

# String Streams

The string stream family lets us store and manipulate strings.

## WE'LL COVER THE FOLLOWING ^

- Streams
- String streams

## Streams #

A stream is an infinite data stream on which we can push or pull data. String streams and file streams enable strings and files to interact with the stream directly.

## String streams #

String streams need the header `<sstream>`. They are not connected to an input or output stream and store their data in a string.

Whether we use a string stream for input, or output or with the character type `char` or `wchar_t` there are various string stream classes:

Class	Use
<code>std::istringstream</code> and <code>std::wistringstream</code>	String stream for the input of data of type <code>char</code> and <code>wchar_t</code> .
<code>std::ostringstream</code> and <code>std::wostringstream</code>	String stream for the output of data of type <code>char</code> and <code>wchar_t</code> .
<code>std::stringstream</code> and <code>std::wstringstream</code>	String stream for the input or output of data of type <code>char</code> and

`std::wstringstream``wchar_t.`

Typical operations on a string stream are to:

- Write data to a string stream:

```
std::stringstream os;  
os << "New String";  
os.str("Another new String");
```



- Read data from a string stream:

```
std::stringstream os;  
std::string str;  
os >> str;  
str= os.str();
```



- Clear a string stream:

```
std::stringstream os;  
os.str("");
```



String streams are often used for the type-safe conversion between strings and numeric values:

```
#include <iomanip>  
#include <iostream>  
#include <sstream>  
#include <string>  
  
template < class T >  
T StringTo ( const std::string& source ){  
  
    std::istringstream iss(source);  
    T ret;  
    iss >> ret;  
  
    return ret;  
  
}  
  
template< class T >  
std::string ToString(const T& n){  
  
    std::ostringstream tmp ;  
    tmp << n;  
    return tmp.str();  
  
}
```



```
int main(){

    std::cout << std::endl;

    std::cout << "5 = " << std::string("5") << std::endl;
    std::cout << "5 = " << StringTo<int>("5") << std::endl;
    std::cout << "5 + 6 = " << StringTo<int>("5") + 6 << std::endl;

    std::string erg(ToString(StringTo<int> ("5") + 6 ) );
    std::cout << "5 + 6 = " << erg << std::endl;

    std::cout << "5e10: " << std::fixed << StringTo<double>("5e10") << std::endl;

    std::cout << std::endl;

}
```



String Streams

In the next lesson, we'll learn how to communicate with files using C++.