Hewlett Packard Enterprise

Codar

Software version: 1.90

Continuous Integration, Deployment and Testing by Codar using ALM

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Contents

What is Codar?

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 SA, and so on and representing this content as components. These components can be used in a graphical designer to create an application model.

One of the important features of Codar is that the model is used to trigger deployments automatically with Jenkins, trigger test cases that are on the deployed instances in ALM (Application Lifecycle Management), and update the results in ALM.

This document provides information about integrating Codar with ALM.

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.

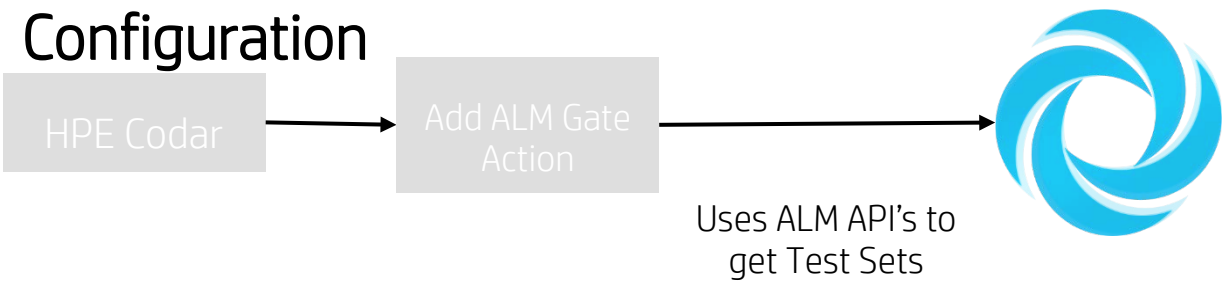
Using Codar, users can deploy the application and run tests automatically by integrating with ALM. This white paper describes how Codar can be integrated with ALM. Codar is integrated with ALM through Jenkins. Jenkins acts as orchestrator between Codar and ALM.

HPE Application Lifecycle Management

ALM is a set of software products designed to accelerate the delivery of secure, reliable, and modern applications. It is a combination of a common platform, several key applications, and a dashboard targeted at managing the core lifecycle of applications.

End-to-end flow

User will be able to configure ALM Test sets in Release Gate actions. “Execute Test Set” is the release gate action which provides interface with ALM. The following diagram shows how ALM test sets are configured and executed



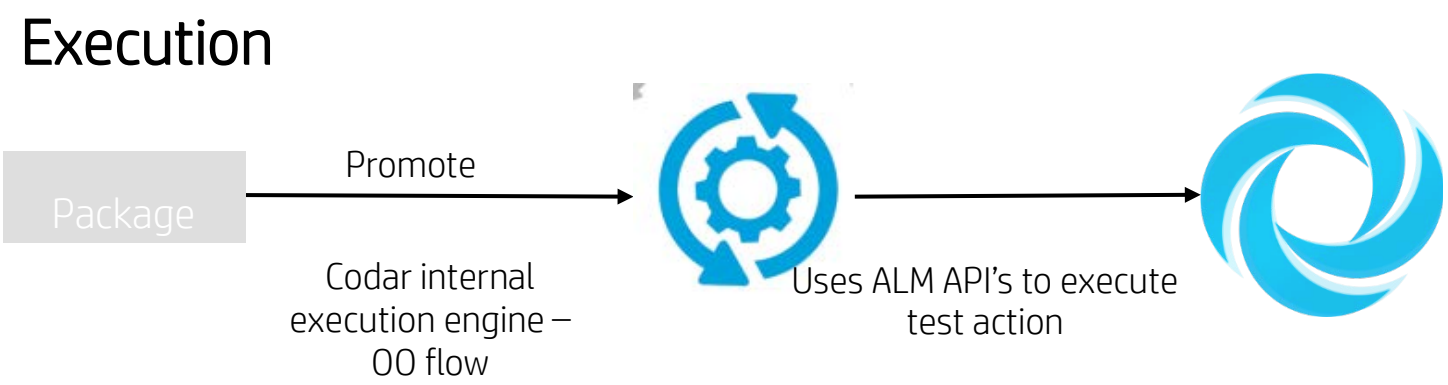


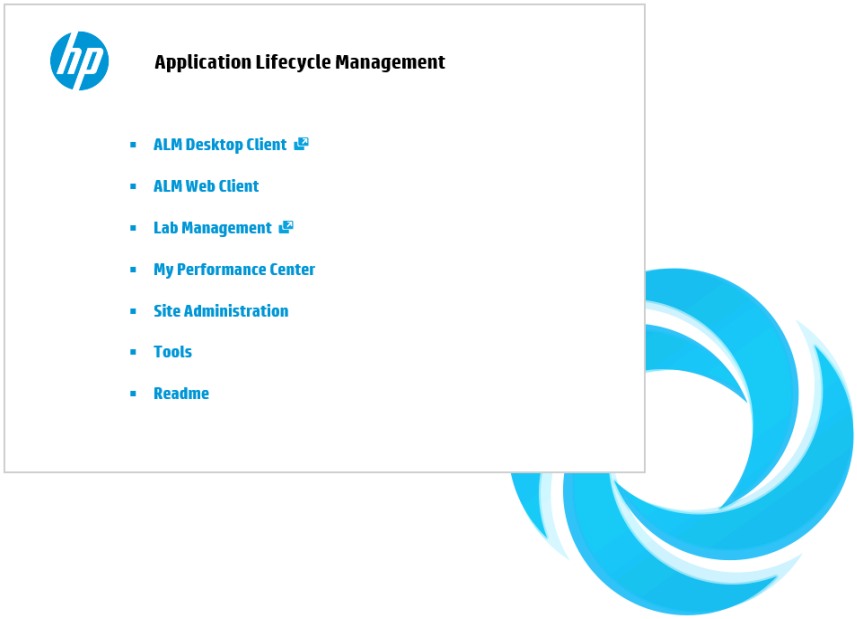
Figure 1: Interface with ALM

Create the test environment in ALM

The Jenkins ALM integration is supported only in ALM version 12.20. See the ALM Installation Guide for information about installing ALM 12.20.

After installing ALM, the configurations required for the Jenkins-ALM integration are shown in Figure 16.

Figure 2: Configurations required for the integration

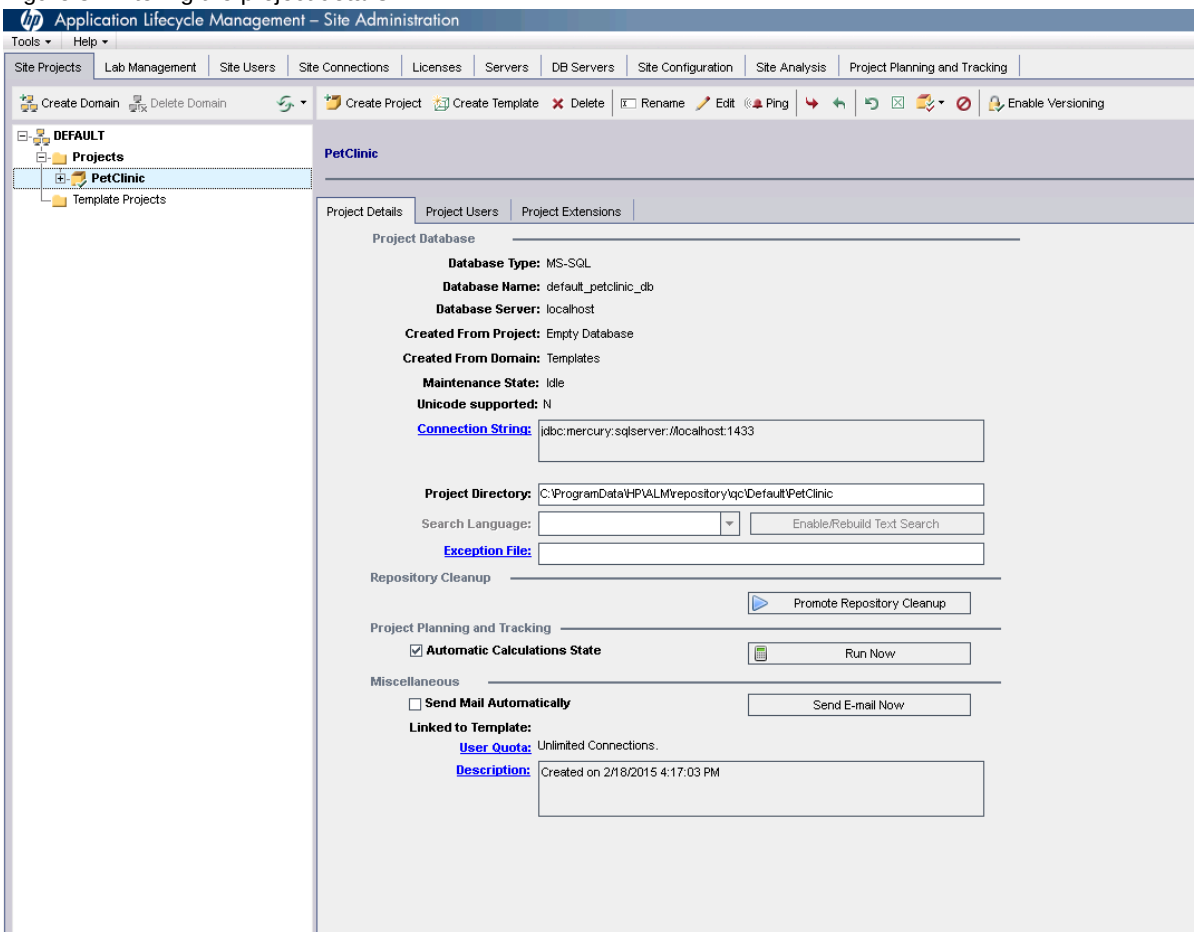


After installing ALM, open the http://localhost:8080/qcbin/ link using Internet Explorer.

Site Administration

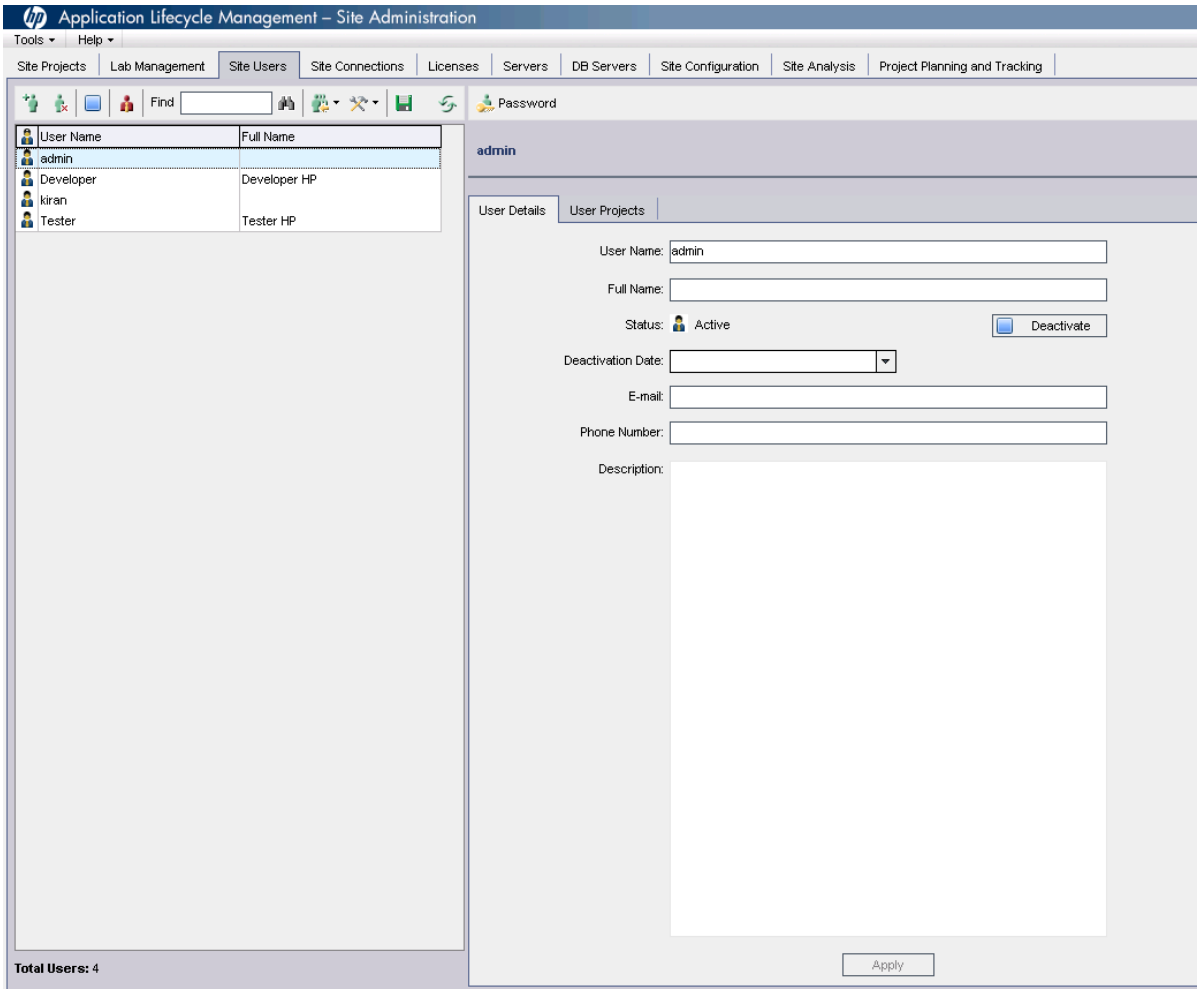
Use Site Administration to create projects and users. The users should be associated with the project. The following screens show how the Pet Clinic project is created.

Figure 3: Entering the project details



After entering the project details, users have to be created and associated with the Pet Clinic project. In this example, a user called Tester has been created and Tester has been associated with the Pet Clinic project. In this case, Tester is also a project administrator (to avoid any permission issues).

Figure 4: Creating a user



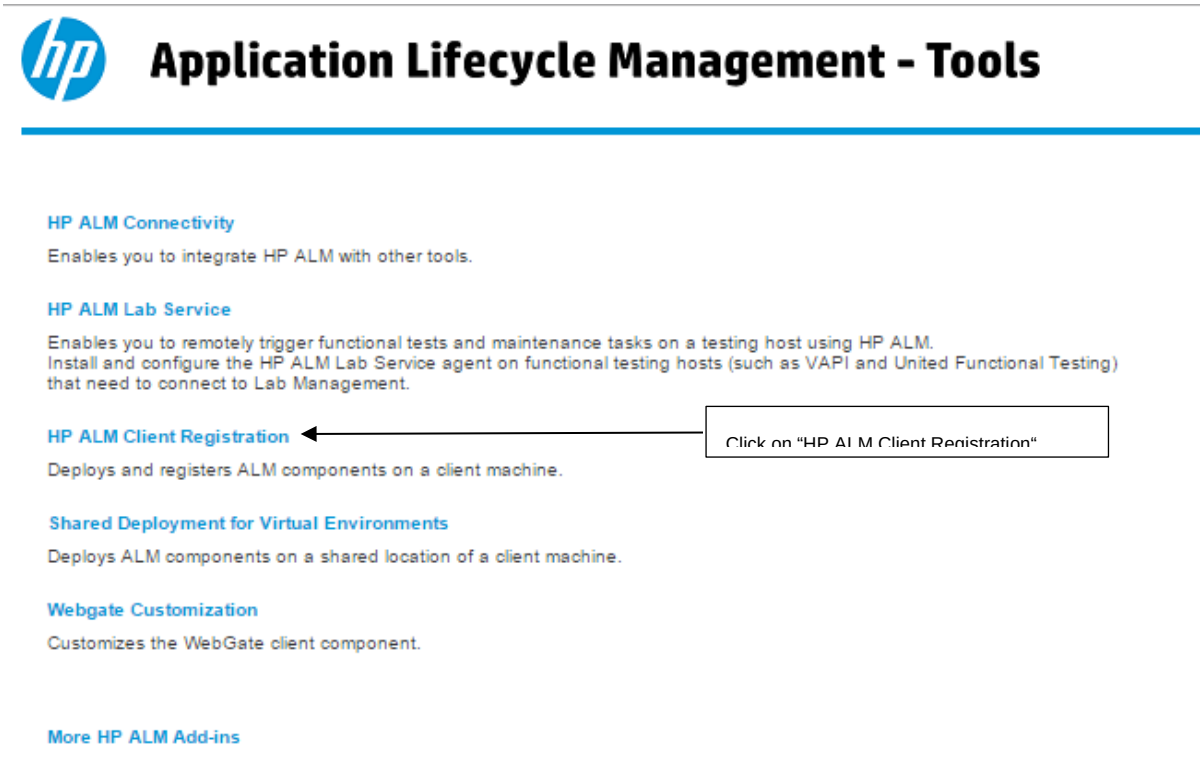
For more information about using Site Administration, see the ALM Administration Guide.

ALM Lab Service

You can install ALM Lab Service either on the same computer in which ALM 12.20 is installed or on a different computer. Ensure that ALM Lab Service is running. For information about installing and configuring ALM Lab Service, see the ALM Guide.

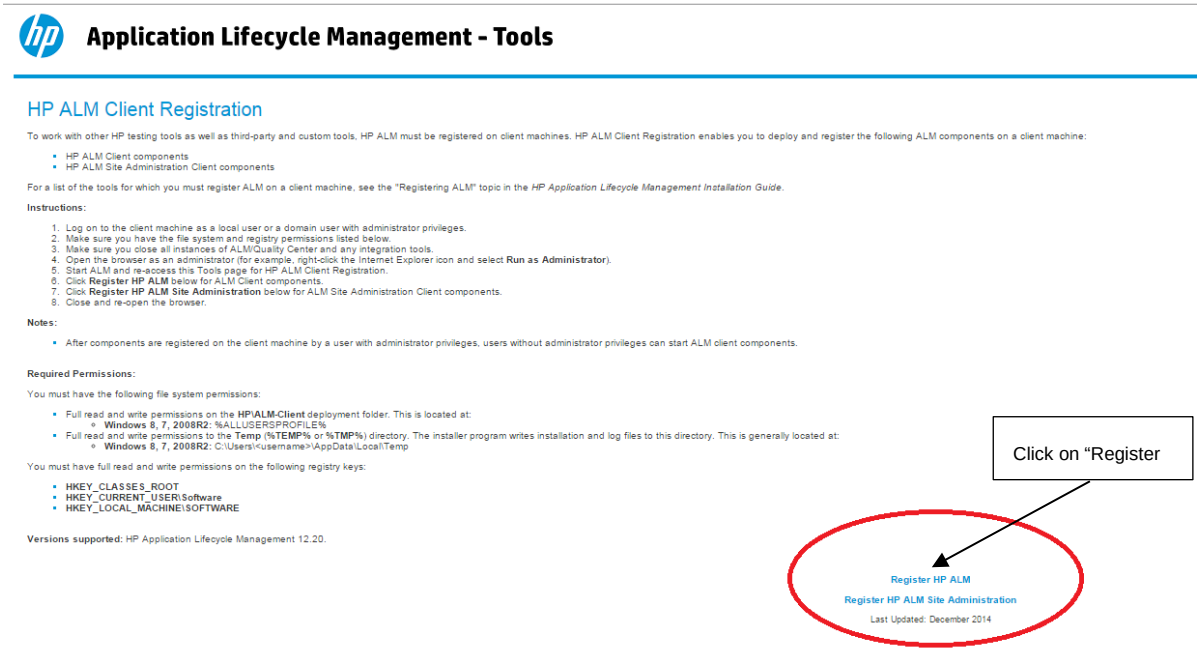
Note – If ALM Lab Service is installed on a different computer, then VAPI-XP must be installed. To do this, open Internet Explorer on the computer in which ALM Lab Service is installed and type http://<alm server hostname>:<port>/qcbin/addins.html

Figure 5: Installing VAPI-XP



To download the VAPI-XI libraries, register the client with ALM as shown in Figure 20.

Figure 6: Downloading libraries

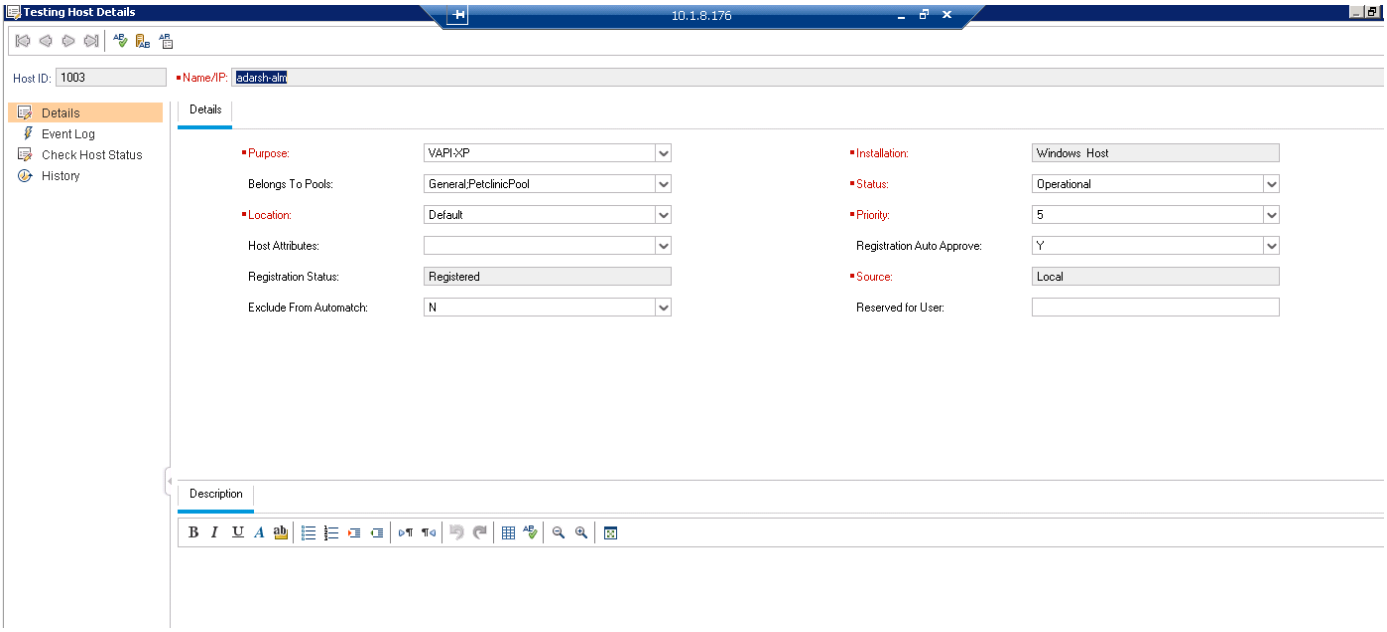


ALM Lab Management

1. Open ALM Lab Management from the computer in which ALM 12.20 is installed. Login as an administrator.

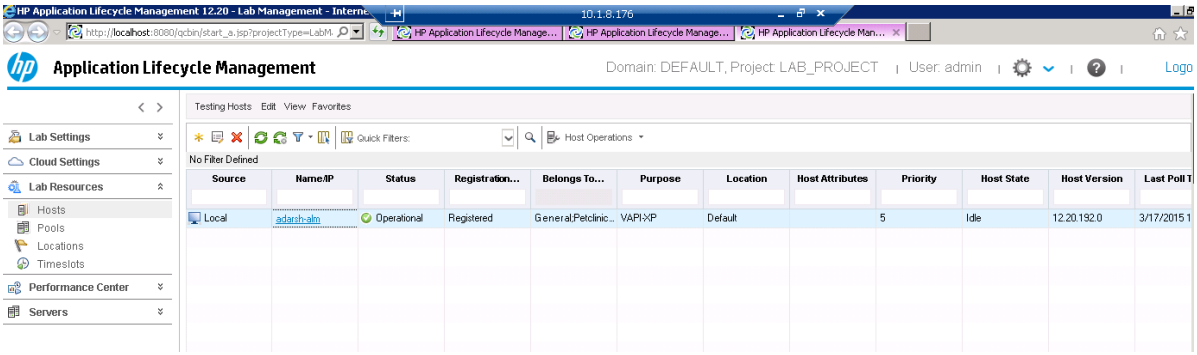
2. Go to **Testing Host** –> **New Testing host**.

Figure 7: Testing hosts



3. Ensure that the purpose is VAPI-XP.
4. After adding the new host, it must appear as shown in Figure 22.

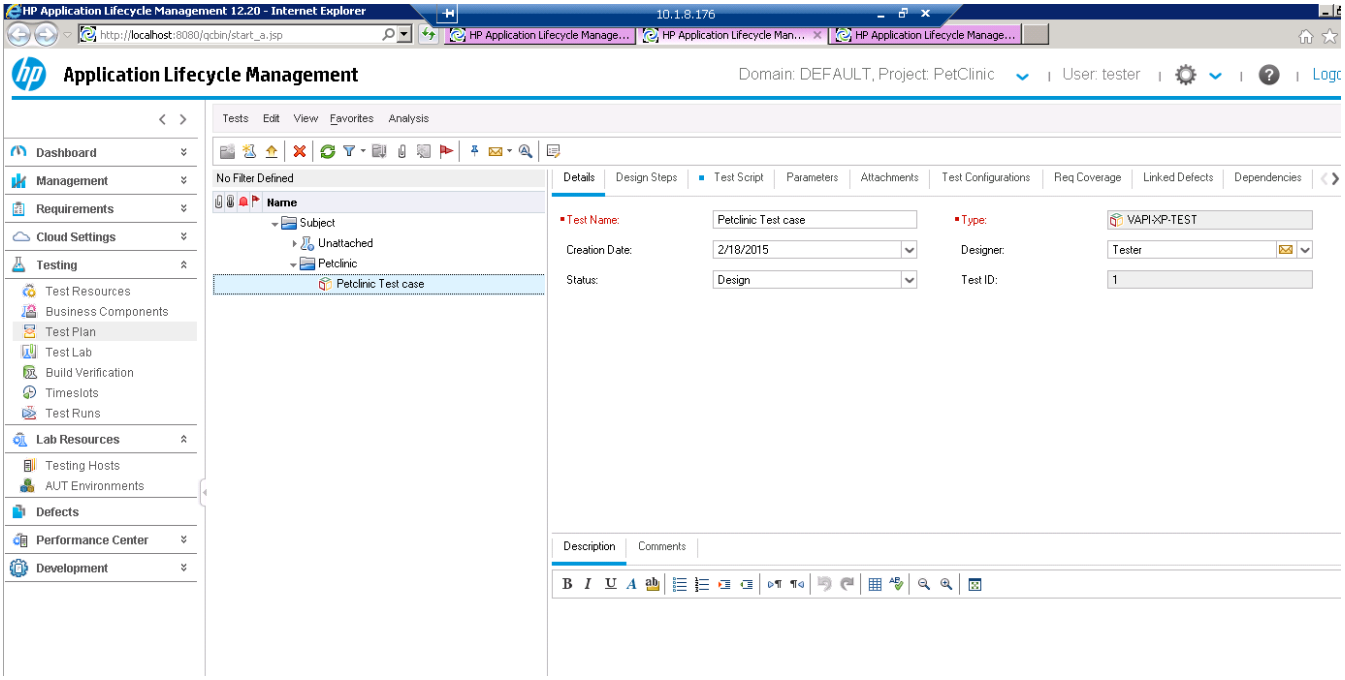
Figure 8: New host



ALM Desktop Client

1. Open ALM Desktop Client from the computer in which ALM 12.20 is installed.
2. Login as Tester (domain is default and the project is Pet Clinic for this example)
3. Go to **Test Plan** –> **Create a New Test Case**.

Figure 9: Creating a test case



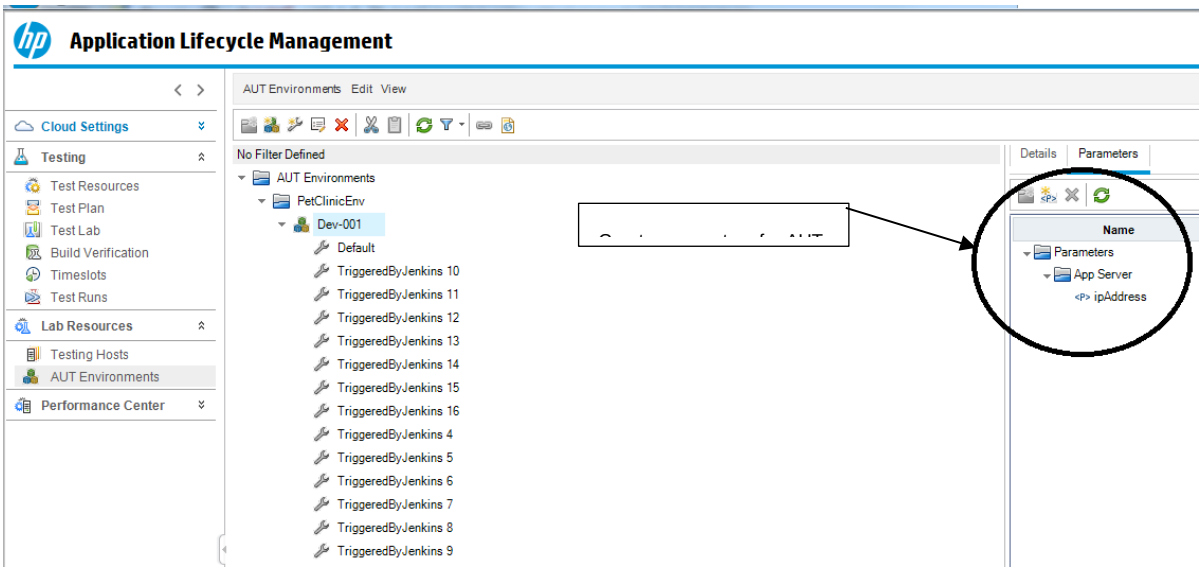
4. Ensure that the type is VAPI-XP-TEST.
5. Add the following script on the **Test Script** tab.

```
' Petclinic Test [VBScript]
' Created by Application Lifecycle Management
' 2/9/2015 3:25:28 AM
' ====================================================




' ----------------------------------------------------
' Main Test Function
' Debug - Boolean. Equals to false if running in [Test Mode] : reporting to Application Lifecycle Management
' CurrentTestSet - [OTA COM Library].TestSet.
' CurrentTSTest - [OTA COM Library].TSTest.
' CurrentRun - [OTA COM Library].Run.
' ----------------------------------------------------
Sub Test_Main(Debug, CurrentTestSet, CurrentTSTest, CurrentRun)
  ' *** VBScript Limitation ! ***
  ' "On Error Resume Next" statement suppresses run-time script errors.
  ' To handle run-time error in a right way, you need to put "If Err.Number <> 0 Then"
  ' after each line of code that can cause such a run-time error.
  On Error Resume Next


  ' clear output window
  TDOutput.Clear
```

```
  ' TODO: put your code here
      'Dim ipAdd : ipAdd = "10.1.9.136"

'url_base= "10.1.9.136"
url_base=CurrentRun.getRunTimeParameterByName("ipAddress")
url= "http://" & url_base & ":8080/petclinic"

  set ie = CreateObject("InternetExplorer.Application")
'     ie.Navigate "http://10.1.9.136:8080/petclinic"
      ie.Navigate url
     ie.Visible = true

  If Not Debug Then
  End If
  ' handle run-time errors
  If Err.Number <> 0 Then
    TDOutput.Print "Run-time error [" & Err.Number & "] : " & Err.Description
    ' update execution status in "Test" mode
    If Not Debug Then
      CurrentRun.Status = "Failed"
      CurrentTSTest.Status = "Failed"
    End If
  End If
End Sub
```

6. Ensure that Testing Hosts is updated with the information added in Lab Management.
7. Verify that the Pet Clinic test case is successful by manually running the test case in the test lab.
8. Go to **Lab Resources** -> **AUT Environments** and add a new AUT parameter called App Server as shown in Figure 24.

Figure 10: Added the App Server parameter



Configuring Test Set Action

"Execute Test Set" is a new Action that can be used to trigger ALM Test Sets during package promotion. User will be able to configure this gate action in all stages.

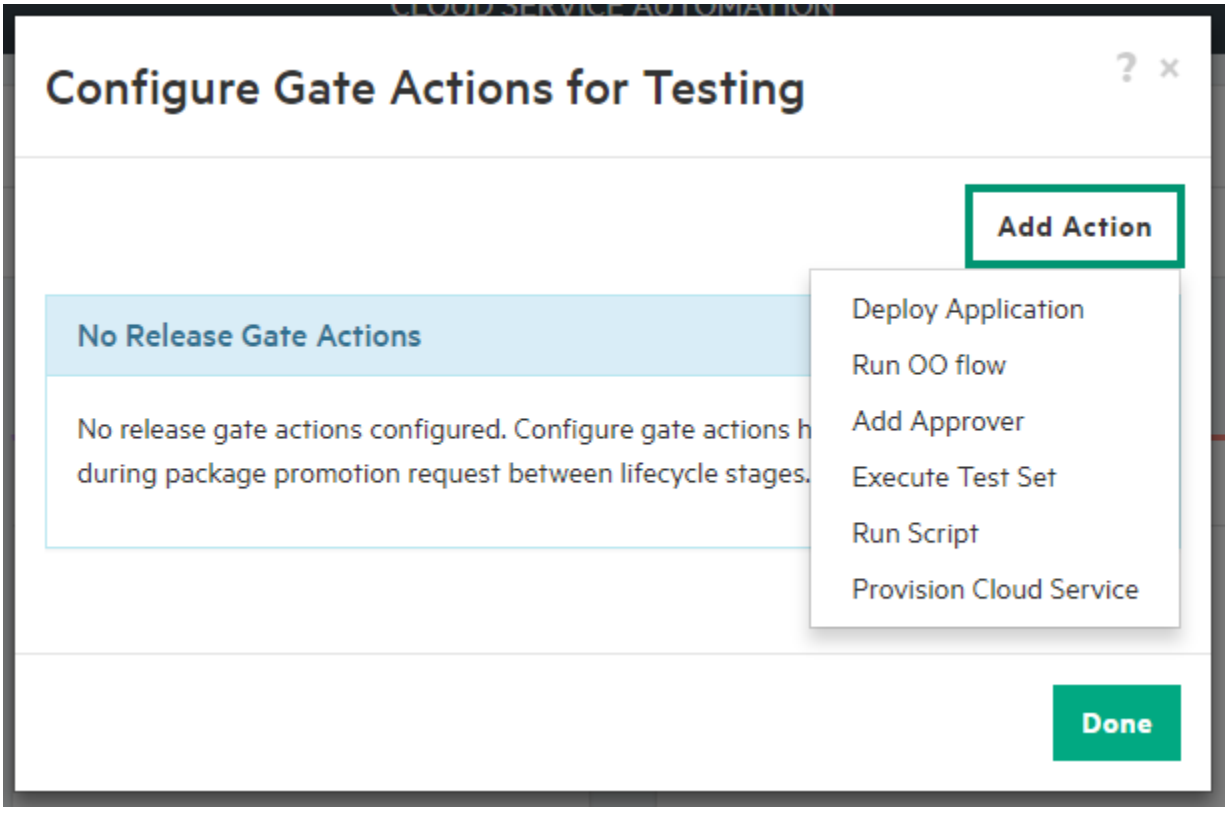
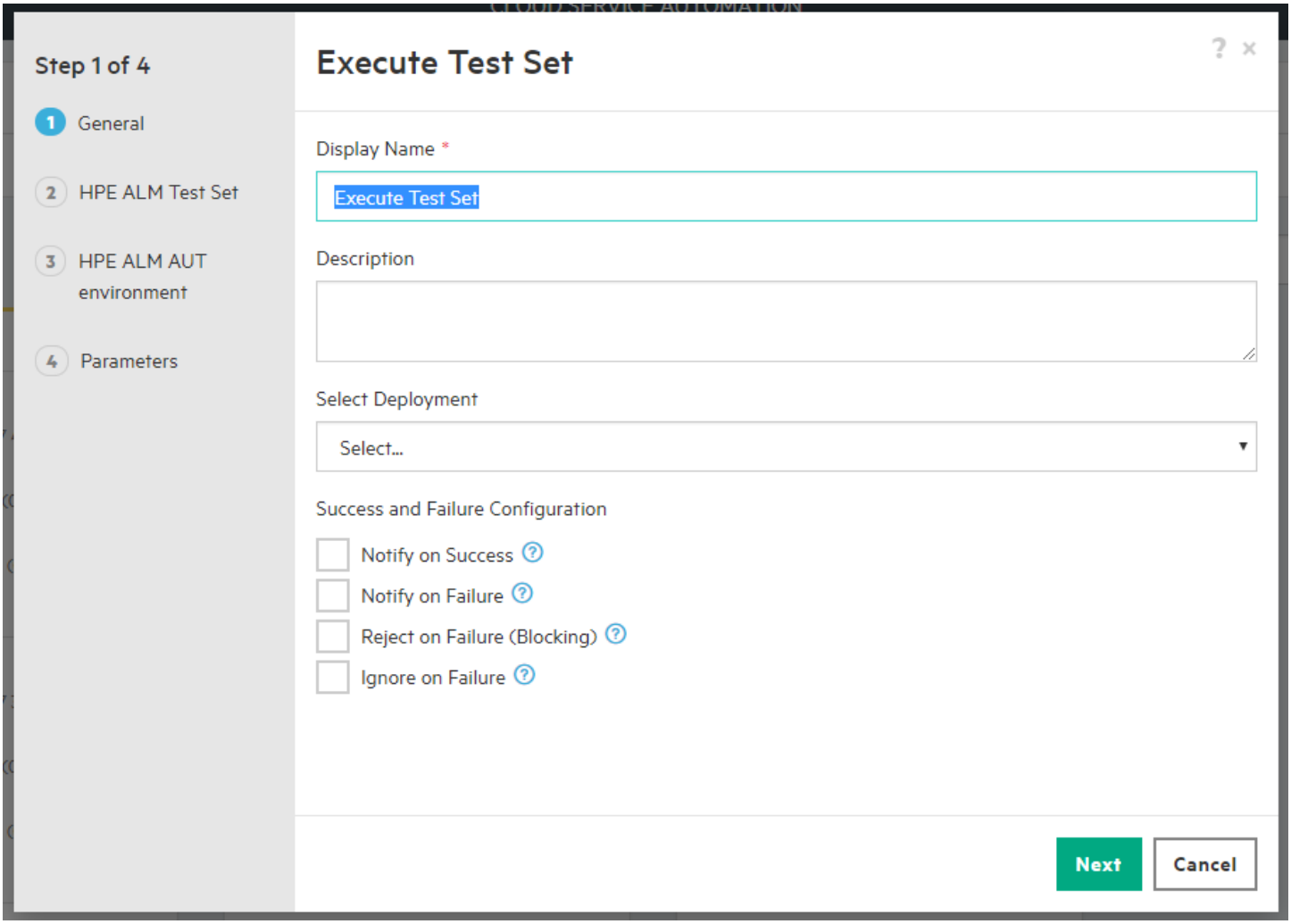


Figure 11 – Execute Test Set

Select "Execute Test Set"



In the Select Deployment option – select the deployment action on which this Test Set is dependent on.

Click Next, Select ALM Test Set and AUT environments in step 2 and 3

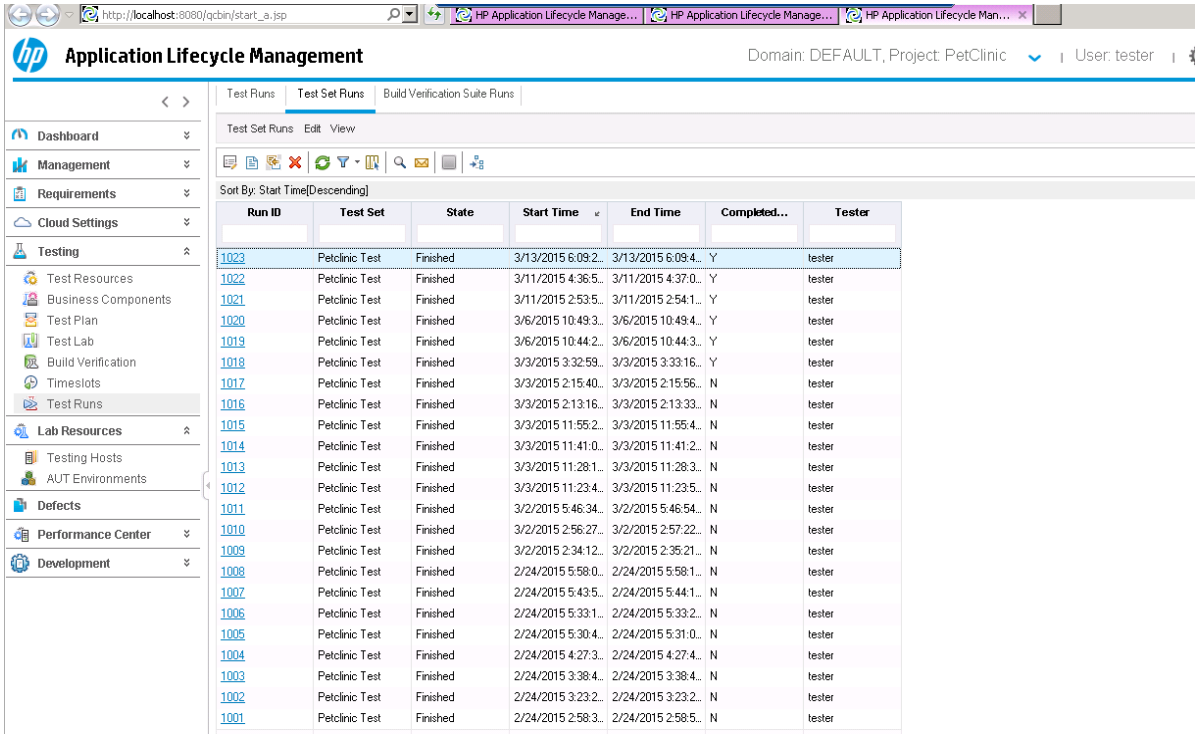
Configure the parameters in Step 4

Select “Add Action” to complete the configuration

Executing Tests during package promotion

Create a package and “Promote” it. During package promotion the configured gate actions are executed. The ALM test sets are also executed and upon successful completion of Test Set the package is promoted to next stage

The below screen show the status in ALM



Troubleshooting Codar Integration with Jenkins and ALM

This section contains some of the issues that you may encounter when integrating Codar with Jenkins and ALM, and workarounds to troubleshoot these issues.

Plug-in execution begins but fails

Problem: Codar plug-in execution begins but fails with some error

Solution/Workaround: In the Operations Orchestration console>>Content Management>>Configuration Items>>Systems account>>System properties, overwrite the following properties with the appropriate credentials:

- CODAR_REST_CREDENTIALS
- CODAR_REST_URI

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