

**Parameters:**

*xid* The context to get stats about

*stat* Where to store the result

**Returns:**

0 on success, -1 on errors.

**4.1.2.5 int vc\_get\_iattr (char const \* filename, xid\_t \* xid, uint\_least32\_t \* flags, uint\_least32\_t \* mask)**

Returns information about attributes and assigned context of a file.

This function returns the VC\_IATTR\_XXX flags and about the assigned context of a file. To request an information, the appropriate bit in `mask` must be set and the corresponding parameter (*xid* or *flags*) must not be NULL.

E.g. to receive the assigned context, the VC\_IATTR\_XID bit must be set in *mask*, and *xid* must point to valid memory.

Possible flags are VC\_IATTR\_ADMIN, VC\_IATTR\_WATCH , VC\_IATTR\_HIDE, VC\_IATTR\_BARRIER, VC\_IATTR\_IUNLINK and VC\_IATTR\_IMMUTABLE.

**Parameters:**

*filename* The name of the file whose attributes shall be determined.

*xid* When non-zero and the VC\_IATTR\_XID bit is set in *mask*, the assigned context of *filename* will be stored there.

*flags* When non-zero, a bitmask of current attributes will be stored there. These attributes must be requested explicitly by setting the appropriate bit in *mask*

*mask* Points to a bitmask which tells which attributes shall be determined. On return, it will masquerade the attributes which were determined.

**Precondition:**

```
mask!=0 && !((*mask&VC_IATTR_XID) && xid==0) && !((*mask&~VC_IATTR_XID) && flags==0)
```

#### 4.1.2.6 int vc\_get\_rlimit (xid\_t xid, int resource, struct vc\_rlimit \* lim)

Returns the limits of *resource*.

**Parameters:**

*xid* The id of the context

*resource* The resource which will be queried

*lim* The result which will be filled with the limits

**Returns:**

0 on success, and -1 on errors.

#### 4.1.2.7 xid\_t vc\_get\_task\_xid (pid\_t pid)

Returns the context of the given process.

**Parameters:**

*pid* the process-id whose xid shall be determined; pid==0 means the current process.

**Returns:**

the xid of process *pid* or -1 on errors

#### 4.1.2.8 vc\_vci\_t vc\_get\_vci ()

Returns the kernel configuration bits.

**Returns:**

The kernel configuration bits

#### 4.1.2.9 `int vc_get_version ()`

Returns the version of the current kernel API.

**Returns:**

The versionnumber of the kernel API

#### 4.1.2.10 `xid_t vc_getfilecontext (char const *filename)`

Returns the context of `filename`.

This function calls `vc_get_iattr()` with appropriate arguments to determine the context of `filename`. In error-case or when no context is assigned, `VC_NOCTX` will be returned. To differ between both cases, `errno` must be examined.

**WARNING:** this function can modify `errno` although no error happened.

**Parameters:**

*filename* The file to check

**Returns:**

The assigned context, or `VC_NOCTX` when an error occurred or no such assignment exists. `errno` will be 0 in the latter case

#### 4.1.2.11 `xid_t vc_new_s_context (xid_t ctx, unsigned int remove_cap, unsigned int flags)`

Moves current process into a context.

Puts current process into context `ctx`, removes the capabilities given in `remove_cap` and sets `flags`.

**Parameters:**

*ctx* The new context; special values for are

- `VC_SAMECTX` which means the current context (just for changing caps and flags)
- `VC_DYNAMIC_XID` which means the next free context; this value can be used by ordinary users also

*remove\_cap* The linux capabilities which will be **removed**.

*flags* Special flags which will be set.

**Returns:**

The new context-id, or `VC_NOCTX` on errors; `errno` will be set appropriately

See <http://vserver.13thfloor.at/Stuff/Logic.txt> for details

#### 4.1.2.12 `int vc_reset_minmax (xid_t xid)`

Resets the minimum and maximum observed values of all resources.

**Parameters:**

*xid* The id of the context

**Returns:**

0 on success, and -1 on errors.

**4.1.2.13** `int vc_rlimit_stat (xid_t xid, int resource, struct vc_rlimit_stat * stat)`

Returns the current stats of *resource*.

**Parameters:**

*xid* The id of the context  
*resource* The resource which will be queried  
*stat* The result which will be filled with the stats

**Returns:**

0 on success, and -1 on errors.

**4.1.2.14** `int vc_set_ipv4root (uint32_t bcast, size_t nb, struct vc_ip_mask_pair const * ips)`

Sets the ipv4root information.

**Precondition:**

$nb < \text{NB\_IPV4ROOT} \ \&\& \ ips \neq 0$

**4.1.2.15** `int vc_set_rlimit (xid_t xid, int resource, struct vc_rlimit const * lim)`

Sets the limits of *resource*.

**Parameters:**

*xid* The id of the context  
*resource* The resource which will be queried  
*lim* The new limits

**Returns:**

0 on success, and -1 on errors.

**4.1.2.16** `int vc_syscall (uint32_t cmd, xid_t xid, void * data)`

The generic vserver syscall.

This function executes the generic vserver syscall. It uses the correct syscallnumber (which may differ between the different architectures).

**Parameters:**

*cmd* the command to be executed  
*xid* the xid on which the cmd shall be applied  
*data* additional arguments; depends on *cmd*

**Returns:**

depends on *cmd*; usually, -1 stands for an error

#### 4.1.2.17 int `vc_virt_stat` (`xid_t` *xid*, struct `vc_virt_stat` \* *stat*)

Get more statistics about a context.

##### Parameters:

- xid* The context to get stats about
- stat* Where to store the result

##### Returns:

0 on success, -1 on errors.

## 4.2 Helper functions

### Data Structures

- struct `vc_err_listparser`  
*Information about parsing errors.*

### Functions

- `size_t` `vc_get_nb_ipv4root` () VC\_ATTR\_CONST  
*Returns the value of NB\_IPV4ROOT.*
- `bool` `vc_parseLimit` (char const \*str, `vc_limit_t` \*res)  
*Parses a string describing a limit.*
- `uint_least64_t` `vc_text2bcap` (char const \*str, `size_t` len)  
*Converts a single string into bcapability.*
- char const \* `vc_lobcap2text` (`uint_least64_t` \*val)  
*Converts the lowest bit of a bcapability or the entire value (when possible) to a textual representation.*
- `int` `vc_list2bcap` (char const \*str, `size_t` len, struct `vc_err_listparser` \*err, struct `vc_ctx_caps` \*cap)  
*Converts a string into a bcapability-bitmask.*

#### 4.2.1 Detailed Description

Functions which are doing general helper tasks like parameter parsing.

#### 4.2.2 Function Documentation

##### 4.2.2.1 `size_t` `vc_get_nb_ipv4root` ()

Returns the value of NB\_IPV4ROOT.

This function returns the value of NB\_IPV4ROOT which was used when the library was built, but **not** the value which is used by the currently running kernel.

#### 4.2.2.2 int vc\_list2bcap (char const \* *str*, size\_t *len*, struct vc\_err\_listparser \* *err*, struct vc\_ctx\_caps \* *cap*)

Converts a string into a bcapability-bitmask.

Syntax of *str*: list2xxx.syntax

When the '~' prefix is used, the bits will be unset and a '~' after another '~' will cancel both ones. The '^' prefix specifies a bitnumber instead of a bitmask.

"literal name" is everything which will be accepted by the vc\_text2bcap() function. The special values for NAME will be recognized case insensitively

##### Parameters:

*str* The string to be parsed

*len* The length of the string, or 0 for automatic detection

*err* Pointer to a structure for error-information, or NULL.

*cap* Pointer to a vc\_ctx\_caps structure holding the results; only the *bcaps* and *bmask* fields will be changed and already set values will not be honored. When an error occurred, *cap* will have the value of all processed valid BCAP parts.

##### Returns:

0 on success, -1 on error. In error case, *err* will hold position and length of the first not understood BCAP part

##### Precondition:

*str* != 0 && *cap* != 0; *cap*->*bcaps* and *cap*->*bmask* must be initialized

#### 4.2.2.3 char const\* vc\_lobcap2text (uint\_least64\_t \* *val*)

Converts the lowest bit of a bcapability or the entire value (when possible) to a textual representation.

##### Parameters:

*val* The string to be converted; on success, the detected bit(s) will be unset, in errorcase only the lowest set bit

##### Returns:

A textual representation of *val* resp. of its lowest set bit; or NULL in errorcase.

##### Precondition:

*val* != 0

##### Postcondition:

*\*val<sub>old</sub>* != 0 <-> *\*val<sub>old</sub>* > *\*val<sub>new</sub>*  
*\*val<sub>old</sub>* == 0 --> *result* == 0

#### 4.2.2.4 bool vc\_parseLimit (char const \* *str*, [vc\\_limit\\_t](#) \* *res*)

Parses a string describing a limit.

This function parses *str* and interprets special words like "inf" or suffixes. Valid suffixes are

- k ... 1000
- m ... 1000000
- K ... 1024
- M ... 1048576

##### Parameters:

*str* The string which shall be parsed

*res* Will be filled with the interpreted value; in errorcase, this value is undefined.

##### Returns:

*true*, iff the string *str* could be parsed. *res* will be filled with the interpreted value in this case.

##### Precondition:

*str*!=0 && *res*!=0

#### 4.2.2.5 uint\_least64\_t vc\_text2bcap (char const \* *str*, [size\\_t](#) *len*)

Converts a single string into bcapability.

##### Parameters:

*str* The string to be parsed; both "CAP\_XXX" and "XXX" will be accepted

*len* The length of the string, or 0 for automatic detection

##### Returns:

0 on error; a bitmask on success

##### Precondition:

*str* != 0

## 5 util-vserver (libvserver) Data Structure Documentation

### 5.1 Mapping\_uint32 Struct Reference

#### Data Fields

- char const \*const [id](#)
- [size\\_t](#) [len](#)
- [uint\\_least32\\_t](#) [val](#)

### 5.1.1 Detailed Description

Definition at line 62 of file internal.h.

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

- [internal.h](#)

## 5.2 Mapping\_uint64 Struct Reference

### Data Fields

- char const \*const [id](#)
- size\_t [len](#)
- uint\_least64\_t [val](#)

### 5.2.1 Detailed Description

Definition at line 68 of file internal.h.

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

- [internal.h](#)

## 5.3 vc\_ctx\_caps Struct Reference

Capabilities of process-contexts.

```
#include <vserver.h>
```

### Data Fields

- uint\_least64\_t [bcaps](#)  
*Mask of set common system capabilities.*
- uint\_least64\_t [bmask](#)  
*Mask of set and unset common system capabilities when used by set operations, or the modifiable capabilities when used by get operations.*
- uint\_least64\_t [ccaps](#)  
*Mask of set process context capabilities.*
- uint\_least64\_t [cmask](#)  
*Mask of set and unset process context capabilities when used by set operations, or the modifiable capabilities when used by get operations.*

### 5.3.1 Detailed Description

Capabilities of process-contexts.

Definition at line 493 of file vserver.h.

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

- [vserver.h](#)

## 5.4 vc\_ctx\_dlimit Struct Reference

### Data Fields

- [uint\\_least32\\_t](#) [space\\_used](#)
- [uint\\_least32\\_t](#) [space\\_total](#)
- [uint\\_least32\\_t](#) [inodes\\_used](#)
- [uint\\_least32\\_t](#) [inodes\\_total](#)
- [uint\\_least32\\_t](#) [reserved](#)

### 5.4.1 Detailed Description

Definition at line 769 of file vserver.h.

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

- [vserver.h](#)

## 5.5 vc\_ctx\_flags Struct Reference

Flags of process-contexts.

```
#include <vserver.h>
```

### Data Fields

- [uint\\_least64\\_t](#) [flagword](#)  
*Mask of set context flags.*
- [uint\\_least64\\_t](#) [mask](#)  
*Mask of set and unset context flags when used by set operations, or modifiable flags when used by get operations.*

### 5.5.1 Detailed Description

Flags of process-contexts.

Definition at line 415 of file vserver.h.

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

- [vserver.h](#)

## 5.6 vc\_ctx\_stat Struct Reference

Statistics about a context.

```
#include <vserver.h>
```

### Data Fields

- `uint_least32_t usecnt`  
*number of uses*
- `uint_least32_t tasks`  
*number of tasks*

#### 5.6.1 Detailed Description

Statistics about a context.

Definition at line 446 of file `vserver.h`.

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

- [vserver.h](#)

## 5.7 vc\_err\_listparser Struct Reference

Information about parsing errors.

```
#include <vserver.h>
```

### Data Fields

- `char const * ptr`  
*Pointer to the first character of an erroneous string.*
- `size_t len`  
*Length of the erroneous string.*

#### 5.7.1 Detailed Description

Information about parsing errors.

Definition at line 844 of file `vserver.h`.

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

- [vserver.h](#)

## 5.8 vc\_ip\_mask\_pair Struct Reference

### Data Fields

- uint32\_t [ip](#)
- uint32\_t [mask](#)

### 5.8.1 Detailed Description

Definition at line 393 of file vserver.h.

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

- [vserver.h](#)

## 5.9 vc\_net\_addr Struct Reference

### Data Fields

- uint16\_t [vna\\_type](#)
- uint16\_t [vna\\_flags](#)
- uint16\_t [vna\\_prefix](#)
- uint16\_t [vna\\_parent](#)
- struct {
  - union {
    - [in\\_addr v4](#)
    - [in6\\_addr v6](#)
  - ip**
  - union {
    - [in\\_addr v4](#)
    - [in6\\_addr v6](#)
  - ip2**
  - union {
    - [in\\_addr v4](#)
    - [in6\\_addr v6](#)
  - mask**
- s**

### 5.9.1 Detailed Description

Definition at line 643 of file vserver.h.

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

- [vserver.h](#)

## 5.10 vc\_net\_caps Struct Reference

### Data Fields

- uint\_least64\_t [ncaps](#)

- `uint_least64_t cmask`

#### 5.10.1 Detailed Description

Definition at line 684 of file `vserver.h`.

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

- `vserver.h`

### 5.11 `vc_net_flags` Struct Reference

#### Data Fields

- `uint_least64_t flagword`
- `uint_least64_t mask`

#### 5.11.1 Detailed Description

Definition at line 670 of file `vserver.h`.

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

- `vserver.h`

### 5.12 `vc_nx_info` Struct Reference

#### Data Fields

- `nid_t nid`

#### 5.12.1 Detailed Description

Definition at line 636 of file `vserver.h`.

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

- `vserver.h`

### 5.13 `vc_rlimit` Struct Reference

The limits of a resources.

```
#include <vserver.h>
```

#### Data Fields

- `vc_limit_t min`  
*the guaranted minimum of a resources*

- [vc\\_limit\\_t soft](#)  
*the softlimit of a resource*
- [vc\\_limit\\_t hard](#)  
*the absolute hardlimit of a resource*

### 5.13.1 Detailed Description

The limits of a resources.

This is a triple consisting of a minimum, soft and hardlimit.

Definition at line 559 of file `vserver.h`.

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

- [vserver.h](#)

## 5.14 `vc_rlimit_mask` Struct Reference

Masks describing the supported limits.

```
#include <vserver.h>
```

### Data Fields

- [uint\\_least32\\_t min](#)  
*masks the resources supporting a minimum limit*
- [uint\\_least32\\_t soft](#)  
*masks the resources supporting a soft limit*
- [uint\\_least32\\_t hard](#)  
*masks the resources supporting a hard limit*

### 5.14.1 Detailed Description

Masks describing the supported limits.

Definition at line 546 of file `vserver.h`.

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

- [vserver.h](#)

## 5.15 `vc_rlimit_stat` Struct Reference

Statistics for a resource limit.

```
#include <vserver.h>
```

### Data Fields

- [uint\\_least32\\_t hits](#)  
*number of hits on the limit*
- [vc\\_limit\\_t value](#)  
*current value*
- [vc\\_limit\\_t minimum](#)  
*minimum value observed*
- [vc\\_limit\\_t maximum](#)  
*maximum value observed*

#### 5.15.1 Detailed Description

Statistics for a resource limit.

Definition at line 587 of file vserver.h.

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

- [vserver.h](#)

## 5.16 vc\_sched\_info Struct Reference

### Data Fields

- [int\\_least32\\_t cpu\\_id](#)
- [int\\_least32\\_t bucket\\_id](#)
- [uint\\_least64\\_t user\\_msec](#)
- [uint\\_least64\\_t sys\\_msec](#)
- [uint\\_least64\\_t hold\\_msec](#)
- [uint\\_least32\\_t token\\_usec](#)
- [int\\_least32\\_t vavavoom](#)

#### 5.16.1 Detailed Description

Definition at line 821 of file vserver.h.

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

- [vserver.h](#)

## 5.17 vc\_set\_sched Struct Reference

### Data Fields

- [uint\\_least32\\_t set\\_mask](#)
- [int\\_least32\\_t fill\\_rate](#)

- [int\\_least32\\_t interval](#)
- [int\\_least32\\_t fill\\_rate2](#)
- [int\\_least32\\_t interval2](#)
- [int\\_least32\\_t tokens](#)
- [int\\_least32\\_t tokens\\_min](#)
- [int\\_least32\\_t tokens\\_max](#)
- [int\\_least32\\_t priority\\_bias](#)
- [int\\_least32\\_t cpu\\_id](#)
- [int\\_least32\\_t bucket\\_id](#)

### 5.17.1 Detailed Description

Definition at line 804 of file vserver.h.

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

- [vserver.h](#)

## 5.18 vc\_virt\_stat Struct Reference

Contains further statistics about a context.

```
#include <vserver.h>
```

### Data Fields

- [uint\\_least64\\_t offset](#)
- [uint\\_least64\\_t uptime](#)
- [uint\\_least32\\_t nr\\_threads](#)
- [uint\\_least32\\_t nr\\_running](#)
- [uint\\_least32\\_t nr\\_uninterruptible](#)
- [uint\\_least32\\_t nr\\_onhold](#)
- [uint\\_least32\\_t nr\\_forks](#)
- [uint\\_least32\\_t load](#) [3]

### 5.18.1 Detailed Description

Contains further statistics about a context.

Definition at line 461 of file vserver.h.

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

- [vserver.h](#)

## 5.19 vc\_vx\_info Struct Reference

### Data Fields

- [xid\\_t xid](#)
- [pid\\_t initpid](#)

### 5.19.1 Detailed Description

Definition at line 511 of file vserver.h.

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

- [vserver.h](#)

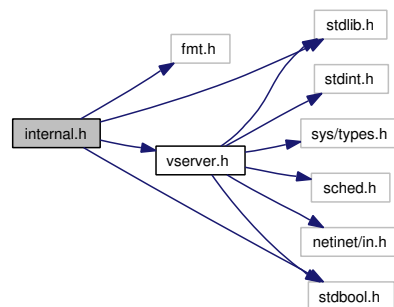
## 6 util-vserver (libvserver) File Documentation

### 6.1 internal.h File Reference

Declarations which are used by util-vserver internally.

```
#include "fmt.h"
#include "vserver.h"
#include <stdlib.h>
#include <stdbool.h>
```

Include dependency graph for internal.h:



### Data Structures

- struct [Mapping\\_uint32](#)
- struct [Mapping\\_uint64](#)

### Functions

- char \* **vc\_getVserverByCtx\_Internal** (xid\_t ctx, [vcCfgStyle](#) \*style, char const \*revdir, bool validate\_result)
- int **utilvserver\_checkCompatVersion** ()
- uint\_least32\_t **utilvserver\_checkCompatConfig** ()
- bool **utilvserver\_isDirectory** (char const \*path, bool follow\_link)
- bool **utilvserver\_isFile** (char const \*path, bool follow\_link)
- bool **utilvserver\_isLink** (char const \*path)
- int **utilvserver\_listparser\_uint32** (char const \*str, size\_t len, char const \*\*err\_ptr, size\_t \*err\_len, uint\_least32\_t \*flag, uint\_least32\_t \*mask, uint\_least32\_t(\*func)(char const \*, size\_t, bool \*)) NONNULL(1)

- int int **utilvserver\_listparser\_uint64** (char const \*str, size\_t len, char const \*\*err\_ptr, size\_t \*err\_len, uint\_least64\_t \*flag, uint\_least64\_t \*mask, uint\_least64\_t(\*func)(char const \*, size\_t, bool \*)) NONNULL((1
- ssize\_t **utilvserver\_value2text\_uint32** (char const \*str, size\_t len, struct [Mapping\\_uint32](#) const \*map, size\_t map\_len) NONNULL((1
- ssize\_t ssize\_t **utilvserver\_value2text\_uint64** (char const \*str, size\_t len, struct [Mapping\\_uint64](#) const \*map, size\_t map\_len) NONNULL((1
- ssize\_t ssize\_t ssize\_t **utilvserver\_text2value\_uint32** (uint\_least32\_t \*val, struct [Mapping\\_uint32](#) const \*map, size\_t map\_len) NONNULL((1
- ssize\_t ssize\_t ssize\_t ssize\_t **utilvserver\_text2value\_uint64** (uint\_least64\_t \*val, struct [Mapping\\_uint64](#) const \*map, size\_t map\_len) NONNULL((1

### 6.1.1 Detailed Description

Declarations which are used by util-vserver internally.

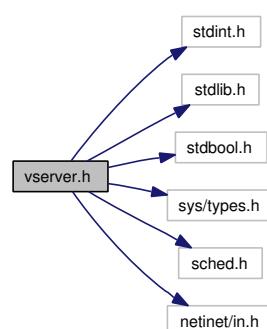
Definition in file [internal.h](#).

## 6.2 vserver.h File Reference

The public interface of the the libvserver library.

```
#include <stdint.h>
#include <stdlib.h>
#include <stdbool.h>
#include <sys/types.h>
#include <sched.h>
#include <netinet/in.h>
```

Include dependency graph for vserver.h:



This graph shows which files directly or indirectly include this file:



## Data Structures

- struct [vc\\_ip\\_mask\\_pair](#)
- struct [vc\\_ctx\\_flags](#)  
*Flags of process-contexts.*
- struct [vc\\_ctx\\_stat](#)  
*Statistics about a context.*
- struct [vc\\_virt\\_stat](#)  
*Contains further statistics about a context.*
- struct [vc\\_ctx\\_caps](#)  
*Capabilities of process-contexts.*
- struct [vc\\_vx\\_info](#)
- struct [vc\\_rlimit\\_mask](#)  
*Masks describing the supported limits.*
- struct [vc\\_rlimit](#)  
*The limits of a resources.*
- struct [vc\\_rlimit\\_stat](#)  
*Statistics for a resource limit.*
- struct [vc\\_nx\\_info](#)
- struct [vc\\_net\\_addr](#)
- struct [vc\\_net\\_flags](#)
- struct [vc\\_net\\_caps](#)
- struct [vc\\_ctx\\_dlimit](#)
- struct [vc\\_set\\_sched](#)
- struct [vc\\_sched\\_info](#)
- struct [vc\\_err\\_listparser](#)  
*Information about parsing errors.*

## Defines

- #define [VC\\_NOCTX](#) ((xid\_t)(-1))
- #define [VC\\_NOXID](#) ((xid\_t)(-1))
- #define [VC\\_DYNAMIC\\_XID](#) ((xid\_t)(-1))
- #define [VC\\_SAMECTX](#) ((xid\_t)(-2))
- #define [VC\\_NONID](#) ((nid\_t)(-1))
- #define [VC\\_DYNAMIC\\_NID](#) ((nid\_t)(-1))
- #define [VC\\_LIM\\_INFINITY](#) (~0ULL)
- #define [VC\\_LIM\\_KEEP](#) (~1ULL)
- #define [VC\\_CDLIM\\_UNSET](#) (0U)
- #define [VC\\_CDLIM\\_INFINITY](#) (~0U)
- #define [VC\\_CDLIM\\_KEEP](#) (~1U)
- #define [S\\_CTX\\_INFO\\_LOCK](#) 1

- `#define S_CTX_INFO_SCHED` 2
- `#define S_CTX_INFO_NPROC` 4
- `#define S_CTX_INFO_PRIVATE` 8
- `#define S_CTX_INFO_INIT` 16
- `#define S_CTX_INFO_HIDEINFO` 32
- `#define S_CTX_INFO_ULIMIT` 64
- `#define S_CTX_INFO_NAMESPACE` 128
- `#define VC_CAP_CHOWN` 0
- `#define VC_CAP_DAC_OVERRIDE` 1
- `#define VC_CAP_DAC_READ_SEARCH` 2
- `#define VC_CAP_FOWNER` 3
- `#define VC_CAP_FSETID` 4
- `#define VC_CAP_KILL` 5
- `#define VC_CAP_SETGID` 6
- `#define VC_CAP_SETUID` 7
- `#define VC_CAP_SETPCAP` 8
- `#define VC_CAP_LINUX_IMMUTABLE` 9
- `#define VC_CAP_NET_BIND_SERVICE` 10
- `#define VC_CAP_NET_BROADCAST` 11
- `#define VC_CAP_NET_ADMIN` 12
- `#define VC_CAP_NET_RAW` 13
- `#define VC_CAP_IPC_LOCK` 14
- `#define VC_CAP_IPC_OWNER` 15
- `#define VC_CAP_SYS_MODULE` 16
- `#define VC_CAP_SYS_RAWIO` 17
- `#define VC_CAP_SYS_CHROOT` 18
- `#define VC_CAP_SYS_PTRACE` 19
- `#define VC_CAP_SYS_PACCT` 20
- `#define VC_CAP_SYS_ADMIN` 21
- `#define VC_CAP_SYS_BOOT` 22
- `#define VC_CAP_SYS_NICE` 23
- `#define VC_CAP_SYS_RESOURCE` 24
- `#define VC_CAP_SYS_TIME` 25
- `#define VC_CAP_SYS_TTY_CONFIG` 26
- `#define VC_CAP_MKNOD` 27
- `#define VC_CAP_LEASE` 28
- `#define VC_CAP_AUDIT_WRITE` 29
- `#define VC_CAP_AUDIT_CONTROL` 30
- `#define VC_IMMUTABLE_FILE_FL` 0x0000010lu
- `#define VC_IMMUTABLE_LINK_FL` 0x0008000lu
- `#define VC_IMMUTABLE_ALL` (VC\_IMMUTABLE\_LINK\_FL|VC\_IMMUTABLE\_FILE\_FL)
- `#define VC_IATTR_XID` 0x01000000u
- `#define VC_IATTR_ADMIN` 0x00000001u
- `#define VC_IATTR_WATCH` 0x00000002u
- `#define VC_IATTR_HIDE` 0x00000004u
- `#define VC_IATTR_FLAGS` 0x00000007u
- `#define VC_IATTR_BARRIER` 0x00010000u
- `#define VC_IATTR_IUNLINK` 0x00020000u
- `#define VC_IATTR_IMMUTABLE` 0x00040000u
- `#define VC_VXF_INFO_LOCK` 0x00000001ull

- #define VC\_VXF\_INFO\_NPROC 0x00000004ull
- #define VC\_VXF\_INFO\_PRIVATE 0x00000008ull
- #define VC\_VXF\_INFO\_INIT 0x00000010ull
- #define VC\_VXF\_INFO\_HIDEINFO 0x00000020ull
- #define VC\_VXF\_INFO\_ULIMIT 0x00000040ull
- #define VC\_VXF\_INFO\_NAMESPACE 0x00000080ull
- #define VC\_VXF\_SCHED\_HARD 0x00000100ull
- #define VC\_VXF\_SCHED\_PRIO 0x00000200ull
- #define VC\_VXF\_SCHED\_PAUSE 0x00000400ull
- #define VC\_VXF\_VIRT\_MEM 0x00010000ull
- #define VC\_VXF\_VIRT\_UPTIME 0x00020000ull
- #define VC\_VXF\_VIRT\_CPU 0x00040000ull
- #define VC\_VXF\_VIRT\_LOAD 0x00080000ull
- #define VC\_VXF\_VIRT\_TIME 0x00100000ull
- #define VC\_VXF\_HIDE\_MOUNT 0x01000000ull
- #define VC\_VXF\_HIDE\_NETIF 0x02000000ull
- #define VC\_VXF\_HIDE\_VINFO 0x04000000ull
- #define VC\_VXF\_STATE\_SETUP (1ULL<<32)
- #define VC\_VXF\_STATE\_INIT (1ULL<<33)
- #define VC\_VXF\_STATE\_ADMIN (1ULL<<34)
- #define VC\_VXF\_SC\_HELPER (1ULL<<36)
- #define VC\_VXF\_REBOOT\_KILL (1ULL<<37)
- #define VC\_VXF\_PERSISTENT (1ULL<<38)
- #define VC\_VXF\_FORK\_RSS (1ULL<<48)
- #define VC\_VXF\_PROLIFIC (1ULL<<49)
- #define VC\_VXF\_IGNEG\_NICE (1ULL<<52)
- #define VC\_VXC\_SET\_UTSNAME 0x00000001ull
- #define VC\_VXC\_SET\_RLIMIT 0x00000002ull
- #define VC\_VXC\_RAW\_ICMP 0x00000100ull
- #define VC\_VXC\_SYSLOG 0x00001000ull
- #define VC\_VXC\_SECURE\_MOUNT 0x00010000ull
- #define VC\_VXC\_SECURE\_REMOUNT 0x00020000ull
- #define VC\_VXC\_BINARY\_MOUNT 0x00040000ull
- #define VC\_VXC\_QUOTA\_CTL 0x00100000ull
- #define VC\_VXC\_ADMIN\_MAPPER 0x00200000ull
- #define VC\_VXC\_ADMIN\_CLOOP 0x00400000ull
- #define VC\_VXC\_KTHREAD 0x01000000ull
- #define VC\_VXSM\_FILL\_RATE 0x0001
- #define VC\_VXSM\_INTERVAL 0x0002
- #define VC\_VXSM\_FILL\_RATE2 0x0004
- #define VC\_VXSM\_INTERVAL2 0x0008
- #define VC\_VXSM\_TOKENS 0x0010
- #define VC\_VXSM\_TOKENS\_MIN 0x0020
- #define VC\_VXSM\_TOKENS\_MAX 0x0040
- #define VC\_VXSM\_PRIO\_BIAS 0x0100
- #define VC\_VXSM\_CPU\_ID 0x1000
- #define VC\_VXSM\_BUCKET\_ID 0x2000
- #define VC\_VXSM\_IDLE\_TIME 0x0200
- #define VC\_VXSM\_FORCE 0x0400
- #define VC\_VXSM\_MSEC 0x4000

- #define [VC\\_VXSM\\_V3\\_MASK](#) 0x0173
- #define [VC\\_NXF\\_INFO\\_LOCK](#) 0x00000001ull
- #define [VC\\_NXF\\_INFO\\_PRIVATE](#) 0x00000008ull
- #define [VC\\_NXF\\_SINGLE\\_IP](#) 0x00000100ull
- #define [VC\\_NXF\\_LBACK\\_REMAP](#) 0x00000200ull
- #define [VC\\_NXF\\_LBACK\\_ALLOW](#) 0x00000400ull
- #define [VC\\_NXF\\_HIDE\\_NETIF](#) 0x02000000ull
- #define [VC\\_NXF\\_HIDE\\_LBACK](#) 0x04000000ull
- #define [VC\\_NXF\\_STATE\\_SETUP](#) (1ULL<<32)
- #define [VC\\_NXF\\_STATE\\_ADMIN](#) (1ULL<<34)
- #define [VC\\_NXF\\_SC\\_HELPER](#) (1ULL<<36)
- #define [VC\\_NXF\\_PERSISTENT](#) (1ULL<<38)
- #define [VC\\_NXC\\_TUN\\_CREATE](#) 0x00000001ull
- #define [VC\\_NXC\\_RAW\\_ICMP](#) 0x00000100ull
- #define [VC\\_VLIMIT\\_NSOCK](#) 16
- #define [VC\\_VLIMIT\\_OPENFD](#) 17
- #define [VC\\_VLIMIT\\_ANON](#) 18
- #define [VC\\_VLIMIT\\_SHMEM](#) 19
- #define [VC\\_VLIMIT\\_SEMARY](#) 20
- #define [VC\\_VLIMIT\\_NSEMS](#) 21
- #define [VC\\_VLIMIT\\_DENTRY](#) 22
- #define [VC\\_VLIMIT\\_MAPPED](#) 23
- #define [VC\\_VCI\\_NO\\_DYNAMIC](#) (1 << 0)
- #define [VC\\_VCI\\_SPACES](#) (1 << 10)
- #define [VC\\_VCI\\_NETV2](#) (1 << 11)
- #define [VC\\_VCI\\_PPTAG](#) (1 << 28)
- #define [VC\\_DATTR\\_CREATE](#) 0x00000001
- #define [VC\\_DATTR\\_OPEN](#) 0x00000002
- #define [VC\\_DATTR\\_REMAP](#) 0x00000010
- #define [VC\\_VXM\\_SET\\_INIT](#) 0x00000001
- #define [VC\\_VXM\\_SET\\_REAPER](#) 0x00000002
- #define [VC\\_NXA\\_TYPE\\_IPV4](#) 0x0001
- #define [VC\\_NXA\\_TYPE\\_IPV6](#) 0x0002
- #define [VC\\_NXA\\_TYPE\\_NONE](#) 0x0000
- #define [VC\\_NXA\\_TYPE\\_ANY](#) 0x00FF
- #define [VC\\_NXA\\_TYPE\\_ADDR](#) 0x0010
- #define [VC\\_NXA\\_TYPE\\_MASK](#) 0x0020
- #define [VC\\_NXA\\_TYPE\\_RANGE](#) 0x0040
- #define [VC\\_NXA\\_MOD\\_BCAST](#) 0x0100
- #define [VC\\_NXA\\_MOD\\_LBACK](#) 0x0200
- #define [CLONE\\_NEWNS](#) 0x00020000
- #define [CLONE\\_NEWUTS](#) 0x04000000
- #define [CLONE\\_NEWIPC](#) 0x08000000
- #define [CLONE\\_NEWUSER](#) 0x10000000
- #define [CLONE\\_NEWPID](#) 0x20000000
- #define [CLONE\\_NEWNET](#) 0x40000000
- #define [VC\\_BAD\\_PERSONALITY](#) ((uint\_least32\_t)(-1))
- #define [vna\\_v4\\_ip](#) s.ip.v4
- #define [vna\\_v4\\_ip2](#) s.ip2.v4
- #define [vna\\_v4\\_mask](#) s.mask.v4

- `#define vna_v6_ip` s.ip.v6
- `#define vna_v6_ip2` s.ip2.v6
- `#define vna_v6_mask` s.mask.v6
- `#define VC_LIMIT_VSERVER_NAME_LEN` 1024
- `#define vcSKEL_INTERFACES` 1u
- `#define vcSKEL_PKGMGMT` 2u
- `#define vcSKEL_FILESYSTEM` 4u

### Typedefs

- `typedef an_unsigned_integer_type xid_t`
- `typedef an_unsigned_integer_type nid_t`
- `typedef an_unsigned_integer_type tag_t`
- `typedef uint64_t vc_vci_t`
- `typedef uint_least64_t vc_limit_t`

*The type which is used for a single limit value.*

### Enumerations

- `enum vc_uts_type` {  
`vcVHI_CONTEXT`, `vcVHI_SYSNAME`, `vcVHI_NODENAME`, `vcVHI_RELEASE`,  
`vcVHI_VERSION`, `vcVHI_MACHINE`, `vcVHI_DOMAINNAME` }
- `enum vcFeatureSet` {  
`vcFEATURE_VKILL`, `vcFEATURE_IATTR`, `vcFEATURE_RLIMIT`, `vcFEATURE_-`  
`COMPAT`,  
`vcFEATURE_MIGRATE`, `vcFEATURE_NAMESPACE`, `vcFEATURE_SCHED`, `vc-`  
`FEATURE_VINFO`,  
`vcFEATURE_VHI`, `vcFEATURE_VSHELPER0`, `vcFEATURE_VSHELPER`, `vcFEATURE_-`  
`VWAIT`,  
`vcFEATURE_VNET`, `vcFEATURE_VSTAT`, `vcFEATURE_PPTAG` }
- `enum vcXidType` {  
`vcTYPE_INVALID`, `vcTYPE_MAIN`, `vcTYPE_WATCH`, `vcTYPE_STATIC`,  
`vcTYPE_DYNAMIC` }
- `enum vcCfgStyle` {  
`vcCFG_NONE`, `vcCFG_AUTO`, `vcCFG_LEGACY`, `vcCFG_RECENT_SHORT`,  
`vcCFG_RECENT_FULL` }
- `enum vcCtxType` { `vcCTX_XID` = 1, `vcCTX_NID`, `vcCTX_TAG` }

### Functions

- `int vc_syscall` (uint32\_t cmd, xid\_t xid, void \*data)

*The generic vserver syscall.*

- `int vc_get_version` ()

*Returns the version of the current kernel API.*

- [vc\\_vci\\_t vc\\_get\\_vci \(\)](#)  
*Returns the kernel configuration bits.*
- [xid\\_t vc\\_new\\_s\\_context \(xid\\_t ctx, unsigned int remove\\_cap, unsigned int flags\)](#)  
*Moves current process into a context.*
- [int vc\\_set\\_ipv4root \(uint32\\_t bcast, size\\_t nb, struct \[vc\\\_ip\\\_mask\\\_pair\]\(#\) const \\*ips\)](#)  
*Sets the ipv4root information.*
- [size\\_t vc\\_get\\_nb\\_ipv4root \(\)](#) VC\_ATTR\_CONST  
*Returns the value of NB\_IPV4ROOT.*
- [xid\\_t vc\\_ctx\\_create \(xid\\_t xid, struct \[vc\\\_ctx\\\_flags\]\(#\) \\*flags\)](#)  
*Creates a context without starting it.*
- [int vc\\_ctx\\_migrate \(xid\\_t xid, uint\\_least64\\_t flags\)](#)  
*Moves the current process into the specified context.*
- [int vc\\_ctx\\_stat \(xid\\_t xid, struct \[vc\\\_ctx\\\_stat\]\(#\) \\*stat\)](#)  
*Get some statistics about a context.*
- [int vc\\_virt\\_stat \(xid\\_t xid, struct \[vc\\\_virt\\\_stat\]\(#\) \\*stat\)](#)  
*Get more statistics about a context.*
- [int vc\\_ctx\\_kill \(xid\\_t ctx, pid\\_t pid, int sig\)](#)  
*Sends a signal to a context/pid.*
- [int vc\\_get\\_cflags \(xid\\_t xid, struct \[vc\\\_ctx\\\_flags\]\(#\) \\*\)](#)
- [int vc\\_set\\_cflags \(xid\\_t xid, struct \[vc\\\_ctx\\\_flags\]\(#\) const \\*\)](#)
- [int vc\\_get\\_ccaps \(xid\\_t xid, struct \[vc\\\_ctx\\\_caps\]\(#\) \\*\)](#)
- [int vc\\_set\\_ccaps \(xid\\_t xid, struct \[vc\\\_ctx\\\_caps\]\(#\) const \\*\)](#)
- [int vc\\_get\\_vx\\_info \(xid\\_t xid, struct \[vc\\\_vx\\\_info\]\(#\) \\*info\)](#)
- [xid\\_t vc\\_get\\_task\\_xid \(pid\\_t pid\)](#)  
*Returns the context of the given process.*
- [int vc\\_wait\\_exit \(xid\\_t xid\)](#)  
*Waits for the end of a context.*
- [int vc\\_get\\_rlimit\\_mask \(xid\\_t xid, struct \[vc\\\_rlimit\\\_mask\]\(#\) \\*lim\)](#)  
*Returns the limits supported by the kernel.*
- [int vc\\_get\\_rlimit \(xid\\_t xid, int resource, struct \[vc\\\_rlimit\]\(#\) \\*lim\)](#)  
*Returns the limits of resource.*
- [int vc\\_set\\_rlimit \(xid\\_t xid, int resource, struct \[vc\\\_rlimit\]\(#\) const \\*lim\)](#)  
*Sets the limits of resource.*
- [int vc\\_rlimit\\_stat \(xid\\_t xid, int resource, struct \[vc\\\_rlimit\\\_stat\]\(#\) \\*stat\)](#)  
*Returns the current stats of resource.*

- int [vc\\_reset\\_minmax](#) (xid\_t xid)  
*Resets the minimum and maximum observed values of all resources.*
- bool [vc\\_parseLimit](#) (char const \*str, vc\_limit\_t \*res)  
*Parses a string describing a limit.*
- [nid\\_t](#) [vc\\_get\\_task\\_nid](#) (pid\_t pid)
- int [vc\\_get\\_nx\\_info](#) ([nid\\_t](#) nid, struct [vc\\_nx\\_info](#) \*)
- [nid\\_t](#) [vc\\_net\\_create](#) ([nid\\_t](#) nid)
- int [vc\\_net\\_migrate](#) ([nid\\_t](#) nid)
- int [vc\\_net\\_add](#) ([nid\\_t](#) nid, struct [vc\\_net\\_addr](#) const \*info)
- int [vc\\_net\\_remove](#) ([nid\\_t](#) nid, struct [vc\\_net\\_addr](#) const \*info)
- int [vc\\_get\\_nflags](#) ([nid\\_t](#), struct [vc\\_net\\_flags](#) \*)
- int [vc\\_set\\_nflags](#) ([nid\\_t](#), struct [vc\\_net\\_flags](#) const \*)
- int [vc\\_get\\_ncaps](#) ([nid\\_t](#), struct [vc\\_net\\_caps](#) \*)
- int [vc\\_set\\_ncaps](#) ([nid\\_t](#), struct [vc\\_net\\_caps](#) const \*)
- int [vc\\_set\\_iattr](#) (char const \*filename, [xid\\_t](#) xid, uint\_least32\_t flags, uint\_least32\_t mask)
- int [vc\\_fset\\_iattr](#) (int fd, [xid\\_t](#) xid, uint\_least32\_t flags, uint\_least32\_t mask)
- int [vc\\_get\\_iattr](#) (char const \*filename, [xid\\_t](#) \*xid, uint\_least32\_t \*flags, uint\_least32\_t \*mask)  
*Returns information about attributes and assigned context of a file.*
- int [vc\\_fget\\_iattr](#) (int fd, [xid\\_t](#) \*xid, uint\_least32\_t \*flags, uint\_least32\_t \*mask)
- [xid\\_t](#) [vc\\_getfilecontext](#) (char const \*filename)  
*Returns the context of filename.*
- int [vc\\_set\\_vhi\\_name](#) ([xid\\_t](#) xid, [vc\\_uts\\_type](#) type, char const \*val, size\_t len)
- int [vc\\_get\\_vhi\\_name](#) ([xid\\_t](#) xid, [vc\\_uts\\_type](#) type, char \*val, size\_t len)
- int [vc\\_enter\\_namespace](#) ([xid\\_t](#) xid, uint\_least64\_t mask)
- int [vc\\_set\\_namespace](#) ([xid\\_t](#) xid, uint\_least64\_t mask)
- int [vc\\_cleanup\\_namespace](#) ()
- uint\_least64\_t [vc\\_get\\_space\\_mask](#) ()
- int [vc\\_add\\_dlimit](#) (char const \*filename, [xid\\_t](#) xid, uint\_least32\_t flags)
- int [vc\\_rem\\_dlimit](#) (char const \*filename, [xid\\_t](#) xid, uint\_least32\_t flags)
- int [vc\\_set\\_dlimit](#) (char const \*filename, [xid\\_t](#) xid, uint\_least32\_t flags, struct [vc\\_ctx\\_dlimit](#) const \*limits)
- int [vc\\_get\\_dlimit](#) (char const \*filename, [xid\\_t](#) xid, uint\_least32\_t flags, struct [vc\\_ctx\\_dlimit](#) \*limits)
- [tag\\_t](#) [vc\\_get\\_task\\_tag](#) (pid\_t pid)
- int [vc\\_tag\\_create](#) ([tag\\_t](#) tag)
- int [vc\\_tag\\_migrate](#) ([tag\\_t](#) tag)
- int [vc\\_set\\_sched](#) ([xid\\_t](#) xid, struct [vc\\_set\\_sched](#) const \*)
- int [vc\\_get\\_sched](#) ([xid\\_t](#) xid, struct [vc\\_set\\_sched](#) \*)
- int [vc\\_sched\\_info](#) ([xid\\_t](#) xid, struct [vc\\_sched\\_info](#) \*info)
- int [vc\\_set\\_mapping](#) ([xid\\_t](#) xid, const char \*device, const char \*target, uint32\_t flags)
- int [vc\\_unset\\_mapping](#) ([xid\\_t](#) xid, const char \*device, const char \*target, uint32\_t flags)
- int [vc\\_get\\_badness](#) ([xid\\_t](#) xid, int64\_t \*badness)
- int [vc\\_set\\_badness](#) ([xid\\_t](#) xid, int64\_t badness)
- uint\_least64\_t [vc\\_text2bcap](#) (char const \*str, size\_t len)  
*Converts a single string into bcapability.*
- char const \* [vc\\_lobcap2text](#) (uint\_least64\_t \*val)

*Converts the lowest bit of a bcapability or the entire value (when possible) to a textual representation.*

- `int vc_list2bcap (char const *str, size_t len, struct vc_err_listparser *err, struct vc_ctx_caps *cap)`  
*Converts a string into a bcapability-bitmask.*
- `uint_least64_t vc_text2ccap (char const *, size_t len)`
- `char const * vc_loccap2text (uint_least64_t *)`
- `int vc_list2ccap (char const *, size_t len, struct vc_err_listparser *err, struct vc_ctx_caps *)`
- `int vc_list2cflag (char const *, size_t len, struct vc_err_listparser *err, struct vc_ctx_flags *flags)`
- `uint_least64_t vc_text2cflag (char const *, size_t len)`
- `char const * vc_locflag2text (uint_least64_t *)`
- `uint_least32_t vc_list2cflag_compat (char const *, size_t len, struct vc_err_listparser *err)`
- `uint_least32_t vc_text2cflag_compat (char const *, size_t len)`
- `char const * vc_hicflag2text_compat (uint_least32_t *)`
- `int vc_text2cap (char const *)`
- `char const * vc_cap2text (unsigned int)`
- `int vc_list2nflag (char const *, size_t len, struct vc_err_listparser *err, struct vc_net_flags *flags)`
- `uint_least64_t vc_text2nflag (char const *, size_t len)`
- `char const * vc_lonflag2text (uint_least64_t *)`
- `uint_least64_t vc_text2ncap (char const *, size_t len)`
- `char const * vc_loncap2text (uint_least64_t *)`
- `int vc_list2ncap (char const *, size_t len, struct vc_err_listparser *err, struct vc_net_caps *)`
- `uint_least64_t vc_get_insecurebcaps () VC_ATTR_CONST`
- `uint_least32_t vc_text2personalityflag (char const *str, size_t len)`
- `char const * vc_lopersonality2text (uint_least32_t *)`
- `int vc_list2personalityflag (char const *, size_t len, uint_least32_t *personality, struct vc_err_listparser *err)`
- `uint_least32_t vc_str2personalitytype (char const *, size_t len)`
- `bool vc_isSupported (vcFeatureSet) VC_ATTR_CONST`
- `bool vc_isSupportedString (char const *)`
- `vcXidType vc_getXIDType (xid_t xid) VC_ATTR_CONST`
- `bool vc_is_dynamic_xid (xid_t xid)`
- `xid_t vc_xidopt2xid (char const *, bool honor_static, char const **err_info)`
- `nid_t vc_nidopt2nid (char const *, bool honor_static, char const **err_info)`
- `tag_t vc_tagopt2tag (char const *, bool honor_static, char const **err_info)`
- `vcCfgStyle vc_getVserverCfgStyle (char const *id)`
- `char * vc_getVserverName (char const *id, vcCfgStyle style)`
- `char * vc_getVserverCfgDir (char const *id, vcCfgStyle style)`
- `char * vc_getVserverAppDir (char const *id, vcCfgStyle style, char const *app)`
- `char * vc_getVserverVdir (char const *id, vcCfgStyle style, bool physical)`
- `xid_t vc_getVserverCtx (char const *id, vcCfgStyle style, bool honor_static, bool *is_running, vc-CtxType type)`
- `char * vc_getVserverByCtx (xid_t ctx, vcCfgStyle *style, char const *revdir)`
- `int vc_compareVserverById (char const *lhs, vcCfgStyle lhs_style, char const *rhs, vcCfgStyle rhs_style)`
- `int vc_createSkeleton (char const *id, vcCfgStyle style, int flags)`

### 6.2.1 Detailed Description

The public interface of the the libvserver library.

Definition in file [vserver.h](#).

## 6.2.2 Define Documentation

### 6.2.2.1 `#define VC_DYNAMIC_XID ((xid_t)(-1))`

the value which means a random (the next free) ctx

Definition at line 67 of file vserver.h.

### 6.2.2.2 `#define VC_NOCTX ((xid_t)(-1))`

the value which is returned in error-case (no ctx found)

Definition at line 64 of file vserver.h.

### 6.2.2.3 `#define VC_SAMECTX ((xid_t)(-2))`

the value which means the current ctx

Definition at line 69 of file vserver.h.

## 6.2.3 Typedef Documentation

### 6.2.3.1 `typedef uint_least64_t vc_limit_t`

The type which is used for a single limit value.

Special values are

- `VC_LIM_INFINITY` ... which is the infinite value
- `VC_LIM_KEEP` ... which is used to mark values which shall not be modified by the `vc_set_rlimit()` operation.

Else, the interpretation of the value depends on the corresponding resource; it might be bytes, pages, seconds or litres of beer.

Definition at line 543 of file vserver.h.

### 6.2.3.2 `an_unsigned_integer_type xid_t`

The identifier of a context.

Definition at line 338 of file vserver.h.

## 6.2.4 Function Documentation

### 6.2.4.1 `int vc_add_dlimit (char const *filename, xid_t xid, uint_least32_t flags)`

Add a disk limit to a file system.

### 6.2.4.2 `int vc_createSkeleton (char const *id, vcCfgStyle style, int flags)`

Create a basic configuration skeleton for a vserver plus toplevel directories for pkgmanagment and filesystem (when requested).

**6.2.4.3** `int vc_get_dlimit (char const * filename, xid\_t xid, uint\_least32\_t flags, struct vc\_ctx\_dlimit * limits)`

Get a disk limit.

**6.2.4.4** `tag\_t vc_get_task_tag (pid\_t pid)`

Get the filesystem tag for a process.

**6.2.4.5** `char* vc_getVserverAppDir (char const * id, vcCfgStyle style, char const * app)`

Returns the path of the configuration directory for the given application. The result will be allocated and must be freed by the caller.

**6.2.4.6** `char* vc_getVserverByCtx (xid\_t ctx, vcCfgStyle * style, char const * revdir)`

Resolves the cfg-path of the vserver owning the given ctx. 'revdir' will be used as the directory holding the mapping-links; when NULL, the default value will be assumed. The result will be allocated and must be freed by the caller.

**6.2.4.7** `char* vc_getVserverCfgDir (char const * id, vcCfgStyle style)`

Returns the path of the vserver configuration directory. When the given vserver does not exist, or when it does not have such a directory, NULL will be returned. Else, the result will be allocated and must be freed by the caller.

**6.2.4.8** `xid\_t vc_getVserverCtx (char const * id, vcCfgStyle style, bool honor_static, bool * is_running, vcCtxType type)`

Returns the ctx of the given vserver. When vserver is not running and 'honor\_static' is false, VC\_NOCTX will be returned. Else, when 'honor\_static' is true and a static assignment exists, those value will be returned. Else, the result will be VC\_NOCTX.

When 'is\_running' is not null, the status of the vserver will be assigned to this variable.

**6.2.4.9** `char* vc_getVserverName (char const * id, vcCfgStyle style)`

Resolves the name of the vserver. The result will be allocated and must be freed by the caller.

**6.2.4.10** `char* vc_getVserverVdir (char const * id, vcCfgStyle style, bool physical)`

Returns the path to the vserver root-directory. The result will be allocated and must be freed by the caller.

**6.2.4.11** `bool vc_is_dynamic_xid (xid\_t xid)`

Returns true iff *xid* is a dynamic xid

**6.2.4.12** `nid\_t vc_nidopt2nid (char const *, bool honor_static, char const ** err_info)`

Maps a nid given at '-nid' options to a [nid\\_t](#)

**6.2.4.13** `int vc_rem_dlimit (char const * filename, xid\_t xid, uint\_least32\_t flags)`

Remove a disk limit from a file system.

**6.2.4.14** `int vc_set_dlimit (char const *filename, xid\_t xid, uint_least32_t flags, struct vc\_ctx\_dlimit const * limits)`

Set a disk limit.

**6.2.4.15** `int vc_tag_create (tag\_t tag)`

Create a new filesystem tag space.

**6.2.4.16** `int vc_tag_migrate (tag\_t tag)`

Migrate to an existing filesystem tag space.

**6.2.4.17** `tag\_t vc_tagopt2tag (char const *, bool honor_static, char const ** err_info)`

Maps a tag given at '-tag' options to a tag\_t

**6.2.4.18** `xid\_t vc_xidopt2xid (char const *, bool honor_static, char const ** err_info)`

Maps an xid given at '-xid' options to an xid\_t

## Index

### helper

- [vc\\_get\\_nb\\_ipv4root](#), 8
- [vc\\_list2bcap](#), 8
- [vc\\_lobcap2text](#), 9
- [vc\\_parseLimit](#), 9
- [vc\\_text2bcap](#), 10

Helper functions, 8

[internal.h](#), 19

[Mapping\\_uint32](#), 10

[Mapping\\_uint64](#), 11

[Syscall wrappers](#), 2

### syscalls

- [vc\\_ctx\\_create](#), 3
- [vc\\_ctx\\_kill](#), 3
- [vc\\_ctx\\_migrate](#), 4
- [vc\\_ctx\\_stat](#), 4
- [vc\\_get\\_iattr](#), 4
- [vc\\_get\\_rlimit](#), 5
- [vc\\_get\\_task\\_xid](#), 5
- [vc\\_get\\_vci](#), 5
- [vc\\_get\\_version](#), 5
- [vc\\_getfilecontext](#), 5
- [vc\\_new\\_s\\_context](#), 6
- [vc\\_reset\\_minmax](#), 6
- [vc\\_rlimit\\_stat](#), 6
- [vc\\_set\\_ipv4root](#), 7
- [vc\\_set\\_rlimit](#), 7
- [vc\\_syscall](#), 7
- [vc\\_virt\\_stat](#), 7

[vc\\_add\\_dlimit](#)  
[vserver.h](#), 29

[vc\\_createSkeleton](#)  
[vserver.h](#), 29

[vc\\_ctx\\_caps](#), 11

[vc\\_ctx\\_create](#)  
[syscalls](#), 3

[vc\\_ctx\\_dlimit](#), 12

[vc\\_ctx\\_flags](#), 12

[vc\\_ctx\\_kill](#)  
[syscalls](#), 3

[vc\\_ctx\\_migrate](#)  
[syscalls](#), 4

[vc\\_ctx\\_stat](#), 13  
[syscalls](#), 4

[VC\\_DYNAMIC\\_XID](#)  
[vserver.h](#), 29

[vc\\_err\\_listparser](#), 13

[vc\\_get\\_dlimit](#)  
[vserver.h](#), 29

[vc\\_get\\_iattr](#)  
[syscalls](#), 4

[vc\\_get\\_nb\\_ipv4root](#)  
[helper](#), 8

[vc\\_get\\_rlimit](#)  
[syscalls](#), 5

[vc\\_get\\_task\\_tag](#)  
[vserver.h](#), 30

[vc\\_get\\_task\\_xid](#)  
[syscalls](#), 5

[vc\\_get\\_vci](#)  
[syscalls](#), 5

[vc\\_get\\_version](#)  
[syscalls](#), 5

[vc\\_getfilecontext](#)  
[syscalls](#), 5

[vc\\_getVserverAppDir](#)  
[vserver.h](#), 30

[vc\\_getVserverByCtx](#)  
[vserver.h](#), 30

[vc\\_getVserverCfgDir](#)  
[vserver.h](#), 30

[vc\\_getVserverCtx](#)  
[vserver.h](#), 30

[vc\\_getVserverName](#)  
[vserver.h](#), 30

[vc\\_getVserverVdir](#)  
[vserver.h](#), 30

[vc\\_ip\\_mask\\_pair](#), 14

[vc\\_is\\_dynamic\\_xid](#)  
[vserver.h](#), 30

[vc\\_limit\\_t](#)  
[vserver.h](#), 29

[vc\\_list2bcap](#)  
[helper](#), 8

[vc\\_lobcap2text](#)  
[helper](#), 9

[vc\\_net\\_addr](#), 14

[vc\\_net\\_caps](#), 14

[vc\\_net\\_flags](#), 15

[vc\\_new\\_s\\_context](#)  
[syscalls](#), 6

[vc\\_nidopt2nid](#)  
[vserver.h](#), 30

[VC\\_NOCTX](#)  
[vserver.h](#), 29

[vc\\_nx\\_info](#), 15

[vc\\_parseLimit](#)

- helper, 9
- vc\_rem\_dlimit
  - vserver.h, 30
- vc\_reset\_minmax
  - syscalls, 6
- vc\_rlimit, 15
- vc\_rlimit\_mask, 16
- vc\_rlimit\_stat, 16
  - syscalls, 6
- VC\_SAMECTX
  - vserver.h, 29
- vc\_sched\_info, 17
- vc\_set\_dlimit
  - vserver.h, 30
- vc\_set\_ipv4root
  - syscalls, 7
- vc\_set\_rlimit
  - syscalls, 7
- vc\_set\_sched, 17
- vc\_syscall
  - syscalls, 7
- vc\_tag\_create
  - vserver.h, 31
- vc\_tag\_migrate
  - vserver.h, 31
- vc\_tagopt2tag
  - vserver.h, 31
- vc\_text2bcap
  - helper, 10
- vc\_virt\_stat, 18
  - syscalls, 7
- vc\_vx\_info, 18
- vc\_xidopt2xid
  - vserver.h, 31
- vserver.h, 20
  - vc\_add\_dlimit, 29
  - vc\_createSkeleton, 29
  - VC\_DYNAMIC\_XID, 29
  - vc\_get\_dlimit, 29
  - vc\_get\_task\_tag, 30
  - vc\_getVserverAppDir, 30
  - vc\_getVserverByCtx, 30
  - vc\_getVserverCfgDir, 30
  - vc\_getVserverCtx, 30
  - vc\_getVserverName, 30
  - vc\_getVserverVdir, 30
  - vc\_is\_dynamic\_xid, 30
  - vc\_limit\_t, 29
  - vc\_nidopt2nid, 30
  - VC\_NOCTX, 29
  - vc\_rem\_dlimit, 30
  - VC\_SAMECTX, 29
  - vc\_set\_dlimit, 30
  - vc\_tag\_create, 31
  - vc\_tag\_migrate, 31
  - vc\_tagopt2tag, 31
  - vc\_xidopt2xid, 31
  - xid\_t, 29
- xid\_t
  - vserver.h, 29