













*nvlist\_t \*\**  
**nvlist\_take\_nvlist\_array**(*nvlist\_t \*nvl, const char \*name, size\_t \*nitems*);

*int \**  
**nvlist\_take\_descriptor\_array**(*nvlist\_t \*nvl, const char \*name, size\_t \*nitems*);

*void*  
**nvlist\_append\_bool\_array**(*nvlist\_t \*nvl, const char \*name, const bool value*);

*void*  
**nvlist\_append\_number\_array**(*nvlist\_t \*nvl, const char \*name, const uint64\_t value*);

*void*  
**nvlist\_append\_string\_array**(*nvlist\_t \*nvl, const char \*name, const char \* const value*);

*void*  
**nvlist\_append\_nvlist\_array**(*nvlist\_t \*nvl, const char \*name, const nvlist\_t \* const value*);

*void*  
**nvlist\_append\_descriptor\_array**(*nvlist\_t \*nvl, const char \*name, int value*);

*void*  
**nvlist\_free**(*nvlist\_t \*nvl, const char \*name*);

*void*  
**nvlist\_free\_type**(*nvlist\_t \*nvl, const char \*name, int type*);

*void*  
**nvlist\_free\_null**(*nvlist\_t \*nvl, const char \*name*);

*void*  
**nvlist\_free\_bool**(*nvlist\_t \*nvl, const char \*name*);

*void*  
**nvlist\_free\_number**(*nvlist\_t \*nvl, const char \*name*);

*void*  
**nvlist\_free\_string**(*nvlist\_t \*nvl, const char \*name*);

*void*













```
* If it failed, nvlst_send() will fail.  
*/  
nvlst_add_string(nvl, "filename", "/tmp/foo");  
nvlst_add_number(nvl, "flags", O_RDONLY);  
/*  
 * We just want to send the descriptor, so we can give it  
 * for the nvlst to consume (that's why we use nvlst_move  
 * not nvlst_add).  
*/  
nvlst_move_descriptor(nvl, "fd", fd);  
if (nvlst_send(sock, nvl) < 0) {  
    nvlst_destroy(nvl);  
    err(1, "nvlst_send() failed");  
}  
nvlst_destroy(nvl);
```

Receiving nvlst and getting data:

```
nvlst_t *nvl;  
const char *command;  
char *filename;  
int fd;  
  
nvl = nvlst_rcv(sock, 0);  
if (nvl == NULL)  
    err(1, "nvlst_rcv() failed");  
  
/* For command we take pointer to nvlst's buffer. */  
command = nvlst_get_string(nvl, "command");  
/*  
 * For filename we remove it from the nvlst and take  
 * ownership of the buffer.  
*/  
filename = nvlst_take_string(nvl, "filename");  
/* The same for the descriptor. */  
fd = nvlst_take_descriptor(nvl, "fd");  
  
printf("command=%s filename=%s fd=%d\n", command, filename, fd);  
  
nvlst_destroy(nvl);
```

```

free(filename);
close(fd);
/* command was freed by nvlist_destroy() */

```

Iterating over nvlist:

```

nvlist_t *nvl;
const char *name;
void *cookie;
int type;

nvl = nvlist_recv(sock, 0);
if (nvl == NULL)
    err(1, "nvlist_recv() failed");

cookie = NULL;
while ((name = nvlist_next(nvl, &type, &cookie)) != NULL) {
    printf("s=", name);
    switch (type) {
    case NV_TYPE_NUMBER:
        printf("%ju", (uintmax_t)nvlist_get_number(nvl, name));
        break;
    case NV_TYPE_STRING:
        printf("%s", nvlist_get_string(nvl, name));
        break;
    default:
        printf("N/A");
        break;
    }
    printf("\n");
}

```

Iterating over every nested nvlist:

```

nvlist_t *nvl;
const char *name;
void *cookie;
int type;

nvl = nvlist_recv(sock, 0);

```

```
if (nvl == NULL)
    err(1, "nvlst_rcv() failed");

cookie = NULL;
do {
    while ((name = nvlst_next(nvl, &type, &cookie)) != NULL) {
        if (type == NV_TYPE_NVLST) {
            nvl = nvlst_get_nvlst(nvl, name);
            cookie = NULL;
        }
    }
} while ((nvl = nvlst_get_parent(nvl, &cookie)) != NULL);
```

Iterating over every nested nvlst and every nvlst element:

```
nvlst_t *nvl;
const nvlst_t *const *array;
const char *name;
void *cookie;
int type;

nvl = nvlst_rcv(sock, 0);
if (nvl == null)
    err(1, "nvlst_rcv() failed");

cookie = null;
do {
    while ((name = nvlst_next(nvl, &type, &cookie)) != NULL) {
        if (type == NV_TYPE_NVLST) {
            nvl = nvlst_get_nvlst(nvl, name);
            cookie = NULL;
        } else if (type == NV_TYPE_NVLST_ARRAY) {
            nvl = nvlst_get_nvlst_array(nvl, name, NULL)[0];
            cookie = NULL;
        }
    }
} while ((nvl = nvlst_get_pararr(nvl, &cookie)) != NULL);
```

Or alternatively:

```
nvlist_t *nvl, *tmp;
const nvlist_t * const *array;
const char *name;
void *cookie;
int type;

nvl = nvlist_rcv(sock, 0);
if (nvl == null)
    err(1, "nvlist_rcv() failed");

cooke = NULL;
tmp = nvl;
do {
    do {
        nvl = tmp;
        while ((name = nvlist_next(nvl, &type, &cookie)) != NULL) {
            if (type == NV_TYPE_NVLIST) {
                nvl = nvlist_get_nvlist(nvl, name);
                cookie = NULL;
            } else if (type == NV_TYPE_NVLIST_ARRAY) {
                nvl = nvlist_get_nvlist_array(nvl, name,
                    NULL)[0];
                cookie = NULL;
            }
        }
        cookie = NULL;
    } while ((tmp = nvlist_get_array_next(nvl)) != NULL);
} while ((tmp = nvlist_get_parent(nvl, &cookie)) != NULL);
```

## SEE ALSO

close(2), dup(2), open(2), err(3), free(3), printf(3), unix(4)

## HISTORY

The **libnv** library appeared in FreeBSD 11.0.

## AUTHORS

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