# n2cms Documentation

***Release 1***

**n2cms**

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N2 is a lightweight CMS framework to help you build great web sites that anyone can update. Using its interface is intuitive and empowering. The developer story is something exquisite. Give it a try and you'll see.

CHAPTER 1

# Getting Started

*N2CMS is a lightweight CMS framework* With just a few strokes of your keyboard a wonderful strongly typed model emerges complete with a management UI. You can spend the rest of your day building the best site imaginable.

*It's so .NET!* With N2CMS, you build the model of the data that needs to be managed using C# or VB code in Visual Studio. The type below is picked up by the N2 engine at runtime and made available to be edited. The code uses an open API with multiple built-in options and unlimited customization options.

All you have to do is design your model class (inherit N2.ContentItem) and define which properties are editable by adding attributes

```
[PageDefinition(TemplateUrl = "~/my/pageitemtemplate.aspx")]
public class PageItem : N2.ContentItem
{
    [EditableFreeTextArea]
    public virtual string Text { get; set; }
}
```

See also: Editors via Attributes

## Server Requirements

### Operating System

N2CMS runs on .NET Framework 4.5, which runs on the following operating systems.

*Server operating systems*

| Operating system | Supported .NET Framework Version | Additional information |
|---|---|---|
| Win Server 2012 R2 | 4.5 | Includes .NET Framework 4.5.1 |
| Win Server 2012 (64-bit) | 4.5 | Includes .NET Framework 4.5 |
| Win Server 2008 R2 SP1 | 4.0, 4.5 | Supported in the Server Core Role with SP1 or later. |
| Win Server 2008 SP2 | 4.0, 4.5 | Not supported in the Server Core Role. |
| Win Server 2003 R2 | 4.0, 4.5 | Dinamico/N2CMS.Razor is not supported because .NET Framework 4.5 is not available. |
| Win Server 2003 or earlier | Not supported | Not supported |

## Client operating systems

N2CMS supports Visual Studio 2010, 2012, and 2013 on the following operating systems:

| Operating system | Supported editions | Additional information |
|---|---|---|
| Windows 8.1 | 32-bit and 64-bit | Includes the .NET Framework 4.5.1 |
| Windows 8 | 32-bit and 64-bit | Includes the .NET Framework 4.5 |
| Windows 7 SP1 | 32-bit and 64-bit | |
| Windows Vista SP2 | 32-bit and 64-bit | |

## Web Servers

N2CMS has been tested successfully on the Visual Studio embedded web server, IIS, and IIS Express.

## .NET Framework

N2CMS can run on .NET 2.0. We recommend that you run N2CMS on the latest version of the .NET framework possible.

## Databases

Supported databases include:

- SQL Server 2008 *
- SQL Server 2008 Express *
- SQL Server 2005 *
- SQL Server 2005 Express *
- SQL Server 2000
- SqlCe
- MySQL *
- SQLite *
- Firebird

- Jet
- DB2
- Oracle9i
- Oracle10g
- A connection string example for these database engines can be found in web.config.

## Wildcard mapping (IIS 5-6.1)

On IIS 5 to IIS 6.1 wildcard mapping can be enabled to support "extensionless urls" (no ending .aspx on each page address). Wilcard mapping is an IIS feature that enables requests to all types of resources to pass through managed ASP.NET code. This allows N2 CMS to serve pages for pages not ending with .aspx. This is configured slightly differently depending on IIS version. Try searching and pick the version you're using: http://www.google.com/search?q=iis+wildcard+mapping

## Visual Studio Development

- Visual Studio 2012 is recommended for site development with N2CMS.
- Visual Studio Express can also be used.

Visual Studio 2012 project files are included in the N2CMS source tree.

## Shared Hosting

Some users report no problems running in shared hosting under medium trust, others have had problems. N2CMS has been tested on unmodified medium trust. It's recommended you ask the hosting provider before you buy a long-term plan. Note that N2CMS can be somewhat RAM intensive, and requires a minimum of 64 MB of RAM dedicated to your website. More RAM may be needed depending on the plugins you require or the amount of traffic your website receives. Plug-ins such as site search can also increase the memory requirement.

N2CMS has been confirmed to be compatible with following shared hosting

- http://www.arvixe.com
- http://www.re-invent.com
- http://www.avalon.hr
- http://www.drundo.net
- http://www.godaddy.com
- http://www.lastationinternet.com
- http://www.erudeye.net/
- http://www.elixtech.com/

CHAPTER 2

# Setting up your environment

## Development Environment

**There are two supported environments that you can use for developing a site with N2:**

1. Git-based environment
2. Nuget-based environment

| Choose this | If you want this |
| --- | --- |
| Nuget-based environment | You want the easiest integration of N2 in an existing project.The Nuget framework will downloadand install all required dependenciesinto an existing Visual Studio project. |
| Git-based environment | You always want to have the most recent code, or you want to use one of the sample template projects. The Git-based environment contains both the WebForms and MVC template packs, sample data, plus the N2 Core and all dependency binaries.This is a great way to get started with N2CMS, particularly if you don't already have a project started. You can use one of the existing projects as a basis for your new N2-based site:<br><br>* WebForms Templates Pack<br>* ASP.NET MVC Templates<br>* ASP.NET MVC "Dinamico" Templates Pack (uses the Razor engine) |

## Getting the Bits

Each of the supplied packages is supplied either as a Git repository or as a Nuget package.

- Start with Git: check out the N2 repository located at http://github.com/n2cms/n2cms. Note: We don't recommend using Github's archive formats (tgz, zip). Using the archive formats will make your installation more difficult to update as Git's patching infrastructure will not be available.
- **Start with Nuget: install the requisite Nuget package from within your Visual Studio project**
  - n2cms_webforms
  - n2cms_mvc
  - n2cms_dinamico

## Overview of Available Packages

| Package | Description |
|---|---|
| N2 CMS 2.x<br>Source Code | This package reflects the N2 CMS framework development environment and<br>contains both template packs and all examples along with the framework<br>source code. For site development it's recommended to start from one of<br>the template packs, or examples. |
| N2 CMS 2.x<br>ASP.NET<br>MVC Templates Pack | This is the source code of the MVC template package along with a<br>compiled version of the framework. Use this package to develop your own<br>site with existing functionality using ASP.NET MVC. |
| N2 CMS 2.x ASP.NET<br>WebForms<br>Templates Pack | This is the source code of the WebForms template package along with<br>a compiled version of the framework. Use this package to develop<br>your own site with existing functionality using ASP.NET WebForms. |
| N2 CMS 2.x MVC<br>Minimal Example | This package contains a simple example site along with a compiled version<br>of the framework. Use this package to understand the basics of<br>ASP.NET MVC + N2 CMS or if you don't need existing templates. |
| N2 CMS 2.x C#<br>Minimal Example | This package contains a simple example site along with a compiled version<br>of the framework. Use this package to understand the basics of<br>WebForms/C# + N2 CMS or if you don't need existing templates. |
| N2 CMS 2.x<br>Visual Basic<br>Minimal Example | This package contains a simple example site along with a compiled version<br>of the framework. Use this package to understand the basics of<br>WebForms/Visual Basic + N2 CMS or if you don't need existing templates. |

# Getting up and Running

Each package contains one or more Visual Studio Solution (*.sln) files. Open the Solution file for what you want to run, and edit the web.config file to use the database engine of your choosing. Invoke the Run command in Visual Studio to launch a development web server with N2 running inside. You should see the setup wizard right away.

The next step is to either start using N2 and begin building your content using the pre-defined templates, or start developing with N2 to customize the system to suit your needs. Most users will want to do at least some development and customization as every website has different needs and the templates don't cover every possible scenario that can be achieved with N2 CMS.

## Web Platform Installer (WPI)

The same WPI package can be installed from the "Microsfot Web Platform Installer", from "Internet Information Services (IIS) Manager" or from "Microsoft WebMatrix".

## Updating N2CMS

After you've installed N2CMS in one of these ways, you will want to update it from time to time to take advantage of the latest features, security patches, and other updates. If you opted to use the Nuget deployment model, the Nuget packages will be updated periodically, and you can update using the built-in Nuget update mechanism to update your local instance of N2CMS. If you chose the Git deployment model, you can use git pull to get the latest updates in your own Git repository.

# Visual Studio Snippets and Templates

The downloadable packages on Codeplex contains a number of templates and snippets which are useful when developing N2 sites.

> You need to update the path with your own version of Visual Studio. For example, if you are using Visual Studio 2008 you need to substitute in 2008 for 2010 in the paths below.

Snippets are copied to [Documents]Visual Studio 2010Code SnippetsVisual C#My Code Snippets. Once the snippets have been placed here they can be invoked from Visual Studio by their name and tapping tab twice (e.g. n2propfta [tab] [tab]). This will expand a property with an editable attribute. Available snippets include:

- n2prop.snippet
- n2propcb.snippet
- n2propenum.snippet
- n2propfta.snippet
- n2propimage.snippet
- n2proptb.snippet
- n2propuc.snippet
- n2propurl.snippet

### Installing Visual Studio Item Templates

The snippets folder also contains some Visual Studio Item Templates that appears when adding new items in Visual Studio. Copy them from the Snippets folder in the template package zip to [Documents]Visual Studio 2010TemplatesItemTemplatesVisual C#. The item templates creates a content class and a corresponding template or controller. Available templates:

- N2 Item Template.zip
- N2 Page Template.zip
- N2 Page Controller.zip

### Installing IntelliSense Documentation for Visual Studio

The IntelliSense documentation should be installed automatically. If it is not installed, check for ~/bin/N2.xml. This enables code documentation during IntelliSense operations and hovering in Visual Studio.

## Installing N2CMS NuGet Packages

First, download the release and extract to a path such as C:\N2Packages (this example path is used below)

- Compiled N2CMS Releases are available here https://github.com/n2cms/n2cms/releases

Next, decide whether you want to use the ZIP or NOZIP management packs.

> *Before doing anything listed on this page*
> Back up your project before installing or uninstalling any N2CMS nuget packages.
> Realize that N2CMS will not work on Web Site projects. You must install N2CMS in a Web Application project.

### Which management pack should I choose?

You can choose whichever management pack is right for you. Consider the following benefits and drawbacks.

- The benefit of the ZIP management pack is that it is a single file for the N2 Management Interface. However, if you store your website in a source control depot (e.g. Git repo), you end up with a lot of bloat as the ~5 MB N2.zip file gets upgraded over time. You also need to upload the entire N2.zip when you update it.

- The benefit of the NOZIP management pack is that you can take advantage of Web Deploy incremental uploads, as well as more efficient source control storage as the files are installed separately (not extracted). Additionally, the Zip Virtual Path Provider is not installed, which means that less memory is used by N2CMS.