

## deprecated

## Chapter 1 Safe Features

The `[[deprecated]]` attribute can be used portably to decorate other entities: **class**, **struct**, **union**, type alias, variable, data member, function, enumeration, template specialization.<sup>2</sup>

A programmer can supply a **string literal** as an argument to the `[[deprecated]]` attribute — e.g., `[[deprecated("message")]]` — to inform human users regarding the reason for the deprecation:

```
[[deprecated("too slow, use algo1 instead")] void algo0();
void algo1();

void f()
{
    algo0(); // Warning: algo0 is deprecated; too slow, use algo1 instead.
    algo1();
}
```

An entity that is initially *declared* without `[[deprecated]]` can later be redeclared with the attribute and vice versa:

```
void f();
void g0() { f(); } // OK, likely no warnings

[[deprecated]] void f();
void g1() { f(); } // Warning: f is deprecated.

void f();
void g2() { f(); } // Warning: f is deprecated still.
```

As shown in `g2` in the example above, redeclaring an **entity** that was previously decorated with `[[deprecated]]` without the attribute leaves the entity still deprecated.

## Use Cases

### Discouraging use of an obsolete or unsafe entity

Decorating any **entity** with the `[[deprecated]]` attribute serves both to indicate a particular feature should not be used in the future and to actively encourage migration of existing uses to a better alternative. Obsolescence, lack of safety, and poor performance are common motivators for deprecation.

As an example of productive deprecation, consider the `RandomGenerator` class having a static `nextRandom` member function to generate random numbers:

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<sup>2</sup>Applying `[[deprecated]]` to a specific enumerator or namespace, however, is guaranteed to be supported only since C++17; see [smith15a](#).