

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

Here are the data structures with brief descriptions:

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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*:

```
LIST    <- ELEM | ELEM ' , ' LIST
ELEM    <- '~' ELEM | MASK | NAME
MASK    <- NUMBER | '^' NUMBER
NUMBER  <- 0[0-7]* | [1-9][0-9]* | 0x[0-9,a-f]+
NAME    <- <literal name> | "all" | "any" | "none"
```

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:

```
*valold != 0 <-> *valold > *valnew
*valold == 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 480 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 750 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 402 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 433 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 821 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 380 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](#)
- union {
  - struct {
    - in\_addr [ip](#)
    - in\_addr [mask](#)
  - } **ipv4**
  - struct {
    - in6\_addr [ip](#)
    - in6\_addr [mask](#)
  - } **ipv6**
- } **u**

### 5.9.1 Detailed Description

Definition at line 630 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 665 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 651 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 623 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 546 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 533 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 574 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 802 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 785 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 448 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 498 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 **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_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\\_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\\_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\\_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 `VC_BAD_PERSONALITY` ((uint\_least32\_t)(-1))
- #define `vna_v4_ip` u.ipv4.ip
- #define `vna_v4_mask` u.ipv4.mask
- #define `vna_v6_ip` u.ipv6.ip
- #define `vna_v6_mask` u.ipv6.mask
- #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` }
- 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)`
- `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, vcCtxType 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 530 of file vserver.h.

#### 6.2.3.2 `an_unsigned_integer_type xid_t`

The identifier of a context.

Definition at line 325 of file vserver.h.

### 6.2.4 Enumeration Type Documentation

#### 6.2.4.1 `enum vc_uts_type`

Enumerator:

*vcVHI\_CONTEXT*

*vcVHI\_SYSNAME*  
*vcVHI\_NODENAME*  
*vcVHI\_RELEASE*  
*vcVHI\_VERSION*  
*vcVHI\_MACHINE*  
*vcVHI\_DOMAINNAME*

Definition at line 733 of file vserver.h.

#### 6.2.4.2 enum vcCfgStyle

Enumerator:

*vcCFG\_NONE*  
*vcCFG\_AUTO*  
*vcCFG\_LEGACY*  
*vcCFG\_RECENT\_SHORT*  
*vcCFG\_RECENT\_FULL*

Definition at line 967 of file vserver.h.

#### 6.2.4.3 enum vcCtxType

Enumerator:

*vcCTX\_XID*  
*vcCTX\_NID*  
*vcCTX\_TAG*

Definition at line 1001 of file vserver.h.

#### 6.2.4.4 enum vcFeatureSet

Enumerator:

*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*

Definition at line 942 of file vserver.h.

#### 6.2.4.5 enum vcXidType

Enumerator:

*vcTYPE\_INVALID*  
*vcTYPE\_MAIN*  
*vcTYPE\_WATCH*  
*vcTYPE\_STATIC*  
*vcTYPE\_DYNAMIC*

Definition at line 953 of file vserver.h.

### 6.2.5 Function Documentation

#### 6.2.5.1 int vc\_add\_dlimit (char const \* *filename*, xid\_t *xid*, uint\_least32\_t *flags*)

Add a disk limit to a file system.

#### 6.2.5.2 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).

#### 6.2.5.3 int vc\_get\_dlimit (char const \* *filename*, xid\_t *xid*, uint\_least32\_t *flags*, struct vc\_ctx\_dlimit \* *limits*)

Get a disk limit.

#### 6.2.5.4 tag\_t vc\_get\_task\_tag (pid\_t *pid*)

Get the filesystem tag for a process.

#### 6.2.5.5 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.

#### 6.2.5.6 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.

**6.2.5.7 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.

**6.2.5.8 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.

**6.2.5.9 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.

**6.2.5.10 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.

**6.2.5.11 bool vc\_is\_dynamic\_xid (xid\_t *xid*)**

Returns true iff *xid* is a dynamic xid

**6.2.5.12 nid\_t vc\_nidopt2nid (char const \*, bool *honor\_static*, char const \*\* *err\_info*)**

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

**6.2.5.13 int vc\_rem\_dlimit (char const \* *filename*, xid\_t *xid*, uint\_least32\_t *flags*)**

Remove a disk limit from a file system.

**6.2.5.14 int vc\_set\_dlimit (char const \* *filename*, xid\_t *xid*, uint\_least32\_t *flags*, struct vc\_ctx\_dlimit const \* *limits*)**

Set a disk limit.

**6.2.5.15 int vc\_tag\_create (tag\_t *tag*)**

Create a new filesystem tag space.

**6.2.5.16 int vc\_tag\_migrate (tag\_t *tag*)**

Migrate to an existing filesystem tag space.

**6.2.5.17 tag\_t vc\_tagopt2tag (char const \*, bool *honor\_static*, char const \*\* *err\_info*)**

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

**6.2.5.18** `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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