Shared String View

0.1

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Chapter 1

Class Index

1.1 Class List

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

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Chapter 2

File Index

2.1 File List

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

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Chapter 3

Class Documentation

3.1 std::hash< Ghoti::shared_string_view > Struct Reference

Hashing function, consistent with `std::string_view`.

`#include <shared_string_view.hpp>`

Public Member Functions

- std::size_t **operator()** (const Ghoti::shared_string_view &ssv) const noexcept

3.1.1 Detailed Description

Hashing function, consistent with `std::string_view`.

Parameters

ssv	The `shared_string_view` to be hashed.

Returns

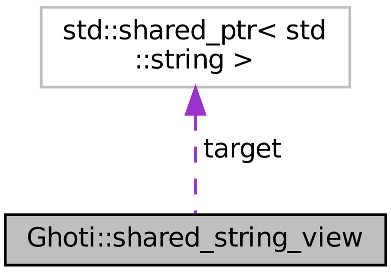
The hashed value.

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

- include/shared_string_view.hpp
- src/shared_string_view.cpp

3.2 Ghoti::shared_string_view Class Reference

Collaboration diagram for Ghoti::shared_string_view:



Public Member Functions

- shared_string_view (const char ∗s)

  Constructor.
- shared_string_view (const char ∗s, size_t length)

  Constructor.
- shared_string_view (const std::string &s)

  Constructor.
- operator std::string_view () const

  Provides a string_view variant of the shared_string_view object.
- size_t length () const

  Return the length of the string represented by the view.
- shared_string_view substr (size_t offset, size_t length)

  Calculate a substring based on the current shared_string_view.
- bool operator== (const shared_string_view &ssv) const

  Compare two shared_string_view objects.
- std::weak_ordering operator<=> (const shared_string_view &ssv) const

  Perform a three-way comparison on two shared_string_view objects.
- shared_string_view & operator+= (const std::string &rhs)

  Perform a concatenation of the supplied string to the existing string view object and apply it to the existing string view object.
- shared_string_view operator+ (const Ghoti::shared_string_view &rhs) const

  Perform a concatenation of the supplied string to the existing string view object.
- std::string_view::const_iterator begin () const

  Provide an iterator from the beginning of the view.
- std::string_view::const_iterator end () const

  Provide an iterator pointing to the end of the view.
- std::string_view::const_reverse_iterator rbegin () const

  Provide a reverse iterator from the end of the view.
- std::string_view::const_reverse_iterator rend () const

  Provide a reverse iterator pointing to the beginning of the view.
- char operator[ ] (size_t pos) const

  Perform an index operation into the target string.

Private Member Functions

- shared_string_view ()

  Private constructor.

Private Attributes

- std::shared_ptr< std::string > target

  The shared target string pointed to by this object.
- size_t start

  The offset into the shared target string at which this view begins.
- size_t len

  The length of the view.

3.2.1 Constructor & Destructor Documentation

3.2.1.1 shared_string_view() [1/4]

```
shared_string_view::shared_string_view (
             const char * s )
```

Constructor.

Parameters

s	A C-string used to construct the string.

3.2.1.2 shared_string_view() [2/4]

```
shared_string_view::shared_string_view (
             const char * s,
             size_t length )
```

Constructor.

Parameters

s	A C-string used to construct the string.
length	The length of the C-string.

3.2.1.3 shared_string_view() [3/4]

```
shared_string_view::shared_string_view (
            const std::string & s )
```

Constructor.

Parameters

s	A String object used to construct the string.

3.2.1.4 shared_string_view() [4/4]

```
shared_string_view::shared_string_view ( )  [private]
```

Private constructor.

This constructor is private because it will create an object whose target is not initialized, which should not be done in general.

3.2.2 Member Function Documentation

3.2.2.1 begin()

```
string_view::const_iterator shared_string_view::begin ( ) const
```

Provide an iterator from the beginning of the view.

Returns

A forward iterator.

3.2.2.2 end()

```
string_view::const_iterator shared_string_view::end ( ) const
```

Provide an iterator pointing to the end of the view.

Returns

An ending iterator.

3.2.2.3 length()

```
size_t shared_string_view::length ( ) const
```

Return the length of the string represented by the view.

The shared string may be longer, but this is the length of the substring that this view represents.

Returns

The length of the string represented by the view.

3.2.2.4 operator std::string_view()

```
Ghoti::shared_string_view::operator std::string_view ( ) const
```

Provides a string_view variant of the shared_string_view object.

It is up to the programmer to ensure that the shared_string_view object remains in scope while the string_view is in use.

3.2.2.5 operator+()

```
shared_string_view shared_string_view::operator+ (
            const Ghoti::shared_string_view & rhs ) const
```

Perform a concatenation of the supplied string to the existing string view object.

Return a new string view.

Parameters

rhs	A string to be appended to the `shared_string_view` object.

Returns

The new `shared_string_view` resulting from the concatenation.

3.2.2.6 operator+=()

```
shared_string_view & shared_string_view::operator+= (
            const std::string & rhs )
```

Perform a concatenation of the supplied string to the existing string view object and apply it to the existing string view object.

If the target string can be appended to safely, then that will be done. Otherwise, a new internal string will be created.

Because this may modify the target string, all previously-provided `std::string_view` references will be invalidated. This is similar to the behavior of `std::string.cstr()`, in which modifying the string will invalidate the c-string pointer.

Parameters

rhs	A string to be appended to the `shared_string_view` object.

Returns

The amended `shared_string_view` resulting from the concatenation.

3.2.2.7 operator<=>()

```
std::weak_ordering shared_string_view::operator<=> (
            const shared_string_view & ssv ) const
```

Perform a three-way comparison on two shared_string_view objects.

Parameters

ssv	The right hand side operator.

Returns

A weak ordering indicator of the two objects.

3.2.2.8 operator==()

```
bool shared_string_view::operator== (
            const shared_string_view & ssv ) const
```

Compare two shared_string_view objects.

Parameters

ssv	The right hand side operator.

Returns

True if the objects have equivalent values, false otherwise.

3.2.2.9 operator[]()

```
char shared_string_view::operator[] (
             size_t pos ) const
```

Perform an index operation into the target string.

Parameters

pos	The 0-based index position.

Returns

The character at the position requested.

3.2.2.10 rbegin()

```
string_view::const_reverse_iterator shared_string_view::rbegin ( ) const
```

Provide a reverse iterator from the end of the view.

Returns

A reverse iterator.

3.2.2.11 rend()

```
string_view::const_reverse_iterator shared_string_view::rend ( ) const
```

Provide a reverse iterator pointing to the beginning of the view.

Returns

An reverse ending iterator.

3.2.2.12 substr()

```
shared_string_view shared_string_view::substr (
             size_t offset,
             size_t length )
```

Calculate a substring based on the current shared_string_view.

If the substring is out of range, then an empty view will be provided. If the substring length requested is greater than what is available, then the returned substring will contain as many characters as possible, within the limits of the parent string view range.

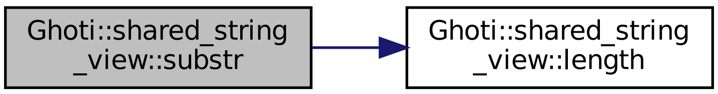
Parameters

offset	The 0-based offset from which the substring should start.
length	The length of the substring desired.

Returns

A new shared_string_view of the requested substring.

Here is the call graph for this function:


Ghoti::shared_string _view::substr
Ghoti::shared_string _view::length

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

- include/shared_string_view.hpp
- src/shared_string_view.cpp

Chapter 4

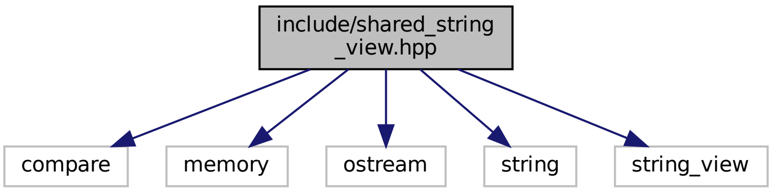
File Documentation

4.1 include/shared_string_view.hpp File Reference

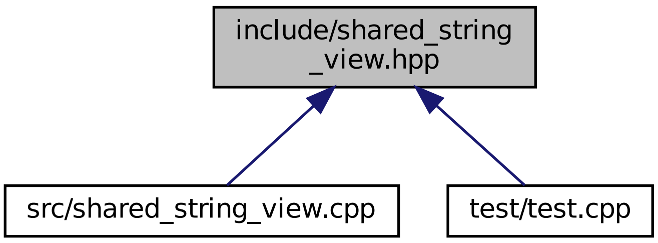
Header file containing the definitions of the shared_string_view class.

```
#include <compare>
#include <memory>
#include <ostream>
#include <string>
#include <string_view>
```

Include dependency graph for shared_string_view.hpp:



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



Classes

- class Ghoti::shared_string_view
- struct std::hash< Ghoti::shared_string_view >

  Hashing function, consistent with `std::string_view`.

Functions

- std::ostream & Ghoti::operator<< (std::ostream &out, const Ghoti::shared_string_view &ssv)

  Insertion operator.

4.1.1 Detailed Description

Header file containing the definitions of the shared_string_view class.

4.1.2 Function Documentation

4.1.2.1 operator<<()

```
ostream & Ghoti::operator<< (
            std::ostream & out,
            const Ghoti::shared_string_view & ssv )
```

Insertion operator.

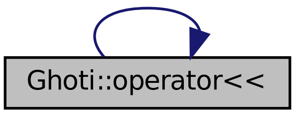
Parameters

out	The output stream to be written to.
ssv	The `shared_string_view` to be inserted into the stream.

Returns

The output stream.

Here is the call graph for this function:

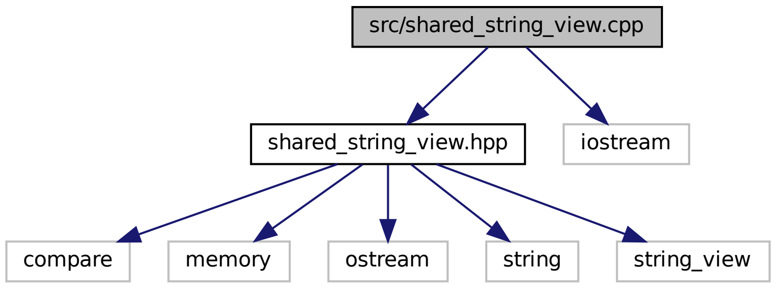


4.2 src/shared_string_view.cpp File Reference

Define the shared_string_view class.

```
#include "shared_string_view.hpp"
#include <iostream>
```

Include dependency graph for shared_string_view.cpp:



4.2.1 Detailed Description

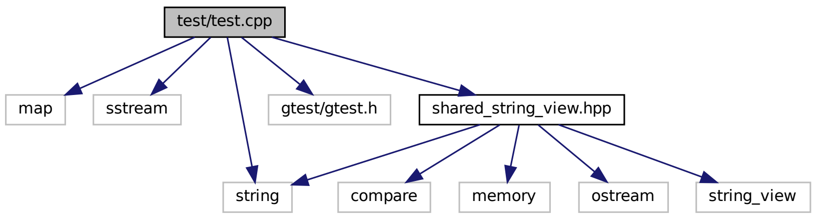
Define the shared_string_view class.

4.3 test/test.cpp File Reference

Test the shared_string_view behavior.

```
#include <map>
#include <sstream>
#include <string>
#include <gtest/gtest.h>
#include "shared_string_view.hpp"
```

Include dependency graph for test.cpp:



Functions

- **TEST** (Constructor, Length)
- **TEST** (Operator, string_stream)
- **TEST** (Operator, Extraction)
- **TEST** (Operator, ThreeWayComparison)
- **TEST** (Operator, PlusEqual)
- **TEST** (Operator, Plus)
- **TEST** (Method, substr)
- **TEST** (Method, ForwardIterator)
- **TEST** (Method, ReverseIterator)
- **TEST** (Method, Index)
- **TEST** (Aux, Hash)
- int **main** (int argc, char ∗∗argv)

4.3.1 Detailed Description

Test the shared_string_view behavior.

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