Doxygen
A source documentation tool

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Doxygen: a tool for source code documentation

1. Features and possibilities

2. Doxygen configuration

3. Documenting your sources

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Doxygen: a tool for source code documentation

1. **Features and possibilities**

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Features

- GPL (free software)

- Multiple platforms: Windows, Mac, Unices...

- Multiple input languages: C, C++, Java, (PHP, C#)

- Multiple output formats

  - HTML, PDF, PS, RTF, man pages, windows help

- Third party developments XML interface

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How it works

- JavaDoc like but more flexible

- Source embeded documentation

- You can keep it apart

- Also useful with undocumented sources

Analysis tool

- Understanding alien source code

- Extract information from code semantics

- Relations between code elements:

    – Callers for a methods
    – Referencers for an attribute or class
    – Overriders of a superclass method
    – ...

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Analysis tool

- Browsing the code:

  - Syntax highlighting
  - Navigability

- Graphical information:

  - Include dependencies graphs between files
  - Colaboration diagrams between classes
  - Inheritance diagrams
  - ...

- More to come with explicit documentation
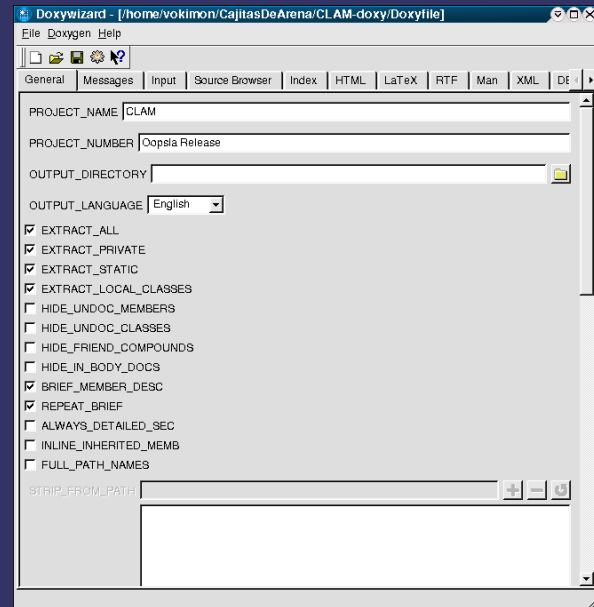
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Controlling doxygen behaviour

- Doxygen behaviour is very configurable

- Controlled by text configuration files

- Doxygen launched by command line

- A tool exists: Doxywizard

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Doxywizard

- Manages configuration files

- Contextual help on each parameter

- Runs doxygen and related tools

- Gives default values

Doxywizard: General

- Project name, version

- Output dir

- Language

- Extract all/private/static $\Rightarrow$ doing the analysis

Doxywizard: Input

- About

- Select the input dir

- Important: click recursive!!!

- Examples directories

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Doxywizard: Source Browser/Index

- Source Browser: Enables hyperlinked syntax-highlighted source

- Alphabetical index

Doxywizard: Output formats

- HTML $\Rightarrow$ All default is ok

- Customized header, footer and style

- LaTeX $\Rightarrow$ Generates PDF & PS

- Check pdflatex and hyperlinks

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Doxywizard: Other

- Preprocessor: TODO: How to do DT friendly documentation

- Images: Generated by DOT (or not)

- Messages: Message log

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3. **Documenting your sources**

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Doxygening sources

- You can give Doxygen more information about your source by adding special comment blocs.

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Doxygening sources

- You can give Doxygen more information about your source by adding special comment blocs.

  – Extra asterisk

    ```
    /**
     * Documenting JavaDoc like
     */
    ```

  – Extra slash on C++ line comments

    ```
    /// Line comments documentation
    /// Several comments are joined
    ```

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Doxygening sources

- You can give Doxygen more information about your source by adding special comment blocs.

    - An admiration sign after /* or //

```
//! Line comment
/*!
*   Block Comment
*/
```

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Comments Location

- Preceeds the symbol you are documenting

  ```
  /// This is a int for doing the count
  int counter;
  ```

- Starting with < means the simbol before

  ```
  int counter; ///< This is a int for doing the count
  ```

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Comments Location

- Don't want to mess up code with comments?

- Place it anywhere, and make the target explicit

```
@class MyClass
@file MyClass.hxx
@struct AnStruct
@var myMember
@var ATypedefType
@var AnEnumValue
@namespace CLAM
```

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Documentation content

- Starting asterisk and slashes are ignored

- Comments may have HTML markup

- Special commands with starts with an @ or a back-slash

Documenting methods

```
/**
 * A Brief description for your method.
 * After the first phrase you can extend
 * the description with details.
 * @param paramName1 The param 1 description
 * @param paramName2 The param 2 description
 * @return The description of the return value
 * @exception ExceptionType1 The meaning
 * @pre Your method precondition
 * @post Your method postcondition
 */
```

Mantainment specials

```
@author David García
@date 2002-11-21
@since 2.3
@until 1.0
@deprecated The reason and alternatives
@todo A thing that is to be done
@bug An acknoledged bug
```

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Useful specials

```
@invariant Your class invariant
@note A note about the symbol
@warning A warning
@attention A very important text
@internal Starts the internal documentation part
@relates ARelatedClass
```

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Extra documentation

```
@page pagelabel A page tittle
@section sectionlabel A Section
@subsection subsection A subsection
@mainpage A tittle
```

Non HTML formating

- HTML can easily mess your code a lot.

- Non HTML formating:

- Dashed list keeps tracks on the identation

- Adding a hash symbol after the dash the list is numbered

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Inserting Highlighted code

```
/**
 * @code
 *     CUIDADO::MyProcessing p;
 *     p.DoSomething();
 * @endcode
 */
```

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Problems

- Macro support: Dynamic Types

- Incremental generation $\Rightarrow$ external tag files

Questions?

Thanks