

# Project Dependency Graph Plugin

## User's Guide

July 14, 2016

## 1 General information

### 1.1 Plugin description

The Project Dependency Graph plugin for Jenkins visualizes the dependencies of a project. It displays the dependencies on other projects and libraries as a graph on the overview page of each job and build. Each dependency is linked to the artifact or source code repository.

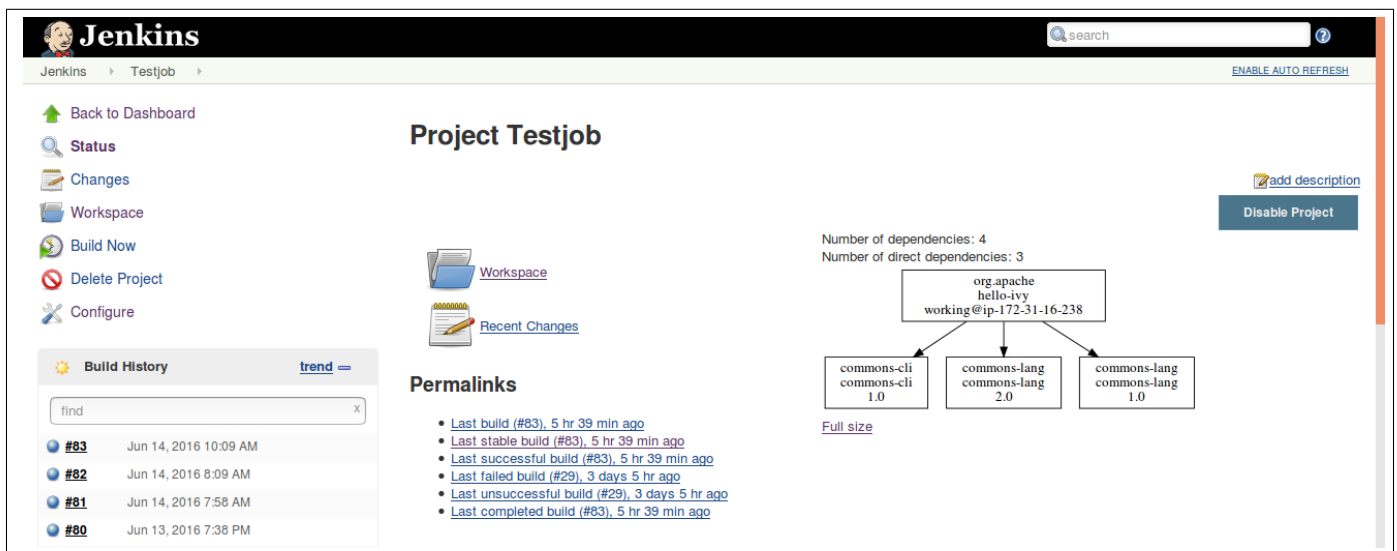


Figure 1: Example job overview with dependency graph

### 1.2 Further information

The creation of the graph is automatically triggered after your build completes. A graph is created only for successful builds.

The job overview page shows the dependency graph of the last successful build (even if the last build failed).

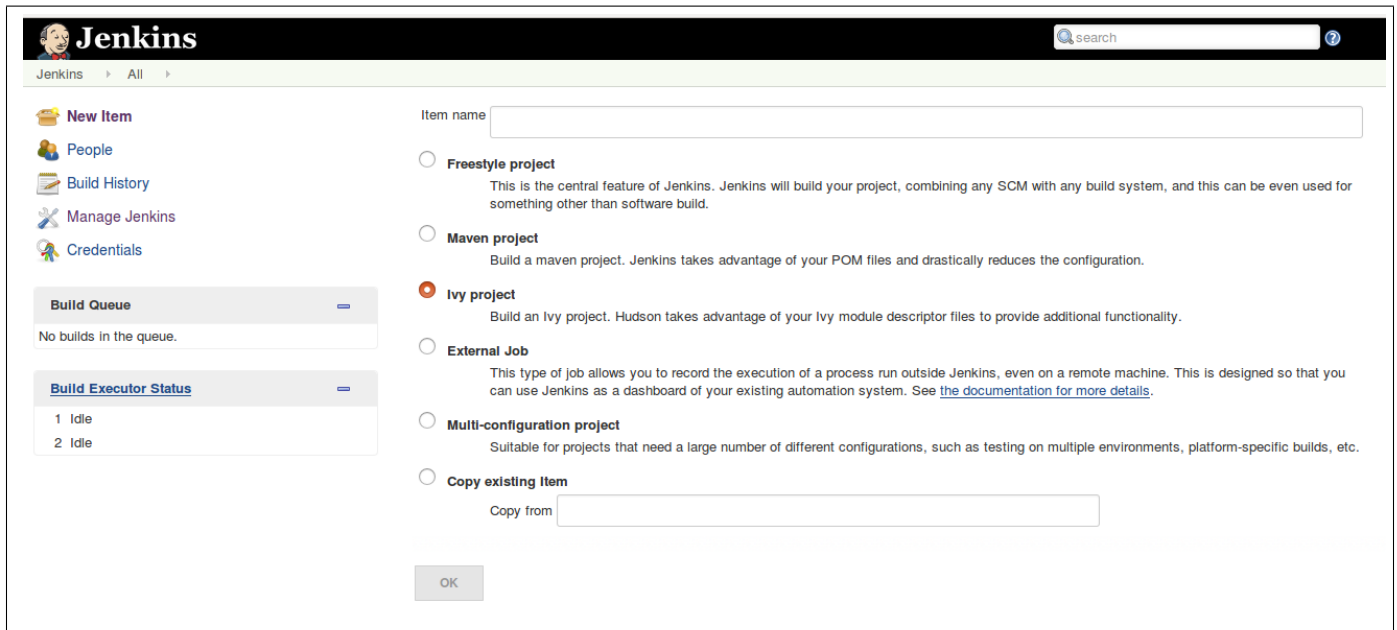
## 2 System and project requirements

- Operating system: Linux
- Installed Software: GraphViz

Currently the Project Dependency Graph plugin works only with Ivy projects. In Jenkins you can create an Ivy project in one of the following ways:

### Using the Ivy plugin

Install the Ivy plugin. Create a new project and select "Ivy project".



The screenshot shows the Jenkins web interface. At the top is the Jenkins logo and a search bar. Below the logo is a navigation menu with links: 'New Item', 'People', 'Build History', 'Manage Jenkins', and 'Credentials'. The 'New Item' section is expanded, showing a 'Build Queue' with 'No builds in the queue.' and a 'Build Executor Status' table with two 'Idle' entries. The main content area is titled 'Item name' and contains a list of project types: 'Freestyle project', 'Maven project', 'Ivy project' (selected), 'External Job', 'Multi-configuration project', and 'Copy existing Item'. Each option has a brief description. The 'Ivy project' option is highlighted with a red circle. Below the list is an 'OK' button.

Figure 2: Creating an Ivy project using the Ivy plugin

### As a Freestyle project

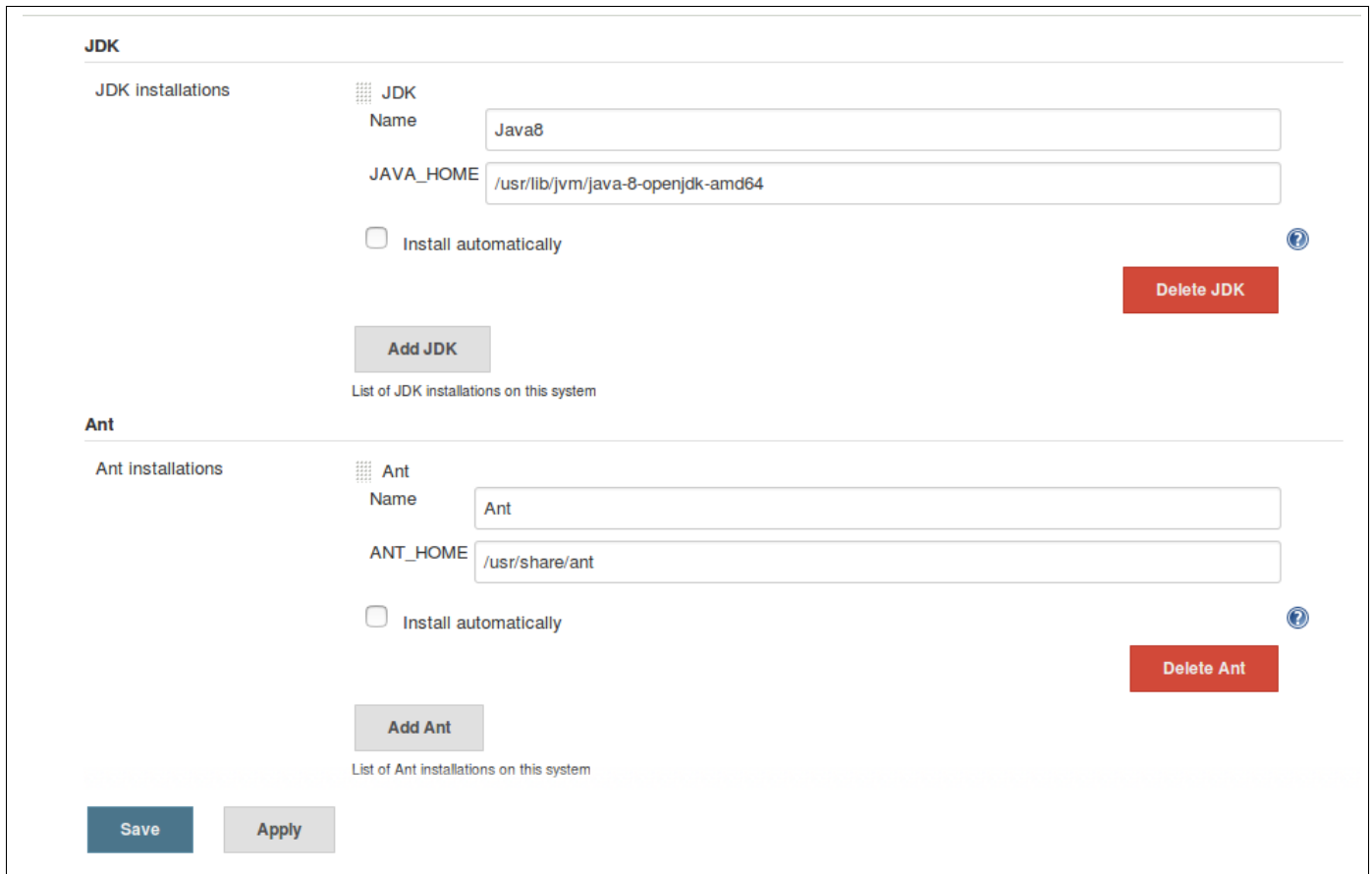
You can also create a new "Freestyle project". Make sure your project is an ivy project, i.e. has valid ivy.xml and build.xml files.

## 3 Configuration

### 3.1 System configuration

In order to build any Ivy project you need to tell Jenkins where to find your JDK, Ant and Ivy installations.

Go to "Manage Jenkins" → "Configure System". Add a JDK and an Ant installation to your settings.



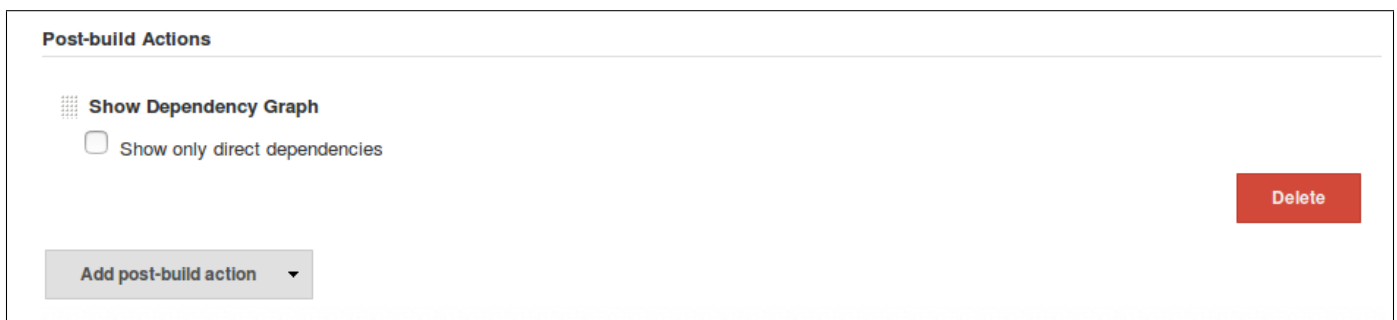
The screenshot displays the "Configure System" page in Jenkins, specifically the "JDK" and "Ant" sections. The "JDK" section includes a table for "JDK installations" with columns for "Name" and "JAVA\_HOME". A new entry is being added with "Name" set to "Java8" and "JAVA\_HOME" set to "/usr/lib/jvm/java-8-openjdk-amd64". There is an unchecked checkbox for "Install automatically" and a red "Delete JDK" button. Below the table is an "Add JDK" button and a link to "List of JDK installations on this system". The "Ant" section follows a similar pattern with a table for "Ant installations", a new entry with "Name" set to "Ant" and "ANT\_HOME" set to "/usr/share/ant", an unchecked "Install automatically" checkbox, a red "Delete Ant" button, an "Add Ant" button, and a link to "List of Ant installations on this system". At the bottom of the page are "Save" and "Apply" buttons.

Figure 3: Adding JDK and Ant installation

You also need an Ivy installation. Copy the Ivy(...)jar into the "Ant\_Home/lib" directory to be able to use Ivy.

### 3.2 Job configuration

You can activate the Project Dependency Graph plugin in the Job configuration. You will find it as a post-build action ("Show Dependency Graph").



The screenshot shows the "Post-build Actions" section of a Jenkins job configuration. It features a table with one entry: "Show Dependency Graph". Below this entry is an unchecked checkbox labeled "Show only direct dependencies" and a red "Delete" button. At the bottom, there is a button labeled "Add post-build action" with a dropdown arrow.

Figure 4: Activated plugin

Here you can also choose whether you want all dependencies displayed or only direct dependencies. The default is set to show all dependencies.



Figure 5: Customized plugin

**Important:** The Project Dependency Graph plugin uses the report generated by Ivy to resolve the dependencies. You need to activate the generation of the xml report file in the project's build.xml. To do this, set attribute xml = "true" for target "report".

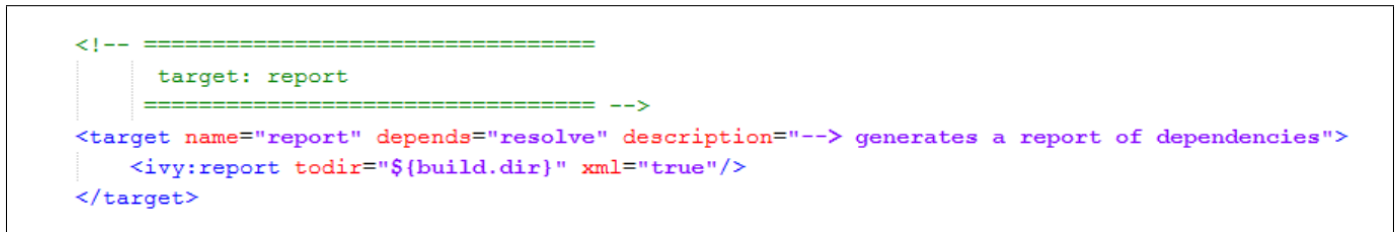


Figure 6: Altering the Ivy report

You will also have to tell Jenkins to create the report.

Either add the build step "Execute shell" to your project's build steps in the job configuration and call "ant report" or install the Ivy report plugin and use its features to create an Ivy report (see <https://wiki.jenkins-ci.org/display/JENKINS/Ivy+Report+Plugin>).

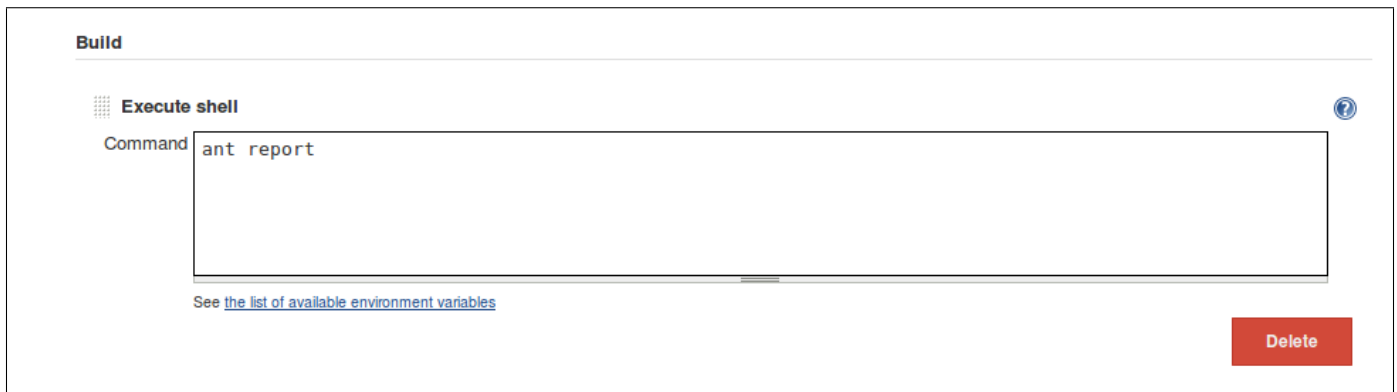


Figure 7: Creating an Ivy report with build step "Execute shell"