

protected internal and **private protected** access modifiers.

A protected member is accessible within its class and by derived class instances.

For a comparison of `protected` with the other access modifiers, see [Accessibility Levels](#).

Example 1

A protected member of a base class is accessible in a derived class only if the access occurs through the derived class type. For example, consider the following code segment:

```
C#  
  
class A  
{  
    protected int x = 123;  
}  
  
class B : A  
{  
    static void Main()  
    {  
        var a = new A();  
        var b = new B();  
  
        // Error CS1540, because x can only be accessed by  
        // classes derived from A.  
        // a.x = 10;  
  
        // OK, because this class derives from A.  
        b.x = 10;  
    }  
}
```

The statement `a.x = 10` generates an error because it is made within the static method `Main`, and not an instance of class `B`.

Struct members cannot be protected because the struct cannot be inherited.

Example 2

In this example, the class `DerivedPoint` is derived from `Point`. Therefore, you can access the protected members of the base class directly from the derived class.

C#

```
class Point
{
    protected int x;
    protected int y;
}

class DerivedPoint: Point
{
    static void Main()
    {
        var dpoint = new DerivedPoint();

        // Direct access to protected members.
        dpoint.x = 10;
        dpoint.y = 15;
        Console.WriteLine($"x = {dpoint.x}, y = {dpoint.y}");
    }
}
// Output: x = 10, y = 15
```

If you change the access levels of `x` and `y` to `private`, the compiler will issue the error messages:

'Point.y' is inaccessible due to its protection level.

'Point.x' is inaccessible due to its protection level.

C# language specification

For more information, see [Declared accessibility](#) in the [C# Language Specification](#). The language specification is the definitive source for C# syntax and usage.

See also

- [C# Reference](#)
- [C# Programming Guide](#)
- [C# Keywords](#)
- [Access Modifiers](#)
- [Accessibility Levels](#)
- [Modifiers](#)
- [public](#)

- [private](#)
- [internal](#)
- [Security concerns for internal virtual keywords](#)