

util-vserver (libvserver) Reference Manual  
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## 1 util-vserver (libvserver) Module Index

### 1.1 util-vserver (libvserver) Modules

Here is a list of all modules:

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

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

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

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

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

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### 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 80 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 86 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 504 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 781 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 426 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 457 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 856 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 404 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 654 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 695 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 681 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 647 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 570 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 557 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 598 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 833 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 816 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 472 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 522 of file vserver.h.

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

- [vserver.h](#)

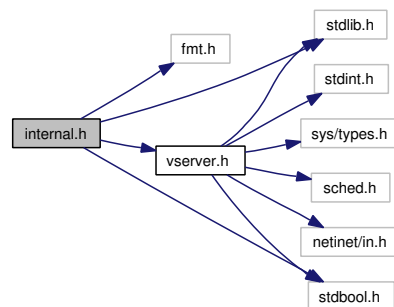
## 6 util-vserver (libvserver) File Documentation

### 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](#)

### Defines

- #define [\\_symbol\\_version](#)(real, name, version)
- #define [\\_default\\_symbol\\_version](#)(real, name, version) extern \_\_typeof (real) name \_\_attribute\_\_((alias (#name)));
- #define [symbol\\_version](#)(real, name, version) \_symbol\_version(real, name, version)
- #define [default\\_symbol\\_version](#)(real, name, version) \_default\_symbol\_version(real, name, version)

### 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 **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 **utilvserver\_value2text\_uint64** (char const \*str, size\_t len, struct [Mapping\\_uint64](#) const \*map, size\_t map\_len) NONNULL((1
- ssize\_t **utilvserver\_text2value\_uint32** (uint\_least32\_t \*val, struct [Mapping\\_uint32](#) const \*map, size\_t map\_len) NONNULL((1
- 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.

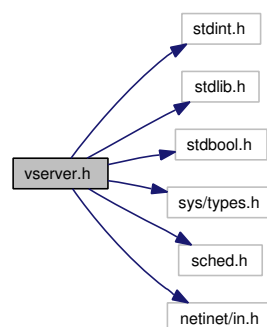
Definition in file [internal.h](#).

## 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_CAP_SETFCAP 31`
- `#define VC_CAP_MAC_OVERRIDE 32`
- `#define VC_CAP_MAC_ADMIN 33`
- `#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\\_WRITE](#) 0x00000008u
- #define [VC\\_IATTR\\_FLAGS](#) 0x0000000fu
- #define [VC\\_IATTR\\_BARRIER](#) 0x00010000u
- #define [VC\\_IATTR\\_IUNLINK](#) 0x00020000u
- #define [VC\\_IATTR\\_IMMUTABLE](#) 0x00040000u
- #define [VC\\_IATTR\\_COW](#) 0x00080000u
- #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\\_VXF\\_IGNEG\\_IONICE](#) (1ULL<<53)
- #define [VC\\_VXC\\_SET\\_UTSNAME](#) 0x00000001ull
- #define [VC\\_VXC\\_SET\\_RLIMIT](#) 0x00000002ull
- #define [VC\\_VXC\\_FS\\_SECURITY](#) 0x00000004ull
- #define [VC\\_VXC\\_TIOCSTI](#) 0x00000010ull
- #define [VC\\_VXC\\_RAW\\_ICMP](#) 0x00000100ull
- #define [VC\\_VXC\\_SYSLOG](#) 0x00001000ull
- #define [VC\\_VXC\\_OOM\\_ADJUST](#) 0x00002000ull
- #define [VC\\_VXC\\_AUDIT\\_CONTROL](#) 0x00004000ull
- #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\\_VXC\\_NAMESPACE](#) 0x02000000ull
- #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](#), [vcFEATURE\\_VINFO](#),  
[vcFEATURE\\_VHI](#), [vcFEATURE\\_VSHELPER0](#), [vcFEATURE\\_VSHELPER](#), [vcFEATURE\\_-VWAIT](#),  
[vcFEATURE\\_VNET](#), [vcFEATURE\\_VSTAT](#), [vcFEATURE\\_PPTAG](#), [vcFEATURE\\_-PIDSPACE](#),  
[vcFEATURE\\_SPACES](#), [vcFEATURE\\_PERSISTENT](#), [vcFEATURE\\_PIVOT\\_ROOT](#) }

- 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, uint32_t index)`
- `int vc_set_namespace (xid_t xid, uint_least64_t mask, uint32_t index)`
- `int vc_cleanup_namespace (void)`
- `uint_least64_t vc_get_space_mask (void)`
- `uint_least64_t vc_get_space_default (void)`
- `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)
- `void vc_exitLikeProcess` (int pid, int ret)
- `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 554 of file vserver.h.

### 6.2.3.2 an\_unsigned\_integer\_type `xid_t`

The identifier of a context.

Definition at line 349 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 pkgmanagemt 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*



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