util-vserver (libvserver)

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Contents

1 Module Index

1.1 Modules

Here is a list of all modules:

2 Data Structure Index

2.1 Data Structures

Here are the data structures with brief descriptions:

3 File Index

3.1 File List

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

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

xid	The new context; special values are: • VC_DYNAMIC_XID which means to create a dynamic context

Returns

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

4.1.2.2 int vc_ctx_kill (xid_t *ctx*, pid_t *pid*, int *sig*)

Sends a signal to a context/pid

Special values for *pid* are:

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

4.1.2.3 int vc_ctx_migrate (xid_t *xid*, uint_least64_t *flags*)

Moves the current process into the specified context.

Parameters

xid	The new context
flags	The flags, see VC_VXM_∗

Returns

0 on success, -1 on errors

4.1.2.4 int vc_ctx_stat (xid_t *xid,* struct vc_ctx_stat ∗ *stat*)

Get some statistics about a context.

Parameters

xid	The context to get stats about
stat	Where to store the result

Returns

0 on success, -1 on errors.

4.1.2.5 int vc_get_iattr (char const ∗ *filename,* xid_t ∗ *xid,* uint_least32_t ∗ *flags,* uint_least32_t ∗ *mask*)

Returns information about attributes and assigned context of a file.

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

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

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

Parameters

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

Precondition

mask!=0 && !(∗mask&VC_IATTR_XID) && xid==0) && !(∗mask&∼VC_IATTR_XID) && flags==0)

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

Returns the limits of *resource*.

Parameters

xid	The id of the context
resource	The resource which will be queried

lim	The result which will be filled with the limits

Returns

0 on success, and -1 on errors.

4.1.2.7 xid_t vc_get_task_xid (pid_t *pid*)

Returns the context of the given process.

Parameters

pid	the process-id whose xid shall be determined; pid==0 means the current process.

Returns

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

4.1.2.8 vc_vci_t vc_get_vci ( )

Returns the kernel configuration bits.

Returns

The kernel configuration bits

4.1.2.9 int vc_get_version ( )

Returns the version of the current kernel API.

Returns

The versionnumber of the kernel API

4.1.2.10 xid_t vc_getfilecontext (char const * *filename*)

Returns the context of `filename`

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

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

Parameters

filename	The file to check

Returns

The assigned context, or VC_NOCTX when an error occured or no such assignment exists. `errno` will be 0 in the latter case

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

Moves current process into a context

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

Parameters

ctx	The new context; special values for are • VC_SAMECTX which means the current context (just for changing caps and flags) • VC_DYNAMIC_XID which means the next free context; this value can be used by ordinary users also
remove_cap	The linux capabilities which will be **removed**.
flags	Special flags which will be set.

Returns

The new context-id, or VC_NOCTX on errors; `errno` will be set appropriately

See http://vserver.13thfloor.at/Stuff/Logic.txt for details

4.1.2.12 int vc_reset_minmax (xid_t *xid*)

Resets the minimum and maximum observed values of all resources.

Parameters

xid	The id of the context

Returns

0 on success, and -1 on errors.

4.1.2.13 int vc_rlimit_stat (xid_t *xid*, int *resource*, struct vc_rlimit_stat * *stat*)

Returns the current stats of *resource*.

Parameters

xid	The id of the context
resource	The resource which will be queried
stat	The result which will be filled with the stats

Returns

0 on success, and -1 on errors.

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

Sets the ipv4root information.

Precondition

nb < NB_IPV4ROOT && *ips* != 0

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

Sets the limits of *resource*.

Parameters

xid	The id of the context
resource	The resource which will be queried
lim	The new limits

Returns

0 on success, and -1 on errors.

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

The generic vserver syscall

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

Parameters

cmd	the command to be executed
xid	the xid on which the cmd shall be applied
data	additional arguments; depends on `cmd`

Returns

depends on `cmd`; usually, -1 stands for an error

4.1.2.17 int vc_virt_stat (xid_t *xid*, struct vc_virt_stat * *stat*)

Get more statistics about a context.

Parameters

xid	The context to get stats about
stat	Where to store the result

Returns

0 on success, -1 on errors.

4.2 Helper functions

Data Structures

- struct vc_err_listparser

  Information about parsing errors.

Functions

- size_t vc_get_nb_ipv4root () VC_ATTR_CONST

  Returns the value of NB_IPV4ROOT.
  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

str	The string to be parsed
len	The length of the string, or `0` for automatic detection
err	Pointer to a structure for error-information, or `NULL`.
cap	Pointer to a vc_ctx_caps structure holding the results; only the *bcaps* and *bmask* fields will be changed and already set values will not be honored. When an error occured, *cap* will have the value of all processed valid `BCAP` parts.

Returns

0 on success, -1 on error. In error case, *err* will hold position and length of the first not understood BCAP part

Precondition

str != 0 && *cap* != 0; *cap->bcaps* and *cap->bmask* must be initialized

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

Converts the lowest bit of a bcapability or the entire value (when possible) to a textual representation.

Parameters

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

Returns

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

Precondition

val!=0

Postcondition

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

4.2.2.3 bool vc_parseLimit (char const * *str,* vc_limit_t * *res*)

Parses a string describing a limit

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

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

Parameters

str	The string which shall be parsed
res	Will be filled with the interpreted value; in errorcase, this value is undefined.

Returns

true, iff the string *str* could be parsed. *res* will be filled with the interpreted value in this case.

Precondition

str!=0 && *res!=0*

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

Converts a single string into bcapability.

Parameters

str	The string to be parsed; both "CAP_xxx" and "xxx" will be accepted
len	The length of the string, or 0 for automatic detection

Returns

0 on error; a bitmask on success

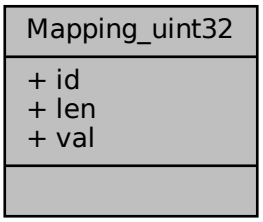
Precondition

str != 0

5 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

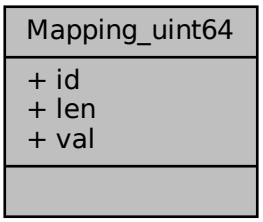
Definition at line 80 of file internal.h.

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:

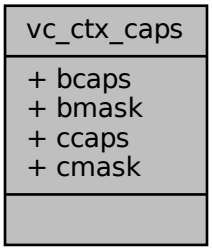
- internal.h

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.

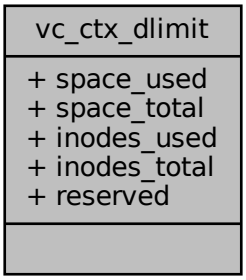
Definition at line 518 of file vserver.h.

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:

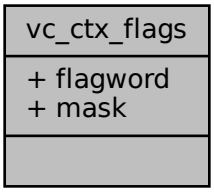
- vserver.h

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:

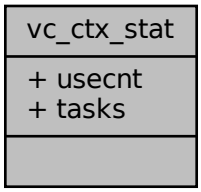
- vserver.h

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:

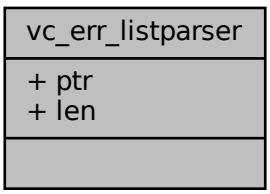
- vserver.h

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.

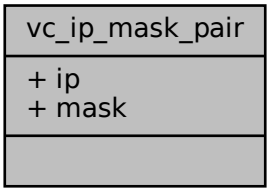
Definition at line 879 of file vserver.h.

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

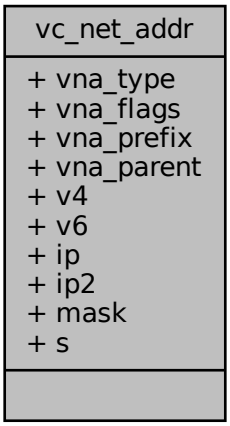
Definition at line 418 of file vserver.h.

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

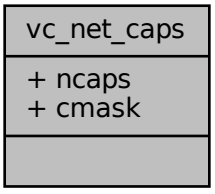
Definition at line 668 of file vserver.h.

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

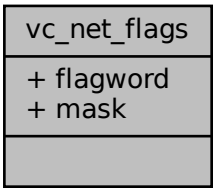
Definition at line 709 of file vserver.h.

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

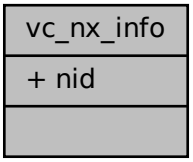
Definition at line 695 of file vserver.h.

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:

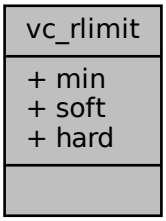
- vserver.h

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:

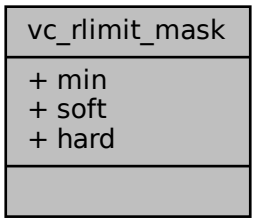
- vserver.h

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:

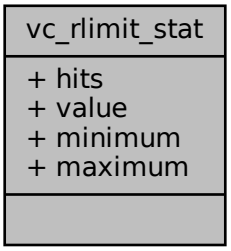
- vserver.h

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.

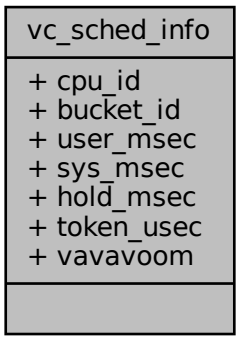
Definition at line 612 of file vserver.h.

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:

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:

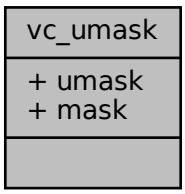
- vserver.h

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:

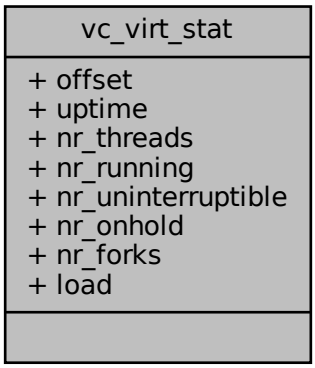
- vserver.h

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.

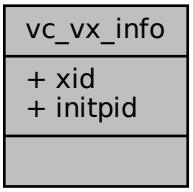
Definition at line 486 of file vserver.h.

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

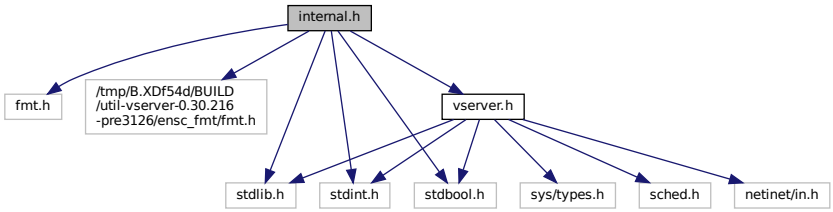
6 File Documentation

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 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

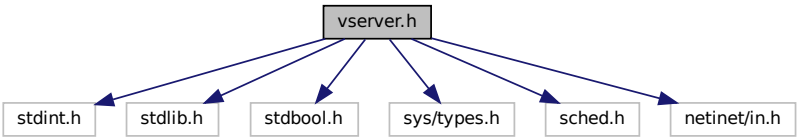
Declarations which are used by util-vserver internally.

6.2 vserver.h File Reference

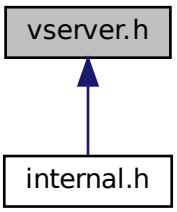
The public interface of the the libvserver library.

```
#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_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_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_MEM⟷CG**,
  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_flagsconst *)
- 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)

- char const * **vc_lopersonality2text** (uint_least32_t *)
- int **vc_list2personalityflag** (char const *, size_t len, uint_least32_t *personality, struct vc_err_listparser *err)
- uint_least32_t **vc_str2personalitytype** (char const *, size_t len)
- bool **vc_isSupported** (vcFeatureSet) VC_ATTR_CONST
- bool **vc_isSupportedString** (char const *)
- vcXidType **vc_getXIDType** (xid_t xid) VC_ATTR_CONST
- bool vc_is_dynamic_xid (xid_t xid)
- xid_t vc_xidopt2xid (char const *, bool honor_static, char const **err_info)
- nid_t vc_nidopt2nid (char const *, bool honor_static, char const **err_info)
- tag_t vc_tagopt2tag (char const *, bool honor_static, char const **err_info)
- vcCfgStyle **vc_getVserverCfgStyle** (char const *id)
- char * vc_getVserverName (char const *id, vcCfgStyle style)
- char * vc_getVserverCfgDir (char const *id, vcCfgStyle style)
- char * vc_getVserverAppDir (char const *id, vcCfgStyle style, char const *app)
- char * vc_getVserverVdir (char const *id, vcCfgStyle style, bool physical)
- xid_t vc_getVserverCtx (char const *id, vcCfgStyle style, bool honor_static, bool *is_running, vcCtxType type)
- char * vc_getVserverByCtx (xid_t ctx, vcCfgStyle *style, char const *revdir)
- int **vc_compareVserverById** (char const *lhs, vcCfgStyle lhs_style, char const *rhs, vcCfgStyle rhs_style)
- 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.

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