

util-vserver (libvserver)

0.30.216-pre3126

Generated by Doxygen 1.8.8

Wed Jan 17 2018 13:29:39

Contents

1	Module Index	1
1.1	Modules	1
2	Data Structure Index	1
2.1	Data Structures	1
3	File Index	2
3.1	File List	2
4	Module Documentation	3
4.1	Syscall wrappers	3
4.1.1	Detailed Description	4
4.1.2	Function Documentation	4
4.2	Helper functions	9
4.2.1	Detailed Description	9
4.2.2	Function Documentation	9
5	Data Structure Documentation	12
5.1	Mapping_uint32 Struct Reference	12
5.1.1	Detailed Description	12
5.2	Mapping_uint64 Struct Reference	12
5.2.1	Detailed Description	13
5.3	vc_ctx_caps Struct Reference	13
5.3.1	Detailed Description	13
5.4	vc_ctx_dlimit Struct Reference	14
5.4.1	Detailed Description	14
5.5	vc_ctx_flags Struct Reference	14
5.5.1	Detailed Description	15
5.6	vc_ctx_stat Struct Reference	15
5.6.1	Detailed Description	16
5.7	vc_err_listparser Struct Reference	16
5.7.1	Detailed Description	16
5.8	vc_ip_mask_pair Struct Reference	17
5.8.1	Detailed Description	17
5.9	vc_net_addr Struct Reference	17
5.9.1	Detailed Description	18
5.10	vc_net_caps Struct Reference	18
5.10.1	Detailed Description	19
5.11	vc_net_flags Struct Reference	19
5.11.1	Detailed Description	19

5.12	vc_nx_info Struct Reference	19
5.12.1	Detailed Description	20
5.13	vc_rlimit Struct Reference	20
5.13.1	Detailed Description	20
5.14	vc_rlimit_mask Struct Reference	21
5.14.1	Detailed Description	21
5.15	vc_rlimit_stat Struct Reference	21
5.15.1	Detailed Description	22
5.16	vc_sched_info Struct Reference	23
5.16.1	Detailed Description	23
5.17	vc_set_sched Struct Reference	24
5.17.1	Detailed Description	24
5.18	vc_umask Struct Reference	24
5.18.1	Detailed Description	25
5.19	vc_virt_stat Struct Reference	25
5.19.1	Detailed Description	26
5.20	vc_vx_info Struct Reference	26
5.20.1	Detailed Description	26
6	File Documentation	27
6.1	internal.h File Reference	27
6.1.1	Detailed Description	28
6.2	vserver.h File Reference	28
6.2.1	Detailed Description	36
6.2.2	Macro Definition Documentation	36
6.2.3	Typedef Documentation	36
6.2.4	Function Documentation	37
	Index	39

1 Module Index

1.1 Modules

Here is a list of all modules:

Syscall wrappers	3
Helper functions	9

2 Data Structure Index

2.1 Data Structures

Here are the data structures with brief descriptions:

Mapping_uint32	12
Mapping_uint64	12
vc_ctx_caps Capabilities of process-contexts	13
vc_ctx_dlimit	14
vc_ctx_flags Flags of process-contexts	14
vc_ctx_stat Statistics about a context	15
vc_err_listparser Information about parsing errors	16
vc_ip_mask_pair	17
vc_net_addr	17
vc_net_caps	18
vc_net_flags	19
vc_nx_info	19
vc_rlimit The limits of a resources	20
vc_rlimit_mask Masks describing the supported limits	21
vc_rlimit_stat Statistics for a resource limit	21
vc_sched_info	23
vc_set_sched	24
vc_umask Namespaces allowed to unshare	24
vc_virt_stat Contains further statistics about a context	25
vc_vx_info	26

3 File Index

3.1 File List

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

internal.h

Declarations which are used by util-vserver internally

27

vserver.h

The public interface of the the libvserver library

28

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>	The new context; special values are: <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

$nb < NB_IPV4ROOT$ && $ips \neq 0$

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

Sets the limits of *resource*.

Parameters

<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

$*val_{old} \neq 0 \leftrightarrow *val_{old} > *val_{new}$
 $*val_{old} == 0 \leftrightarrow result == 0$

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 bcability.

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

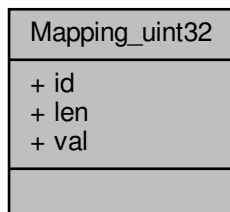
Precondition

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

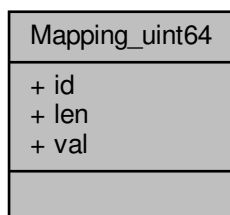
Definition at line 80 of file internal.h.

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:

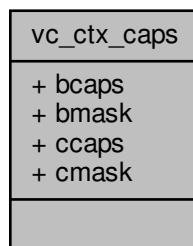
- [internal.h](#)

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.

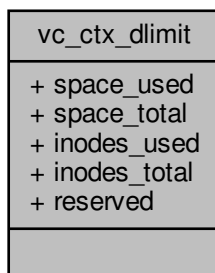
Definition at line 518 of file vserver.h.

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 795 of file `vserver.h`.

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

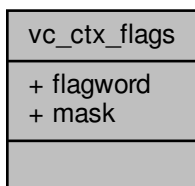
- [vserver.h](#)

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 440 of file `vserver.h`.

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

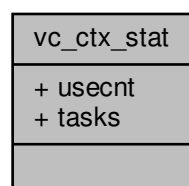
- [vserver.h](#)

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 471 of file `vserver.h`.

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

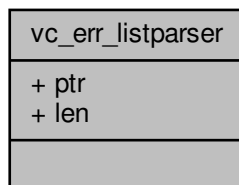
- [vserver.h](#)

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.

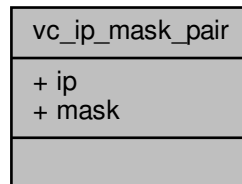
Definition at line 879 of file `vserver.h`.

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

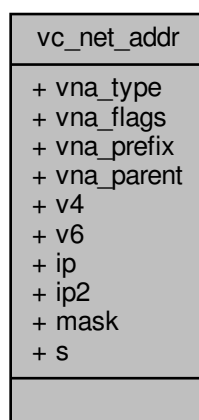
Definition at line 418 of file `vserver.h`.

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

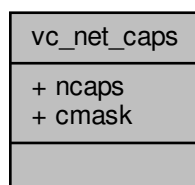
Definition at line 668 of file vserver.h.

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

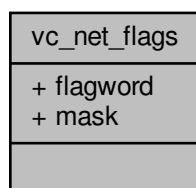
Definition at line 709 of file vserver.h.

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

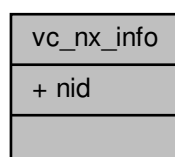
Definition at line 695 of file vserver.h.

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 661 of file `vserver.h`.

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

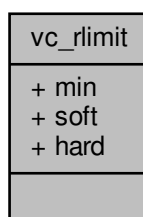
- [vserver.h](#)

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 584 of file `vserver.h`.

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

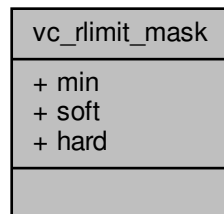
- [vserver.h](#)

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 571 of file vserver.h.

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

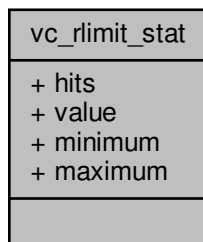
- [vserver.h](#)

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.

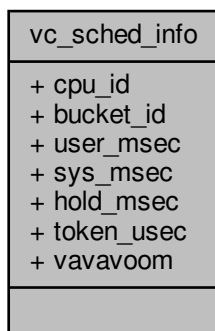
Definition at line 612 of file `vserver.h`.

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 847 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 830 of file vserver.h.

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

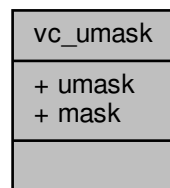
- [vserver.h](#)

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 868 of file `vserver.h`.

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

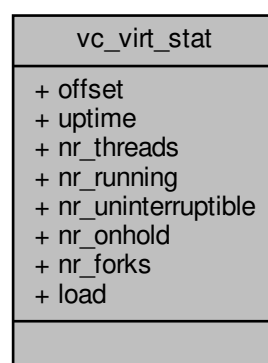
- [vserver.h](#)

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.

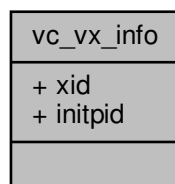
Definition at line 486 of file `vserver.h`.

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 536 of file `vserver.h`.

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

- [vserver.h](#)

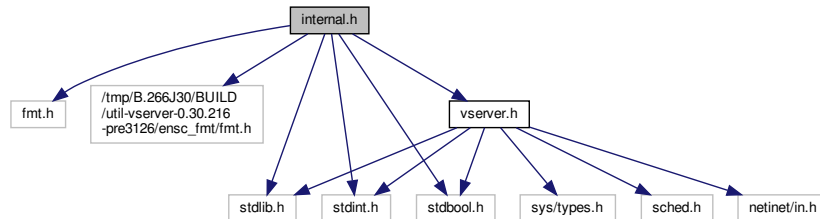
6 File Documentation

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.

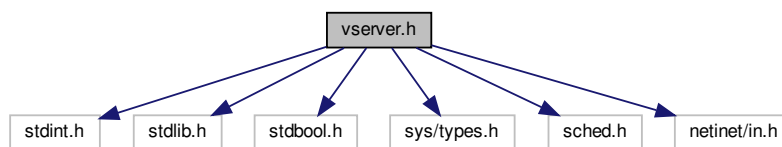
Definition in file [internal.h](#).

6.2 vservice.h File Reference

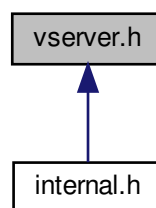
The public interface of the the libvserver library.

```
#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_FS_TRUSTED 0x00000008ull`
- `#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_DEV_MOUNT 0x00080000ull`
- `#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_MEMCG](#),
 [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_text2umask** (char const *str, size_t len)
- 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 568 of file vserver.h.

6.2.3.2 an_unsigned_integer_type xid_t

The identifier of a context.

Definition at line 361 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`

Index

Helper functions, [9](#)

Syscall wrappers, [3](#)