



▶ Microsoft .NET

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## Introduction

APLScript is a Dyalog scripting language. Designed originally to support the specification of ASP.NET Web Pages and Web Services in APL, APLScript may also be used outside the Microsoft .NET environment.

An APLScript is not workspace oriented (although you can call workspaces from it) but is simply a Unicode character file containing function bodies and expressions. APLScript files may be viewed and edited using any character-based editor such as Notepad or Microsoft Word.

APLScript files are *compiled* by `apl.exe`, the Dyalog APLScript compiler. Please see APLScript Compiler further down.

In order to type Dyalog symbols into an APLScript file, a Dyalog Input Method Editor (IME) is included and automatically added to your working set of IMEs during installation.

There are basically three types of APLScript files that may be identified by three different file extensions.

- `.aspx` files specify .NET classes that represent ASP.NET Web Pages
- `.asmx` files specify .NET classes that represent ASP.NET Web Services
- `.apl` files may specify general .NET classes

Note that `.apl` files may also be used simply to represent an APL application in a script format as opposed to a workspace format. Such applications do not necessarily require the Microsoft .NET Framework.

## Creating a .NET Class using APLScript

The following APLScript illustrates how you may create a .NET Class using APLScript. The APLScript is contained in a simple text file named `aplclasses1.apl` as follows:

```
aplclasses6.apl

:Namespace APLClasses

:Class Primitives:Object
[]USING←,c' System'

v R←IndexGen N
:Access Public
:ParameterList Int32 number
:Returns Int32[]
R←ιN
v
:EndClass

:EndNamespace
```

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The `:Namespace` statement defines a namespace called `APLClasses`. This simply acts as a container and is there to establish a .NET namespace of the same name within the resulting .NET assembly.

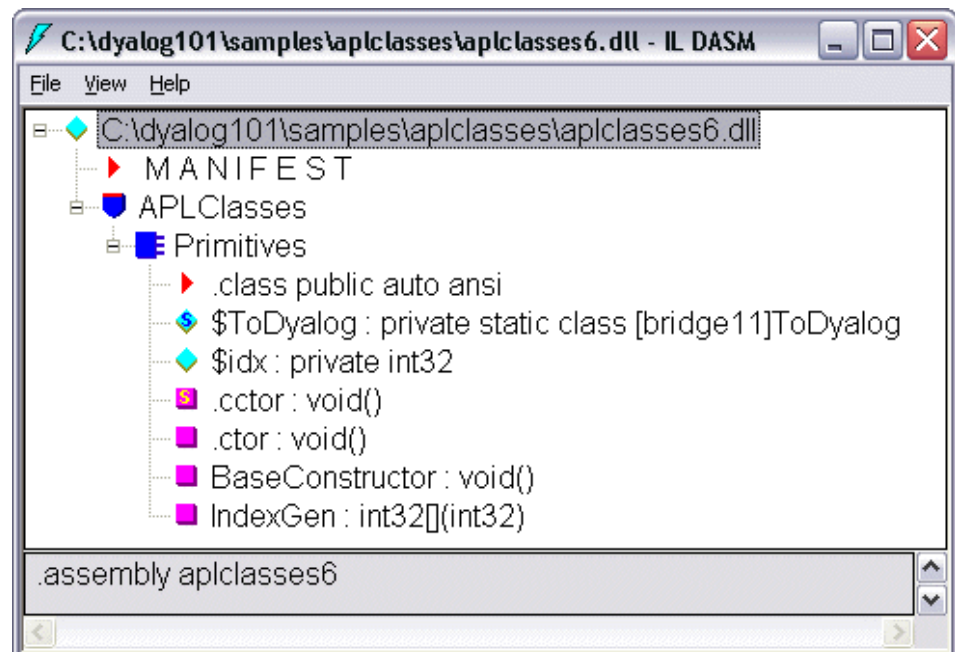
The `:Class` statement defines a .NET class called `Primitives` whose base class is `System.Object`.

This class has a single public method named `IndexGen`, which takes a parameter called `number` whose data type is `Int32`, and returns an array of `Int32` as its result.

The following command shows how you may *compile* `aplclasses6.apl` into a .NET Assembly using `aplc.exe` with the `/t:library` flag. Please see `APLScript Compiler` further down.

```
APLClasses> aplc /t:library aplclasses6.apl
Dyalog APLScript compiler Version 10.1 Copyright Dyalog Ltd 2004
APLClasses>
```

The next picture shows a view of the resulting `aplclasses6.dll` using `ildasm.exe`.



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## The APLScript Compiler

APLScript files are compiled into executable code by the APLScript compiler `apl.exe`. This program is called automatically by ASP.NET when a client application requests a Web Page (`.aspx`) or Web Service (`.asmx`) written using APLScript (`language="apl"`).

However, `apl.exe` may also be used to:

- Compile an APLScript into a workspace (`.dws`) that you may subsequently run using `DYALOG.EXE` or `DYALOGRT.EXE` in the traditional manner.
- Compile an APLScript into a .NET class (`.dll`) which may subsequently be used by any other .NET compatible host language such as C# or Visual Basic.
- Compile an APLScript into a native Windows executable program (`.exe`), which may be run as a stand-alone executable. This program may be distributed, along with the Dyalog APL runtime DLL, as a packaged application, and does not require any of the additional support files and registry entries that are typically needed by the Dyalog APL run-time `DYALOGRT.EXE`.
- Compile a Dyalog APL Workspace (`.dws`) into a native Windows executable program, with the same characteristics and advantages described above.

The `apl.exe` program is designed to be run from a command prompt. If you type `apl /?` (to query its usage) the following output is displayed:

`apl.exe` command line options:

```
/? Usage
/r:file Add reference to assembly
/o[ut]:file Output file name
/res:file Add resource to output file
/q Operate quietly
/v Verbose
/s Treat warnings as errors
/runtime Build a non-debuggable binary
/lx:expression Specify entry point (Latent Expression)
/t:library Build .Net library (.dll)
/t:nativeexe Build native executable (.exe). Default
/t:workspace Build dyalog workspace (.dws)
/nomessages Process does not use windows messages. Used
when creating a process to run under IIS
/console Creates a console application
```

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