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Codar

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What is Codar?

HPE Codar is a continuous delivery solution that provides deployment and release management of complex multi-tier applications across the application lifecycle. It automates the deployment of applications by embracing existing content from Chef, HPE Server Automation, and so on and representing this content as components. These components can be used in a graphical topology designer to create an application model.

Why is Codar required?

Software engineering builds are subject to continuous deployment and testing on the principles of frequent code commits, build automation, faster and frequent builds, automated application deployment, and test automation. On top of continuous integration, software development teams also continuously deliver qualified software applications to their test and production teams. One of the challenges that most software development teams face in the process of continuous integration and continuous delivery is the ability to automate the deployment of applications in a simple and consistent manner and run tests on the deployed instance. Codar is built to solve this problem.

Continuous integration and deployment using Codar and Bamboos (build tool)

Software required for the integration

To integrate Bamboo with Codar, you must install the following software:

1. Install Atlassian Bamboo 5.10.1.1.

Note: This is not an open source and hence has to be purchased.

2. Install the JDK version 1.8x on the Bamboo server.
3. Install Collabnet Subversion Edge from collab.net/support/documentation.
4. Install TortoiseSVN from tortoisesvn.net. Install the latest version and use the default settings. After the installation, you can see new options when you right-click a file or folder in Windows Explorer.
5. Download and install Maven from maven.apache.org.

Configuring Bamboo

After installing the software listed above, configure Bamboo as given below:


1. Login to the Bamboo dashboard with the provider URL (<http://<host>:<port>/>)
2. Go to **Action menu > Bamboo Administration > Overview**.
3. Click Server capabilities on the left pane.
 - a. Click **Detect Server Capabilities** button at the right top of the screen.
 - b. The system automatically detects all the available JDK capabilities and updates the same.
4. Click Executables.
 - a. Click **add an executable as a server capability**
 - i. Select the **Capability type** (Executable), **Maven type** (3.x) and enter the **Executable label**.
 - ii. Enter the path (without bin), where the Maven is located.
5. Click Linked repositories.
 - a. Click **Add repository**.
 - b. Select the repository.
 - c. Enter the repository values (Name, URL, Username, and Password).
 - d. Click **Save repository**.

Note: The Repository details can also be included while configuring the project/plan.

Uploading the Codar plugin on the Bamboo server

You must upload and enable the Codar plugin on the server in which Bamboo is installed.

Installing the Codar plugin

1. Go to the Bamboo dashboard.
2. Click the gear icon  at the top right of the screen.
3. Select **Add-ons** from the gear icon.
4. Click **Upload add-on**.
5. Click **Browse** and select the plugin jar file from the local machine.
6. Click **Upload**

Note: Go to **Action menu > Bamboo Administration** and click on **Pause Server** before you upload the plug-in into the server.

Enabling the Codar plugin

The Codar plugin is enabled by default after the installation.

If the plugin gets disabled, click **Enable** button.

Configuring the application project

Prerequisites

1. Create a valid design in Codar and Associate the design to **Application**. Ensure that the deployment of the design works by going to “Test” tab and clicking on Test Run. The design should deploy successfully.
2. Export this Design by clicking **Export** button and selecting **Save As JSON**.
3. Design should include property which will be modified in the Bamboo plugin, marked as Modifiable or mandatory.
4. Please enter the Codar credentials in OO before starting the deployment through Bamboo Plugin.
 - a. Go to **OO Central** (https://<hpe_codar_host>:<oo_port>/oo).
 - b. Click **Content Management** on left pane of the page.
 - c. Go to **Configuration Items** tab.
 - d. Open **System Accounts** and edit **CODAR_REST_CREDENTIALS**.
 - e. Enter Codar Credentials (Default: admin/cloud) and Click **Save**.

This design has to be checked-in into the source repository.

Note: For security reasons, you must configure the Codar plugin with SSL and HTTPS enabled and with TLS Protocol Version 1.2 only.

Create Project/Plan

This section describes how to create a project/plan.

1. Click **Create > Create New Plan**.
2. Select new project.
 - a. Enter the **Project Name/Project** Key for new project.
3. Enter the **Plan name/Plan** Key and description (if any) in the respective text box.
4. Check the radio button to either select the previously linked repository or link to a new repository.
 - a. To link to new repository click the radio button and select the repository that supports subversion.

Note: If the **subversion** option is not available, you can select the **others** option.

- b. Enter the fields according to the selected repository.

E.g.: The fields to be mentioned for subversion is shown below:

Link repository to new build plan

Repository host Previously linked repository
 Link new repository

Subversion -

Display name*

Subversion details

Repository URL*

The location of the Subversion repository (e.g. http://svn.collab.net/repos/svn/trunk)

Username

The subversion username (if any) required to access the repository

Authentication type

Password

The password required by the subversion username

Test connection

✓ Connection successful

Repository access Allow all users to reuse the configuration of this repository
 Only you are allowed to reuse the configuration of this repository

Configure plan Cancel

5. Click **Configure plan** to save the plan details.

Note: The Project Key/ Plan Key gets generated automatically according to the project/plan name entered, but can be customized if required.

Configuring Maven Task

After creating the Project/Plan you will be directed to add the maven task for the plan.

1. Click **Add Task**.
2. Select the **Type of task** (Maven 3.x task) from the available options.
3. Enter the values in the fields as below:

The screenshot shows the 'Maven 3.x configuration' dialog box. On the left, there is a sidebar with 'Maven 3.x' selected. The main area contains the following fields and options:

- Task description:** Maven Build Task
- Disable this task:**
- Executable:** Maven 339 (with 'Add new executable' link)
- Goal:** clean install
- Build JDK:** JDK 1.8 (with 'Add new JDK' link)
- Environment variables:** (empty text box)
- Working sub directory:** (empty text box)
- Where should Bamboo look for the test result files?:** The build will produce test results. (with explanatory text)
- Advanced options:** (collapsed section)

At the bottom of the dialog are 'Save' and 'Cancel' buttons. Below the dialog, there is an 'Enable this plan?' section with a 'Yes please!' radio button and a 'Create' button.

- a. Enter the task description and select the executable (Maven 3.x).

Note: If Maven 3.x is not configured and not available in executables dropdown, then click **Add new executables** and enter the values based on the Maven's home directory.

- b. Enter the Goal, and Build JDK.
- c. Uncheck 'The build will produce test results' option.

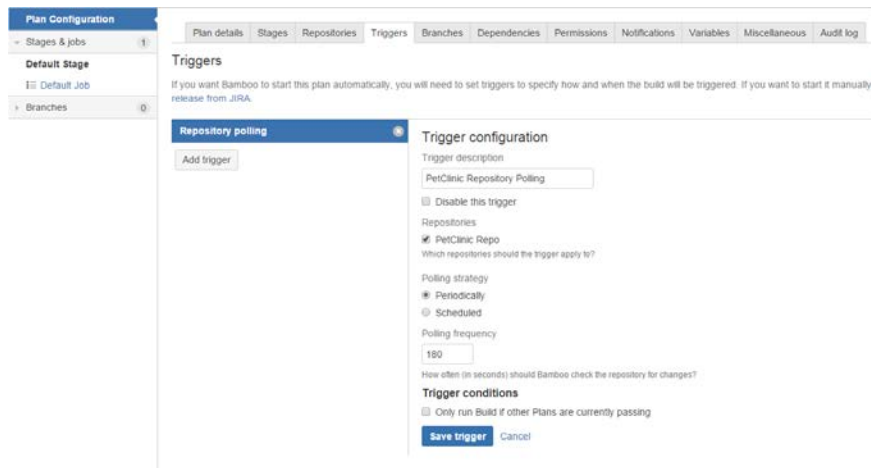
Note: If you select the checkbox to produce test result then built will fail when there is no test available. The Advanced option should not be changed/modified.


- d. Click **Save**.

Note: Make sure to uncheck the checkbox under the **Enable this plan?** option.

4. Click **Create** to complete.

Plan Configuration screen is displayed as below:



1. Select **Trigger** tab
2. Click **Add trigger**
 - a. Enter the **Trigger description**
 - b. Make sure corresponding repository is checked
 - c. Select the **polling strategy** (Periodically/ Scheduled)
 - d. Enter the **polling frequency** in seconds
 - e. Click **Save trigger**
3. Go to **Build > All build plans**.
4. Navigate to the newly created plan and click edit  icon.
5. Navigate to **Stages & jobs > Default Stage > Default Job**.
6. Select the default job and click **Artifact** tab.
7. Click **Create definition**.
 - a. Enter the Artifact **definition name**.
 - b. Enter the **copy pattern** for the artifacts that is required during deployments using the plugin (`**/*.json`, `**/*.war`).
 - c. Enable the **Shared** checkbox for successfully build.
 - d. Click **Create** to confirm.

Creating deployment plan for Codar

1. Click **Create > Create deployment project**.
2. Enter the **Deployment name** and description (optional).
3. Select the **Build plan** that was created in the previous section.
4. Select the radio button for **main plan branch**.
5. Click **Create Deployment project**.

Creating Environment

Once the Deployment project is created, you need to add environment for the same.

1. Click **Add Environment**.

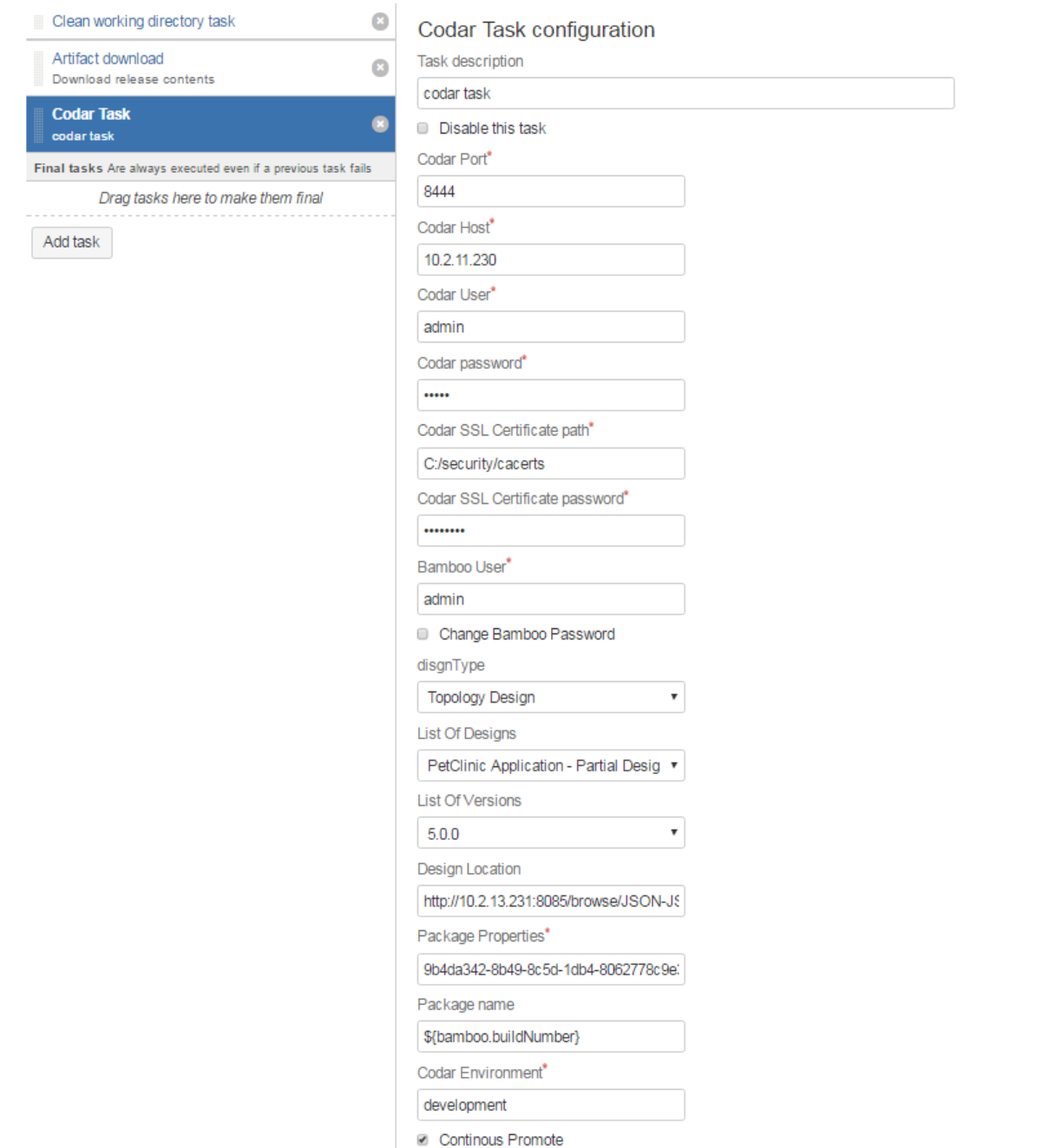
2. Enter the **Environment name** and description (optional).
3. Click **Continue to task setup** to proceed.

Adding Task

After creating the environment, you will be directed to Add Codar task for the plan.

1. Click **Add Task**.
2. Select the **Codar Task** plugin from the available options in the Task types.
3. Enter the values in the fields as below:

All fields marked with an asterisk are mandatory.



Codar Task configuration

Task description

Disable this task

Codar Port*

Codar Host*

Codar User*

Codar password*

Codar SSL Certificate path*

Codar SSL Certificate password*

Bamboo User*

Change Bamboo Password

disgnType

List Of Designs

List Of Versions

Design Location

Package Properties*

Package name

Codar Environment*

Continuous Promote

- a. Task description (Optional).
- b. Codar Port – The Port number the Codar application is listening to.

- c. Codar Host – Host name or IP address of the server on which Codar is installed.
- d. Codar User – Name of the user that has administrative privileges in Codar.
- e. Codar password – Password of the Codar user.
- f. Codar SSL Certificate path - Enter SSL certificate path for Codar and pick up the certificate from the Codar setup.
- g. Codar SSL Certificate password – Enter the SSL certificate keystore password for Codar. (By Default the OOTB password is changeit).
- h. Bamboo User name and password.
- i. designType – Type of application design (Topology or Sequenced).
- j. List of Designs – Based on the application type selected, this field lists the designs available for deployment here. Select the appropriate design. If you do not select a design, the task will not be saved.

When editing a task, you must provide the Codar password and certificate password again to get the design list, then select the appropriate design to save the task.

- k. List of Versions – Based on the design selected, this field lists the available application design versions. Select the appropriate version.
- l. Design Location – Go to Build > All build plans, select the successful build of the plan and click Artifacts tab, click Design, copy the location and replace the built number with **\$(bamboo.buildNumber)**

E.g. Original location: `http://10.10.0.161:8085/artifact/HPEV-PET/shared/build5/Design/designs/PetClinic_Application_on_vCenter_Siva.json`

Replaced the build number: `http://10.10.0.161:8085/artifact/HPEV-PET/shared/build-$(bamboo.buildNumber)/Design/designs/PetClinic_Application_on_vCenter_Siva.json`

- m. Package Properties and Package name – This value comprises three sections; component ID or name, property name, and property value.
Component Name: Name or ID of the component in the application design. The component name can be obtained from the design. To obtain the component ID, export the design in JSON format using the designer. For example, the component ID of the PetClinic application can be:
`PetClinic_Application__VERSION__1__GROUPLD__com.hp.csa.type0001.`

Property name: This is the property name and not the display name. Property name can be retrieved using the REST_API call `<codar url>/api/codar/app-package/<packageid>/properties`. Refer to the API Reference Guide for more information.

Property value: Value of the property that must be parameterized.

E.g. Original location: `efc90fde-c75c-d5e5-bd3e-7f7ce358e2e2;artifacturl;http://10.10.0.161:8085/artifact/HPEV-PET/shared/build5/App/target/petclinic.war`

Replaced the build number: `7f7ce358e2e2;artifacturl;http://10.10.0.161:8085/artifact/HPEV-PET/shared/build-$(bamboo.buildNumber)/App/target/petclinic.war`

- n. Codar Environment – Environment in which the provider to be used for deployment is contained. Environments are created in the **Resource provider** tile under Codar. For details about environments, see the Codar Online Help.
4. Select the checkbox for **Continuous promote**.
 5. Click **Save** to confirm.

Deploying the Project/ Plan

1. Click **Back to deployment project** after adding the Codar task

Note: You can also Go to **Deploy > All deployment Projects** and select the build to be deployed.

2. Click **Triggers** to deploy the successful build plan automatically.
 - a. Click **Add trigger**.

- b. Select **After successful built plan** to trigger the deployment post new build.
- c. Enter **Trigger Description**.
- d. Click **Save trigger**.

Note: You can click **Deploy** icon if manual deployment is required.

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