How to Get Set Up and Running with NDepend

Whether you have purchased or downloaded the trial of NDepend, we thank you for your involvement and interest in our product. Here we have compiled a quick "Getting Started" guide to help you get up and running with NDepend as quickly as possible.

While we have tried to collect the basics in this document, we urge you to experiment and explore NDepend on your own code bases. There are a ton of features and possibilities, many of which are out of the scope of this document.

NDepend has been in development for over 8 years, and with every version we take into account user feedback and requests. For any additional help, reach out to us at support@ndepend.com, go to our User Voice to leave a suggestion, or reach out to us on Twitter @ndepend.

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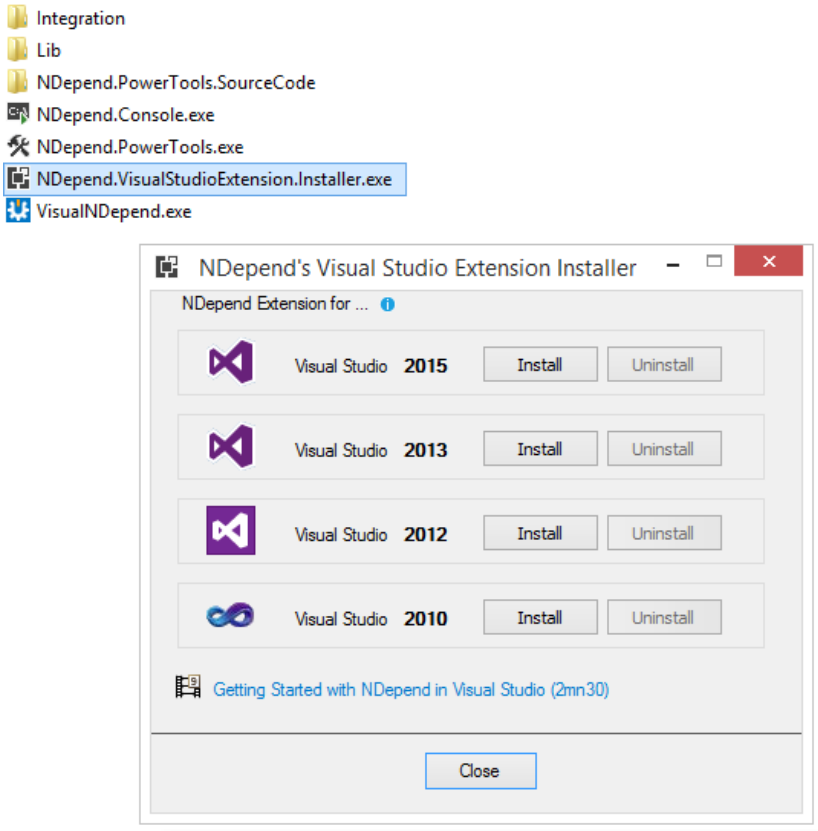
Installing the NDepend Extension for Visual Studio

1. Download the NDepend installation .zip file
2. To install NDepend, just unzip the files in a private folder on your machine

   NOTE: DON'T UNZIP THE FILES IN: '%PROGRAMFILES%/NDEPEND' AS THIS WILL CREATE PROBLEMS BECAUSE OF WINDOWS PROTECTION

3. If you are running the NDepend Professional Version, copy your license file into the same folder where you unzipped the NDepend files
4. Start **NDepend.VisualStudioExtension.Installer.exe**

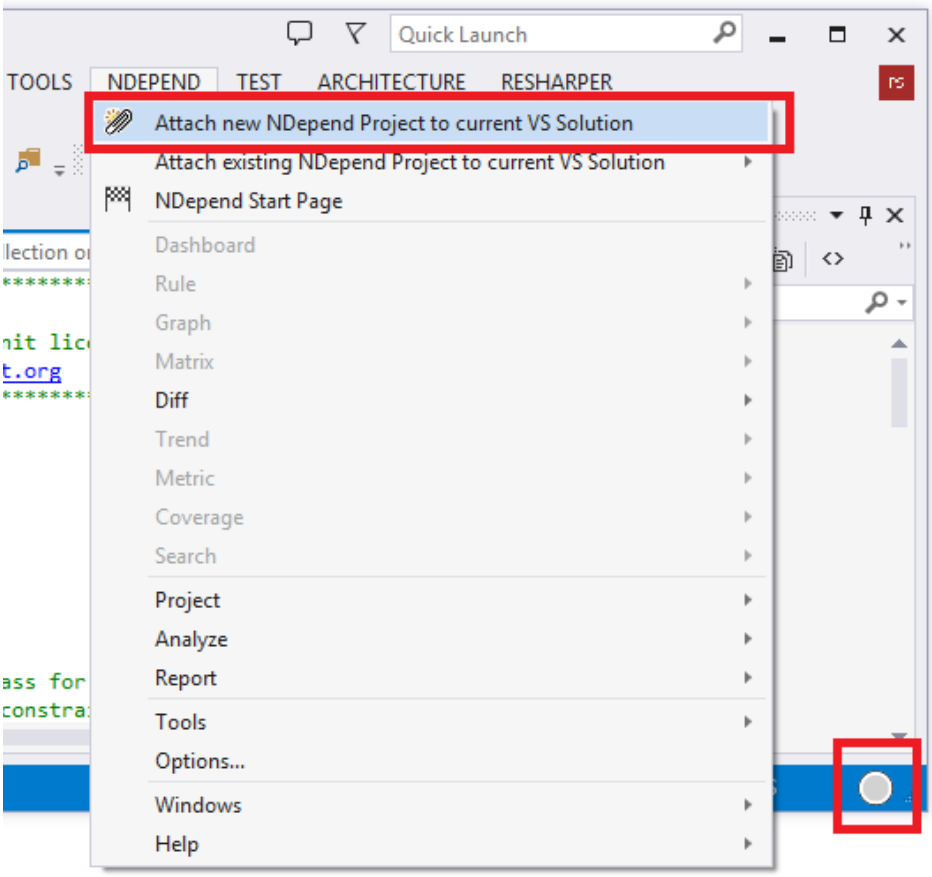


5. Click the "Install button" for your version of Visual Studio
6. Start Visual Studio.

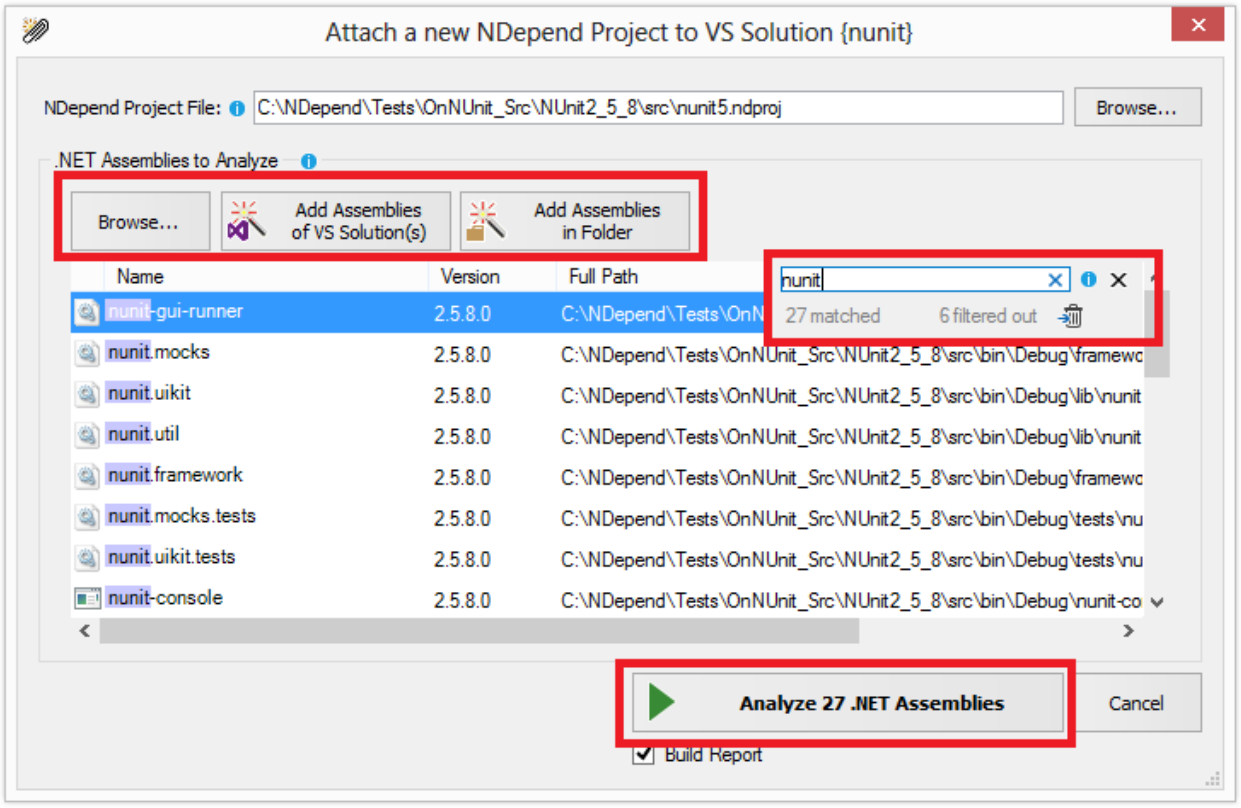
Analyzing a Visual Studio Solution

1. Start Visual Studio after you have installed the NDepend add-on
2. Open the Visual Studio solution containing the code to analyze
3. Click the grayed-out NDepend circle status icon in the bottom right corner of the Visual Studio window
   OR
   In the menu, click *NDepend > Attach new NDepend project to current Visual Studio solution*

Note: An NDepend project can be attached to multiple Visual Studio solutions. This is useful if you wish to analyze several .NET assemblies compiled with several Visual Studio solutions. In addition, it allows one to navigate across several Visual Studio solutions opened in several instances.



The open dialog below shows the.NET assemblies of the Visual Studio solution. Here you can add more .NET assemblies compiled from other solutions.



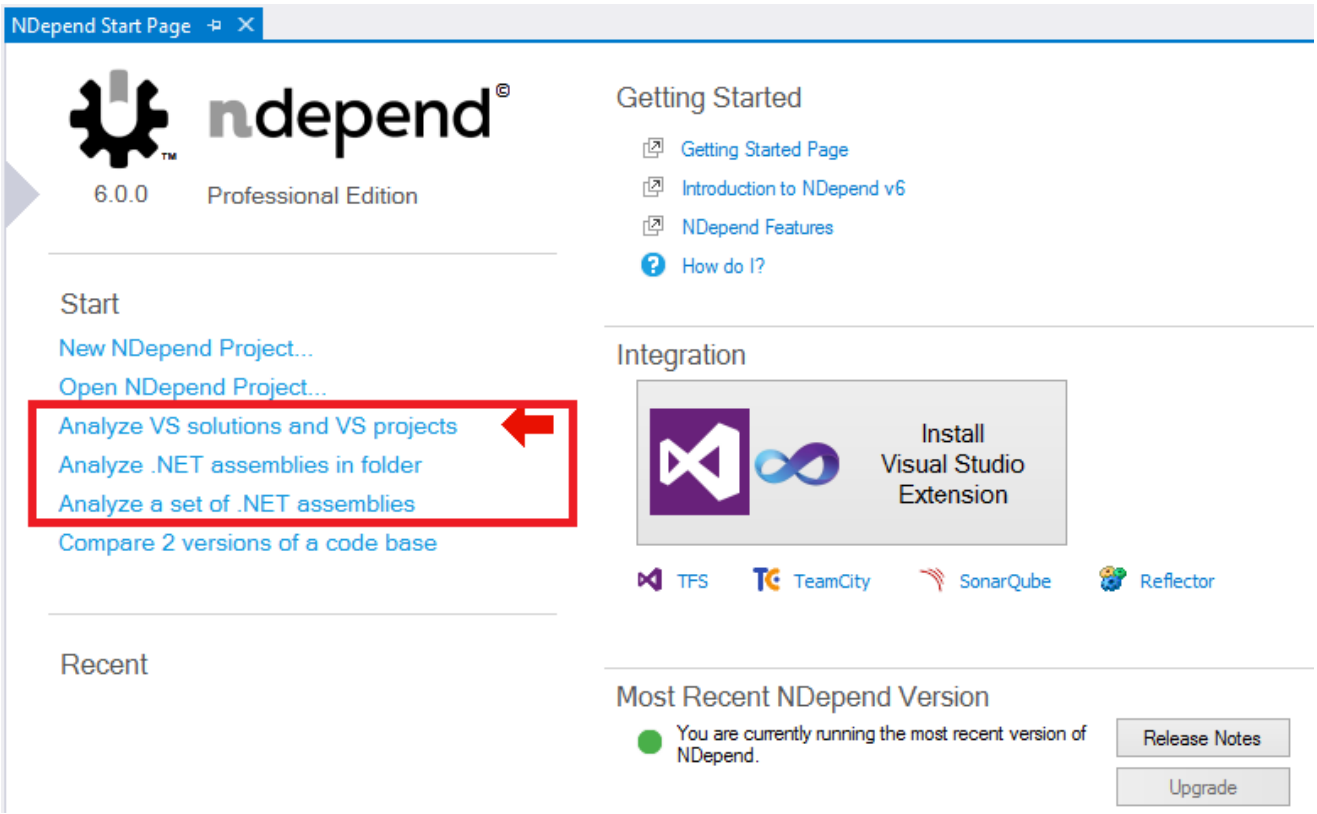
Click "Ok" and the NDepend analysis will start. It will just take a few seconds to analyze your code base for the first time.

Analyzing .NET applications using Visual NDepend

1. Start *VisualNDepend.exe*

2. Select one of the options:

   - Analyze VS solutions and VS projects
   - Analyze .NET assemblies in folder
   - Analyze a set of .NET assemblies



Click "OK". It will trigger the analysis of your assemblies and source code by *NDepend.Console.exe*. This analysis will take a few seconds to a few minutes depending on the size of the assemblies. Once finished, the result is displayed in the *VisualNDepend.exe* UI.

Using CQLinq with NDepend

CQLinq is a query language based off of the C# LINQ syntax and is a critical part of NDepend which uses CQLinq queries to assess a code base and, furthermore, it allows users to create their own code queries. This allows architects and developers to custom make code rules to test for custom metrics. Using CQLinq, there is virtually no metric you can't test. NDepend itself comes with 200 ready-made code queries that you can immediately use on your code base.

When you run the analysis on your code, you will see some color feedback on the quality. Yellow and red highlighted lines of code show you where rules are being broken, with red being more severe breaches.

Further information on CQLinq can be found on the NDepend website.

Additional CQLinq resources can be found online here:

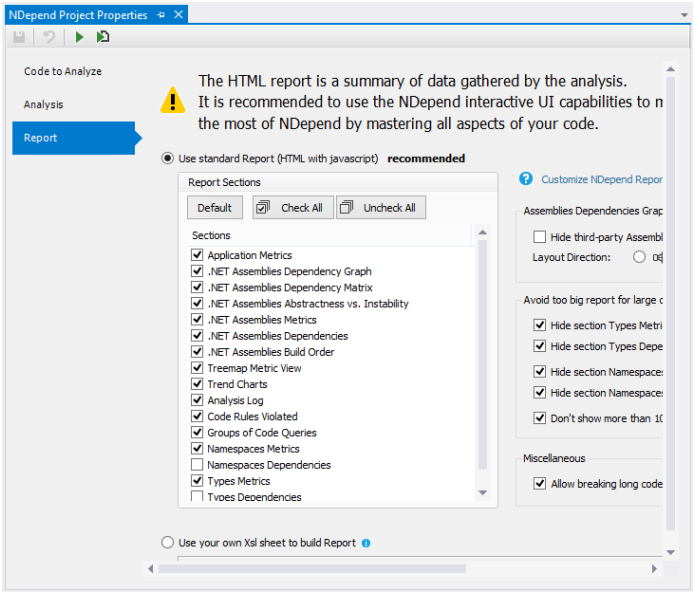
Scott Hanselman created a NDepend Metric Placemat

Erik Dietrich has started a blog series on making a metric on the NDepend blog

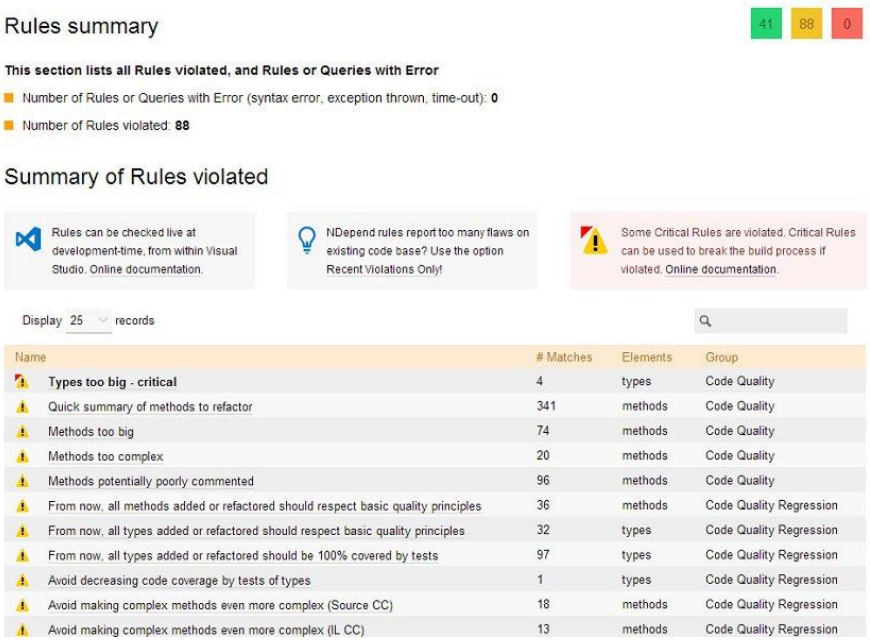
How to Measure Module Coupling and Instability by Zorvan Horvat

or check out the discussions on StackOverflow about CQLinq

Using NDepend for Reports



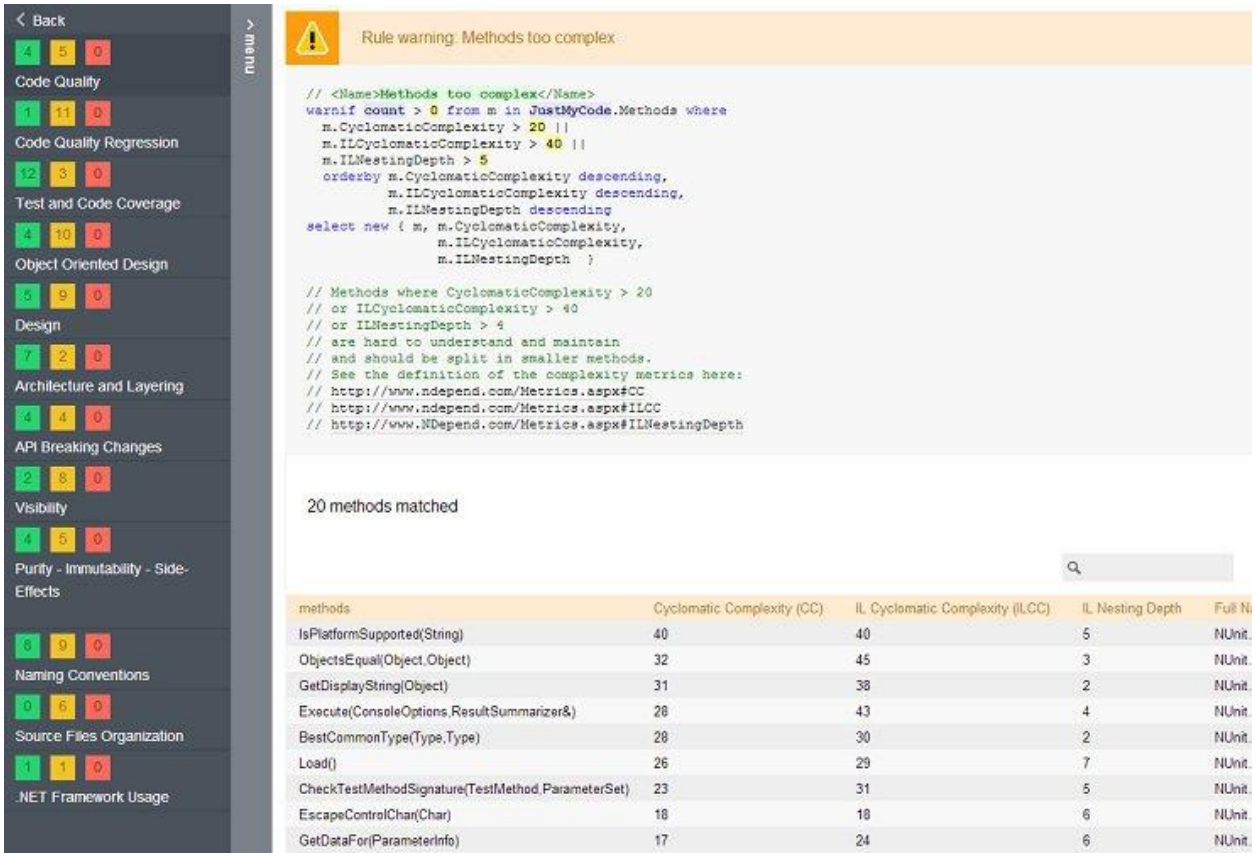
Reports can be customized through the *VisualNDepend* or the *VS addin* > *Project Properties* > *Report* sub-panel. You can choose to activate many pre-defined sections like Application and Assemblies metrics, diagrams, CQLinq rules violations, and more. The generated reports are in .html format and are found in the folder *NdependReportFiles*. Any reports should automatically open in your browser.



In addition, the reports will give a summary of all the main rules violations. To customize which violations you want included in the report, you can check or uncheck the box next to each one as well as choose how the violation will be displayed in the report. You can also set which rules are to be considered critical.

Note: It is recommended to uncheck the *Type Metrics* and *Type Dependencies* when generating reports on code bases containing more than a thousand types. This will cause the generated report to be very large. It is recommended that you use the Interactive UI to browse metrics and dependencies instead.

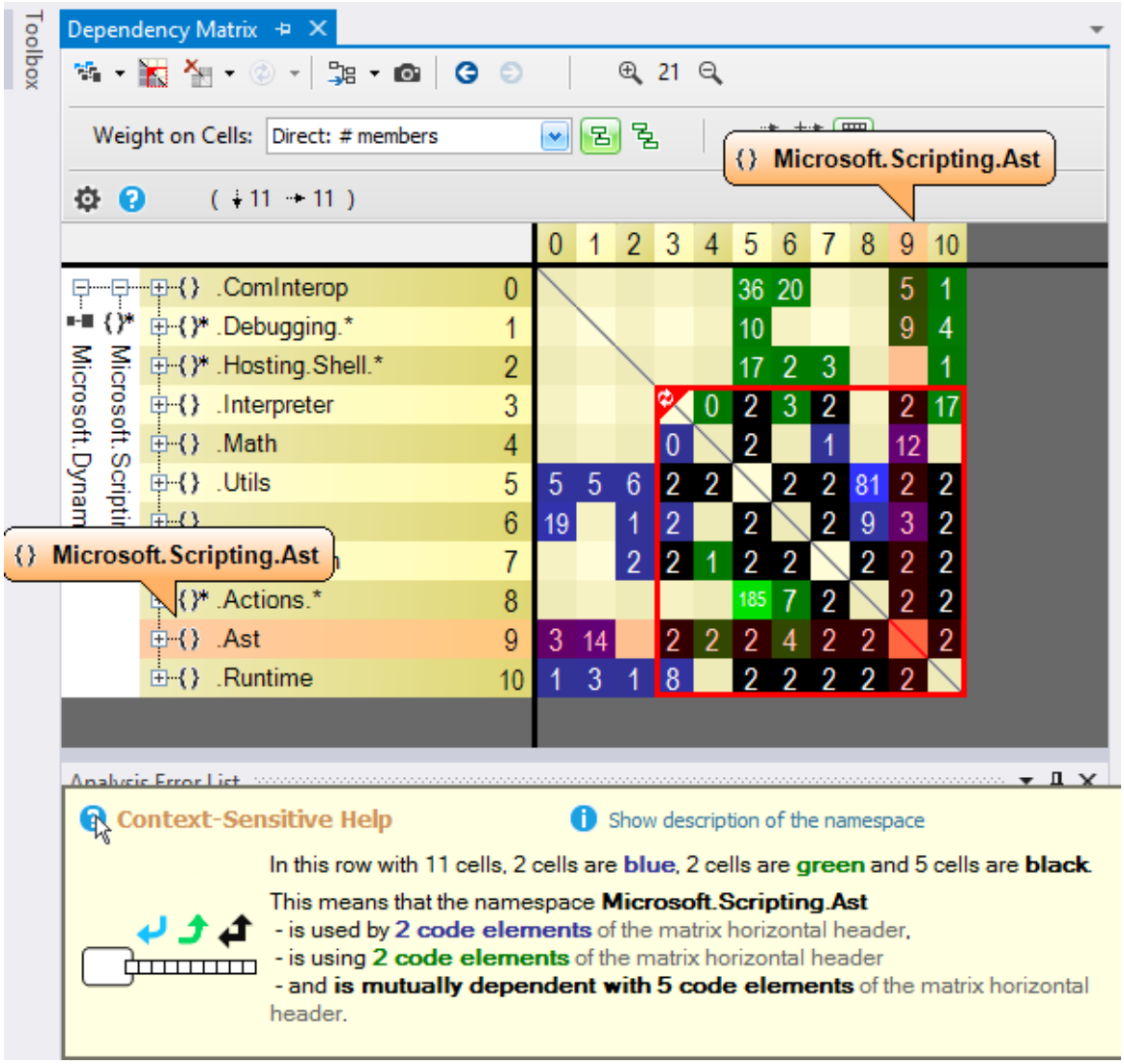
Here is what the code rule violation part of the report looks like:



You can clearly see the rules on the left, along with how many violations were found (in yellow and red). Clicking on a code rule on the left, gives you additional information about the violations in the information window on the right.

NDepend's Dependency Matrix

The DSM (Dependency Structure Matrix) allows users to quickly get a broad overview of the dependencies and couplings that exists within their code base and displays structural patterns at a glance. It is different from a graph since we found that a simple dependency graph does not scale well with larger assemblies of code. Graphs are very good at displaying information about smaller code bases but get confusing the bigger the base is.



The DSM is a grid of colored cells with numbers inside of them. Each color, blue, green, and black, mean a different thing and are defined via a context sensitive help system when hovered over with your mouse cursor. If the cell has a number, this is the number of couplings between the objects in the same row and column.

By clicking on an cell, you will see a dependency graph of that object.

What does the NDepend report tell me about my code?

- **Application Metric:** This section gives you an idea of the topology of your application.
- **Assembly Metric:** This section gives you an idea of the size of each assembly within your application in terms of #IL instructions and other metrics.
- **VisualNDepend View:** This section illustrates the size of your assemblies, namespaces, types and methods in terms of #IL instructions. You can browse this view dynamically by clicking the *Launch Visual NDepend on this Project* icon in the NDepend Project UI.
- **Assembly Abstractness vs. Instability:** This section illustrates the Abstractness/Instability principle explained in the assemblies metrics section.
- **Assembly Dependencies:** This section shows all the dependencies between the assemblies of your application in a table.
- **Assembly Dependency Diagram:** This section shows all the dependencies between the assemblies of your application in a diagram.
- **Assembly Build Order:** This section gives you one of the possible build orders for your assemblies. If a cycle exists in your assemblies' dependencies graph, this section will report it.

- **NDepend Information and Warnings:** This sections gives you feedback on your code:
  - It warns you when an assembly depends on a less stable assembly than itself.
  - It warns you when the visibility of a type or of a member is not optimal (in the context of the analyzed application).
  - It warns you when a type or a member is not used (in the context of the analyzed application).
- **CQLinq Queries and Rules:** This section reports default CQLinq rules which have been violated. More about CQLinq here.
- **Type Metrics:** This section recaps the type metrics in a table. A link to the documentation is provided for each metric.

Further Information Can be Found On Our Website

http://www.ndepend.com