

util-vserver (libvserver)

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1 Module Index

1.1 Modules

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2 Data Structure Index

2.1 Data Structures

Here are the data structures with brief descriptions:

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3.1 File List

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internal.h

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vserver.h

The public interface of the the libvserver library

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4 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:
- **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

<i>xid</i>	<p>The new context; special values are:</p> <ul style="list-style-type: none"> • <code>VC_DYNAMIC_XID</code> 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

<i>xid</i>	The new context
<i>flags</i>	The flags, see <code>VC_VXM_*</code>

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

<i>xid</i>	The context to get stats about
<i>stat</i>	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

<i>filename</i>	The name of the file whose attributes shall be determined.
<i>xid</i>	When non-zero and the VC_IATTR_XID bit is set in <i>mask</i> , the assigned context of <i>filename</i> will be stored there.
<i>flags</i>	When non-zero, a bitmask of current attributes will be stored there. These attributes must be requested explicitly by setting the appropriate bit in <i>mask</i>
<i>mask</i>	Points to a bitmask which tells which attributes shall be determined. On return, it will masquerade the attributes which were determined.

Precondition

$\text{mask} \neq 0 \ \&\& \ !((\text{*mask} \& \text{VC_IATTR_XID}) \ \&\& \ \text{xid} == 0) \ \&\& \ !((\text{*mask} \& \sim \text{VC_IATTR_XID}) \ \&\& \ \text{flags} == 0)$

4.1.2.6 int vc_get_rlimit (xid_t xid, int resource, struct vc_rlimit * lim)

Returns the limits of *resource*.

Parameters

<i>xid</i>	The id of the context
<i>resource</i>	The resource which will be queried
<i>lim</i>	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

<i>pid</i>	the process-id whose xid shall be determined; $\text{pid} == 0$ 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

<i>filename</i>	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

<i>ctx</i>	The new context; special values for are <ul style="list-style-type: none"> • <code>VC_SAMECTX</code> which means the current context (just for changing caps and flags) • <code>VC_DYNAMIC_XID</code> which means the next free context; this value can be used by ordinary users also
<i>remove_cap</i>	The linux capabilities which will be removed .
<i>flags</i>	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

<i>xid</i>	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

<i>xid</i>	The id of the context
<i>resource</i>	The resource which will be queried
<i>stat</i>	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 < NB_IPV4ROOT && ips != 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

<i>xid</i>	The id of the context
<i>resource</i>	The resource which will be queried
<i>lim</i>	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

<i>cmd</i>	the command to be executed
<i>xid</i>	the xid on which the cmd shall be applied
<i>data</i>	additional arguments; depends on <i>cmd</i>

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

<i>xid</i>	The context to get stats about
<i>stat</i>	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.*
- `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:*

```

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"

```

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 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

<i>str</i>	The string to be parsed
<i>len</i>	The length of the string, or 0 for automatic detection
<i>err</i>	Pointer to a structure for error-information, or <code>NULL</code> .
<i>cap</i>	Pointer to a <code>vc_ctx_caps</code> structure holding the results; only the <i>bcaps</i> and <i>bmask</i> fields will be changed and already set values will not be honored. When an error occurred, <i>cap</i> 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 bcapability or the entire value (when possible) to a textual representation.

Parameters

<i>val</i>	The string to be converted; on success, the detected bit(s) will be unset, in errorcase only the lowest set bit
------------	---

Returns

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

Precondition

val != 0

Postcondition

**val_{old}* != 0 <-> **val_{old}* > **val_{new}*
**val_{old}* == 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

<i>str</i>	The string which shall be parsed
<i>res</i>	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 bcapability.

Parameters

<i>str</i>	The string to be parsed; both "CAP_XXX" and "XXX" will be accepted
<i>len</i>	The length of the string, or 0 for automatic detection

Returns

0 on error; a bitmask on success

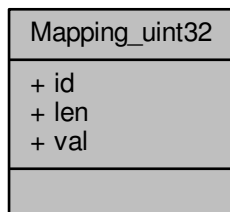
Precondition

str != 0

5 Data Structure Documentation

5.1 Mapping_uint32 Struct Reference

Collaboration diagram for Mapping_uint32:



Data Fields

- char const *const **id**
- size_t **len**
- uint_least32_t **val**

5.1.1 Detailed Description

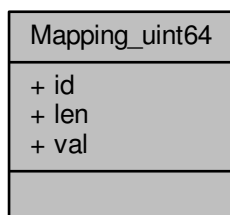
Definition at line 80 of file internal.h.

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

- [internal.h](#)

5.2 Mapping_uint64 Struct Reference

Collaboration diagram for Mapping_uint64:



Data Fields

- char const *const **id**
- size_t **len**
- uint_least64_t **val**

5.2.1 Detailed Description

Definition at line 86 of file internal.h.

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

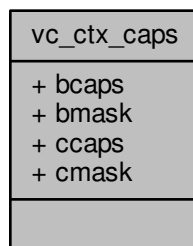
- [internal.h](#)

5.3 vc_ctx_caps Struct Reference

Capabilities of process-contexts.

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

Collaboration diagram for vc_ctx_caps:



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.

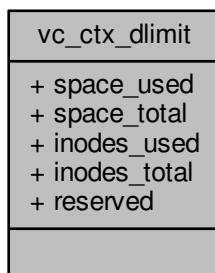
Definition at line 516 of file vserver.h.

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

- [vserver.h](#)

5.4 vc_ctx_dlimit Struct Reference

Collaboration diagram for vc_ctx_dlimit:



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 793 of file `vserver.h`.

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

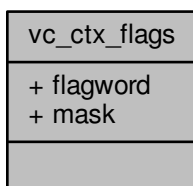
- [vserver.h](#)

5.5 vc_ctx_flags Struct Reference

Flags of process-contexts.

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


Collaboration diagram for vc_ctx_flags:



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 438 of file `vserver.h`.

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

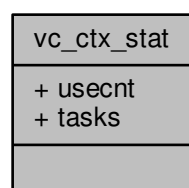
- [vserver.h](#)

5.6 vc_ctx_stat Struct Reference

Statistics about a context.

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

Collaboration diagram for vc_ctx_stat:



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 469 of file `vserver.h`.

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

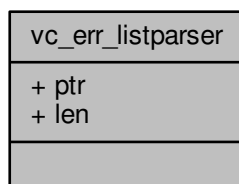
- [vserver.h](#)

5.7 `vc_err_listparser` Struct Reference

Information about parsing errors.

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

Collaboration diagram for `vc_err_listparser`:



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.

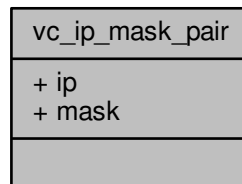
Definition at line 877 of file `vserver.h`.

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

- [vserver.h](#)

5.8 vc_ip_mask_pair Struct Reference

Collaboration diagram for vc_ip_mask_pair:



Data Fields

- `uint32_t ip`
- `uint32_t mask`

5.8.1 Detailed Description

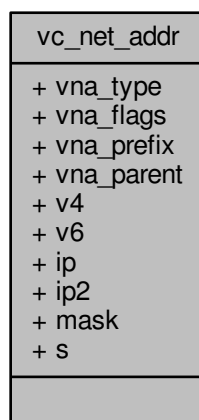
Definition at line 416 of file `vserver.h`.

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

- [vserver.h](#)

5.9 vc_net_addr Struct Reference

Collaboration diagram for vc_net_addr:



Data Fields

- uint16_t **vna_type**
- uint16_t **vna_flags**
- uint16_t **vna_prefix**
- uint16_t **vna_parent**
- struct {
 - union {
 - struct in_addr **v4**
 - struct in6_addr **v6**
 - ip**
 - union {
 - struct in_addr **v4**
 - struct in6_addr **v6**
 - ip2**
 - union {
 - struct in_addr **v4**
 - struct in6_addr **v6**
 - mask**
- s**

5.9.1 Detailed Description

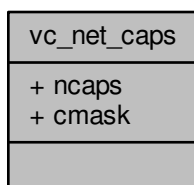
Definition at line 666 of file vserver.h.

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

- [vserver.h](#)

5.10 vc_net_caps Struct Reference

Collaboration diagram for vc_net_caps:



Data Fields

- uint_least64_t **ncaps**
- uint_least64_t **cmask**

5.10.1 Detailed Description

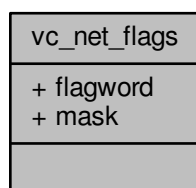
Definition at line 707 of file vserver.h.

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

- [vserver.h](#)

5.11 vc_net_flags Struct Reference

Collaboration diagram for vc_net_flags:



Data Fields

- `uint_least64_t` **flagword**
- `uint_least64_t` **mask**

5.11.1 Detailed Description

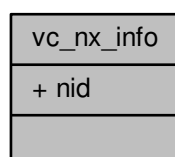
Definition at line 693 of file vserver.h.

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

- [vserver.h](#)

5.12 vc_nx_info Struct Reference

Collaboration diagram for vc_nx_info:



Data Fields

- `nid_t nid`

5.12.1 Detailed Description

Definition at line 659 of file `vserver.h`.

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

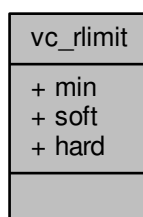
- [vserver.h](#)

5.13 `vc_rlimit` Struct Reference

The limits of a resources.

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

Collaboration diagram for `vc_rlimit`:



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 582 of file `vserver.h`.

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

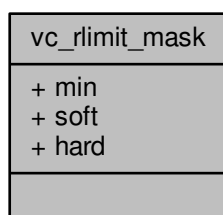
- [vserver.h](#)

5.14 `vc_rlimit_mask` Struct Reference

Masks describing the supported limits.

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

Collaboration diagram for `vc_rlimit_mask`:



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 569 of file `vserver.h`.

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

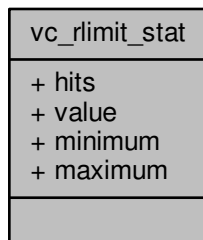
- [vserver.h](#)

5.15 `vc_rlimit_stat` Struct Reference

Statistics for a resource limit.

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

Collaboration diagram for `vc_rlimit_stat`:



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.

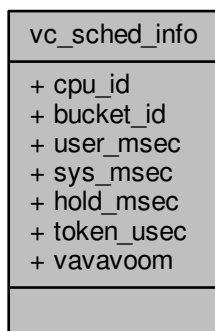
Definition at line 610 of file `vserver.h`.

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

- `vserver.h`

5.16 vc_sched_info Struct Reference

Collaboration diagram for vc_sched_info:



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 845 of file `vserver.h`.

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

- [vserver.h](#)

5.17 vc_set_sched Struct Reference

Collaboration diagram for vc_set_sched:

vc_set_sched
<ul style="list-style-type: none"> + set_mask + fill_rate + interval + fill_rate2 + interval2 + tokens + tokens_min + tokens_max + priority_bias + cpu_id + bucket_id

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 828 of file vserver.h.

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

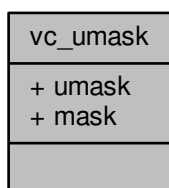
- [vserver.h](#)

5.18 vc_umask Struct Reference

Namespaces allowed to unshare.

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

Collaboration diagram for vc_umask:



Data Fields

- `uint_least64_t umask`
- `uint_least64_t mask`

5.18.1 Detailed Description

Namespaces allowed to unshare.

Definition at line 866 of file `vserver.h`.

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

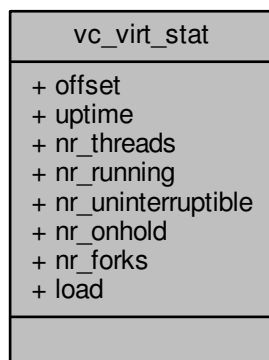
- [vserver.h](#)

5.19 vc_virt_stat Struct Reference

Contains further statistics about a context.

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

Collaboration diagram for `vc_virt_stat`:



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]`

5.19.1 Detailed Description

Contains further statistics about a context.

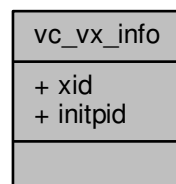
Definition at line 484 of file `vserver.h`.

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

- [vserver.h](#)

5.20 `vc_vx_info` Struct Reference

Collaboration diagram for `vc_vx_info`:



Data Fields

- `xid_t xid`
- `pid_t initpid`

5.20.1 Detailed Description

Definition at line 534 of file `vserver.h`.

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

- [vserver.h](#)

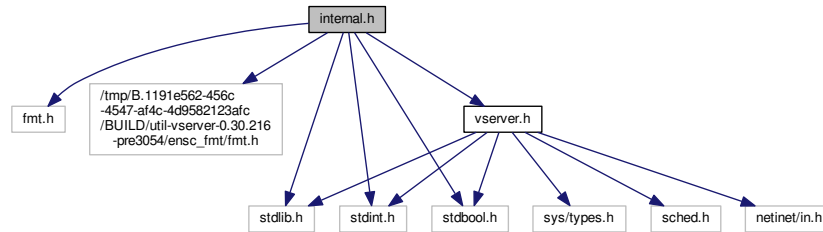
6 File Documentation

6.1 internal.h File Reference

Declarations which are used by util-vserver internally.

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

Include dependency graph for internal.h:



Data Structures

- struct [Mapping_uint32](#)
- struct [Mapping_uint64](#)

Macros

- `#define _symbol_version(real, name, version)`
- `#define _default_symbol_version(real, name, version) extern __typeof (real) name __attribute__ ((alias (#name)))`
- `#define symbol_version(real, name, version) _symbol_version(real, name, version)`
- `#define default_symbol_version(real, name, version) _default_symbol_version(real, name, version)`

Functions

- `char * vc_getVserverByCtx_Internal (xid_t ctx, vcCfgStyle *style, char const *revdir, bool validate_result)`
- `int utilvserver_checkCompatVersion ()`
- `uint_least32_t utilvserver_checkCompatConfig ()`
- `bool utilvserver_isDirectory (char const *path, bool follow_link)`
- `bool utilvserver_isFile (char const *path, bool follow_link)`
- `bool utilvserver_isLink (char const *path)`
- `int utilvserver_listparser_uint32 (char const *str, size_t len, char const **err_ptr, size_t *err_len, uint_least32_t *flag, uint_least32_t *mask, uint_least32_t (*func)(char const *, size_t, bool *)) NONNULL((1`
- `int utilvserver_listparser_uint64 (char const *str, size_t len, char const **err_ptr, size_t *err_len, uint_least64_t *flag, uint_least64_t *mask, uint_least64_t (*func)(char const *, size_t, bool *)) NONNULL((1`
- `ssize_t utilvserver_value2text_uint32 (char const *str, size_t len, struct Mapping_uint32 const *map, size_t map_len) NONNULL((1`
- `ssize_t utilvserver_value2text_uint64 (char const *str, size_t len, struct Mapping_uint64 const *map, size_t map_len) NONNULL((1`
- `ssize_t utilvserver_text2value_uint32 (uint_least32_t *val, struct Mapping_uint32 const *map, size_t map_len) NONNULL((1`
- `ssize_t utilvserver_text2value_uint64 (uint_least64_t *val, struct Mapping_uint64 const *map, size_t map_len) NONNULL((1`

6.1.1 Detailed Description

Declarations which are used by util-vserver internally.

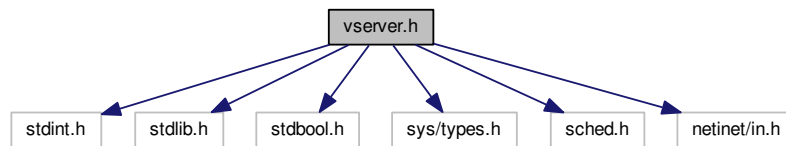
Definition in file [internal.h](#).

6.2 vservice.h File Reference

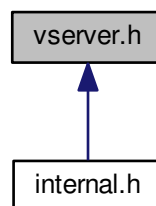
The public interface of the the libvserver library.

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

Include dependency graph for vservice.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_umask](#)

Namespaces allowed to unshare.

- struct [vc_err_listparser](#)

Information about parsing errors.

Macros

- #define [VC_NOCTX](#) ((xid_t)(-1))
- #define [VC_NOXID](#) ((xid_t)(-1))
- #define [VC_DYNAMIC_XID](#) ((xid_t)(-1))
- #define [VC_SAMECTX](#) ((xid_t)(-2))
- #define [VC_NONID](#) ((nid_t)(-1))
- #define [VC_DYNAMIC_NID](#) ((nid_t)(-1))
- #define [VC_LIM_INFINITY](#) (~0ULL)
- #define [VC_LIM_KEEP](#) (~1ULL)
- #define [VC_CDLIM_UNSET](#) (0U)
- #define [VC_CDLIM_INFINITY](#) (~0U)
- #define [VC_CDLIM_KEEP](#) (~1U)
- #define [S_CTX_INFO_LOCK](#) 1
- #define [S_CTX_INFO_SCHED](#) 2
- #define [S_CTX_INFO_NPROC](#) 4
- #define [S_CTX_INFO_PRIVATE](#) 8
- #define [S_CTX_INFO_INIT](#) 16
- #define [S_CTX_INFO_HIDEINFO](#) 32
- #define [S_CTX_INFO_ULIMIT](#) 64
- #define [S_CTX_INFO_NAMESPACE](#) 128
- #define [VC_CAP_CHOWN](#) 0
- #define [VC_CAP_DAC_OVERRIDE](#) 1
- #define [VC_CAP_DAC_READ_SEARCH](#) 2
- #define [VC_CAP_FOWNER](#) 3
- #define [VC_CAP_FSETID](#) 4
- #define [VC_CAP_KILL](#) 5
- #define [VC_CAP_SETGID](#) 6
- #define [VC_CAP_SETUID](#) 7
- #define [VC_CAP_SETPCAP](#) 8
- #define [VC_CAP_LINUX_IMMUTABLE](#) 9
- #define [VC_CAP_NET_BIND_SERVICE](#) 10
- #define [VC_CAP_NET_BROADCAST](#) 11

- #define VC_CAP_NET_ADMIN 12
- #define VC_CAP_NET_RAW 13
- #define VC_CAP_IPC_LOCK 14
- #define VC_CAP_IPC_OWNER 15
- #define VC_CAP_SYS_MODULE 16
- #define VC_CAP_SYS_RAWIO 17
- #define VC_CAP_SYS_CHROOT 18
- #define VC_CAP_SYS_PTRACE 19
- #define VC_CAP_SYS_PACCT 20
- #define VC_CAP_SYS_ADMIN 21
- #define VC_CAP_SYS_BOOT 22
- #define VC_CAP_SYS_NICE 23
- #define VC_CAP_SYS_RESOURCE 24
- #define VC_CAP_SYS_TIME 25
- #define VC_CAP_SYS_TTY_CONFIG 26
- #define VC_CAP_MKNOD 27
- #define VC_CAP_LEASE 28
- #define VC_CAP_AUDIT_WRITE 29
- #define VC_CAP_AUDIT_CONTROL 30
- #define VC_CAP_SETFCAP 31
- #define VC_CAP_MAC_OVERRIDE 32
- #define VC_CAP_MAC_ADMIN 33
- #define VC_IMMUTABLE_FILE_FL 0x0000010lu
- #define VC_IMMUTABLE_LINK_FL 0x0008000lu
- #define VC_IMMUTABLE_ALL (VC_IMMUTABLE_LINK_FL|VC_IMMUTABLE_FILE_FL)
- #define VC_IATTR_XID 0x01000000u
- #define VC_IATTR_ADMIN 0x00000001u
- #define VC_IATTR_WATCH 0x00000002u
- #define VC_IATTR_HIDE 0x00000004u
- #define VC_IATTR_WRITE 0x00000008u
- #define VC_IATTR_FLAGS 0x0000000fu
- #define VC_IATTR_BARRIER 0x00010000u
- #define VC_IATTR_IUNLINK 0x00020000u
- #define VC_IATTR_IMMUTABLE 0x00040000u
- #define VC_IATTR_COW 0x00080000u
- #define VC_VXF_INFO_LOCK 0x00000001ull
- #define VC_VXF_INFO_NPROC 0x00000004ull
- #define VC_VXF_INFO_PRIVATE 0x00000008ull
- #define VC_VXF_INFO_INIT 0x00000010ull
- #define VC_VXF_INFO_HIDEINFO 0x00000020ull
- #define VC_VXF_INFO_ULIMIT 0x00000040ull
- #define VC_VXF_INFO_NAMESPACE 0x00000080ull
- #define VC_VXF_SCHED_HARD 0x00000100ull
- #define VC_VXF_SCHED_PRIO 0x00000200ull
- #define VC_VXF_SCHED_PAUSE 0x00000400ull
- #define VC_VXF_VIRT_MEM 0x00010000ull
- #define VC_VXF_VIRT_UPTIME 0x00020000ull
- #define VC_VXF_VIRT_CPU 0x00040000ull
- #define VC_VXF_VIRT_LOAD 0x00080000ull
- #define VC_VXF_VIRT_TIME 0x00100000ull
- #define VC_VXF_HIDE_MOUNT 0x01000000ull
- #define VC_VXF_HIDE_NETIF 0x02000000ull
- #define VC_VXF_HIDE_VINFO 0x04000000ull
- #define VC_VXF_STATE_SETUP (1ULL<<32)
- #define VC_VXF_STATE_INIT (1ULL<<33)

- `#define VC_VXF_STATE_ADMIN (1ULL<<34)`
- `#define VC_VXF_SC_HELPER (1ULL<<36)`
- `#define VC_VXF_REBOOT_KILL (1ULL<<37)`
- `#define VC_VXF_PERSISTENT (1ULL<<38)`
- `#define VC_VXF_FORK_RSS (1ULL<<48)`
- `#define VC_VXF_PROLIFIC (1ULL<<49)`
- `#define VC_VXF_IGNEG_NICE (1ULL<<52)`
- `#define VC_VXF_IGNEG_IONICE (1ULL<<53)`
- `#define VC_VXC_SET_UTSNAME 0x00000001ull`
- `#define VC_VXC_SET_RLIMIT 0x00000002ull`
- `#define VC_VXC_FS_SECURITY 0x00000004ull`
- `#define VC_VXC_TIOCSTI 0x00000010ull`
- `#define VC_VXC_RAW_ICMP 0x00000100ull`
- `#define VC_VXC_SYSLOG 0x00001000ull`
- `#define VC_VXC_OOM_ADJUST 0x00002000ull`
- `#define VC_VXC_AUDIT_CONTROL 0x00004000ull`
- `#define VC_VXC_SECURE_MOUNT 0x00010000ull`
- `#define VC_VXC_SECURE_REMOUNT 0x00020000ull`
- `#define VC_VXC_BINARY_MOUNT 0x00040000ull`
- `#define VC_VXC_QUOTA_CTL 0x00100000ull`
- `#define VC_VXC_ADMIN_MAPPER 0x00200000ull`
- `#define VC_VXC_ADMIN_CLOOP 0x00400000ull`
- `#define VC_VXC_KTHREAD 0x01000000ull`
- `#define VC_VXC_NAMESPACE 0x02000000ull`
- `#define VC_VXSM_FILL_RATE 0x0001`
- `#define VC_VXSM_INTERVAL 0x0002`
- `#define VC_VXSM_FILL_RATE2 0x0004`
- `#define VC_VXSM_INTERVAL2 0x0008`
- `#define VC_VXSM_TOKENS 0x0010`
- `#define VC_VXSM_TOKENS_MIN 0x0020`
- `#define VC_VXSM_TOKENS_MAX 0x0040`
- `#define VC_VXSM_PRIO_BIAS 0x0100`
- `#define VC_VXSM_CPU_ID 0x1000`
- `#define VC_VXSM_BUCKET_ID 0x2000`
- `#define VC_VXSM_IDLE_TIME 0x0200`
- `#define VC_VXSM_FORCE 0x0400`
- `#define VC_VXSM_MSEC 0x4000`
- `#define VC_VXSM_V3_MASK 0x0173`
- `#define VC_NXF_INFO_LOCK 0x00000001ull`
- `#define VC_NXF_INFO_PRIVATE 0x00000008ull`
- `#define VC_NXF_SINGLE_IP 0x00000100ull`
- `#define VC_NXF_LBACK_REMAP 0x00000200ull`
- `#define VC_NXF_LBACK_ALLOW 0x00000400ull`
- `#define VC_NXF_HIDE_NETIF 0x02000000ull`
- `#define VC_NXF_HIDE_LBACK 0x04000000ull`
- `#define VC_NXF_STATE_SETUP (1ULL<<32)`
- `#define VC_NXF_STATE_ADMIN (1ULL<<34)`
- `#define VC_NXF_SC_HELPER (1ULL<<36)`
- `#define VC_NXF_PERSISTENT (1ULL<<38)`
- `#define VC_NXC_TUN_CREATE 0x00000001ull`
- `#define VC_NXC_RAW_ICMP 0x00000100ull`
- `#define VC_VLIMIT_NSOK 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_PROC_SECURE** (1 << 4)
- **#define VC_VCI_HARDCPU** (1 << 5)
- **#define VC_VCI_IDLELIMIT** (1 << 6)
- **#define VC_VCI_IDLETIME** (1 << 7)
- **#define VC_VCI_COWBL** (1 << 8)
- **#define VC_VCI_FULLCOWBL** (1 << 9)
- **#define VC_VCI_SPACES** (1 << 10)
- **#define VC_VCI_NETV2** (1 << 11)
- **#define VC_VCI_MEMCG** (1 << 12)
- **#define VC_VCI_DEBUG** (1 << 16)
- **#define VC_VCI_HISTORY** (1 << 20)
- **#define VC_VCI_TAGGED** (1 << 24)
- **#define VC_VCI_PPTAG** (1 << 28)
- **#define VC_DATTR_CREATE** 0x00000001
- **#define VC_DATTR_OPEN** 0x00000002
- **#define VC_DATTR_REMAP** 0x00000010
- **#define VC_VXM_SET_INIT** 0x00000001
- **#define VC_VXM_SET_REAPER** 0x00000002
- **#define VC_NXA_TYPE_IPV4** 0x0001
- **#define VC_NXA_TYPE_IPV6** 0x0002
- **#define VC_NXA_TYPE_NONE** 0x0000
- **#define VC_NXA_TYPE_ANY** 0x00FF
- **#define VC_NXA_TYPE_ADDR** 0x0010
- **#define VC_NXA_TYPE_MASK** 0x0020
- **#define VC_NXA_TYPE_RANGE** 0x0040
- **#define VC_NXA_MOD_BCAST** 0x0100
- **#define VC_NXA_MOD_LBACK** 0x0200
- **#define CLONE_NEWNS** 0x00020000
- **#define CLONE_NEWUTS** 0x04000000
- **#define CLONE_NEWIPC** 0x08000000
- **#define CLONE_NEWUSER** 0x10000000
- **#define CLONE_NEWPID** 0x20000000
- **#define CLONE_NEWNET** 0x40000000
- **#define VC_BAD_PERSONALITY** ((uint_least32_t)(-1))
- **#define vna_v4_ip** s.ip.v4
- **#define vna_v4_ip2** s.ip2.v4
- **#define vna_v4_mask** s.mask.v4
- **#define vna_v6_ip** s.ip.v6
- **#define vna_v6_ip2** s.ip2.v6
- **#define vna_v6_mask** s.mask.v6
- **#define VC_LIMIT_VSERVER_NAME_LEN** 1024
- **#define vcSKEL_INTERFACES** 1u
- **#define vcSKEL_PKGMGMT** 2u
- **#define vcSKEL_FILESYSTEM** 4u

Typedefs

- typedef an_unsigned_integer_type [xid_t](#)
- typedef an_unsigned_integer_type [nid_t](#)
- typedef an_unsigned_integer_type [tag_t](#)
- typedef uint64_t [vc_vci_t](#)
- typedef uint_least64_t [vc_limit_t](#)

The type which is used for a single limit value.

Enumerations

- enum [vc_uts_type](#) {
 [vcVHI_CONTEXT](#), [vcVHI_SYSNAME](#), [vcVHI_NODENAME](#), [vcVHI_RELEASE](#),
 [vcVHI_VERSION](#), [vcVHI_MACHINE](#), [vcVHI_DOMAINNAME](#) }
- enum [vcFeatureSet](#) {
 [vcFEATURE_VKILL](#), [vcFEATURE_IATTR](#), [vcFEATURE_RLIMIT](#), [vcFEATURE_COMPAT](#),
 [vcFEATURE_MIGRATE](#), [vcFEATURE_NAMESPACE](#), [vcFEATURE_SCHED](#), [vcFEATURE_VINFO](#),
 [vcFEATURE_VHI](#), [vcFEATURE_VSHELPER0](#), [vcFEATURE_VSHELPER](#), [vcFEATURE_VWAIT](#),
 [vcFEATURE_VNET](#), [vcFEATURE_VSTAT](#), [vcFEATURE_PPTAG](#), [vcFEATURE_PIDSPACE](#),
 [vcFEATURE_SPACES](#), [vcFEATURE_PERSISTENT](#), [vcFEATURE_PIVOT_ROOT](#), [vcFEATURE_MEMC-](#)
 [G](#),
 [vcFEATURE_DYNAMIC](#), [vcFEATURE_BME](#) }
- 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.
- int [vc_get_kernel](#) ()
- [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:
- 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.
- 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, uint32_t index)
- int **vc_set_namespace** (xid_t xid, uint_least64_t mask, uint32_t index)
- int **vc_cleanup_namespace** (void)
- uint_least64_t **vc_get_space_mask** (void)
- uint_least64_t **vc_get_space_default** (void)
- int **vc_add_dlimit** (char const *filename, xid_t xid, uint_least32_t flags)
- int **vc_rem_dlimit** (char const *filename, xid_t xid, uint_least32_t flags)
- int **vc_set_dlimit** (char const *filename, xid_t xid, uint_least32_t flags, struct **vc_ctx_dlimit** const *limits)
- int **vc_get_dlimit** (char const *filename, xid_t xid, uint_least32_t flags, struct **vc_ctx_dlimit** *limits)
- tag_t **vc_get_task_tag** (pid_t pid)
- int **vc_tag_create** (tag_t tag)
- int **vc_tag_migrate** (tag_t tag)
- int **vc_set_sched** (xid_t xid, struct **vc_set_sched** const *)
- int **vc_get_sched** (xid_t xid, struct **vc_set_sched** *)
- int **vc_sched_info** (xid_t xid, struct **vc_sched_info** *info)
- int **vc_set_mapping** (xid_t xid, const char *device, const char *target, uint32_t flags)
- int **vc_unset_mapping** (xid_t xid, const char *device, const char *target, uint32_t flags)
- int **vc_get_badness** (xid_t xid, int64_t *badness)
- int **vc_set_badness** (xid_t xid, int64_t badness)
- int **vc_get_umask** (xid_t xid, struct **vc_umask** *umask)
- int **vc_set_umask** (xid_t xid, struct **vc_umask** const *umask)
- 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:*
 - 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"
 - .
- 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** *)
- char const * **vc_loumask2text** (uint_least64_t *)
- int **vc_list2umask** (char const *, size_t len, struct **vc_err_listparser** *err, struct **vc_umask** *)
- 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_compareVserverByld** (char const *lhs, vcCfgStyle lhs_style, char const *rhs, vcCfgStyle rhs_style)
- void **vc_exitLikeProcess** (int pid, int ret)
- int **vc_createSkeleton** (char const *id, vcCfgStyle style, int flags)

6.2.1 Detailed Description

The public interface of the the libvserver library.

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

6.2.2 Macro Definition 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 566 of file vserver.h.

6.2.3.2 an_unsigned_integer_type xid_t

The identifier of a context.

Definition at line 359 of file vserver.h.

6.2.4 Function Documentation

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

Add a disk limit to a file system.

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

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

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

Get a disk limit.

6.2.4.4 tag_t vc_get_task_tag (pid_t pid)

Get the filesystem tag for a process.

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

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

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

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

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

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

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

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

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

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

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

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

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

6.2.4.11 `bool vc_is_dynamic_xid (xid_t xid)`

Returns true iff *xid* is a dynamic xid

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

Maps a nid given at '`--nid`' options to a `nid_t`

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

Remove a disk limit from a file system.

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

Set a disk limit.

6.2.4.15 `int vc_tag_create (tag_t tag)`

Create a new filesystem tag space.

6.2.4.16 `int vc_tag_migrate (tag_t tag)`

Migrate to an existing filesystem tag space.

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

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

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

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

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