

vdsf API Reference Manual

0.1

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Contents

1 vdsf API Module Index	1
2 vdsf API Directory Hierarchy	1
3 vdsf API Data Structure Index	2
4 vdsf API File Index	2
5 vdsf API Module Documentation	2
6 vdsf API Directory Documentation	11
7 vdsf API Data Structure Documentation	12
8 vdsf API File Documentation	14

1 vdsf API Module Index

1.1 vdsf API Modules

Here is a list of all modules:

API functions for the hash map.	2
API functions for the FIFO queue.	7

2 vdsf API Directory Hierarchy

2.1 vdsf API Directories

This directory hierarchy is sorted roughly, but not completely, alphabetically:

src	11
include	11
vdsf	12

3 vdsf API Data Structure Index

3.1 vdsf API Data Structures

Here are the data structures with brief descriptions:

vdsFolderEntry	12
vdsInfo	13
vdsObjStatus	14

4 vdsf API File Index

4.1 vdsf API File List

Here is a list of all files with brief descriptions:

/home/project/VDSF/vdsf/trunk/src/include/vdsf/vds.h	14
/home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsCommon.h	15
/home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsErrors.h	17
/home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsFolder.h	21
/home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsHashMap.h (This file provides the API to access a VDSF hash map)	22
/home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsProcess.h	23
/home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsQueue.h (This file provides the API to access a VDSF FIFO queue)	24
/home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsSession.h	25

5 vdsf API Module Documentation

5.1 API functions for the hash map.

Functions

- VDSF_EXPORT int [vdsHashMapClose](#) (VDS_HANDLE objectHandle)

Close a Hash Map.

- VDSF_EXPORT int [vdsHashMapDelete](#) (VDS_HANDLE objectHandle, const void *key, size_t keyLength)

Remove the data item identified by the given key from the hash map.

- VDSF_EXPORT int [vdsHashMapGet](#) (VDS_HANDLE objectHandle, const void *key, size_t keyLength, void *buffer, size_t bufferLength, size_t *returnedLength)

Retrieve the data item identified by the given key from the hash map.

- VDSF_EXPORT int [vdsHashMapGetFirst](#) (VDS_HANDLE objectHandle, void *buffer, size_t bufferLength, size_t *returnedLength)

Iterate through the hash map.

- VDSF_EXPORT int [vdsHashMapGetNext](#) (VDS_HANDLE objectHandle, void *buffer, size_t bufferLength, size_t *returnedLength)

Iterate through the hash map.

- VDSF_EXPORT int [vdsHashMapInsert](#) (VDS_HANDLE objectHandle, const void *key, size_t keyLength, const void *data, size_t dataLength)

Insert a data element in the hash map.

- VDSF_EXPORT int [vdsHashMapOpen](#) (VDS_HANDLE sessionHandle, const char *hashMapName, size_t nameLengthInBytes, VDS_HANDLE *objectHandle)

Open an existing hash map (see [vdsCreateObject](#) to create a new object).

- VDSF_EXPORT int [vdsHashMapStatus](#) (VDS_HANDLE objectHandle, vds_ObjStatus *pStatus)

Return the status of the hash map.

5.1.1 Function Documentation

5.1.1.1 VDSF_EXPORT int vdsHashMapClose (VDS_HANDLE objectHandle)

Close a Hash Map.

This function terminates the current access to the hash map in shared memory (the hash map itself is untouched).

Warning:

Closing an object does not automatically commit or rollback data items that were inserted or removed. You still must use either [vdsCommit](#) or [vdsRollback](#) to end the current unit of work.

Parameters:

← *objectHandle* The handle to the hash map (see [vdsHashMapOpen](#)).

Returns:

0 on success or a [vdsErrors](#) on error.

5.1.1.2 VDSF_EXPORT int vdsHashMapDelete (VDS_HANDLE objectHandle, const void * key, size_t keyLength)

Remove the data item identified by the given key from the hash map.

Data items which were added by another session and are not yet committed will not be seen by this function and cannot be removed. Likewise, destroyed data items (even if not yet committed) are invisible.

The removals only become permanent after a call to [vdsCommit](#).

Parameters:

← *objectHandle* The handle to the hash map (see [vdsHashMapOpen](#)).

← *key* The key of the item to be removed.

← *keyLength* The length of the *key* buffer (in bytes).

Returns:

0 on success or a [vdsErrors](#) on error.

5.1.1.3 VDSF_EXPORT int vdsHashMapGet (VDS_HANDLE objectHandle, const void * key, size_t keyLength, void * buffer, size_t bufferLength, size_t * returnedLength)

Retrieve the data item identified by the given key from the hash map.

Data items which were added by another session and are not yet committed will not be seen by this function. Likewise, destroyed data items (even if not yet committed) are invisible.

Parameters:

← *objectHandle* The handle to the hash map (see [vdsHashMapOpen](#)).

- ← *key* The key of the item to be retrieved.
- ← *keyLength* The length of the *key* buffer (in bytes).
- *buffer* The buffer provided by the user to hold the content of the data item.
Memory allocation for this buffer is the responsibility of the caller.
- ← *bufferLength* The length of *buffer* (in bytes).
- *returnedLength* The actual number of bytes in the data item.

Returns:

0 on success or a [vdsErrors](#) on error.

5.1.1.4 VDSF_EXPORT int vdsHashMapGetFirst ([VDS_HANDLE](#) *objectHandle*, void * *buffer*, size_t *bufferLength*, size_t * *returnedLength*)

Iterate through the hash map.

Data items which were added by another session and are not yet committed will not be seen by the iterator. Likewise, destroyed data items (even if not yet committed) are invisible.

Data items retrieved this way will not be sorted.

Parameters:

- ← *objectHandle* The handle to the hash map (see [vdsHashMapOpen](#)).
- *buffer* The buffer provided by the user to hold the content of the first element.
Memory allocation for this buffer is the responsibility of the caller.
- ← *bufferLength* The length of *buffer* (in bytes).
- *returnedLength* The actual number of bytes in the data item.

Returns:

0 on success or a [vdsErrors](#) on error.

5.1.1.5 VDSF_EXPORT int vdsHashMapGetNext ([VDS_HANDLE](#) *objectHandle*, void * *buffer*, size_t *bufferLength*, size_t * *returnedLength*)

Iterate through the hash map.

Data items which were added by another session and are not yet committed will not be seen by the iterator. Likewise, destroyed data items (even if not yet committed) are invisible.

Evidently, you must call [vdsHashMapGetFirst](#) to initialize the iterator. Not so evident - calling [vdsHashMapGet](#) will reset the iteration to the data item retrieved by this function (they use the same internal storage). If this causes a problem, please let us know.

Data items retrieved this way will not be sorted.

Parameters:

- ← *objectHandle* The handle to the hash map (see [vdsHashMapOpen](#)).
- *buffer* The buffer provided by the user to hold the content of the first element.
Memory allocation for this buffer is the responsibility of the caller.
- ← *bufferLength* The length of *buffer* (in bytes).
- *returnedLength* The actual number of bytes in the data item.

Returns:

0 on success or a [vdsErrors](#) on error.

5.1.1.6 `VDSF_EXPORT int vdsHashMapInsert (VDS_HANDLE objectHandle, const void * key, size_t keyLength, const void * data, size_t dataLength)`

Insert a data element in the hash map.

The additions only become permanent after a call to [vdsCommit](#).

Parameters:

- ← *objectHandle* The handle to the hash map (see [vdsHashMapOpen](#)).
- ← *key* The key of the item to be inserted.
- ← *keyLength* The length of the *key* buffer (in bytes).
- ← *data* The data item to be inserted.
- ← *length* The length of *data* (in bytes).

Returns:

0 on success or a [vdsErrors](#) on error.

5.1.1.7 `VDSF_EXPORT int vdsHashMapOpen (VDS_HANDLE sessionHandle, const char * hashMapName, size_t nameLengthInBytes, VDS_HANDLE * objectHandle)`

Open an existing hash map (see [vdsCreateObject](#) to create a new object).

Parameters:

- ← *sessionHandle* The handle to the current session.
- ← *hashMapName* The fully qualified name of the hash map.
- ← *nameLengthInBytes* The length of *hashMapName* (in bytes) not counting the null terminator (null-terminators are not used by the vdsf engine).

→ *objectHandle* The handle to the hash map, allowing us access to the map in shared memory. On error, this handle will be set to zero (NULL) unless the *objectHandle* pointer itself is NULL.

Returns:

0 on success or a [vdsErrors](#) on error.

5.1.1.8 VDSF_EXPORT int vdsHashMapStatus ([VDS_HANDLE](#) *objectHandle*, [vdsObjStatus](#) **pStatus*)

Return the status of the hash map.

Parameters:

← *objectHandle* The handle to the hash map (see [vdsHashMapOpen](#)).
 → *pStatus* A pointer to the status structure.

Returns:

0 on success or a [vdsErrors](#) on error.

5.2 API functions for the FIFO queue.

Functions

- VDSF_EXPORT int [vdsQueueClose](#) ([VDS_HANDLE](#) *objectHandle*)
Close a FIFO queue.
- VDSF_EXPORT int [vdsQueueGetFirst](#) ([VDS_HANDLE](#) *objectHandle*, void **buffer*, size_t *bufferLength*, size_t **returnedLength*)
Iterate through the queue - no data items are removed from the queue by this function.
- VDSF_EXPORT int [vdsQueueGetNext](#) ([VDS_HANDLE](#) *objectHandle*, void **buffer*, size_t *bufferLength*, size_t **returnedLength*)
Iterate through the queue - no data items are removed from the queue by this function.
- VDSF_EXPORT int [vdsQueueOpen](#) ([VDS_HANDLE](#) *sessionHandle*, const char **queueName*, size_t *nameLengthInBytes*, [VDS_HANDLE](#) **objectHandle*)
Open an existing FIFO queue (see [vdsCreateObject](#) to create a new queue).
- VDSF_EXPORT int [vdsQueuePop](#) ([VDS_HANDLE](#) *objectHandle*, void **buffer*, size_t *bufferLength*, size_t **returnedLength*)

Remove the first item from the beginning of a FIFO queue and return it to the caller.

- VDSF_EXPORT int [vdsQueuePush](#) (VDS_HANDLE objectHandle, const void *pItem, size_t length)

Insert a data element at the end of the FIFO queue.

- VDSF_EXPORT int [vdsQueueStatus](#) (VDS_HANDLE objectHandle, [vdsObjStatus](#) *pStatus)

Return the status of the queue.

5.2.1 Function Documentation

5.2.1.1 VDSF_EXPORT int [vdsQueueClose](#) (VDS_HANDLE objectHandle)

Close a FIFO queue.

This function terminates the current access to the queue in shared memory (the queue itself is untouched).

Warning:

Closing an object does not automatically commit or rollback data items that were inserted or removed. You still must use either [vdsCommit](#) or [vdsRollback](#) to end the current unit of work.

Parameters:

← *objectHandle* The handle to the queue (see [vdsQueueOpen](#)).

Returns:

0 on success or a [vdsErrors](#) on error.

5.2.1.2 VDSF_EXPORT int [vdsQueueGetFirst](#) (VDS_HANDLE objectHandle, void *buffer, size_t bufferLength, size_t *returnedLength)

Iterate through the queue - no data items are removed from the queue by this function.

Data items which were added by another session and are not yet committed will not be seen by the iterator. Likewise, destroyed data items (even if not yet committed) are invisible.

Parameters:

← *objectHandle* The handle to the queue (see [vdsQueueOpen](#)).

- *buffer* The buffer provided by the user to hold the content of the first element. Memory allocation for this buffer is the responsibility of the caller.
- ← *bufferLength* The length of *buffer* (in bytes).
- *returnedLength* The actual number of bytes in the data item.

Returns:

0 on success or a [vdsErrors](#) on error.

5.2.1.3 VDSF_EXPORT int vdsQueueGetNext ([VDS_HANDLE](#) *objectHandle*, void * *buffer*, size_t *bufferLength*, size_t * *returnedLength*)

Iterate through the queue - no data items are removed from the queue by this function.

Data items which were added by another session and are not yet committed will not be seen by the iterator. Likewise, destroyed data items (even if not yet committed) are invisible.

Evidently, you must call [vdsQueueGetFirst](#) to initialize the iterator. Not so evident - calling [vdsQueuePop](#) will reset the iteration to the last element (they use the same internal storage). If this cause a problem, please let us know.

Parameters:

- ← *objectHandle* The handle to the queue (see [vdsQueueOpen](#)).
- *buffer* The buffer provided by the user to hold the content of the first element. Memory allocation for this buffer is the responsibility of the caller.
- ← *bufferLength* The length of *buffer* (in bytes).
- *returnedLength* The actual number of bytes in the data item.

Returns:

0 on success or a [vdsErrors](#) on error.

5.2.1.4 VDSF_EXPORT int vdsQueueOpen ([VDS_HANDLE](#) *sessionHandle*, const char * *queueName*, size_t *nameLengthInBytes*, [VDS_HANDLE](#) * *objectHandle*)

Open an existing FIFO queue (see [vdsCreateObject](#) to create a new queue).

Parameters:

- ← *sessionHandle* The handle to the current session.
- ← *queueName* The fully qualified name of the queue.

- ← *nameLengthInBytes* The length of *queueName* (in bytes) not counting the null terminator (null-terminators are not used by the vdsf engine).
- *objectHandle* The handle to the queue, allowing us access to the queue in shared memory. On error, this handle will be set to zero (NULL) unless the *objectHandle* pointer itself is NULL.

Returns:

0 on success or a [vdsErrors](#) on error.

5.2.1.5 VDSF_EXPORT int vdsQueuePop ([VDS_HANDLE](#) *objectHandle*, void * *buffer*, size_t *bufferLength*, size_t * *returnedLength*)

Remove the first item from the beginning of a FIFO queue and return it to the caller.

Data items which were added by another session and are not yet committed will not be seen by this function. Likewise, destroyed data items (even if not yet committed) are invisible.

The removals only become permanent after a call to [vdsCommit](#).

Parameters:

- ← *objectHandle* The handle to the queue (see [vdsQueueOpen](#)).
- *buffer* The buffer provided by the user to hold the content of the data item. Memory allocation for this buffer is the responsibility of the caller.
- ← *bufferLength* The length of *buffer* (in bytes).
- *returnedLength* The actual number of bytes in the data item.

Returns:

0 on success or a [vdsErrors](#) on error.

5.2.1.6 VDSF_EXPORT int vdsQueuePush ([VDS_HANDLE](#) *objectHandle*, const void * *pItem*, size_t *length*)

Insert a data element at the end of the FIFO queue.

The additions only become permanent after a call to [vdsCommit](#).

Parameters:

- ← *objectHandle* The handle to the queue (see [vdsQueueOpen](#)).
- ← *pItem* The data item to be inserted.
- ← *length* The length of *pItem* (in bytes).

Returns:

0 on success or a [vdsErrors](#) on error.

5.2.1.7 `VDSF_EXPORT int vdsQueueStatus (VDS_HANDLE objectHandle,
vdsObjStatus *pStatus)`

Return the status of the queue.

Parameters:

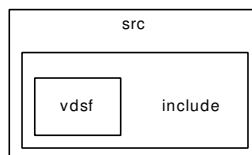
- ← *objectHandle* The handle to the queue (see [vdsQueueOpen](#)).
- *pStatus* A pointer to the status structure.

Returns:

0 on success or a [vdsErrors](#) on error.

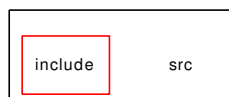
6 vdsf API Directory Documentation

6.1 /home/project/VDSF/vdsf/trunk/src/include/ Directory Reference

**Directories**

- directory [vdsf](#)

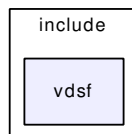
6.2 /home/project/VDSF/vdsf/trunk/src/ Directory Reference



Directories

- directory [include](#)

6.3 /home/project/VDSF/vdsf/trunk/src/include/vdsf/ Directory Reference



Files

- file [vds.h](#)
- file [vdsCommon.h](#)
- file [vdsErrors.h](#)
- file [vdsFolder.h](#)
- file [vdsHashMap.h](#)

This file provides the API to access a VDSF hash map.

- file [vdsProcess.h](#)
- file [vdsQueue.h](#)

This file provides the API to access a VDSF FIFO queue.

- file [vdsSession.h](#)

7 vdsf API Data Structure Documentation

7.1 vdsFolderEntry Struct Reference

```
#include <vdsCommon.h>
```

Data Fields

- [vdsObjectType](#) type
- size_t [nameLengthInBytes](#)
- char [name](#) [VDS_MAX_NAME_LENGTH *4]

7.1.1 Field Documentation

7.1.1.1 [vdsObjectType vdsFolderEntry::type](#)

7.1.1.2 [size_t vdsFolderEntry::nameLengthInBytes](#)

7.1.1.3 [char vdsFolderEntry::name\[VDS_MAX_NAME_LENGTH *4\]](#)

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

- /home/project/VDSF/vdsf/trunk/src/include/vdsf/[vdsCommon.h](#)

7.2 vdsInfo Struct Reference

```
#include <vdsCommon.h>
```

Data Fields

- [size_t totalSizeInBytes](#)
- [size_t allocatedSizeInBytes](#)
- [size_t numObjects](#)
- [size_t numGroups](#)
- [size_t numMallocs](#)
- [size_t numFrees](#)
- [size_t largestFreeInBytes](#)

7.2.1 Field Documentation

7.2.1.1 [size_t vdsInfo::totalSizeInBytes](#)

7.2.1.2 [size_t vdsInfo::allocatedSizeInBytes](#)

7.2.1.3 [size_t vdsInfo::numObjects](#)

7.2.1.4 [size_t vdsInfo::numGroups](#)

7.2.1.5 [size_t vdsInfo::numMallocs](#)

7.2.1.6 [size_t vdsInfo::numFrees](#)

7.2.1.7 `size_t vdsInfo::largestFreeInBytes`

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

- `/home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsCommon.h`

7.3 vdsObjStatus Struct Reference

```
#include <vdsCommon.h>
```

Data Fields

- `vdsObjectType` type
- `size_t numBlocks`
- `size_t numBlockGroup`
- `size_t numDataItem`
- `size_t freeBytes`

7.3.1 Field Documentation

7.3.1.1 `vdsObjectType vdsObjStatus::type`

7.3.1.2 `size_t vdsObjStatus::numBlocks`

7.3.1.3 `size_t vdsObjStatus::numBlockGroup`

7.3.1.4 `size_t vdsObjStatus::numDataItem`

7.3.1.5 `size_t vdsObjStatus::freeBytes`

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

- `/home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsCommon.h`

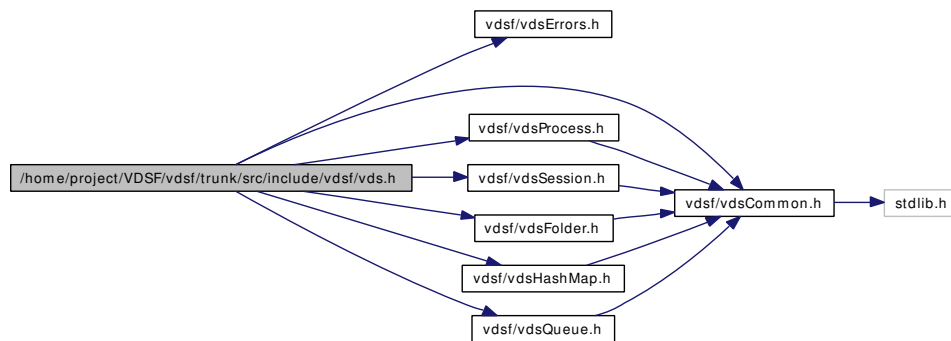
8 vdsf API File Documentation

8.1 `/home/project/VDSF/vdsf/trunk/src/include/vdsf/vds.h` File Reference

```
#include <vdsf/vdsErrors.h>
```

```
#include <vdsf/vdsCommon.h>
#include <vdsf/vdsProcess.h>
#include <vdsf/vdsSession.h>
#include <vdsf/vdsFolder.h>
#include <vdsf/vdsHashMap.h>
#include <vdsf/vdsQueue.h>
```

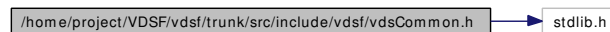
Include dependency graph for vds.h:



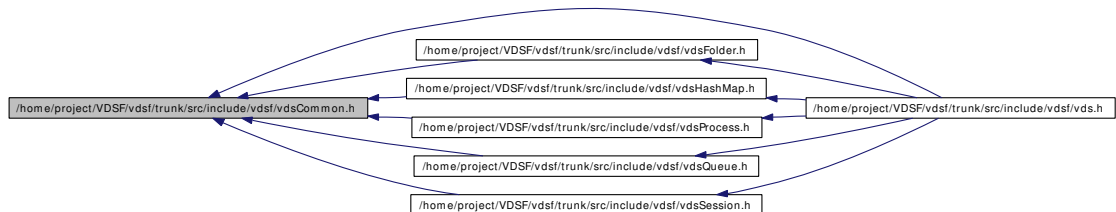
8.2 /home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsCommon.h File Reference

```
#include <stdlib.h>
```

Include dependency graph for vdsCommon.h:



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



Data Structures

- struct [vdsFolderEntry](#)
- struct [vdsObjStatus](#)
- struct [vdsInfo](#)

Defines

- #define [VDSF_EXPORT](#)
- #define [VDS_MAX_NAME_LENGTH](#) 256
Maximum number of characters (or bytes if not supporting i18n) of the name of a vds object (not counting the name of the parent folder(s)).
- #define [VDS_MAX_FULL_NAME_LENGTH](#) 1024
Maximum number of characters (or bytes if not supporting i18n) of the fully qualified name of a vds object (including the name(s) of its parent folder(s)).

Typedefs

- typedef void * [VDS_HANDLE](#)

Enumerations

- enum [vdsObjectType](#) { [VDS_FOLDER](#) = 1, [VDS_QUEUE](#) = 2, [VDS_HASH_MAP](#) = 3, [VDS_LAST_OBJECT_TYPE](#) }
- enum [vdsIteratorType](#) { [VDS_FIRST](#) = 1, [VDS_NEXT](#) = 2 }

8.2.1 Define Documentation

8.2.1.1 #define VDS_MAX_FULL_NAME_LENGTH 1024

Maximum number of characters (or bytes if not supporting i18n) of the fully qualified name of a vds object (including the name(s) of its parent folder(s)).

If the software was compiled with i18n, this maximum is the number of wide characters (4 bytes). Otherwise it is the number of bytes (which should equal the number of characters unless something funny is going on like using UTF-8 as locale and using —disable-i18n with configure...).

Note: setting this value eliminates a possible loophole since some heap memory must be allocated to hold the wide characters string for the duration of the operation (open, close, create or destroy).

8.2.1.2 #define VDS_MAX_NAME_LENGTH 256

Maximum number of characters (or bytes if not supporting i18n) of the name of a vds object (not counting the name of the parent folder(s)).

If the software was compiled with i18n, this maximum is the number of wide characters (4 bytes). Otherwise it is the number of bytes (which should equal the number of characters unless something funny is going on like using UTF-8 as locale and using `—disable-i18n` with `configure...`).

8.2.1.3 #define VDSF_EXPORT

8.2.2 Typedef Documentation

8.2.2.1 typedef void* [VDS_HANDLE](#)

8.2.3 Enumeration Type Documentation

8.2.3.1 enum [vdsIteratorType](#)

Enumerator:

VDS_FIRST

VDS_NEXT

8.2.3.2 enum [vdsObjectType](#)

Enumerator:

VDS_FOLDER

VDS_QUEUE

VDS_HASH_MAP

VDS_LAST_OBJECT_TYPE

8.3 /home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsErrors.h File Reference

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



Enumerations

- enum `vdsErrors` {
 `VDS_OK` = 0, `VDS_INTERNAL_ERROR` = 666, `VDS_ENGINE_BUSY` = 1,
 `VDS_NOT_ENOUGH_VDS_MEMORY` = 2,
 `VDS_NOT_ENOUGH_HEAP_MEMORY` = 3, `VDS_NOT_ENOUGH_RESOURCES` = 4, `VDS_WRONG_TYPE_HANDLE` = 5, `VDS_NULL_HANDLE` = 6,
 `VDS_NULL_POINTER` = 7, `VDS_INVALID_LENGTH` = 8, `VDS_PROCESS_ALREADY_INITIALIZED` = 21, `VDS_PROCESS_NOT_INITIALIZED` = 22,
 `VDS_INVALID_WATCHDOG_ADDRESS` = 23, `VDS_INCOMPATIBLE_VERSIONS` = 24, `VDS_SOCKET_ERROR` = 25, `VDS_CONNECT_ERROR` = 26,
 `VDS_SEND_ERROR` = 27, `VDS_RECEIVE_ERROR` = 28, `VDS_BACKSTORE_FILE_MISSING` = 29, `VDS_ERROR_OPENING_VDS` = 30,
 `VDS_LOGFILE_ERROR` = 41, `VDS_SESSION_CANNOT_GET_LOCK` = 42, `VDS_SESSION_IS_TERMINATED` = 43, `VDS_INVALID_OBJECT_NAME` = 51,
 `VDS_NO_SUCH_OBJECT` = 52, `VDS_NO_SUCH_FOLDER` = 53, `VDS_OBJECT_ALREADY_PRESENT` = 54, `VDS_IS_EMPTY` = 55,
 `VDS_WRONG_OBJECT_TYPE` = 56, `VDS_OBJECT_CANNOT_GET_LOCK` = 57, `VDS_REACHED_THE_END` = 58, `VDS_INVALID_ITERATOR` = 59,
 `VDS_OBJECT_NAME_TOO_LONG` = 60, `VDS_FOLDER_IS_NOT_EMPTY` = 61, `VDS_ITEM_ALREADY_PRESENT` = 62, `VDS_NO_SUCH_ITEM` = 63, `VDS_OBJECT_IS_DELETED` = 64, `VDS_OBJECT_NOT_INITIALIZED` = 65 }
}

8.3.1 Enumeration Type Documentation

8.3.1.1 enum `vdsErrors`

Enumerator:

`VDS_OK` No error.

..

`VDS_INTERNAL_ERROR` Abnormal internal error - it should not happen!

`VDS_ENGINE_BUSY` Cannot get a lock on a system object, the engine is "busy".

This might be the result of either a very busy system where unused cpu cycles are rare or a lock might be held by a crashed process.

VDS_NOT_ENOUGH_VDS_MEMORY Not enough memory in the VDS.

VDS_NOT_ENOUGH_HEAP_MEMORY Not enough heap memory (non-VDS memory).

VDS_NOT_ENOUGH_RESOURCES There are not enough resources to correctly process the call.

This might be due to a lack of POSIX semaphores on systems where locks are implemented that way or a failure in initializing a pthread_mutex (or on Windows, a critical section).

VDS_WRONG_TYPE_HANDLE The provided handle is of the wrong type.

VDS_NULL_HANDLE The provided handle is NULL (zero).

VDS_NULL_POINTER One of the arguments of an API function is an invalid NULL pointer.

VDS_INVALID_LENGTH An invalid length was provided (it will usually indicate that the length value is set to zero).

VDS_PROCESS_ALREADY_INITIALIZED The process was already initialized.

Was [vdsInit\(\)](#) called for a second time?

VDS_PROCESS_NOT_INITIALIZED The process was not properly initialized.

Was [vdsInit\(\)](#) called?

VDS_INVALID_WATCHDOG_ADDRESS The watchdog address is invalid (empty string, NULL pointer, etc.

)

VDS_INCOMPATIBLE_VERSIONS API - memory-file version mismatch.

VDS_SOCKET_ERROR Generic socket error.

VDS_CONNECT_ERROR Socket error when trying to connect to the watchdog.

VDS_SEND_ERROR Socket error when trying to send a request to the watchdog.

VDS_RECEIVE_ERROR Socket error when trying to receive a reply from the watchdog.

VDS_BACKSTORE_FILE_MISSING The vds backstore file is missing (the name of this file is provided by the watchdog).

VDS_ERROR_OPENING_VDS Generic i/o error when attempting to open the vds.

VDS_LOGFILE_ERROR Error accessing the directory for the log files or error opening the log file itself.

VDS_SESSION_CANNOT_GET_LOCK Cannot get a lock on the session (a pthread_mutex or a critical section on Windows).

VDS_SESSION_IS_TERMINATED An attempt was made to use a session object (a session handle) after this session was terminated.

VDS_INVALID_OBJECT_NAME Permitted characters for names are alphanumerics, spaces (' '), dashes ('-') and underlines ('_').
The first character must be alphanumeric.

VDS_NO_SUCH_OBJECT The object was not found (but its folder does exist).

VDS_NO_SUCH_FOLDER One of the parent folder of an object does not exist.

VDS_OBJECT_ALREADY_PRESENT Attempt to create an object which already exists.

VDS_IS_EMPTY The object (data container) is empty.

VDS_WRONG_OBJECT_TYPE Attempt to create an object of an unknown object type.

VDS_OBJECT_CANNOT_GET_LOCK Cannot get lock on the object.
This might be the result of either a very busy system where unused cpu cycles are rare or a lock might be held by a crashed process.

VDS_REACHED_THE_END The search/iteration reached the end without finding a new item/record.

VDS_INVALID_ITERATOR An invalid value was used for a vdsIteratorType parameter.

VDS_OBJECT_NAME_TOO_LONG The name of the object is too long.
The maximum length of a name cannot be more than VDS_MAX_NAME_LENGTH (or VDS_MAX_FULL_NAME_LENGTH for the fully qualified name).

VDS_FOLDER_IS_NOT_EMPTY You cannot delete a folder if there are still undeleted objects in it.
Technical: a folder does not need to be empty to be deleted but all objects in it must be "marked as deleted" by the current session. This enables writing recursive deletions

VDS_ITEM_ALREADY_PRESENT An item with the same key was found.

VDS_NO_SUCH_ITEM The item was not found in the hash map.

VDS_OBJECT_IS_DELETED The object is scheduled to be deleted soon.
Operations on this data container are not permitted at this time.

VDS_OBJECT_NOT_INITIALIZED Object must be open first before you can access them.

8.4 /home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsFolder.h File Reference

```
#include <vdsf/vdsCommon.h>
```

Include dependency graph for vdsFolder.h:



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



Functions

- VDSF_EXPORT int [vdsFolderClose](#) ([VDS_HANDLE](#) objectHandle)
- VDSF_EXPORT int [vdsFolderGetFirst](#) ([VDS_HANDLE](#) objectHandle, [vdsFolderEntry](#) *pEntry)
- VDSF_EXPORT int [vdsFolderGetNext](#) ([VDS_HANDLE](#) objectHandle, [vdsFolderEntry](#) *pEntry)
- VDSF_EXPORT int [vdsFolderOpen](#) ([VDS_HANDLE](#) sessionHandle, const char *folderName, size_t nameLengthInBytes, [VDS_HANDLE](#) *objectHandle)
- VDSF_EXPORT int [vdsFolderStatus](#) ([VDS_HANDLE](#) objectHandle, [vdsObjStatus](#) *pStatus)

8.4.1 Function Documentation

8.4.1.1 VDSF_EXPORT int [vdsFolderClose](#) ([VDS_HANDLE](#) objectHandle)

8.4.1.2 VDSF_EXPORT int [vdsFolderGetFirst](#) ([VDS_HANDLE](#) objectHandle, [vdsFolderEntry](#) *pEntry)

8.4.1.3 VDSF_EXPORT int [vdsFolderGetNext](#) ([VDS_HANDLE](#) objectHandle, [vdsFolderEntry](#) *pEntry)

8.4.1.4 VDSF_EXPORT int [vdsFolderOpen](#) ([VDS_HANDLE](#) sessionHandle, const char *folderName, size_t nameLengthInBytes, [VDS_HANDLE](#) *objectHandle)

8.4.1.5 VDSF_EXPORT int vdsFolderStatus (VDS_HANDLE objectHandle, vdsObjStatus *pStatus)

8.5 /home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsHashMap.h File Reference

8.5.1 Detailed Description

This file provides the API to access a VDSF hash map.

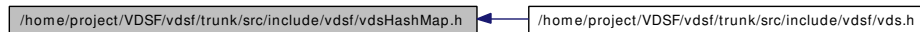
Note: this hash map uses unique keys.

```
#include <vdsf/vdsCommon.h>
```

Include dependency graph for vdsHashMap.h:



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



Functions

- VDSF_EXPORT int vdsHashMapClose (VDS_HANDLE objectHandle)
Close a Hash Map.
- VDSF_EXPORT int vdsHashMapDelete (VDS_HANDLE objectHandle, const void *key, size_t keyLength)
Remove the data item identified by the given key from the hash map.
- VDSF_EXPORT int vdsHashMapGet (VDS_HANDLE objectHandle, const void *key, size_t keyLength, void *buffer, size_t bufferLength, size_t *returnedLength)
Retrieve the data item identified by the given key from the hash map.
- VDSF_EXPORT int vdsHashMapGetFirst (VDS_HANDLE objectHandle, void *buffer, size_t bufferLength, size_t *returnedLength)
Iterate through the hash map.
- VDSF_EXPORT int vdsHashMapGetNext (VDS_HANDLE objectHandle, void *buffer, size_t bufferLength, size_t *returnedLength)

Iterate through the hash map.

- VDSF_EXPORT int [vdsHashMapInsert](#) (VDS_HANDLE objectHandle, const void *key, size_t keyLength, const void *data, size_t dataLength)

Insert a data element in the hash map.

- VDSF_EXPORT int [vdsHashMapOpen](#) (VDS_HANDLE sessionHandle, const char *hashMapName, size_t nameLengthInBytes, VDS_HANDLE *objectHandle)

Open an existing hash map (see [vdsCreateObject](#) to create a new object).

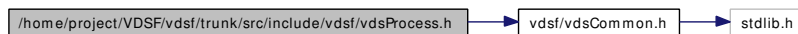
- VDSF_EXPORT int [vdsHashMapStatus](#) (VDS_HANDLE objectHandle, vds_ObjStatus *pStatus)

Return the status of the hash map.

8.6 /home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsProcess.h File Reference

```
#include <vdsf/vdsCommon.h>
```

Include dependency graph for vdsProcess.h:



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



Functions

- VDSF_EXPORT void [vdsExit](#) (VDS_HANDLE processHandle)

This function terminates all access to the VDS.

- VDSF_EXPORT int [vdsInit](#) (const char *wdAddress, int protectionNeeded, VDS_HANDLE *processHandle)

This function initializes access to a VDS.

8.6.1 Function Documentation

8.6.1.1 VDSF_EXPORT void vdsExit (VDS_HANDLE processHandle)

This function terminates all access to the VDS.

This function will also close all sessions and terminate all accesses to the different objects.

This function takes a single argument, the handle to the process object and always end successfully.

8.6.1.2 VDSF_EXPORT int vdsInit (const char * wdAddress, int protection-Needed, VDS_HANDLE * processHandle)

This function initializes access to a VDS.

It takes 2 input arguments, the address of the watchdog and an integer (used as a boolean, 0 for false, 1 for true) to indicate if sessions and other objects (Queues, etc) are shared amongst threads (in the current process) and must be protected. Recommendation: always set protectionNeeded to 0 (false) unless you cannot do it otherwise. In other words it is recommended to use one session handle for each thread. Also if the same queue needs to be accessed by two threads it is more efficient to have two different handles instead of sharing a single one.

[Additional note: API objects (or C handles) are just proxies for the real objects sitting in shared memory. Proper synchronization is already done in shared memory and it is best to avoid to synchronize these proxy objects.]

Upon successful completion, the process handle is set. Otherwise the error code is returned.

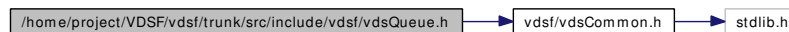
8.7 /home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsQueue.h File Reference

8.7.1 Detailed Description

This file provides the API to access a VDSF FIFO queue.

```
#include <vdsf/vdsCommon.h>
```

Include dependency graph for vdsQueue.h:



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



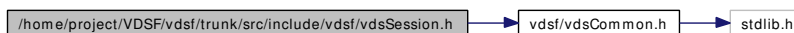
Functions

- VDSF_EXPORT int [vdsQueueClose](#) (VDS_HANDLE objectHandle)
Close a FIFO queue.
- VDSF_EXPORT int [vdsQueueGetFirst](#) (VDS_HANDLE objectHandle, void *buffer, size_t bufferLength, size_t *returnedLength)
Iterate through the queue - no data items are removed from the queue by this function.
- VDSF_EXPORT int [vdsQueueGetNext](#) (VDS_HANDLE objectHandle, void *buffer, size_t bufferLength, size_t *returnedLength)
Iterate through the queue - no data items are removed from the queue by this function.
- VDSF_EXPORT int [vdsQueueOpen](#) (VDS_HANDLE sessionHandle, const char *queueName, size_t nameLengthInBytes, VDS_HANDLE *objectHandle)
Open an existing FIFO queue (see [vdsCreateObject](#) to create a new queue).
- VDSF_EXPORT int [vdsQueuePop](#) (VDS_HANDLE objectHandle, void *buffer, size_t bufferLength, size_t *returnedLength)
Remove the first item from the beginning of a FIFO queue and return it to the caller.
- VDSF_EXPORT int [vdsQueuePush](#) (VDS_HANDLE objectHandle, const void *pItem, size_t length)
Insert a data element at the end of the FIFO queue.
- VDSF_EXPORT int [vdsQueueStatus](#) (VDS_HANDLE objectHandle, vdsObjStatus *pStatus)
Return the status of the queue.

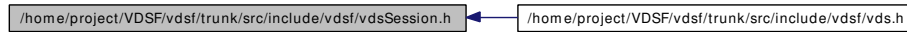
8.8 /home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsSession.h File Reference

```
#include <vdsf/vdsCommon.h>
```

Include dependency graph for vdsSession.h:



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



Functions

- VDSF_EXPORT int [vdsInitSession](#) (VDS_HANDLE *sessionHandle)
This function initializes a session.
- VDSF_EXPORT int [vdsCommit](#) (VDS_HANDLE handle)
- VDSF_EXPORT int [vdsCreateObject](#) (VDS_HANDLE handle, const char *objectName, size_t nameLengthInBytes, vdsObjectType objectType)
- VDSF_EXPORT int [vdsDestroyObject](#) (VDS_HANDLE handle, const char *objectName, size_t nameLengthInBytes)
- VDSF_EXPORT int [vdsErrorMsg](#) (VDS_HANDLE sessionHandle, char *message, size_t msgLengthInBytes)
- VDSF_EXPORT int [vdsExitSession](#) (VDS_HANDLE handle)
- VDSF_EXPORT int [vdsGetInfo](#) (VDS_HANDLE sessionHandle, vdsInfo *pInfo)
- VDSF_EXPORT int [vdsGetStatus](#) (VDS_HANDLE handle, const char *objectName, size_t nameLengthInBytes, vdsObjStatus *pStatus)
- VDSF_EXPORT int [vdsLastError](#) (VDS_HANDLE sessionHandle)
- VDSF_EXPORT int [vdsRollback](#) (VDS_HANDLE handle)

8.8.1 Function Documentation

8.8.1.1 VDSF_EXPORT int vdsCommit (VDS_HANDLE handle)

8.8.1.2 VDSF_EXPORT int vdsCreateObject (VDS_HANDLE handle, const char *objectName, size_t nameLengthInBytes, vdsObjectType objectType)

8.8.1.3 VDSF_EXPORT int vdsDestroyObject (VDS_HANDLE handle, const char *objectName, size_t nameLengthInBytes)

8.8.1.4 VDSF_EXPORT int vdsErrorMsg (VDS_HANDLE sessionHandle, char *message, size_t msgLengthInBytes)

8.8.1.5 VDSF_EXPORT int vdsExitSession (VDS_HANDLE handle)

8.8.1.6 VDSF_EXPORT int vdsGetInfo (**VDS_HANDLE** *sessionHandle*, **vdsInfo** **pInfo*)

8.8.1.7 VDSF_EXPORT int vdsGetStatus (**VDS_HANDLE** *handle*, const char **objectName*, size_t *nameLengthInBytes*, **vdsObjStatus** **pStatus*)

8.8.1.8 VDSF_EXPORT int vdsInitSession (**VDS_HANDLE** **sessionHandle*)

This function initializes a session.

It takes one output argument, the session handle.

Upon successful completion, the session handle is set and the function returns zero. Otherwise the error code is returned and the handle is set to NULL.

This function will also initiate a new transaction:

Contrary to some other transaction management software, almost every call made is part of a transaction. Even viewing data (for example deleting the data by another session will be delayed until the current session terminates its access).

Upon normal termination, the current transaction is rolled back. You MUST explicitly call `vdseCommit` to save your changes.

8.8.1.9 VDSF_EXPORT int vdsLastError (**VDS_HANDLE** *sessionHandle*)

8.8.1.10 VDSF_EXPORT int vdsRollback (**VDS_HANDLE** *handle*)

Index

/home/project/VDSF/vdsf/trunk/src/	name
Directory Reference, 11	vdsFolderEntry, 13
/home/project/VDSF/vdsf/trunk/src/include/nameLengthInBytes	
Directory Reference, 11	vdsFolderEntry, 12
/home/project/VDSF/vdsf/trunk/src/include/vdsfBlockGroup	
Directory Reference, 12	vdsObjStatus, 14
/home/project/VDSF/vdsf/trunk/src/include/vdsfBlocks	
14	vdsObjStatus, 14
/home/project/VDSF/vdsf/trunk/src/include/vdsfDdsCommon.h,	
15	vdsObjStatus, 14
/home/project/VDSF/vdsf/trunk/src/include/vdsfErrors.h,	
17	vdsInfo, 13
/home/project/VDSF/vdsf/trunk/src/include/vdsfFolder.h,	
21	vdsInfo, 13
/home/project/VDSF/vdsf/trunk/src/include/vdsfHashMap.h,	
22	vdsInfo, 13
/home/project/VDSF/vdsf/trunk/src/include/vdsfObjProcess.h,	
23	vdsInfo, 13
/home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsQueue.h,	
24	Queue
/home/project/VDSF/vdsf/trunk/src/include/vdsf/vdsQueueClose,	
25	vdsQueueClose, 8
	vdsQueueGetFirst, 8
	vdsQueueGetNext, 8
allocatedSizeInBytes	vdsQueueOpen, 9
vdsInfo, 13	vdsQueuePop, 9
API functions for the FIFO queue., 7	vdsQueuePush, 10
API functions for the hash map., 2	vdsQueueStatus, 10
freeBytes	
vdsObjStatus, 14	
HashMap	
vdsHashMapClose, 3	
vdsHashMapDelete, 3	
vdsHashMapGet, 4	
vdsHashMapGetFirst, 4	
vdsHashMapGetNext, 5	
vdsHashMapInsert, 5	
vdsHashMapOpen, 6	
vdsHashMapStatus, 6	
largestFreeInBytes	
vdsInfo, 13	
	totalSizeInBytes
	vdsInfo, 13
	type
	vdsFolderEntry, 12
	vdsObjStatus, 14
	VDS_BACKSTORE_FILE_MISSING
	vdsErrors.h, 19
	VDS_CONNECT_ERROR
	vdsErrors.h, 19
	VDS_ENGINE_BUSY
	vdsErrors.h, 18
	VDS_ERROR_OPENING_VDS
	vdsErrors.h, 19
	VDS_FIRST

- vdsCommon.h, [17](#)
- VDS_FOLDER
 - vdsCommon.h, [17](#)
- VDS_FOLDER_IS_NOT_EMPTY
 - vdsErrors.h, [20](#)
- VDS_HANDLE
 - vdsCommon.h, [17](#)
- VDS_HASH_MAP
 - vdsCommon.h, [17](#)
- VDS_INCOMPATIBLE_VERSIONS
 - vdsErrors.h, [19](#)
- VDS_INTERNAL_ERROR
 - vdsErrors.h, [18](#)
- VDS_INVALID_ITERATOR
 - vdsErrors.h, [20](#)
- VDS_INVALID_LENGTH
 - vdsErrors.h, [19](#)
- VDS_INVALID_OBJECT_NAME
 - vdsErrors.h, [20](#)
- VDS_INVALID_WATCHDOG_
ADDRESS
 - vdsErrors.h, [19](#)
- VDS_IS_EMPTY
 - vdsErrors.h, [20](#)
- VDS_ITEM_ALREADY_PRESENT
 - vdsErrors.h, [20](#)
- VDS_LAST_OBJECT_TYPE
 - vdsCommon.h, [17](#)
- VDS_LOGFILE_ERROR
 - vdsErrors.h, [19](#)
- VDS_MAX_FULL_NAME_LENGTH
 - vdsCommon.h, [16](#)
- VDS_MAX_NAME_LENGTH
 - vdsCommon.h, [16](#)
- VDS_NEXT
 - vdsCommon.h, [17](#)
- VDS_NO_SUCH_FOLDER
 - vdsErrors.h, [20](#)
- VDS_NO_SUCH_ITEM
 - vdsErrors.h, [20](#)
- VDS_NO_SUCH_OBJECT
 - vdsErrors.h, [20](#)
- VDS_NOT_ENOUGH_HEAP_
MEMORY
 - vdsErrors.h, [19](#)
- VDS_NOT_ENOUGH_RESOURCES
 - vdsErrors.h, [19](#)
- VDS_NOT_ENOUGH_VDS_MEMORY
 - vdsErrors.h, [18](#)
- VDS_NULL_HANDLE
 - vdsErrors.h, [19](#)
- VDS_NULL_POINTER
 - vdsErrors.h, [19](#)
- VDS_OBJECT_ALREADY_PRESENT
 - vdsErrors.h, [20](#)
- VDS_OBJECT_CANNOT_GET_LOCK
 - vdsErrors.h, [20](#)
- VDS_OBJECT_IS_DELETED
 - vdsErrors.h, [20](#)
- VDS_OBJECT_NAME_TOO_LONG
 - vdsErrors.h, [20](#)
- VDS_OBJECT_NOT_INITIALIZED
 - vdsErrors.h, [20](#)
- VDS_OK
 - vdsErrors.h, [18](#)
- VDS_PROCESS_ALREADY_
INITIALIZED
 - vdsErrors.h, [19](#)
- VDS_PROCESS_NOT_INITIALIZED
 - vdsErrors.h, [19](#)
- VDS_QUEUE
 - vdsCommon.h, [17](#)
- VDS_REACHED_THE_END
 - vdsErrors.h, [20](#)
- VDS_RECEIVE_ERROR
 - vdsErrors.h, [19](#)
- VDS_SEND_ERROR
 - vdsErrors.h, [19](#)
- VDS_SESSION_CANNOT_GET_
LOCK
 - vdsErrors.h, [19](#)
- VDS_SESSION_IS_TERMINATED
 - vdsErrors.h, [19](#)
- VDS_SOCKET_ERROR
 - vdsErrors.h, [19](#)
- VDS_WRONG_OBJECT_TYPE
 - vdsErrors.h, [20](#)
- VDS_WRONG_TYPE_HANDLE
 - vdsErrors.h, [19](#)
- vdsCommit
 - vdsSession.h, [26](#)
- vdsCommon.h

- VDS_FIRST, 17
- VDS_FOLDER, 17
- VDS_HASH_MAP, 17
- VDS_LAST_OBJECT_TYPE, 17
- VDS_NEXT, 17
- VDS_QUEUE, 17
- vdsCommon.h
 - VDS_HANDLE, 17
 - VDS_MAX_FULL_NAME_LENGTH, 16
 - VDS_MAX_NAME_LENGTH, 16
 - VDSF_EXPORT, 17
 - vdsIteratorType, 17
 - vdsObjectType, 17
- vdsCreateObject
 - vdsSession.h, 26
- vdsDestroyObject
 - vdsSession.h, 26
- vdsErrorMsg
 - vdsSession.h, 26
- vdsErrors
 - vdsErrors.h, 18
- vdsErrors.h
 - VDS_BACKSTORE_FILE_MISSING, 19
 - VDS_CONNECT_ERROR, 19
 - VDS_ENGINE_BUSY, 18
 - VDS_ERROR_OPENING_VDS, 19
 - VDS_FOLDER_IS_NOT_EMPTY, 20
 - VDS_INCOMPATIBLE_VERSIONS, 19
 - VDS_INTERNAL_ERROR, 18
 - VDS_INVALID_ITERATOR, 20
 - VDS_INVALID_LENGTH, 19
 - VDS_INVALID_OBJECT_NAME, 20
 - VDS_INVALID_WATCHDOG_ADDRESS, 19
 - VDS_IS_EMPTY, 20
 - VDS_ITEM_ALREADY_PRESENT, 20
 - VDS_LOGFILE_ERROR, 19
 - VDS_NO_SUCH_FOLDER, 20
 - VDS_NO_SUCH_ITEM, 20
 - VDS_NO_SUCH_OBJECT, 20
 - VDS_NOT_ENOUGH_HEAP_MEMORY, 19
 - VDS_NOT_ENOUGH_RESOURCES, 19
 - VDS_NOT_ENOUGH_VDS_MEMORY, 18
 - VDS_NULL_HANDLE, 19
 - VDS_NULL_POINTER, 19
 - VDS_OBJECT_ALREADY_PRESENT, 20
 - VDS_OBJECT_CANNOT_GET_LOCK, 20
 - VDS_OBJECT_IS_DELETED, 20
 - VDS_OBJECT_NAME_TOO_LONG, 20
 - VDS_OBJECT_NOT_INITIALIZED, 20
 - VDS_OK, 18
 - VDS_PROCESS_ALREADY_INITIALIZED, 19
 - VDS_PROCESS_NOT_INITIALIZED, 19
 - VDS_REACHED_THE_END, 20
 - VDS_RECEIVE_ERROR, 19
 - VDS_SEND_ERROR, 19
 - VDS_SESSION_CANNOT_GET_LOCK, 19
 - VDS_SESSION_IS_TERMINATED, 19
 - VDS_SOCKET_ERROR, 19
 - VDS_WRONG_OBJECT_TYPE, 20
 - VDS_WRONG_TYPE_HANDLE, 19
- vdsErrors.h
 - vdsErrors, 18
- vdsExit
 - vdsProcess.h, 24
- vdsExitSession
 - vdsSession.h, 26
- VDSF_EXPORT
 - vdsCommon.h, 17
- vdsFolder.h
 - vdsFolderClose, 21
 - vdsFolderGetFirst, 21
 - vdsFolderGetNext, 21

- vdsFolderOpen, [21](#)
 - vdsFolderStatus, [21](#)
- vdsFolderClose
 - vdsFolder.h, [21](#)
- vdsFolderEntry, [12](#)
- vdsFolderEntry
 - name, [13](#)
 - nameLengthInBytes, [12](#)
 - type, [12](#)
- vdsFolderGetFirst
 - vdsFolder.h, [21](#)
- vdsFolderGetNext
 - vdsFolder.h, [21](#)
- vdsFolderOpen
 - vdsFolder.h, [21](#)
- vdsFolderStatus
 - vdsFolder.h, [21](#)
- vdsGetInfo
 - vdsSession.h, [26](#)
- vdsGetStatus
 - vdsSession.h, [27](#)
- vdsHashMapClose
 - HashMap, [3](#)
- vdsHashMapDelete
 - HashMap, [3](#)
- vdsHashMapGet
 - HashMap, [4](#)
- vdsHashMapGetFirst
 - HashMap, [4](#)
- vdsHashMapGetNext
 - HashMap, [5](#)
- vdsHashMapInsert
 - HashMap, [5](#)
- vdsHashMapOpen
 - HashMap, [6](#)
- vdsHashMapStatus
 - HashMap, [6](#)
- vdsInfo, [13](#)
- vdsInfo
 - allocatedSizeInBytes, [13](#)
 - largestFreeInBytes, [13](#)
 - numFrees, [13](#)
 - numGroups, [13](#)
 - numMallocs, [13](#)
 - numObjects, [13](#)
 - totalSizeInBytes, [13](#)
- vdsInit
 - vdsProcess.h, [24](#)
- vdsInitSession
 - vdsSession.h, [27](#)
- vdsIteratorType
 - vdsCommon.h, [17](#)
- vdsLastError
 - vdsSession.h, [27](#)
- vdsObjectType
 - vdsCommon.h, [17](#)
- vdsObjStatus, [14](#)
- vdsObjStatus
 - freeBytes, [14](#)
 - numBlockGroup, [14](#)
 - numBlocks, [14](#)
 - numDataItem, [14](#)
 - type, [14](#)
- vdsProcess.h
 - vdsExit, [24](#)
 - vdsInit, [24](#)
- vdsQueueClose
 - Queue, [8](#)
- vdsQueueGetFirst
 - Queue, [8](#)
- vdsQueueGetNext
 - Queue, [8](#)
- vdsQueueOpen
 - Queue, [9](#)
- vdsQueuePop
 - Queue, [9](#)
- vdsQueuePush
 - Queue, [10](#)
- vdsQueueStatus
 - Queue, [10](#)
- vdsRollback
 - vdsSession.h, [27](#)
- vdsSession.h
 - vdsCommit, [26](#)
 - vdsCreateObject, [26](#)
 - vdsDestroyObject, [26](#)
 - vdsErrorMsg, [26](#)
 - vdsExitSession, [26](#)
 - vdsGetInfo, [26](#)
 - vdsGetStatus, [27](#)
 - vdsInitSession, [27](#)
 - vdsLastError, [27](#)

vdsRollback, [27](#)