



Early Binding and Late binding

The compiler performs a process called binding when an object is assigned to an object variable. The early binding (static binding) refers to compile time binding and late binding (dynamic binding) refers to runtime binding.

Early Binding (Static binding)

When perform Early Binding, an object is assigned to a variable declared to be of a specific object type. Early binding objects are basically a strong type objects or static type objects. While Early Binding, methods, functions and properties which are detected and checked during compile time and perform other optimizations before an application executes. The biggest advantage of using early binding is for performance and ease of development.



Ex:

```
System.IO.FileStream FS ;  
FS = new System.IO.FileStream("C:\\temp.txt", System.IO.FileMode.Open);
```

Above code, create a variable FS to hold a new object and then assign a new object to the variable. Here type is known before the variable is exercised during run-time, usually through declarative means. The FileStream is a specific object type, the



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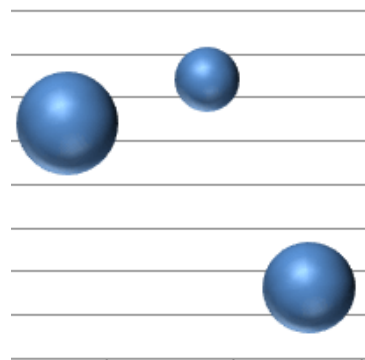
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instance assigned to FS is early bound. Early Binding is also called static binding or compile time binding.

While performing Early Binding the compiler can ensure at compile time that the function will exist and be callable at runtime. Moreover the compiler guarantees that the function takes the exact number of arguments and that they are of the right type and can check that the return value is of the correct type.

Late binding (Dynamic binding)

By contrast, in Late binding functions, methods, variables and properties are detected and checked only at the runtime. It implies that the compiler does not know what kind of object or actual type of an object or which methods or properties an object contains until runtime. The biggest advantage of Late binding is that the Objects of this type can hold references to any object, but lack many of the advantages of early-bound objects



Ex:

```
object FS = null;  
FS = CreateObject("Scripting.FileSystemObject");
```

Above code does not require a reference to be set beforehand, the instance creation and type determination will just happen at runtime. It is important to note that the Late binding can only be used to access type members that are declared as Public. Accessing members declared as Friend or Protected Friend resulted in a run-time error.

While performing late binding there is a possibility of the target function may not exist. Also the target function may not accept the arguments passed to it, and may have a

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return value of the wrong type.

Summary:

The Early Binding just means that the target method is found at compile time while in Late Binding the target method is looked up at run time. Most script languages use late binding, and compiled languages use early binding.

Method Overloading and Method Overriding

Method Overloading happens at compile time (Early Binding) while Overriding happens at runtime (Late Binding). In method overloading, method call to its definition happens at compile time (Static Binding) while in method overriding, method call to its definition happens at runtime (Dynamic Binding). More about.... [How is method overriding different from method overloading](#)



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