
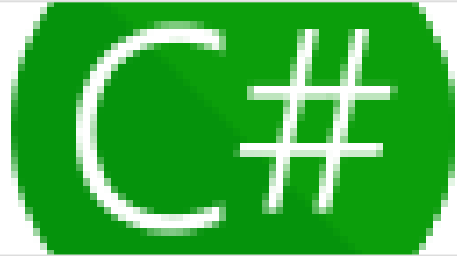


# 多維陣列

## 多維陣列 - C# 程式設計手冊

C# 中的陣列可以有多個維度。這個範例宣告會建立四個數據列和兩個數據行的二維陣列。

 <https://learn.microsoft.com/zh-tw/dotnet/csharp/programming-guide/arrays/multidimensional-arrays>



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二維陣列：

沒指定維度：

```
using System;          //引用系統類別
using System.Linq.Expressions;
using System.Text;

using System;          //引用系統類別
using System.Linq.Expressions;
using System.Text;

class Program          //Program類別
{
    static void Main(string[] args)
    {
        //      主程式內容
        int[, ] array2D = new int[, ] { { 1, 2 }, { 3, 4 }, { 5, 6 }, { 7, 8 } };

    }
}
```

有指定維度：

要注意後面資料是否跟前面給的參數相符

```
using System;          //引用系統類別
using System.Linq.Expressions;
using System.Text;

using System;          //引用系統類別
using System.Linq.Expressions;
using System.Text;

class Program          //Program類別
{
    static void Main(string[] args)
    {
        //      主程式內容
        int[,] array2D = new int[4, 2] { { 1, 2 }, { 3, 4 }, { 5, 6 }, { 7, 8 } };

    }
}
```

列印出比較順眼的二維陣列：

```
using System;          //引用系統類別
using System.Linq.Expressions;
using System.Text;

using System;          //引用系統類別
using System.Linq.Expressions;
using System.Text;

class Program          //Program類別
{
    static void Main(string[] args)
    {
        int count = 0;
        //      主程式內容
        int[,] array2D = new int[, ] { { 1, 2 }, { 3, 4 }, { 5, 6 }, { 7, 8 } };

        // 陣列的"列" = 4
    }
}
```

```

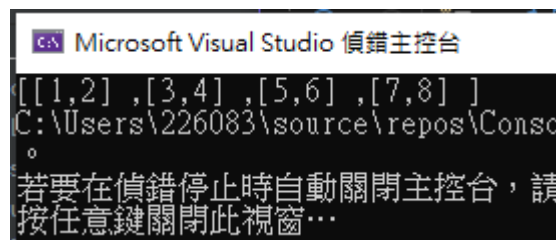
        //Console.WriteLine(array2D.GetLength(0));

        //陣列的"行" = 2
        //Console.WriteLine(array2D.GetLength(1));

        Console.Write("[");

        for (int i = 0; i < array2D.GetLength(0);i++)
        {
            Console.Write("[");
            Console.Write(array2D[i, 0]);
            Console.Write(",");
            Console.Write(array2D[i, 1]);
            Console.Write("] ");
            if (count < array2D.GetLength(0) - 1){
                Console.Write(",");
                count += 1;
            }
        }
        Console.Write("]");
    }
}

```



=====  
三維陣列：

沒指定維度：

```

using System;          //引用系統類別
using System.Linq.Expressions;
using System.Text;

using System;          //引用系統類別
using System.Linq.Expressions;
using System.Text;

```

```

class Program          //Program類別
{
    static void Main(string[] args)
    {

        //      主程式內容
        int[, ,] array3D = new int[, ,] { { { 1, 2, 3 }, { 4, 5, 6 } },
                                           { { 7, 8, 9 }, { 10, 11, 12 } } };

    }
}

```

有指定維度：

要注意後面資料是否跟前面給的參數相符

```

using System;          //引用系統類別
using System.Linq.Expressions;
using System.Text;

using System;          //引用系統類別
using System.Linq.Expressions;
using System.Text;

class Program          //Program類別
{
    static void Main(string[] args)
    {

        //      主程式內容
        int[2, 2, 3] array3D = new int[2, 2, 3] { { { 1, 2, 3 }, { 4, 5, 6 } },
                                                    { { 7, 8, 9 }, { 10, 11, 12 } } };

    }
}

```

列印出比較順眼的二維陣列：

```
using System;          //引用系統類別
using System.Linq.Expressions;
using System.Text;

using System;          //引用系統類別
using System.Linq.Expressions;
using System.Text;
using System.Diagnostics.Metrics;

class Program          //Program類別
{
    static void Main(string[] args)
    {
        int count = 0;

        //      主程式內容
        int[, ,] array3D = new int[3, 2, 2] { { { 1, 2 }, { 4, 5 } },
                                                { { 7, 8 }, { 10, 11 } }, { { 13, 14 }, { 16, 17 } } };

        // 3(層數)
        //Console.WriteLine(array3D.GetLength(0));

        // 2
        //Console.WriteLine(array3D.GetLength(1));

        // 3
        //Console.WriteLine(array3D.GetLength(2));

        Console.Write("[ ");

        for (int i = 0; i < array3D.GetLength(0); i++)
        {
            Console.Write("[");

            Console.Write("[");
            Console.Write(array3D[i, 0, 0]);
            Console.Write(",");
            Console.Write(array3D[i, 0, 1]);
            Console.Write("]");

            Console.Write(",");

            Console.Write("[");
            Console.Write(array3D[i, 1, 0]);
            Console.Write(",");
            Console.Write(array3D[i, 1, 1]);
            Console.Write("]");

            Console.Write("]");
        }
    }
}
```

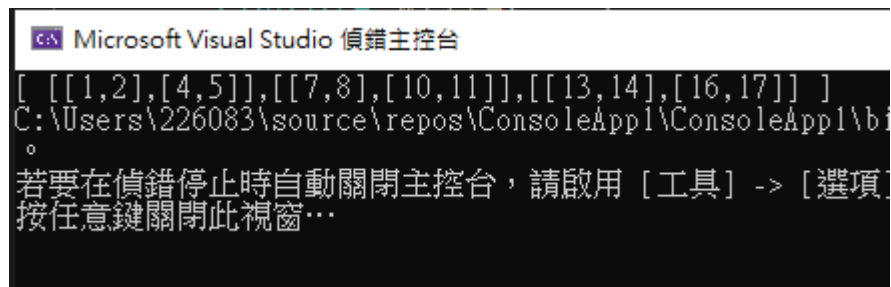
```

        if (count < array3D.GetLength(0) - 1)
        {
            Console.Write(",");
            count += 1;
        }

    }
    Console.Write(" ]");

}
}

```



The screenshot shows the Visual Studio console window with the title "Microsoft Visual Studio 偵錯主控台". The output displays a 3D array of integers: `[ [[1,2],[4,5]], [[7,8],[10,11]], [[13,14],[16,17]] ]`. Below the array, the file path `C:\Users\226083\source\repos\ConsoleApp1\ConsoleApp1\bin\Debug\ConsoleApp1.exe` is shown. A message in Chinese asks the user to press any key to close the window: "若要在偵錯停止時自動關閉主控台，請啟用 [工具] -> [選項] 中的 '在偵錯停止時自動關閉主控台'。按任意鍵關閉此視窗..."