INSTALLING SONAR

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What is Sonar?

- A plug-in based tool for continuous inspection for quality of source code.
- Analyzes source code against a set of rules in order to produce a list of violations or ‘hot spots’ that indicate areas for improving.
- Longitudinal tracking over versions
- Mechanisms for analyzing violations in source context.
What does it analyze?

- **Code and Style Rules,**
  - Naming, indentation, bracketing conventions
  - Implicit fall-through, dead and duplicate blocks
  - Shallow copies, Anti-patterns, over 600 rules.

- **Code Metrics**
  - CLOC, SLOC, BLOC, Complexities

- **Test Coverage**
More Features

- Platform Independent
  - Runs on Windows, Mac OSX, Linux, Solaris.
- Server is fairly light weight.
- Plug-in architecture
  - Vibrant community extending sonar functionalities
  - Plug-ins for nearly every language you can expect.
  - Plug-ins providing additional metrics, including total quality, technical debt and more.
Sonar Architecture

Source Code
Java, Cobol, C#, PL/SQL, PHP, C, FLEX ...

Analysers

Eclipse

Server

Database
Sonar Architecture

- User runs client to analyze source
  - Ant Built Script, Sonar-Runner, Maven, Eclipse Plug-in
- Analyzer sends data on source files to database
- Web server provides presentation for violation data, administration for users and analyses, configuration of plug-ins, features and functionalities.
Acquiring Sonar

- **Full Guide:** [http://docs.codehaus.org/display/SONAR/Installing+SonarQube](http://docs.codehaus.org/display/SONAR/Installing+SonarQube)

- **Download Sonar**
  - Folder contains all applications and scripts

- **Unzip sonar to desired directory.**
  - Where doesn’t matter, doesn’t affect installation.
    - Windows users, be careful about folder locations that require admin rights.

- **Some Linux distro packages exist. I have never tried them.**
Configuring Sonar

- Open `<path_to_sonar>/conf/sonar.properties`
  - Contains settings for DB address, port, context
  - Other settings as well.
- Recommended to use built in database.
- Uncomment lines 19, 20 and 21 if you want to specify custom network settings
  
  ```
  sonar.web.host: 127.0.0.1#(or localhost)
  sonar.web.port: 9000
  sonar.web.context: /sonar
  ```

- Default username and password are lines 40-41
  - `sonar/sonar`
Star the Server

- **Windows:**
  - `<path_to_sonar>/bin/windows-x86-{32, 64}/StartSonar.bat`

- **Mac OSX:**
  - `<path_to_sonar>/bin/macosx-universal-{32, 64}/sonar.sh`

- **Linux:**
  - `<path_to_sonar>/bin/linux-{ppc-64, x86-32, x86-64}/sonar.sh`

- **Solaris:**
  - Go back to the 1990s.

- Will likely need admin privileges.

- (Optional) Add to application path.
Sonar as a Service

- Makes Sonar Server start on boot with admin privileges.
So simple, I’m just providing links

- [http://docs.codehaus.org/display/SONAR/Running+SonarQube+as+a+Service+on+Linux](http://docs.codehaus.org/display/SONAR/Running+SonarQube+as+a+Service+on+Linux)
- [http://docs.codehaus.org/display/SONAR/Running+SonarQube+as+a+Service+on+Windows](http://docs.codehaus.org/display/SONAR/Running+SonarQube+as+a+Service+on+Windows)
Clients: Sonar-Runner

Drives analysis through sonar-projects.properties specifying:

- Project name
- Project Version
- Project Language
- Source Directories
- Test Directories
- Binary Directories
- Documentation Directories
- Ignored Directories
- More
Sonar-Runner Installation

- Download
  - http://docs.codehaus.org/display/SONAR/Installing+and+Configuring+SonarQube+Runner

- Extract
- (Optional) Add to application path
- Create sonar-project.properties file
  - Template: http://docs.codehaus.org/display/SONAR/Analyzing+with+SonarQube+Runner

- Places sonar-project.properties file in root directory of project.
- Run Sonar-Runner.sh/bat in the directory
Sonar Ant Task

- Uses Ant Build Targets to direct analysis.
- Install
  - [http://docs.codehaus.org/display/SONAR/Installing+and+Configuring+SonarQube+Ant+Task](http://docs.codehaus.org/display/SONAR/Installing+and+Configuring+SonarQube+Ant+Task)
- Running
  - [http://docs.codehaus.org/display/SONAR/Analyzing+with+SonarQube+Ant+Task](http://docs.codehaus.org/display/SONAR/Analyzing+with+SonarQube+Ant+Task)
- I have never tried it. Good luck.
Maven

- Requires Maven 2.2+
- Must already have a valid pom.xml that successfully builds.
- In root pom.xml directory
  - mvn clean install
  - mvn sonar:sonar
- Nota Bene: Provides partial results on projects that fail to build correctly.
Eclipse Plug-in (3.7, 3.8, 4.2, 4.3)

- Help ➔ Install New Software
- Paste update site into URL Bar:
- (Optional) Add site to repository list
- Select Components
- Next to install
- Install Dox:
  - [http://docs.codehaus.org/display/SONAR/Installing+Sonar+Qube+in+Eclipse](http://docs.codehaus.org/display/SONAR/Installing+Sonar+Qube+in+Eclipse)
  - NB: Only supports C/C++, Java, Python
Configuring Eclipse-Plugin

- Windows ➔ Preferences ➔ Sonars ➔ Servers
  - Ensure Eclipse settings match Sonar Server settings
  - Defaults should be fine (http://localhost:9000)
- Link Projects to SonarQubeServer
- Right Click Project in Project Explorer
  - Configure ➔ Associate with Sonar…
- Type Project Name
- Click Finish
- Dox:
  - http://docs.codehaus.org/display/SONAR/Configuring+SonarQube+in+Eclipse
Viewing Results

- Navigate to http://localhost:9000
- Administrator login is whatever is set in `<path_to_sonar>/conf/sonar.properties`
- By default no login required for viewing...?