Presentation of CBNG at Shutdown Lectures 2017

Zsolt Kovari and Endre Fejes on behalf of the DevTools team
Outline

• What is CBNG?
• CBNG in action
• CBNG in details
• What’s new in CBNG?
• What can go wrong, and how to react
• Migration
What is CBNG?

• CBNG = CommonBuild Next Generation
• Replacement of CommonBuild (CB)
• Dependency, build and release management tool
• Automated tasks for:
  • Managing dependencies
  • Compiling
  • Building
  • Testing
  • Releasing
• Based on Industry standards
  (Gradle, with Maven compatible repositories)
Overview of CBNG in action
Workflow
1. Local development

Steps:
1. Local development in Eclipse

- build eclipse
- release

CBNG Repository

consoles

jws
2. Upload to the repository

Steps:
1. Local development in Eclipse
2. Upload to the repository
3. Run application

Steps:
1. Local development in Eclipse
2. Upload to the repository
3. Run application with jws
Local development

- Use product.xml
- Develop in Eclipse IDE
  - Run eclipse task
  - Run build task
Get dependencies - Artifactory
Devrelease

- Run devrelease task
- Artifact is published to Artifactory
- Version with timestamp
Upload applications to bewww

Automatically with devrelease

Artifactory artifacts.cern.ch

dependencies

devrelease

Upload applications

bewwww.cern.ch
Run applications and deploy

build eclipse

devrelease

dependencies

Artifactory
artifacts.cern.ch

Upload applications

bewww.cern.ch

jws

deploy

consoles

servers
Managing deployment aliases

Release Server

Artifactory artifacts.cern.ch

Upload applications

Deployment web deployments.cern.ch

bewww.cern.ch

build

eclipse

release

devrelease

dependencies

Manage deployment aliases

consoles

jws

deploy

servers
Summary of the demo

• Using CBNG locally in Eclipse
  • Run eclipse, build tasks

• Uploading to Artifactory
  • devrelease
  • release
  • Applications are automatically copied to deployment repository (bewww)

• Deployment repository - applications
  • Run applications with jws
  • Manage aliases with Deployment web
    • [https://deployments.cern.ch](https://deployments.cern.ch)
Devrelease vs release

- Potentially polluted
  - Not operation ready

- Clean
  - Operation ready

Devrelease | Release
## Devrelease vs release

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```
tags/lsa/lsa-core/release/V10.9.1
```
Documentation, Training and Help

• accsoft-devtools-support@cern.ch

• Documentation and FAQ on the Wiki (improved and growing ;-)
  • https://wikis.cern.ch/display/DVTLS/CBNG
  • https://wikis.cern.ch/display/DVTLS/Configuration
  • https://wikis.cern.ch/display/DVTLS/FAQ+and+Knowledge+Base
  • https://wikis.cern.ch/display/DVTLS/CBNG+Reference+Guide
    • Quick help in Eclipse

• The DevTools team and the rest of APS can help
What’s new in CBNG

• Cleaner, more industry standard repository
• Cleaner and more user friendly eclipse plugin
• Sources jar
  DEMO: in Artifactory and in Eclipse (Isa-domain – Attributes class)
• Better traceability of artefacts (in POMs, MANIFEST.MF)
  • Who, when, where from
    DEMO: MANIFEST.MF inside a jar in Artifactory (Build-By, Build-Time, SVN-url, Build-Host)
What’s new in CBNG

• Dependency exclusions
  • All transitive for one dependency
  • Remove one specific transitive dependency

• Much better dependency investigation
  • Helper tasks
  • Dependency graph tool BETA™: http://superbuild.cern.ch:7777
    DEMO: ade-inspector

• Sonar integration
  • Service provided by TE-MPE: http://sonar.cern.ch
    DEMO: cern-jjar
Possible difficulties and how to overcome them

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*DEMO: logs (default and info log) with failure example*
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## Dependencies missing (“The artifact ... was not found”)

To ensure that all necessary dependencies are available, check the following:

1. **Check for typo**: Ensure that the artifact name is spelled correctly.
2. **Third party or very-very old CERN product**: If it's a third-party or very old CERN product, contact the support team for assistance.

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Further assistance can be found on the CERN wikis: [https://wikis.cern.ch/display/DVTLS/FAQ+and+Knowledge+Base](https://wikis.cern.ch/display/DVTLS/FAQ+and+Knowledge+Base)
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<td>Jars are not downloaded to the <em>lib</em> directory</td>
<td>It’s not a problem, but a difference between CB and CBNG The lib directory is not populated as Gradle uses a global cache for the libraries. For investigation only: <em>jarsToLib</em> task can be used.</td>
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<td>I want to know where a dependency comes from</td>
<td>For a specific dependency, run:</td>
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<td><code>bob dependencyInsight --dependency=commons-util</code></td>
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| Exclude unwanted *specific* transitive dependencies                     | `<exclusions>`<br>  
  `<dep groupId="com.google.guava" artifactId="guava"/>`
  
  `</exclusions>`                                                  |
| New in CBNG!                                                           | Group id can be looked up on [http://artifacts](http://artifacts), more details on the wikis. |
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<td>Exclude all the transitive dependencies of a specific dependency (ie. “...-nodep” products)</td>
<td>Define the dependency like this (instead of japc-nodep):&lt;br&gt;<code>&lt;dep product=&quot;japc&quot; includeTransitive=&quot;false&quot; /&gt;</code></td>
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Possible difficulties and how to overcome them: migration
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  • Make sure to update CCDB → [CCM editor](#)  
  For server applications, use “CBNG style” deployment (without “-p”) |
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  - Make sure to update CCDB → **CCM editor**  
  For server applications, use “CBNG style” deployment (without “-p”) |
| Product released does not appear on [http://deployments](http://deployments) | Only applications (products with and `<application>` tag) appear in the deployment repository |
| More JNLPs than applications in deployment repository | For all application 3 JNLPs are created, which are actually the same:  
  - `<product>-<version>-<application>.jnlp`  
  - `<product>-<application>.jnlp`  
  - `<application>.jnlp`  
  Feel free to chose whichever you prefer. |
Migration status
Migration

• Going as planned
  • CB repository and releases frozen since beginning of 2017
  • Difficulties that came up was solved – no show stoppers

• Out of ~1000 projects, more than 700 migrated already
  • ~95% of libraries are migrated (out of ~480)
  • More than half of the applications are migrated (out of ~500)

• CBMIG Jira project – to smooth the migration

• Migration, release can be started – Marine declared lib freeze
  • Before migrating, check if the dependencies are migrated
    http://superbuild.cern.ch:7777 (check outgoing) DEMO: sps-app-miniscans
Conclusions

• Migration to CBNG is progressing well
• Catching up with new, industry standard technologies
  • While still supporting the accsoft requirements
• No breaking, non-backward compatible changes
  • Configuration same
  • CB compatibility
• https://wikis.cern.ch/display/DVTLS/CBNG
• accsoft-devtools-support@cern.ch
• Looking forward for feedback – we’ll stay pragmatic