# OS

0.1

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# Chapter 1

# Hierarchical Index

## 1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:


std::error_category
    Ghoti::OS::ErrorCategory . . . . . 7
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true_type
    std::is_error_condition_enum< Ghoti::OS::ErrorCode > . . . . . 15

# Chapter 2

# Class Index

## 2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:


Ghoti::OS::ErrorCategory
: A category to which all error codes from this library will belong . . . . . 7

Ghoti::OS::File
: Represents a file on the file system . . . . . 9

std::is_error_condition_enum< Ghoti::OS::ErrorCode >
: Declare to C++ that the Ghoti::OS::error_code enum is intended to be used as an extension to the std::error_code functionality . . . . . 15

# Chapter 3

# File Index

## 3.1 File List

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

include/os/errorcode.hpp
Contains Ghoti.io OS library error code classes . . . . . 17
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Declare the Tang::Error class used to describe syntax and runtime errors . . . . . 20
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# Chapter 4

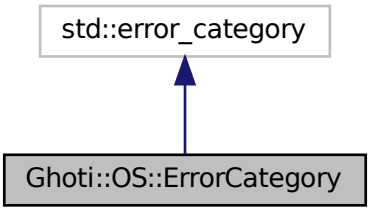
# Class Documentation

## 4.1 Ghoti::OS::ErrorCategory Class Reference

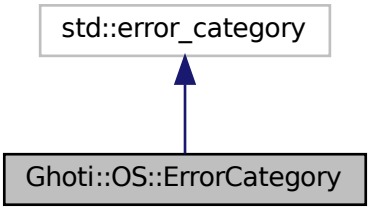
A category to which all error codes from this library will belong.

`#include <errorcode.hpp>`

Inheritance diagram for Ghoti::OS::ErrorCategory:




Collaboration diagram for Ghoti::OS::ErrorCategory:



## Public Member Functions

- virtual const char * name () const noexcept

  *Provide a user-friendly name for this category, useful for when printing error messages.*
- virtual std::string message (int ev) const

  *Provide a user-friendly error message from the supplied error code.*
- virtual bool equivalent (const std::error_code &code, int condition) const noexcept

  *Determine equivalence of an error condition from the current category against an error code from any other category.*

### 4.1.1 Detailed Description

A category to which all error codes from this library will belong.

### 4.1.2 Member Function Documentation

#### 4.1.2.1 equivalent()

```
bool OS::ErrorCategory::equivalent (
            const std::error_code & code,
            int condition ) const  [virtual], [noexcept]
```

Determine equivalence of an error condition from the current category against an error code from any other category.

**Parameters**

| | |
|---|---|
| *code* | An error code from another category. |
| *condition* | An error condition from the current category. |

**Returns**

True if the two are equivalent, false otherwise.

#### 4.1.2.2 message()

```
string OS::ErrorCategory::message (
            int ev ) const  [virtual]
```

Provide a user-friendly error message from the supplied error code.

**Parameters**

| | |
|---|---|
| *ev* | The error code. |

**Returns**

A user-friendly error message.

#### 4.1.2.3 name()

```
const char * OS::ErrorCategory::name ( ) const  [virtual], [noexcept]
```

Provide a user-friendly name for this category, useful for when printing error messages.

**Returns**

The user-friendly name of this category.

The documentation for this class was generated from the following files:

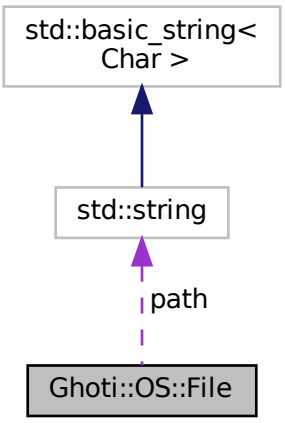
- include/os/errorcode.hpp
- src/errorcode.cpp

## 4.2 Ghoti::OS::File Class Reference

Represents a file on the file system.

```
#include <file.hpp>
```

Collaboration diagram for Ghoti::OS::File:



## Public Member Functions

- File ()

  *Default constructor.*
- File (const std::string &path)

  *Constructor for a named path.*
- File (const File &)=delete

  *Copy constructor is deleted.*
- File (File &&source)

  *Move constructor.*
- File & operator= (const File &)=delete

  *Copy assignment operator deleted.*
- File & operator= (File &&)

  *Move assignment operator.*
- ~File ()

  *Destructor.*
- std::error_code rename (const std::string &destinationPath)

  *Move or rename the file.*
- std::error_code remove ()

  *Remove the file.*
- operator std::string () const

  *Return the contents of the file as a string.*
- const std::string & getPath () const

  *Get the current path.*
- std::error_code append (std::string_view sv)

  *Write the supplied bytes to the end of the file.*
- std::error_code truncate (std::string_view sv)

  *Truncate a file and write the supplied bytes to the newly trancated file.*
- std::error_code test () const noexcept

  *Test the file to see if it exists and return any error message that results from it.*

## Static Public Member Functions

- static File createTemp (const std::string &pattern)

  *Create a temporary file in the OS temp directory, matching the supplied pattern.*

## Private Attributes

- std::string path

  *The path to the file.*
- bool isTemp

  *Stores whether or not the file is a temporary file.*

### 4.2.1 Detailed Description

Represents a file on the file system.

### 4.2.2 Constructor & Destructor Documentation

#### 4.2.2.1 File() [1/2]

```
File::File (
            const std::string & path )
```

Constructor for a named path.

**Parameters**

| | |
|---|---|
| *path* | The file to open. |

#### 4.2.2.2 File() [2/2]

```
File::File (
            File && source )
```

Move constructor.

**Parameters**

| | |
|---|---|
| *source* | The source object. |

#### 4.2.2.3 ~File()

```
File::~File ( )
```

Destructor.

Will delete the file if it is a temp file.

### 4.2.3 Member Function Documentation

#### 4.2.3.1 append()

```
error_code File::append (
            std::string_view sv )
```

Write the supplied bytes to the end of the file.

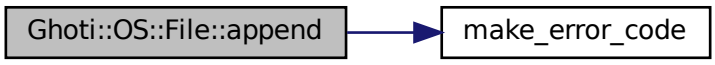
**Parameters**

| | |
|---|---|
| *sv* | The bytes to write to the end of the file. |

**Returns**

The error code resulting from the operation (if any).

Here is the call graph for this function:




#### 4.2.3.2 createTemp()

```
File File::createTemp (
            const std::string & pattern )  [static]
```

Create a temporary file in the OS temp directory, matching the supplied pattern.

Characters will be added to the end if the name as needed to avoid file conflicts.

**Parameters**

| | |
|---|---|
| *pattern* | The file name pattern that should be used. |

**Returns**

A `File` object.

#### 4.2.3.3 remove()

```
error_code File::remove ( )
```

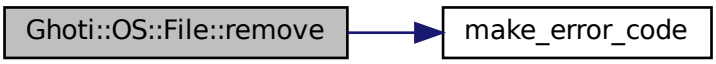
Remove the file.

If the file is open, it will be automatically closed.

**Returns**

The error code resulting from the operation (if any).

Here is the call graph for this function:




#### 4.2.3.4 rename()

```
error_code File::rename (
            const std::string & destinationPath )
```

Move or rename the file.

If the source file is a temp file, the destination will no longer be considered to be a temp file (meaning the file will not be automatically deleted when the object goes out of scope).

If the file is open, it will be automatically closed and must be re-opened explicitly.

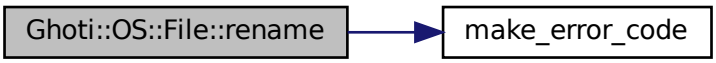
**Parameters**

| | |
|---|---|
| *destinationPath* | The target name for the file. |

**Returns**

The error code resulting from the operation (if any).

Here is the call graph for this function:



#### 4.2.3.5 test()

```
error_code File::test ( ) const  [noexcept]
```

Test the file to see if it exists and return any error message that results from it.

**Returns**

The error code resulting from the operation (if any).

Here is the call graph for this function:


#### 4.2.3.6 truncate()

```
error_code File::truncate (
            std::string_view sv )
```

Truncate a file and write the supplied bytes to the newly trancated file.

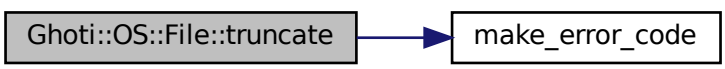
**Parameters**

| | |
|---|---|
| *sv* | The bytes to write to the file. |

**Returns**

The error code resulting from the operation (if any).

Here is the call graph for this function:




The documentation for this class was generated from the following files:

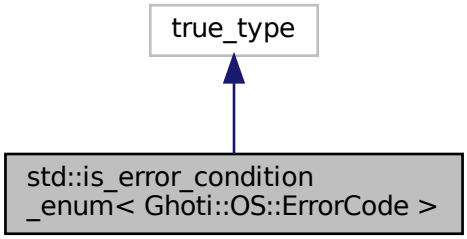
- include/os/file.hpp
- src/file.cpp

## 4.3 std::is_error_condition_enum< Ghoti::OS::ErrorCode > Struct Reference

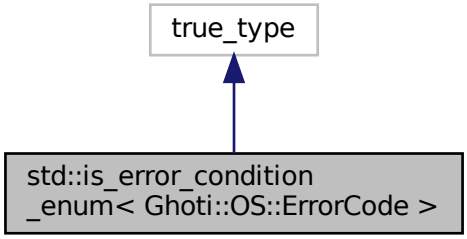
Declare to C++ that the Ghoti::OS::error_code enum is intended to be used as an extension to the std::error_code functionality.

`#include <errorcode.hpp>`

Inheritance diagram for std::is_error_condition_enum< Ghoti::OS::ErrorCode >:




Collaboration diagram for std::is_error_condition_enum< Ghoti::OS::ErrorCode >:




### 4.3.1 Detailed Description

Declare to C++ that the Ghoti::OS::error_code enum is intended to be used as an extension to the std::error_code functionality.

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

- include/os/errorcode.hpp

# Chapter 5

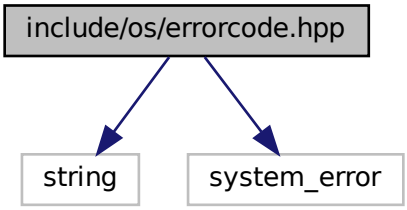
# File Documentation

## 5.1 include/os/errorcode.hpp File Reference

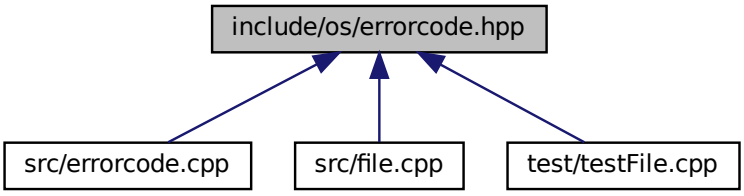
Contains Ghoti.io OS library error code classes.

```
#include <string>
#include <system_error>
```

Include dependency graph for errorcode.hpp:




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



## Classes

- class Ghoti::OS::ErrorCategory

  *A category to which all error codes from this library will belong.*
- struct std::is_error_condition_enum< Ghoti::OS::ErrorCode >

  *Declare to C++ that the Ghoti::OS::error_code enum is intended to be used as an extension to the std::error_code functionality.*

## Enumerations

- enum class Ghoti::OS::ErrorCode {
  **NO_FILE_PATH_SPECIFIED** = 1 , **FILE_DOES_NOT_EXIST** , **FILE_EXISTS_AT_TARGET_PATH** , **FILE_COULD_NOT_BE_CLOSED** ,
  **FILE_COULD_NOT_BE_OPENED** , **ERROR_WRITING_TO_FILE** }

  *List of error codes this library may generate.*

## Functions

- const std::error_category & Ghoti::OS::getErrorCategory ()

  *Return the singleton category object.*
- std::error_code make_error_code (Ghoti::OS::ErrorCode e)

  *Create an error code from this library's category.*
- std::error_condition make_error_condition (Ghoti::OS::ErrorCode e)

  *Create an error condition from this library's category.*
- bool std::operator== (const std::error_code &lhs, Ghoti::OS::ErrorCode rhs)

  *Custom comparitor so that OS::error_code values can be compared directly against std::error_code objects.*

### 5.1.1 Detailed Description

Contains Ghoti.io OS library error code classes.

### 5.1.2 Function Documentation

#### 5.1.2.1 make_error_code()

```
std::error_code make_error_code (
            Ghoti::OS::ErrorCode e )
```

Create an error code from this library's category.

**Parameters**

| | |
|---|---|
| *e* | The error code enum value. |

**Returns**

The error code object.

#### 5.1.2.2 make_error_condition()

```
std::error_condition make_error_condition (
            Ghoti::OS::ErrorCode e )
```

Create an error condition from this library's category.

**Parameters**

| | |
|---|---|
| *e* | The error code enum value. |

**Returns**

The error condition object.

#### 5.1.2.3 operator==()

```
bool std::operator== (
            const std::error_code & lhs,
            Ghoti::OS::ErrorCode rhs )
```

Custom comparitor so that OS::error_code values can be compared directly against std::error_code objects.

This is a quality-of-life improvement to make writing Google Test asserts more compact.

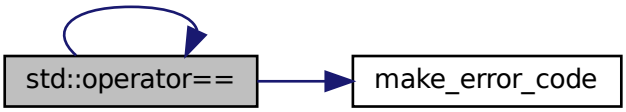
**Parameters**

| | |
|---|---|
| *lhs* | The std::error_code to compare. |
| *rhs* | The Ghoti::OS::error_code to compare. |

**Returns**

True if they are equal, false otherwise.

Here is the call graph for this function:

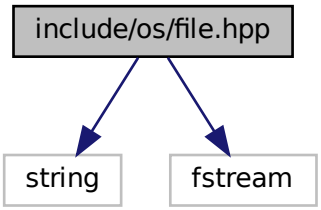



## 5.2 include/os/file.hpp File Reference

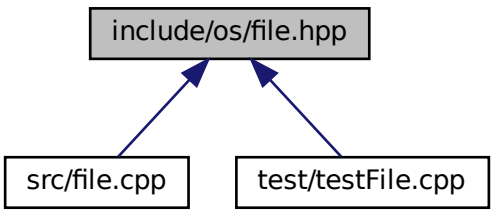
Declare the Tang::Error class used to describe syntax and runtime errors.

```
#include <string>
#include <fstream>
```

Include dependency graph for file.hpp:




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



### Classes

- class Ghoti::OS::File

  *Represents a file on the file system.*

### 5.2.1 Detailed Description

Declare the Tang::Error class used to describe syntax and runtime errors.

## 5.3 include/os/macros.hpp File Reference

Contains generic macros.

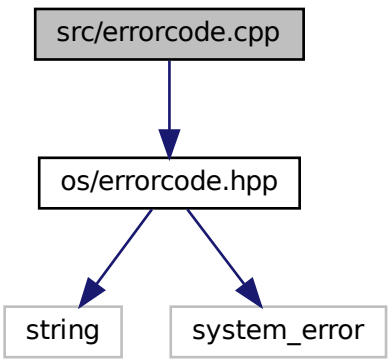
### 5.3.1 Detailed Description

Contains generic macros.

## 5.4 src/errorcode.cpp File Reference

```
#include "os/errorcode.hpp"
```

Include dependency graph for errorcode.cpp:




### Functions

- std::error_code make_error_code (OS::ErrorCode e)

  *Create an error code from this library's category.*
- std::error_condition make_error_condition (OS::ErrorCode e)

  *Create an error condition from this library's category.*

### 5.4.1 Function Documentation

#### 5.4.1.1 make_error_code()

```
std::error_code make_error_code (
            Ghoti::OS::ErrorCode e )
```

Create an error code from this library's category.

**Parameters**

| | |
|---|---|
| *e* | The error code enum value. |

**Returns**

The error code object.

#### 5.4.1.2 make_error_condition()

```
std::error_condition make_error_condition (
            Ghoti::OS::ErrorCode e )
```

Create an error condition from this library's category.

**Parameters**

| | |
|---|---|
| *e* | The error code enum value. |

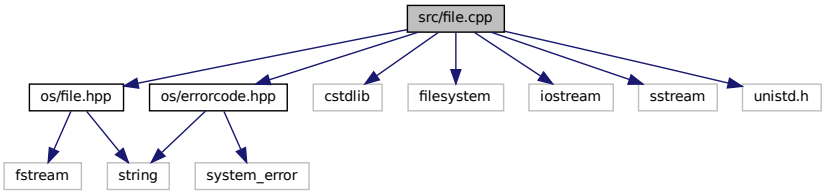
**Returns**

The error condition object.

## 5.5 src/file.cpp File Reference

```
#include "os/file.hpp"
#include "os/errorcode.hpp"
#include <cstdlib>
#include <filesystem>
#include <iostream>
#include <sstream>
```

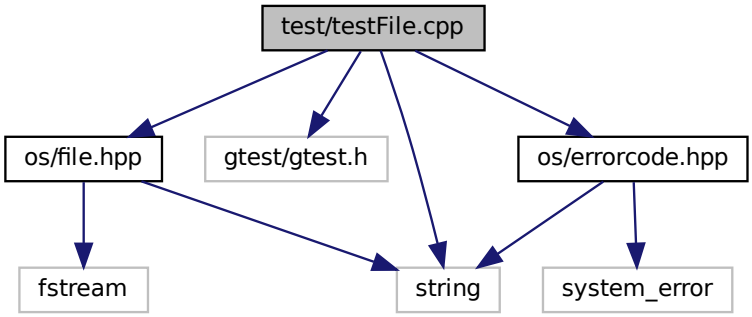
```
#include <unistd.h>
```
Include dependency graph for file.cpp:




## 5.6 test/testFile.cpp File Reference

Test the general Wave server behavior.

```
#include <string>
#include <gtest/gtest.h>
#include "os/file.hpp"
#include "os/errorcode.hpp"
```
Include dependency graph for testFile.cpp:




### Functions

- **TEST** (File, DefaultConstructor)
- **TEST** (File, ExistingFile)
- **TEST** (File, MissingFile)
- **TEST** (File, TempFile)
- **TEST** (Delete, MissingFile)
- **TEST** (Delete, ExistingFile)
- **TEST** (Rename, OverExisting)
- **TEST** (File, Truncate)
- int **main** (int argc, char ∗∗argv)

### 5.6.1 Detailed Description

Test the general Wave server behavior.

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