What happened with my hung build?

Added by Adrián Deccico, last edited by Adrián Deccico on Dec 12, 2011

**tl;dr** Hung builds will be killed automatically by the new plugin. The plugin collects the stack trace and send descendants and orphan processes to oblivion. Stopping a build won't leave orphan processes anymore. You can disable the execution of the plugin globally, in the administration screen or in a plan level, in the "miscellaneous" section of your plan.

Why do we care about hung builds?

Hung builds happen due to:

- race conditions in tests
- Maven/Nexus being lazy
- any other problem with processes that prevents them and our builds to ever finish.

Build Engineers don't like hung builds given that these builds never release scarce build agents. They blocking the normal execution flow. Developers also don't want to wait for their builds to start (or end) and usually require to get a stack trace in order to detect the root cause of the problem.

Hung builds are a daily problem that blocks our build pipeline. It keeps ec2 instances running meaninglessly and generates a considerable amount of manual work.
What is a hung build according to Bamboo?

If you ask Bamboo about this matter, it would tell you that any build without an output in $x$ minutes and $n$ times slower than the average build time will be considered hung. Luckily, you can configure $x$ and $n$ at the instance and job level.

From the admin screen:

Hanging Build Detection

Bamboo determines that a build has hung, if both of the criteria below are exceeded.

- Expected Build Time - calculated as the average build time * build time multiplier
- Log Quiet Time - the length of time Bamboo goes without receiving any log messages for that build

So you can easily modify hung build detection criteria in the admin section and on each job but not in a plan level. So far the only action after Bamboo detects a hung build is to mark them as hung in the UI and launch an internal event. Unfortunately (until now) the build could still run forever, making devs and build engineers very unhappy...

How the hung build killer works?

The plugin will listen to the BuildHung event and add this comment:

After that it will execute some code in the agent. Since there is no way of getting the related processes from Bamboo, the first step will be to get the process id from the
agent and then get the descendant graph. Orphan processes will also be detected by using the process group id since it's the only reliable way to know where they come from: http://www.steve.org.uk/Reference/Unix/faq_2.html#SEC26

After getting the set of processes, the plugin will generate stack traces by sending kill -3 signals and then the process will go to a better life either by a normal kill or a kill -9 message.

You will see the following stack traces in your build output.

![Stack traces example](image)

### What else does the plugin do?

The normal "stop build" button is also enhanced. One of the main problems of stopping a build is that Bamboo only kills the parent process. In the case of hung processes, it could make any of them orphans – therefore failing the next builds... (Please see BAM-5932 - Build stop request does not kill all processes from a build, causing further builds to fail due to port conflicts - RESOLVED for a very good explanation of this problem)

So the plugin also listens to the cancel event giving it the same treatment that a hung build would receive. The stack trace message won't usually appear in this case, since Bamboo is at the same time killing the main process but you can be sure now that no process will survive to the next build.

### Help! the plugin is killing my build...

There could be cases when you can genuinely expect your build to take much more time than the average. In this case, you can disable the execution of the plugin in your plan or in all of them. Please read the next section for more details:
**How to prevent hung build killer to touch my build?**

Although this plugin is safe to use, if you still want to disable it you have these options:

<table>
<thead>
<tr>
<th>Disabling the plugin in a global level</th>
<th>If you want to disable it in a global level, go to the admin section, click in the left column, look for the section: &quot;plugins&quot; and then click on HungBuildKiller.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plan level</td>
<td>If you instead choose a more intimate, plan-level, then go to your plan configuration, miscellaneous tab and then modify the Hung Build Killer section.</td>
</tr>
<tr>
<td>Modifying the build monitoring criteria</td>
<td>Instead of disabling the plugin, you can modify how Bamboo will decide when your build is hung by modifying the Build Monitoring in the admin screen or instead on each job in the miscellaneous tab. You can’t modify the hung build criteria on a plan level.</td>
</tr>
</tbody>
</table>

**Is the plugin running somewhere?**

So far we are testing it in CBAC and Stage-Bac. If everything goes fine, we will add it to the other Bamboo instances as well.

![Image](https://extranet.atlassian.com/pages/viewpage.action?pageId=...)

We just installed it in BEAC and XBAC. JBAC should get it in the next Bamboo upgrade. CBAC will get the last version on 12-Dec-11

**Next steps**

Along with a switch off option per plan and per project, Windows support will be easy to add (right now the plugin only works with Linux, Unix or Mac). To get updated with
the news you can follow the project in BB: [https://bitbucket.org/adeccico/bamboo-hung-build-killer](https://bitbucket.org/adeccico/bamboo-hung-build-killer)

Additionally, the plugin can be converted to a plugins 2 plugin after BAM-10205 - Plugins 2 plugins running in agents have classloading problems - gets solved.

### Where can I get the binary?

The plugin has been published in PAC: [https://plugins.atlassian.com/plugin/details/848939](https://plugins.atlassian.com/plugin/details/848939)

### Acknowledgments

Thanks Brydie for your help dealing with Bamboo for the UI changes.

---

**Labels:** plugin hung builds bamboo

13 Comments | 4 🌟

- **Mel Nicholson**
  Units would help on the build monitoring configuration panel.
  Dec 01, 2011

- **Seb Ruiz**
  This is awesome, great work to the build eng team who keep on getting better!
  Dec 01, 2011

- **Adrien Ragot**
  Awesome. We still have the "build artifacts" as usual, don't we? Hung builds are often caused by PermGens so it's important to see them in the stack trace of the webapp. Excellent work!
  Dec 01, 2011

- **Adrián Deccico**
  yep, and you will get them sooner now. [https://confluence-bamboo.atlassian.com/browse/CONFFUNC-LDAP-2358/artifact](https://confluence-bamboo.atlassian.com/browse/CONFFUNC-LDAP-2358/artifact)
  Dec 01, 2011

- **Adam Ahmed**
  Super cool! DevBlog it!
  Dec 01, 2011

- **Rene Medellin**
  Or Hanging Kitty!
  Dec 01, 2011
Added using the awesome extension

Dude! Great stuff!

I know dealing with hung builds manually by logging into the build agents, taking a thread dump & killing the build was a major frustration with you in the past. It's great to see that you've taken the initiative in dealing with this problem in an automated way that frees both developers & the BuildEng team.

Awesome job! Could you please not make it kill on a run where you changed the build/job configuration. E.g. you add a long-running task, build is detected as hung, build gets killed.

I am not totally convinced. I think that a large enough log quiet time-out should cover your case.

Awesome job! Could you please not make it kill on a run where you changed the build/job configuration. E.g. you add a long-running task, build is detected as hung, build gets killed.

We're going to provide the ability to opt-out on a build plan level which would cover this use-case (assuming the build monitoring configuration isn't enough)

This is great! It needs to get bundled with Bamboo.
Adrián Deccico
Ask James Dumay 😊

Dec 06, 2011

What happened with my hung build? - Build and Release Eng... https://extranet.atlassian.com/pages/viewpage.action?pageId...