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C++ const correctness with string literals [duplicate]

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Asked 9 years ago Modified 9 years ago Viewed 1k times

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This question already has answers here:
What is the type of string literals in C and C++? (4 answers)
Closed 9 years ago.

According to the C++ standard a string literal type is `array of const char`

```
auto constStr = "aaa";
char* nonConstStr = constStr; //Error here, cannot convert from 'const char *' to
char* stillNonConstStr = "aaa"; //Why I don't have error here?
```

Can you please explain me why on the 3rd line I don't get an error?

c++ constants

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asked Mar 12, 2013 at 7:07
Mircea Ispas
19.3k ●28 ●117 ●205

1 @Rapptz I can't seem to find the same a clause allowing the same "backwards-compatibility conversion" in the C++11 standard. I guess it was removed, so the linked question is not really a duplicate nowadays. – Angew is no longer proud of SO Mar 12, 2013 at 7:16

Because it is preferable to allow it as it has been allowed historically than to break thousands of existing programs. – Ed S. Mar 12, 2013 at 7:18

3 @Rapptz How is a question+answer about C a duplicate of one about C++? Especially in an area where the two languages actually differ. – Angew is no longer proud of SO Mar 12, 2013 at 7:21

@Angew because they don't differ in this context as much as you think. – Rapptz Mar 12, 2013 at 7:22

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Historical reasons. It used to be allowed, and very common, to assign from a string literal to a `char*`, even though the type of a string literal is an array of const char. I believe it comes from days in `C` where `const` didn't exist, but don't quote me on that. It was later deprecated, but still allowed so as not to break codebases that used it. That allowance does not extend to allow `char*` to be initialized from `const char*` (nor from arrays of const char that are not literals), which is why your second line fails. In C++11, the conversion from string literal to `char*` is banned, but your compiler may not enforce that yet.

Share Edit Follow Flag edited Mar 12, 2013 at 8:11

answered Mar 12, 2013 at 7:13
Benjamin Lindley
98.2k ●9 ●187 ●265

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In C++03, there was a special rule ([conv.array]§2) which allowed string literals to be converted to type `char*`.

In C++11, this rule no longer exists. In other words, your code is valid C++03, but invalid C++11.

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answered Mar 12, 2013 at 7:20
Angew is no longer proud of SO
161k ●14 ●329 ●431

illformed or *deprecated* C++11. Not invalid. This would still compile for historical reasons. See here without -Wall or here with -Wall -Werror – Rapptz Mar 12, 2013 at 7:24

7 @Rapptz: illformed == invalid. – Benjamin Lindley Mar 12, 2013 at 7:26

2 @Rapptz Beware, *illformed* != *deprecated*, *"deprecated"* things work but are discouraged, *"illformed"* (and *"invalid"*, as *Benjamin* says) things *don't* work. – Christian Rau Mar 12, 2013 at 8:09

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