

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

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3 File Index

3.1 File List

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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) VC_ATTR_NONNULL((3))`
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) VC_ATTR_NONNULL((2))`

Get some statistics about a context.
- `int vc_virt_stat (xid_t xid, struct vc_virt_stat *stat) VC_ATTR_NONNULL((2))`

Get more statistics about a context.
- `int vc_ctx_kill (xid_t ctx, pid_t pid, int sig)`
Sends a signal to a context/pid
Special values for pid are:
 - -1 which means every process in ctx except the init-process
 - 0 which means every process in ctx inclusive the init-process.
- `xid_t vc_get_task_xid (pid_t pid)`
Returns the context of the given process.
- `int vc_wait_exit (xid_t xid)`
Waits for the end of a context.
- `int vc_get_rlimit (xid_t xid, int resource, struct vc_rlimit *lim) VC_ATTR_NONNULL((3))`
Returns the limits of resource.
- `int vc_set_rlimit (xid_t xid, int resource, struct vc_rlimit const *lim) VC_ATTR_NONNULL((3))`

Sets the limits of resource.

- `int vc_rlimit_stat(xid_t xid, int resource, struct vc_rlimit_stat *stat) VC_ATTR_NONNULL((3))`

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) VC_ATTR_NONNULL((1))`

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) VC_ATTR_NONNULL((1))`

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"> • VC_DYNAMIC_XID which means to create a dynamic context
------------	---

Returns

the xid of the created context, or VC_NOCTX on errors. `errno` will be set appropriately.

4.1.2.2 `int vc_ctx_migrate (xid_t xid, uint_least64_t flags)`

Moves the current process into the specified context.

Parameters

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

Returns

0 on success, -1 on errors

4.1.2.3 `int vc_ctx_stat (xid_t xid, struct vc_ctx_stat * stat)`

Get some statistics about a context.

Parameters

<i>xid</i>	The context to get stats about
<i>stat</i>	Where to store the result

Returns

0 on success, -1 on errors.

4.1.2.4 `int vc_get_iattr (char const * filename, xid_t * xid, uint_least32_t * flags, uint_least32_t * mask)`

Returns information about attributes and assigned context of a file.

This function returns the VC_IATTR_XXX flags and about the assigned context of a file. To request an information, the appropriate bit in *mask* must be set and the corresponding parameter (*xid* or *flags*) must not be NULL.

E.g. to receive the assigned context, the VC_IATTR_XID bit must be set in *mask*, and *xid* must point to valid memory.

Possible flags are VC_IATTR_ADMIN, VC_IATTR_WATCH, VC_IATTR_HIDE, VC_IATTR_BARRIER, VC_IATTR_IUNLINK and VC_IATTR_IMMUTABLE.

Parameters

<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

```
mask!=0 && !((*mask&VC_IATTR_XID) && xid==0) && !((*mask&~VC_IATTR_XID) && flags==0)
```

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

Returns the limits of *resource*.

Parameters

<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.

4.1.2.6 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; pid==0 means the current process.
------------	---

Returns

the xid of process *pid* or -1 on errors

4.1.2.7 vc_vci_t vc_get_vci ()

Returns the kernel configuration bits.

Returns

The kernel configuration bits

4.1.2.8 int vc_get_version ()

Returns the version of the current kernel API.

Returns

The versionnumber of the kernel API

4.1.2.9 xid_t vc_getfilecontext (char const **filename*)

Returns the context of *filename*

This function calls [vc_get_iattr\(\)](#) with appropriate arguments to determine the context of *filename*. In error-case or when no context is assigned, VC_NOCTX will be returned. To differ between both cases, `errno` must be examined.

WARNING: this function can modify `errno` although no error happened.

Parameters

<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

4.1.2.10 xid_t vc_new_s_context (xid_t *ctx*, unsigned int *remove_cap*, unsigned int *flags*)

Moves current process into a context

Puts current process into context *ctx*, removes the capabilities given in *remove_cap* and sets *flags*.

Parameters

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

4.1.2.11 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.

4.1.2.12 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.

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

Sets the ipv4root information.

Precondition

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

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

Sets the limits of *resource*.

Parameters

<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.

4.1.2.15 `int vc_syscall (uint32_t cmd, xid_t xid, void * data)`

The generic vserver syscall

This function executes the generic vserver syscall. It uses the correct syscallnumber (which may differ between the different architectures).

Parameters

<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

4.1.2.16 `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) VC_ATTR_NONNULL((1)

*Parses a string describing a limit
This function parses str and interprets special words like "inf" or suffixes. Valid suffixes are*
 - k ... 1000
 - m ... 1000000
 - K ... 1024
 - M ... 1048576.
- uint_least64_t [vc_text2bcap](#) (char const *str, size_t len)
Converts a single string into bcapability.
- char const * [vc_lobcap2text](#) (uint_least64_t *val) VC_ATTR_NONNULL((1))
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) VC_ATTR_NONNULL((1)
*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 NULL.
<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

$str \neq 0$ && $cap \neq 0$; $cap \rightarrow bcaps$ and $cap \rightarrow bmask$ 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

$val \neq 0$

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 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

Data Fields

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

5.1.1 Detailed Description

Definition at line 80 of file internal.h.

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

- [internal.h](#)

5.2 Mapping_uint64 Struct Reference

Data Fields

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

5.2.1 Detailed Description

Definition at line 86 of file internal.h.

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

- [internal.h](#)

5.3 vc_ctx_caps Struct Reference

Capabilities of process-contexts.

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

Data Fields

- uint_least64_t [bcaps](#)
Mask of set common system capabilities.
- uint_least64_t [bmask](#)
Mask of set and unset common system capabilities when used by set operations, or the modifiable capabilities when used by get operations.
- uint_least64_t [ccaps](#)
Mask of set process context capabilities.
- uint_least64_t [cmask](#)
Mask of set and unset process context capabilities when used by set operations, or the modifiable capabilities when used by get operations.

5.3.1 Detailed Description

Capabilities of process-contexts.

Definition at line 514 of file vserver.h.

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

- [vserver.h](#)

5.4 `vc_ctx_dlimit` Struct Reference

Data Fields

- `uint_least32_t space_used`
- `uint_least32_t space_total`
- `uint_least32_t inodes_used`
- `uint_least32_t inodes_total`
- `uint_least32_t reserved`

5.4.1 Detailed Description

Definition at line 791 of file `vserver.h`.

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

- [vserver.h](#)

5.5 `vc_ctx_flags` Struct Reference

Flags of process-contexts.

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

Data Fields

- `uint_least64_t flagword`
Mask of set context flags.
- `uint_least64_t mask`
Mask of set and unset context flags when used by set operations, or modifiable flags when used by get operations.

5.5.1 Detailed Description

Flags of process-contexts.

Definition at line 436 of file `vserver.h`.

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

- [vserver.h](#)

5.6 `vc_ctx_stat` Struct Reference

Statistics about a context.

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

Data Fields

- `uint_least32_t usecnt`
number of uses
- `uint_least32_t tasks`
number of tasks

5.6.1 Detailed Description

Statistics about a context.

Definition at line 467 of file `vserver.h`.

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

- [vserver.h](#)

5.7 `vc_err_listparser` Struct Reference

Information about parsing errors.

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

Data Fields

- `char const * ptr`
Pointer to the first character of an erroneous string.
- `size_t len`
Length of the erroneous string.

5.7.1 Detailed Description

Information about parsing errors.

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

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

- [vserver.h](#)

5.8 `vc_ip_mask_pair` Struct Reference**Data Fields**

- `uint32_t ip`

- uint32_t **mask**

5.8.1 Detailed Description

Definition at line 414 of file vserver.h.

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

- [vserver.h](#)

5.9 vc_net_addr Struct Reference

Data Fields

- uint16_t **vna_type**
- uint16_t **vna_flags**
- uint16_t **vna_prefix**
- uint16_t **vna_parent**
- struct {
 - union {
 - 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 664 of file vserver.h.

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

- [vserver.h](#)

5.10 vc_net_caps Struct Reference

Data Fields

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

5.10.1 Detailed Description

Definition at line 705 of file vserver.h.

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

- [vserver.h](#)

5.11 **vc_net_flags Struct Reference**

Data Fields

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

5.11.1 Detailed Description

Definition at line 691 of file vserver.h.

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

- [vserver.h](#)

5.12 **vc_nx_info Struct Reference**

Data Fields

- `nid_t` **nid**

5.12.1 Detailed Description

Definition at line 657 of file vserver.h.

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

- [vserver.h](#)

5.13 **vc_rlimit Struct Reference**

The limits of a resources.

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

Data Fields

- [vc_limit_t](#) **min**
the guaranted minimum of a resources

- [vc_limit_t soft](#)
the softlimit of a resource
- [vc_limit_t hard](#)
the absolute hardlimit of a resource

5.13.1 Detailed Description

The limits of a resources. This is a triple consisting of a minimum, soft and hardlimit.

Definition at line 580 of file `vserver.h`.

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

- [vserver.h](#)

5.14 `vc_rlimit_mask` Struct Reference

Masks describing the supported limits.

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

Data Fields

- `uint_least32_t min`
masks the resources supporting a minimum limit
- `uint_least32_t soft`
masks the resources supporting a soft limit
- `uint_least32_t hard`
masks the resources supporting a hard limit

5.14.1 Detailed Description

Masks describing the supported limits.

Definition at line 567 of file `vserver.h`.

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

- [vserver.h](#)

5.15 `vc_rlimit_stat` Struct Reference

Statistics for a resource limit.

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

Data Fields

- `uint_least32_t hits`
number of hits on the limit
- `vc_limit_t value`
current value
- `vc_limit_t minimum`
minimum value observed
- `vc_limit_t maximum`
maximum value observed

5.15.1 Detailed Description

Statistics for a resource limit.

Definition at line 608 of file `vserver.h`.

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

- [vserver.h](#)

5.16 `vc_sched_info` Struct Reference

Data Fields

- `int_least32_t cpu_id`
- `int_least32_t bucket_id`
- `uint_least64_t user_msec`
- `uint_least64_t sys_msec`
- `uint_least64_t hold_msec`
- `uint_least32_t token_usec`
- `int_least32_t vavavoom`

5.16.1 Detailed Description

Definition at line 843 of file `vserver.h`.

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

- [vserver.h](#)

5.17 `vc_set_sched` Struct Reference

Data Fields

- `uint_least32_t set_mask`
- `int_least32_t fill_rate`
- `int_least32_t interval`
- `int_least32_t fill_rate2`
- `int_least32_t interval2`
- `int_least32_t tokens`
- `int_least32_t tokens_min`
- `int_least32_t tokens_max`
- `int_least32_t priority_bias`
- `int_least32_t cpu_id`
- `int_least32_t bucket_id`

5.17.1 Detailed Description

Definition at line 826 of file `vserver.h`.

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

- [vserver.h](#)

5.18 `vc_virt_stat` Struct Reference

Contains further statistics about a context.

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

Data Fields

- `uint_least64_t offset`
- `uint_least64_t uptime`
- `uint_least32_t nr_threads`
- `uint_least32_t nr_running`
- `uint_least32_t nr_uninterruptible`
- `uint_least32_t nr_onhold`
- `uint_least32_t nr_forks`
- `uint_least32_t load [3]`

5.18.1 Detailed Description

Contains further statistics about a context.

Definition at line 482 of file vserver.h.

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

- [vserver.h](#)

5.19 vc_vx_info Struct Reference

Data Fields

- [xid_t](#) **xid**
- [pid_t](#) **initpid**

5.19.1 Detailed Description

Definition at line 532 of file vserver.h.

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

- [vserver.h](#)

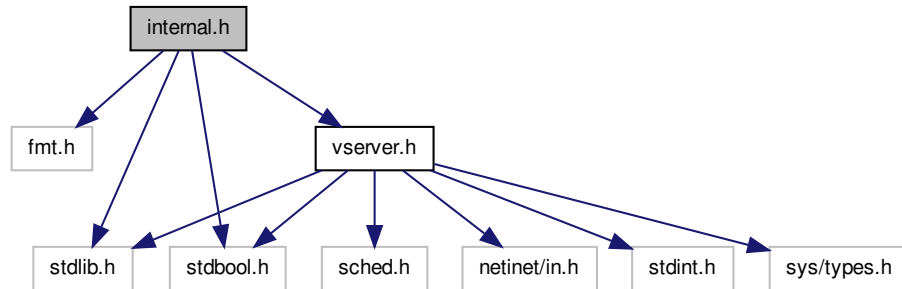
6 File Documentation

6.1 internal.h File Reference

Declarations which are used by util-vserver internally.

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


Include dependency graph for internal.h:



Data Structures

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

Defines

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

Functions

- `char * vc_getVserverByCtx_Internal (xid_t ctx, vcCfgStyle *style, char const *revdir, bool validate_result)`
- `int utilvserver_checkCompatVersion ()`
- `uint_least32_t utilvserver_checkCompatConfig ()`
- `bool utilvserver_isDirectory (char const *path, bool follow_link)`
- `bool utilvserver_isFile (char const *path, bool follow_link)`
- `bool utilvserver_isLink (char const *path)`
- `int utilvserver_listparser_uint32 (char const *str, size_t len, char const **err_ptr, size_t *err_len, uint_least32_t *flag, uint_least32_t *mask, uint_least32_t (*func)(char const *, size_t, bool *)) NONNULL((1`

- int 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 ssize_t **utilvserver_value2text_uint64** (char const *str, size_t len, struct [Mapping_uint64](#) const *map, size_t map_len) NONNULL((1
- ssize_t ssize_t ssize_t **utilvserver_text2value_uint32** (uint_least32_t *val, struct [Mapping_uint32](#) const *map, size_t map_len) NONNULL((1
- ssize_t ssize_t ssize_t ssize_t **utilvserver_text2value_uint64** (uint_least64_t *val, struct [Mapping_uint64](#) const *map, size_t map_len) NONNULL((1

6.1.1 Detailed Description

Declarations which are used by util-vserver internally.

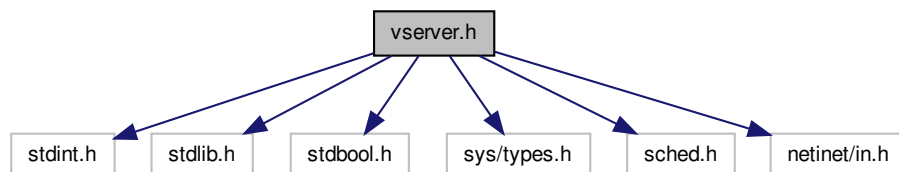
Definition in file [internal.h](#).

6.2 vserver.h File Reference

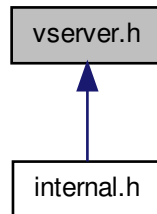
The public interface of the the libvserver library.

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

Include dependency graph for vserver.h:



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



Data Structures

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

- struct [vc_set_sched](#)
- struct [vc_sched_info](#)
- struct [vc_err_listparser](#)

Information about parsing errors.

Defines

- #define [VC_NOCTX](#) ((xid_t)(-1))
- #define [VC_NOXID](#) ((xid_t)(-1))
- #define [VC_DYNAMIC_XID](#) ((xid_t)(-1))
- #define [VC_SAMECTX](#) ((xid_t)(-2))
- #define [VC_NONID](#) ((nid_t)(-1))
- #define [VC_DYNAMIC_NID](#) ((nid_t)(-1))
- #define [VC_LIM_INFINITY](#) (~0ULL)
- #define [VC_LIM_KEEP](#) (~1ULL)
- #define [VC_CDLIM_UNSET](#) (0U)
- #define [VC_CDLIM_INFINITY](#) (~0U)
- #define [VC_CDLIM_KEEP](#) (~1U)
- #define [S_CTX_INFO_LOCK](#) 1
- #define [S_CTX_INFO_SCHED](#) 2
- #define [S_CTX_INFO_NPROC](#) 4
- #define [S_CTX_INFO_PRIVATE](#) 8
- #define [S_CTX_INFO_INIT](#) 16
- #define [S_CTX_INFO_HIDEINFO](#) 32
- #define [S_CTX_INFO_ULIMIT](#) 64
- #define [S_CTX_INFO_NAMESPACE](#) 128
- #define [VC_CAP_CHOWN](#) 0
- #define [VC_CAP_DAC_OVERRIDE](#) 1
- #define [VC_CAP_DAC_READ_SEARCH](#) 2
- #define [VC_CAP_FOWNER](#) 3
- #define [VC_CAP_FSETID](#) 4
- #define [VC_CAP_KILL](#) 5
- #define [VC_CAP_SETGID](#) 6
- #define [VC_CAP_SETUID](#) 7
- #define [VC_CAP_SETPCAP](#) 8
- #define [VC_CAP_LINUX_IMMUTABLE](#) 9
- #define [VC_CAP_NET_BIND_SERVICE](#) 10
- #define [VC_CAP_NET_BROADCAST](#) 11
- #define [VC_CAP_NET_ADMIN](#) 12
- #define [VC_CAP_NET_RAW](#) 13
- #define [VC_CAP_IPC_LOCK](#) 14
- #define [VC_CAP_IPC_OWNER](#) 15
- #define [VC_CAP_SYS_MODULE](#) 16
- #define [VC_CAP_SYS_RAWIO](#) 17
- #define [VC_CAP_SYS_CHROOT](#) 18

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

- #define VC_VXF_HIDE_VINFO 0x04000000ull
- #define VC_VXF_STATE_SETUP (1ULL<<32)
- #define VC_VXF_STATE_INIT (1ULL<<33)
- #define VC_VXF_STATE_ADMIN (1ULL<<34)
- #define VC_VXF_SC_HELPER (1ULL<<36)
- #define VC_VXF_REBOOT_KILL (1ULL<<37)
- #define VC_VXF_PERSISTENT (1ULL<<38)
- #define VC_VXF_FORK_RSS (1ULL<<48)
- #define VC_VXF_PROLIFIC (1ULL<<49)
- #define VC_VXF_IGNEG_NICE (1ULL<<52)
- #define VC_VXF_IGNEG_IONICE (1ULL<<53)
- #define VC_VXC_SET_UTSNAME 0x00000001ull
- #define VC_VXC_SET_RLIMIT 0x00000002ull
- #define VC_VXC_FS_SECURITY 0x00000004ull
- #define VC_VXC_TIOCSTI 0x00000010ull
- #define VC_VXC_RAW_ICMP 0x00000100ull
- #define VC_VXC_SYSLOG 0x00001000ull
- #define VC_VXC_OOM_ADJUST 0x00002000ull
- #define VC_VXC_AUDIT_CONTROL 0x00004000ull
- #define VC_VXC_SECURE_MOUNT 0x00010000ull
- #define VC_VXC_SECURE_REMOUNT 0x00020000ull
- #define VC_VXC_BINARY_MOUNT 0x00040000ull
- #define VC_VXC_QUOTA_CTL 0x00100000ull
- #define VC_VXC_ADMIN_MAPPER 0x00200000ull
- #define VC_VXC_ADMIN_CLOOP 0x00400000ull
- #define VC_VXC_KTHREAD 0x01000000ull
- #define VC_VXC_NAMESPACE 0x02000000ull
- #define VC_VXSM_FILL_RATE 0x0001
- #define VC_VXSM_INTERVAL 0x0002
- #define VC_VXSM_FILL_RATE2 0x0004
- #define VC_VXSM_INTERVAL2 0x0008
- #define VC_VXSM_TOKENS 0x0010
- #define VC_VXSM_TOKENS_MIN 0x0020
- #define VC_VXSM_TOKENS_MAX 0x0040
- #define VC_VXSM_PRIO_BIAS 0x0100
- #define VC_VXSM_CPU_ID 0x1000
- #define VC_VXSM_BUCKET_ID 0x2000
- #define VC_VXSM_IDLE_TIME 0x0200
- #define VC_VXSM_FORCE 0x0400
- #define VC_VXSM_MSEC 0x4000
- #define VC_VXSM_V3_MASK 0x0173
- #define VC_NXF_INFO_LOCK 0x00000001ull
- #define VC_NXF_INFO_PRIVATE 0x00000008ull
- #define VC_NXF_SINGLE_IP 0x00000100ull
- #define VC_NXF_LBACK_REMAP 0x00000200ull
- #define VC_NXF_LBACK_ALLOW 0x00000400ull

- `#define VC_NXF_HIDE_NETIF 0x02000000ull`
- `#define VC_NXF_HIDE_LBACK 0x04000000ull`
- `#define VC_NXF_STATE_SETUP (1ULL<<32)`
- `#define VC_NXF_STATE_ADMIN (1ULL<<34)`
- `#define VC_NXF_SC_HELPER (1ULL<<36)`
- `#define VC_NXF_PERSISTENT (1ULL<<38)`
- `#define VC_NXC_TUN_CREATE 0x00000001ull`
- `#define VC_NXC_RAW_ICMP 0x00000100ull`
- `#define VC_VLIMIT_NSOCK 16`
- `#define VC_VLIMIT_OPENFD 17`
- `#define VC_VLIMIT_ANON 18`
- `#define VC_VLIMIT_SHMEM 19`
- `#define VC_VLIMIT_SEMARY 20`
- `#define VC_VLIMIT_NSEMS 21`
- `#define VC_VLIMIT_DENTRY 22`
- `#define VC_VLIMIT_MAPPED 23`
- `#define VC_VCI_NO_DYNAMIC (1 << 0)`
- `#define VC_VCI_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 }`

- enum **vcXidType** {
 vcTYPE_INVALID, **vcTYPE_MAIN**, **vcTYPE_WATCH**, **vcTYPE_STATIC**,
 vcTYPE_DYNAMIC }
- enum **vcCfgStyle** {
 vcCFG_NONE, **vcCFG_AUTO**, **vcCFG_LEGACY**, **vcCFG_RECENT_SHORT**,
 vcCFG_RECENT_FULL }
- enum **vcCtxType** { **vcCTX_XID** = 1, **vcCTX_NID**, **vcCTX_TAG** }

Functions

- int **vc_syscall** (uint32_t cmd, **xid_t** xid, void *data)
 The generic vserver syscall
 This function executes the generic vserver syscall. It uses the correct syscallnumber (which may differ between the different architectures).
- int **vc_get_version** ()
 Returns the version of the current kernel API.
- **vc_vci_t** **vc_get_vci** ()
 Returns the kernel configuration bits.
- **xid_t** **vc_new_s_context** (**xid_t** ctx, unsigned int remove_cap, unsigned int flags)
 Moves current process into a context
 Puts current process into context ctx, removes the capabilities given in remove_cap and sets flags.
- int **vc_set_ipv4root** (uint32_t bcast, size_t nb, struct **vc_ip_mask_pair** const *ips)
 VC_ATTR_NONNULL((3))
 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) **VC_ATTR_NONNULL((2))**

Get some statistics about a context.

- int `vc_virt_stat` (`xid_t` xid, struct `vc_virt_stat` *stat) VC_ATTR_NONNULL((2))

Get more statistics about a context.

- int `vc_ctx_kill` (`xid_t` ctx, pid_t pid, int sig)

Sends a signal to a context/pid

Special values for pid are:

- -1 which means every process in ctx except the init-process
- 0 which means every process in ctx inclusive the init-process.

- int `vc_get_cflags` (`xid_t` xid, struct `vc_ctx_flags` *) VC_ATTR_NONNULL((2))
- int `vc_set_cflags` (`xid_t` xid, struct `vc_ctx_flags` const *) VC_ATTR_NONNULL((2))
- 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) VC_ATTR_NONNULL((2))

- `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) VC_ATTR_NONNULL((2))

Returns the limits supported by the kernel.

- int `vc_get_rlimit` (`xid_t` xid, int resource, struct `vc_rlimit` *lim) VC_ATTR_NONNULL((3))

Returns the limits of resource.

- int `vc_set_rlimit` (`xid_t` xid, int resource, struct `vc_rlimit` const *lim) VC_ATTR_NONNULL((3))

Sets the limits of resource.

- int `vc_rlimit_stat` (`xid_t` xid, int resource, struct `vc_rlimit_stat` *stat) VC_ATTR_NONNULL((3))

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) VC_ATTR_NONNULL((1))

Parses a string describing a limit

This function parses str and interprets special words like "inf" or suffixes. Valid suffixes are

- k ... 1000
- m ... 1000000
- K ... 1024
- M ... 1048576.

- `nid_t vc_get_task_nid` (pid_t pid)
- `int vc_get_nx_info` (nid_t nid, struct `vc_nx_info` *) VC_ATTR_NONNULL((2))
- `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) VC_ATTR_NONNULL((1))
- `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) VC_ATTR_NONNULL((1))

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) VC_ATTR_NONNULL((4))
- `xid_t vc_getfilecontext` (char const *filename) VC_ATTR_NONNULL((1))

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) VC_ATTR_NONNULL((3))
- `int vc_get_vhi_name` (`xid_t` xid, vc_uts_type type, char *val, size_t len) VC_ATTR_NONNULL((3))
- `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) VC_ATTR_NONNULL((1))

- int `vc_rem_dlimit` (char const *filename, `xid_t` xid, `uint_least32_t` flags) VC_ATTR_NONNULL((1))
- int `vc_set_dlimit` (char const *filename, `xid_t` xid, `uint_least32_t` flags, struct `vc_ctx_dlimit` const *limits) VC_ATTR_NONNULL((1))
- int `vc_get_dlimit` (char const *filename, `xid_t` xid, `uint_least32_t` flags, struct `vc_ctx_dlimit` *limits) VC_ATTR_NONNULL((1))
- 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 *) VC_ATTR_NONNULL((2))
- int `vc_get_sched` (`xid_t` xid, struct `vc_set_sched` *) VC_ATTR_NONNULL((2))
- int `vc_sched_info` (`xid_t` xid, struct `vc_sched_info` *info) VC_ATTR_NONNULL((2))
- int `vc_set_mapping` (`xid_t` xid, const char *device, const char *target, `uint32_t` flags)
- int `vc_unset_mapping` (`xid_t` xid, const char *device, const char *target, `uint32_t` flags)
- int `vc_get_badness` (`xid_t` xid, `int64_t` *badness)
- int `vc_set_badness` (`xid_t` xid, `int64_t` badness)
- `uint_least64_t` `vc_text2bcap` (char const *str, `size_t` len)
Converts a single string into bcapability.
- char const * `vc_lobcap2text` (`uint_least64_t` *val) VC_ATTR_NONNULL((1))
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) VC_ATTR_NONNULL((1))
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"

```
- int `uint_least64_t` `vc_text2ccap` (char const *, `size_t` len)
- char const * `vc_loccap2text` (`uint_least64_t` *)
- int `vc_list2ccap` (char const *, `size_t` len, struct `vc_err_listparser` *err, struct `vc_ctx_caps` *)
- int `vc_list2cflag` (char const *, `size_t` len, struct `vc_err_listparser` *err, struct `vc_ctx_flags` *flags)
- `uint_least64_t` `vc_text2cflag` (char const *, `size_t` len)
- char const * `vc_locflag2text` (`uint_least64_t` *)
- `uint_least32_t` `vc_list2cflag_compat` (char const *, `size_t` len, struct `vc_err_listparser` *err)

- `uint_least32_t vc_text2cflag_compat` (char const *, size_t len)
- `char const * vc_hicflag2text_compat` (uint_least32_t)
- `int vc_text2cap` (char const *)
- `char const * vc_cap2text` (unsigned int)
- `int vc_list2nflag` (char const *, size_t len, struct [vc_err_listparser](#) *err, struct [vc_net_flags](#) *flags)
- `uint_least64_t vc_text2nflag` (char const *, size_t len)
- `char const * vc_lonflag2text` (uint_least64_t *)
- `uint_least64_t vc_text2ncap` (char const *, size_t len)
- `char const * vc_loncap2text` (uint_least64_t *)
- `int vc_list2ncap` (char const *, size_t len, struct [vc_err_listparser](#) *err, struct [vc_net_caps](#) *)
- `uint_least64_t vc_get_insecurebcaps` () VC_ATTR_CONST
- `uint_least32_t vc_text2personalityflag` (char const *str, size_t len) VC_ATTR_NONNULL((1))
- `char const * vc_lopersonality2text` (uint_least32_t *) VC_ATTR_NONNULL((1))
- `int vc_list2personalityflag` (char const *, size_t len, uint_least32_t *personality, struct [vc_err_listparser](#) *err) VC_ATTR_NONNULL((1))
- `int uint_least32_t vc_str2personalitytype` (char const *, size_t len) VC_ATTR_NONNULL((1))
- `bool vc_isSupported` (vcFeatureSet) VC_ATTR_CONST
- `bool vc_isSupportedString` (char const *)
- `vcXidType vc_getXIDType` (xid_t xid) VC_ATTR_CONST
- `bool vc_is_dynamic_xid` (xid_t xid)
- `xid_t vc_xidopt2xid` (char const *, bool honor_static, char const **err_info)
- `nid_t vc_nidopt2nid` (char const *, bool honor_static, char const **err_info)
- `tag_t vc_tagopt2tag` (char const *, bool honor_static, char const **err_info)
- `vcCfgStyle vc_getVserverCfgStyle` (char const *id)
- `char * vc_getVserverName` (char const *id, vcCfgStyle style)
- `char * vc_getVserverCfgDir` (char const *id, vcCfgStyle style)
- `char * vc_getVserverAppDir` (char const *id, vcCfgStyle style, char const *app)
- `char * vc_getVserverVdir` (char const *id, vcCfgStyle style, bool physical)
- `xid_t vc_getVserverCtx` (char const *id, vcCfgStyle style, bool honor_static, bool *is_running, vcCtxType type)
- `char * vc_getVserverByCtx` (xid_t ctx, vcCfgStyle *style, char const *revdir)
- `int vc_compareVserverById` (char const *lhs, vcCfgStyle lhs_style, char const *rhs, vcCfgStyle rhs_style)
- `void vc_exitLikeProcess` (int pid, int ret)
- `int vc_createSkeleton` (char const *id, vcCfgStyle style, int flags)

6.2.1 Detailed Description

The public interface of the the libvserver library.

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

6.2.2 Define Documentation

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

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

Definition at line 67 of file vserver.h.

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

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

Definition at line 64 of file vserver.h.

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

the value which means the current ctx

Definition at line 69 of file vserver.h.

6.2.3 Typedef Documentation

6.2.3.1 `typedef uint_least64_t vc_limit_t`

The type which is used for a single limit value.

Special values are

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

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

Definition at line 564 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 vservers 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 vservers 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 vservers configuration directory. When the given vservers 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 vservers. When vservers 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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