

C++ (programming language) Computer Programming

## What is are the differences between Static Cast and Dynamic Cast in C++?

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Sergey Zubkov, C++ programmer

Answered May 3, 2016



static\_cast: [static\\_cast conversion](#)

dynamic\_cast: [dynamic\\_cast conversion](#)

As you should be able to see from these references, they have almost nothing in common. The only overlap they have is downcasting a reference or a pointer, to quote,

If `new_type` is a pointer or reference to some class `D` and the type of expression is a pointer or reference to its non-virtual base `B`, **static\_cast** performs a *downcast*. Such **static\_cast** makes no runtime checks to ensure that the object's runtime type is actually `D`, and may only be used safely if this precondition is guaranteed by other means, such as when implementing [static polymorphism](#). Safe downcast may be done with [dynamic\\_cast](#).

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Kostas Kyrimis, SYCL Runtime Software Engineer at Codeplay

Answered May 3, 2016



In c the plane old typecasting was this `(type_name)expression`. There are some differences between the old c style casting and `static_cast`, but I wont go into

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Now that static\_cast is somehow similar to the c style typecast with some minor differences. The most important thing to know is that static\_cast is used to reverse implicit conversions. If you are sure about a type and you want to cast it you will use static\_cast. The downside of this cast is that it does NOT perform run time type checking. The dynamic\_cast on the other hand performs run time check.

So in summary:

-static\_cast for compile time check.

-dynamic\_cast for run time check,

Of course there are many other things involved in these casts and I would suggest you to read the appropriate sections of the c++ programming language (Bjarne Stroustrup).

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Rohit Nigam (रोहित निगम), More than two decades of coding, and still learning.



Answered May 5, 2016

If you want me to keep it very simple, here it is:

- Dynamic Cast is what you use when you have polymorphism.
- Static Case is what you use when you are using the native data types.

Hence when you use dynamic cast, the compiler would assume that you might make mistakes and hence it would do a double check if everything is alright. However in case of static cast, it would trust you. Thus no checking is done during static cast.

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