

util-vserver (libvserver) Reference Manual

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1 util-vserver (libvserver) Module Index

1.1 util-vserver (libvserver) 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

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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
This function executes the generic vserver syscall. It uses the correct syscallnumber (which may differ between the different architectures).
- [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
Puts current process into context ctx, removes the capabilities given in remove_cap and sets flags.
- [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.
This functions initializes a new context. When already in a freshly created context, this old context will be discarded.*
- `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
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.*
- `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.
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.*
- `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.*

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_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

4.1.2.3 `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.

4.1.2.4 `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)`

4.1.2.5 `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.

4.1.2.6 `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

4.1.2.7 `vc_vci_t vc_get_vci ()`

Returns the kernel configuration bits.

Returns:

The kernel configuration bits

4.1.2.8 int vc_get_version ()

Returns the version of the current kernel API.

Returns:

The versionnumber of the kernel API

4.1.2.9 **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

4.1.2.10 **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

4.1.2.11 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.

4.1.2.12 `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.

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

Sets the ipv4root information.

Precondition:

nb < NB_IPV4ROOT && *ips* != 0

4.1.2.14 `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.

4.1.2.15 `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

4.1.2.16 `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.
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.*
- `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.
- `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
Syntax of str:.*

4.2.1 Detailed Description

Functions which are doing general helper tasks like parameter parsing.

4.2.2 Function Documentation

4.2.2.1 `int vc_list2bcap (char const * str, size_t len, struct vc_err_listparser * err, struct vc_ctx_caps * cap)`

Converts a string into a bcability-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

4.2.2.2 `char const* vc_lobcap2text (uint_least64_t * val)`

Converts the lowest bit of a bcability 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
```

4.2.2.3 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

4.2.2.4 uint_least64_t vc_text2bcap (char const * *str*, size_t *len*)

Converts a single string into bcability.

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](#)

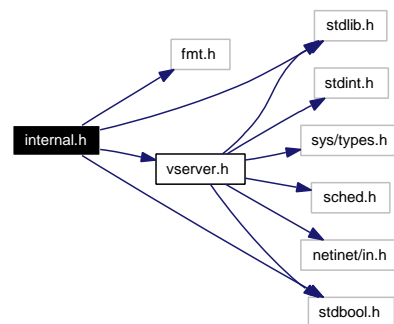
6 util-vserver (libvserver) File Documentation

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` `ssize_t` `ssize_t` `ssize_t` `utilvserver_text2value_uint64` (`uint_least64_t` *val, struct [Mapping_uint64](#) const *map, `size_t` map_len) NONNULL((1

6.1.1 Detailed Description

Declarations which are used by util-vserver internally.

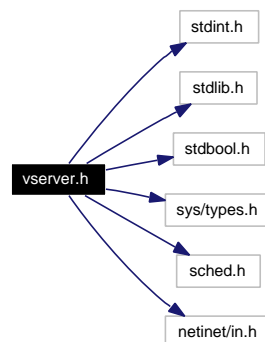
Definition in file [internal.h](#).

6.2 vserver.h File Reference

The public interface of the the libvserver library.

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

Include dependency graph for vserver.h:



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



Data Structures

- struct [vc_ip_mask_pair](#)
- struct [vc_ctx_flags](#)
Flags of process-contexts.
- struct [vc_ctx_stat](#)
Statistics about a context.

- struct [vc_virt_stat](#)
Contains further statistics about a context.
- struct [vc_ctx_caps](#)
Capabilities of process-contexts.
- struct [vc_vx_info](#)
- struct [vc_rlimit_mask](#)
Masks describing the supported limits.
- struct [vc_rlimit](#)
The limits of a resources.
- struct [vc_rlimit_stat](#)
Statistics for a resource limit.
- struct [vc_nx_info](#)
- struct [vc_net_addr](#)
- struct [vc_net_flags](#)
- struct [vc_net_caps](#)
- struct [vc_ctx_dlimit](#)
- struct [vc_set_sched](#)
- struct [vc_sched_info](#)
- struct [vc_err_listparser](#)
Information about parsing errors.

Defines

- #define [VC_NOCTX](#) ((xid_t)(-1))
- #define [VC_NOXID](#) ((xid_t)(-1))
- #define [VC_DYNAMIC_XID](#) ((xid_t)(-1))
- #define [VC_SAMECTX](#) ((xid_t)(-2))
- #define [VC_NONID](#) ((nid_t)(-1))
- #define [VC_DYNAMIC_NID](#) ((nid_t)(-1))
- #define [VC_LIM_INFINITY](#) (~0ULL)
- #define [VC_LIM_KEEP](#) (~1ULL)
- #define [VC_CDLIM_UNSET](#) (0U)
- #define [VC_CDLIM_INFINITY](#) (~0U)
- #define [VC_CDLIM_KEEP](#) (~1U)
- #define [S_CTX_INFO_LOCK](#) 1
- #define [S_CTX_INFO_SCHED](#) 2
- #define [S_CTX_INFO_NPROC](#) 4
- #define [S_CTX_INFO_PRIVATE](#) 8
- #define [S_CTX_INFO_INIT](#) 16
- #define [S_CTX_INFO_HIDEINFO](#) 32
- #define [S_CTX_INFO_ULIMIT](#) 64
- #define [S_CTX_INFO_NAMESPACE](#) 128
- #define [VC_CAP_CHOWN](#) 0
- #define [VC_CAP_DAC_OVERRIDE](#) 1

- `#define VC_CAP_DAC_READ_SEARCH 2`
- `#define VC_CAP_FOWNER 3`
- `#define VC_CAP_FSETID 4`
- `#define VC_CAP_KILL 5`
- `#define VC_CAP_SETGID 6`
- `#define VC_CAP_SETUID 7`
- `#define VC_CAP_SETPCAP 8`
- `#define VC_CAP_LINUX_IMMUTABLE 9`
- `#define VC_CAP_NET_BIND_SERVICE 10`
- `#define VC_CAP_NET_BROADCAST 11`
- `#define VC_CAP_NET_ADMIN 12`
- `#define VC_CAP_NET_RAW 13`
- `#define VC_CAP_IPC_LOCK 14`
- `#define VC_CAP_IPC_OWNER 15`
- `#define VC_CAP_SYS_MODULE 16`
- `#define VC_CAP_SYS_RAWIO 17`
- `#define VC_CAP_SYS_CHROOT 18`
- `#define VC_CAP_SYS_PTRACE 19`
- `#define VC_CAP_SYS_PACCT 20`
- `#define VC_CAP_SYS_ADMIN 21`
- `#define VC_CAP_SYS_BOOT 22`
- `#define VC_CAP_SYS_NICE 23`
- `#define VC_CAP_SYS_RESOURCE 24`
- `#define VC_CAP_SYS_TIME 25`
- `#define VC_CAP_SYS_TTY_CONFIG 26`
- `#define VC_CAP_MKNOD 27`
- `#define VC_CAP_LEASE 28`
- `#define VC_CAP_AUDIT_WRITE 29`
- `#define VC_CAP_AUDIT_CONTROL 30`
- `#define VC_IMMUTABLE_FILE_FL 0x0000010lu`
- `#define VC_IMMUTABLE_LINK_FL 0x0008000lu`
- `#define VC_IMMUTABLE_ALL (VC_IMMUTABLE_LINK_FL|VC_IMMUTABLE_FILE_FL)`
- `#define VC_IATTR_XID 0x01000000u`
- `#define VC_IATTR_ADMIN 0x00000001u`
- `#define VC_IATTR_WATCH 0x00000002u`
- `#define VC_IATTR_HIDE 0x00000004u`
- `#define VC_IATTR_FLAGS 0x00000007u`
- `#define VC_IATTR_BARRIER 0x00010000u`
- `#define VC_IATTR_IUNLINK 0x00020000u`
- `#define VC_IATTR_IMMUTABLE 0x00040000u`
- `#define VC_VXF_INFO_LOCK 0x00000001ull`
- `#define VC_VXF_INFO_NPROC 0x00000004ull`
- `#define VC_VXF_INFO_PRIVATE 0x00000008ull`
- `#define VC_VXF_INFO_INIT 0x00000010ull`
- `#define VC_VXF_INFO_HIDEINFO 0x00000020ull`
- `#define VC_VXF_INFO_ULIMIT 0x00000040ull`
- `#define VC_VXF_INFO_NAMESPACE 0x00000080ull`
- `#define VC_VXF_SCHED_HARD 0x00000100ull`
- `#define VC_VXF_SCHED_PRIO 0x00000200ull`
- `#define VC_VXF_SCHED_PAUSE 0x00000400ull`

- #define [VC_VXF_VIRT_MEM](#) 0x00010000ull
- #define [VC_VXF_VIRT_UPTIME](#) 0x00020000ull
- #define [VC_VXF_VIRT_CPU](#) 0x00040000ull
- #define [VC_VXF_VIRT_LOAD](#) 0x00080000ull
- #define [VC_VXF_VIRT_TIME](#) 0x00100000ull
- #define [VC_VXF_HIDE_MOUNT](#) 0x01000000ull
- #define [VC_VXF_HIDE_NETIF](#) 0x02000000ull
- #define [VC_VXF_HIDE_VINFO](#) 0x04000000ull
- #define [VC_VXF_STATE_SETUP](#) (1ULL<<32)
- #define [VC_VXF_STATE_INIT](#) (1ULL<<33)
- #define [VC_VXF_STATE_ADMIN](#) (1ULL<<34)
- #define [VC_VXF_SC_HELPER](#) (1ULL<<36)
- #define [VC_VXF_REBOOT_KILL](#) (1ULL<<37)
- #define [VC_VXF_PERSISTENT](#) (1ULL<<38)
- #define [VC_VXF_FORK_RSS](#) (1ULL<<48)
- #define [VC_VXF_PROLIFIC](#) (1ULL<<49)
- #define [VC_VXF_IGNEG_NICE](#) (1ULL<<52)
- #define [VC_VXC_SET_UTSNAME](#) 0x00000001ull
- #define [VC_VXC_SET_RLIMIT](#) 0x00000002ull
- #define [VC_VXC_RAW_ICMP](#) 0x00000100ull
- #define [VC_VXC_SYSLOG](#) 0x00001000ull
- #define [VC_VXC_SECURE_MOUNT](#) 0x00010000ull
- #define [VC_VXC_SECURE_REMOUNT](#) 0x00020000ull
- #define [VC_VXC_BINARY_MOUNT](#) 0x00040000ull
- #define [VC_VXC_QUOTA_CTL](#) 0x00100000ull
- #define [VC_VXC_ADMIN_MAPPER](#) 0x00200000ull
- #define [VC_VXC_ADMIN_CLOOP](#) 0x00400000ull
- #define [VC_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`, `vc-`
`FEATURE_VINFO`,
`vcFEATURE_VHI`, `vcFEATURE_VSHELPER0`, `vcFEATURE_VSHELPER`, `vcFEATURE_-`
`VWAIT`,
`vcFEATURE_VNET`, `vcFEATURE_VSTAT`, `vcFEATURE_PPTAG` }
- enum [vcXidType](#) {
`vcTYPE_INVALID`, `vcTYPE_MAIN`, `vcTYPE_WATCH`, `vcTYPE_STATIC`,
`vcTYPE_DYNAMIC` }
- enum [vcCfgStyle](#) {
`vcCFG_NONE`, `vcCFG_AUTO`, `vcCFG_LEGACY`, `vcCFG_RECENT_SHORT`,
`vcCFG_RECENT_FULL` }
- enum [vcCtxType](#) { `vcCTX_XID` = 1, `vcCTX_NID`, `vcCTX_TAG` }

Functions

- int [vc_syscall](#) (uint32_t cmd, [xid_t](#) xid, void *data)
The generic vserver syscall
This function executes the generic vserver syscall. It uses the correct syscallnumber (which may differ between the different architectures).
- 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
Puts current process into context ctx, removes the capabilities given in remove_cap and sets flags.
- 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.
*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.*
- [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.

- `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
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.
- `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
This function parses str and interprets special words like "inf" or suffixes. Valid suffixes are
 - `k ... 1000`
 - `m ... 1000000`

- K ... 1024
- M ... 1048576.

- `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.

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.

- `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

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.

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

6.2.1 Detailed Description

The public interface of the the libvserver library.

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

6.2.2 Define Documentation

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

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

Definition at line 67 of file vserver.h.

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

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

Definition at line 64 of file vserver.h.

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

the value which means the current ctx

Definition at line 69 of file vserver.h.

6.2.3 Typedef Documentation

6.2.3.1 `typedef uint_least64_t vc_limit_t`

The type which is used for a single limit value.

Special values are

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

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

Definition at line 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 Function Documentation

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

Add a disk limit to a file system.

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

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

6.2.4.3 `int vc_get_dlimit (char const * filename, xid_t xid, uint_least32_t flags, struct vc_ctx_dlimit * limits)`

Get a disk limit.

6.2.4.4 `tag_t vc_get_task_tag (pid_t pid)`

Get the filesystem tag for a process.

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

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

6.2.4.6 `char* vc_getVserverByCtx (xid_t ctx, vcCfgStyle * style, char const * revdir)`

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

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

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

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

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

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

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

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

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

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

6.2.4.11 `bool vc_is_dynamic_xid (xid_t xid)`

Returns true iff *xid* is a dynamic xid

6.2.4.12 `nid_t vc_nidopt2nid (char const *, bool honor_static, char const ** err_info)`

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

6.2.4.13 `int vc_rem_dlimit (char const * filename, xid_t xid, uint_least32_t flags)`

Remove a disk limit from a file system.

6.2.4.14 `int vc_set_dlimit (char const *filename, xid_t xid, uint_least32_t flags, struct vc_ctx_dlimit const * limits)`

Set a disk limit.

6.2.4.15 `int vc_tag_create (tag_t tag)`

Create a new filesystem tag space.

6.2.4.16 `int vc_tag_migrate (tag_t tag)`

Migrate to an existing filesystem tag space.

6.2.4.17 `tag_t vc_tagopt2tag (char const *, bool honor_static, char const ** err_info)`

Maps a tag given at '-tag' options to a tag_t

6.2.4.18 `xid_t vc_xidopt2xid (char const *, bool honor_static, char const ** err_info)`

Maps an xid given at '-xid' options to an xid_t

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