

ALM in the Cloud – an Overview of Oracle Developer Cloud Service

By Dana Singleterry

Introduction

In recent years the world of application development has adopted new methodologies that aim to improve the quality and speed in which applications are being delivered. The introduction of innovative development approaches such as test driven development and agile development gave rise to a set of new techniques and tools that enable those methodologies. Tools such as automatic build utilities combined with continuous integration platforms, as well as enhanced collaborative tools such as wikis and code review utilities aim to simplify the adoption of these new methodologies. However for many IT shops setting up these environments and maintaining them was difficult and cost prohibiting, resulting in many organizations sticking to the old way of building applications. Now Oracle is aiming to change this by introducing a new simpler way to adopt modern development methodology and tools with a cloud based offering.

Oracle Developer Cloud Service (ODCS) will transform the way your applications, whether Web / Mobile / Cloud-based / On-premise / or a combination, are built and deployed. The new ODCS Platform as a Service (PaaS) is focused on simplifying and accelerating the entire Java application lifecycle (including Oracle's Application Development Framework – ADF), making it easier and faster than ever to build, run and manage your applications. Development pains become an issue of the past thanks to the automatically provisioned, scalable development platform supporting the complete development lifecycle as provided by ODCS. Within minutes, teams get immediate access to source repositories, issue tracking, builds, and more.

ODCS promotes team development by enabling the developer to create, collaborate on, and deploy applications in a standards-based environment. During the development lifecycle, it's often tough to manage standalone components in a seamless way. For instance, you need access to IDEs and code repositories, and capabilities for Wikis. When you do this individually, you have to manually set up everything and manage them on an ongoing basis. ODCS is a central platform for source control management, issue tracking, continuous integration, and collaboration – all done automatically supporting popular tools like Git, Hudson, and Maven.

In this article, the features provided by ODCS will be clearly outlined providing a transparent understanding of Oracle's PaaS solution for team development. First, let's get an understanding on the impact of PaaS on total cost of ownership (TCO).

PaaS impact on TCO

PaaS is seeing significant growth as businesses are increasingly turning to these hosted services for development, deployment, and management of applications. One can easily surmise that this is soon to be a key asset for developers and lines-of-business in the modern technology toolset by eliminating much of the operational costs and IT hassles normally encountered such as infrastructure

installation/configuration, development lifecycle software installation/configuration and, ongoing management of these environments.

PaaS developer services benefits the business in a variety of ways that impact the cost of applications development, test, maintenance, and operations. Let's summarize this in its constituent pieces:

- **Agility and time-to-market:** Possibly the most obvious reasons that PaaS is being pursued by developers and lines-of-business but it is still difficult to quantify. To be brief, with PaaS, this removes the expense of infrastructure, software, and ongoing maintenance.
- **Operational simplification:** PaaS alleviates development teams from certain operations such as installation and upgrades. Many tool assisted/scripted operations are replaced by PaaS developer services. ODCS takes on the operational burdens by making sure the development lifecycle software and processes you rely on are up-to-date, secure and performing as designed.
- **Expertise:** PaaS is a operationally complex infrastructure with equally complex processes with associations between them. Finding technically skilled expertise to install/configure/manage such an environment is expensive and thus removing this layer from development teams and allowing them to focus on the application at hand is a clear win for the business today, tomorrow and in the future.

Summary of Features

ODCS is a cloud-based hosting environment for software development projects and is available as a web interface accessible from a web browser as well as feature integration within Oracle Enterprise Pack for Eclipse (OEPE), Oracle JDeveloper and NetBeans IDEs. Key features in ODCS include:

- Project creation, configuration, and user management
- Source control repository through Git or github to store your application
- Maven repositories to store your application dependencies and libraries
- Defect tracking system to track tasks, bugs, and enhancements
- Continuous build integration through Hudson
- Document collaboration through wiki
- Code Reviews
- Team management
- Deployment to Oracle Java Cloud Service running WebLogic Application Server or on-premise



Figure 1 Oracle Developer Cloud Service

All services are built on standards including SQL, Java and HTML5. Building on standards provides clear benefits, one of the most immediate being that you can run your applications in Oracle Cloud more transparently. This means you can port an application to your local environment without having to alter any code. Conversely, if you're running a standards-based application on-premise and would like to move it to the cloud, you will be much further along in the process to make that change.

The design principles for Oracle Cloud are to allow self-service. You can develop, deploy and manage your applications with minimal involvement of your IT staff. This also means a minimal need to engage with Oracle as you choose. Another unique and a distinct advantage for Oracle Cloud users is the complete isolation of data. There is no comingling of your data, despite it being a public cloud as Oracle Cloud is a multi-tenant environment.

How does it all work?

ODCS provides functionality for creating and configuring projects, adding and removing team members, and using the Dashboard to view project metrics and build status. As an administrator, you can perform the following actions from ODCS web interface:

- Create a project
- Add and remove members, and assign administrative privileges to a member
- Access to Admin module
- Manage tasks
 - Add and remove products
 - Assign a team member to own a product
 - Manage tags
 - Add custom fields
- Manage Hudson plugins

- Change the privacy of a project
- Add hosted source repository and external source repository

When you create a project in ODCS you become the administrator (or Owner) of the project and can perform all the aforementioned actions. Project creation immediately provisions the Source Control Management (SCM) and Maven repositories, Tasks module, Hudson build server, and a wiki. Once a project has been created, the project toolbar reveals the following tools that are available for each of the feature modules:

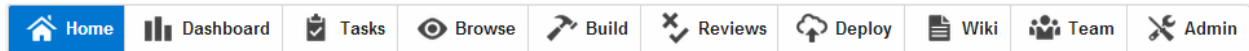


Figure 2 ODCS Project Toolbar

The following is a review of some of these modules.

Using the Dashboard – The Dashboard module provides four sets of information: Build status from Hudson, commit statistics of the user, an Activity graph, and a recent activity feed. Clicking a link in either the recent activity feed, or the build status, opens the details for that item and if a build is broken for example, associations make it easy to track back to what broke the build. You can also easily filter information on the dashboard page for the Recent Activity feed items by Build, Wiki, and Tasks. In addition, when you hover over a task activity, a popup window provides you with the details of the task.

Managing Users – You can add and remove users from the Team module of the Oracle Developer Cloud Service. The Team module displays the current users of the project and in order to add users to a project, the user must already exist in the Identity Domain. As an administrator you can easily update users and their roles.

Administering Tasks: Tasks come with a default set of categories that can be configured to your specific needs. There is the Admin tab in the project toolbar, which loads the module and provides the various subsections one of which is Tasks. In the Tasks subsection, you can define multiple product categories, components, sub-components, customize the versions, provide custom tasks, and add custom fields.

Creating a Product: You can create multiple products for a project and product details are required when tasks are created. Once you’ve created a product, you can then add components (multiple components) to the product. This requires specifying the component name, description, and owner in the components section. You also want to add a release (multiple releases) of the product, which simply means specifying the release numbers in the releases section.

Creating Iterations, Tags, and Custom Fields: You can add multiple iterations, tags, and custom fields for a project. This detail is required when tasks are created.

Managing Wiki: ODCS provides a Wiki module for document authoring and collaboration. The wiki is created when you create a project and there are two types of wiki markup supported:

- Textile
- Confluence

Any member of a project can create a wiki page, but as an administrator you can specify, and change the wiki markup type for a project.

Managing Hudson Builds: ODCS includes continuous integration services through Hudson, the most popular continuous integration server, which supports agile development methodologies. Specifically, for ODCS, customers need to understand the traceability that they get between tasks, commits to Git, and builds. This is an enhancement that is built into ODCS that allows the build results to reveal specific change lists and tasks associated with a change list. When a build breaks, it's much easier to trace the broken build back to a specific task or bug fix.

Each instance also includes a Hudson continuous build server to build your application source files. Hudson builds are easily managed from the Builds module of ODCS. Two sample jobs are included with your Hudson instance:

- A sample Maven job which polls from the Git repository in regular intervals.
- An Ant job which includes a sample configuration for building ADF Applications with OJDeploy.

You can copy and modify these example jobs or create your own. From the Builds module of ODCS you can manage the following Hudson services:

- Configure global settings and paths
- Reload configurations from disks
- Manage Hudson plugins
- View system environment information that might be required for troubleshooting
- View system logs
- Load system statistics and check resource utilization
- Create custom views for users of a project

For more on Hudson visit the Main Hudson home page – <http://www.eclipse.org/hudson>

Creating Code Reviews: ODCS includes the ability to create code reviews and invite project members to participate. You can review history on a file to see what's changed, add comments to modifications and approve or reject said modifications and the overall code review itself.

Summary

ODCS is a complete PaaS development environment for the Enterprise that simplifies development with an automatically provisioned development platform supporting the full development lifecycle. Developers now have access to a turnkey development platform securely hosted in the cloud allowing

them to collaborate through integrated tooling to manage and track tasks, builds, and documentation. Not only is it easy to integrate with other services running in the cloud, ODCS provides for automatic deployment to Oracle Java Cloud Service or your local infrastructure.

Follow the latest news on Oracle Cloud and the upcoming announcement of ODCS production availability at <https://cloud.oracle.com/developer>.