FlexDeploy for Oracle Fusion Middleware
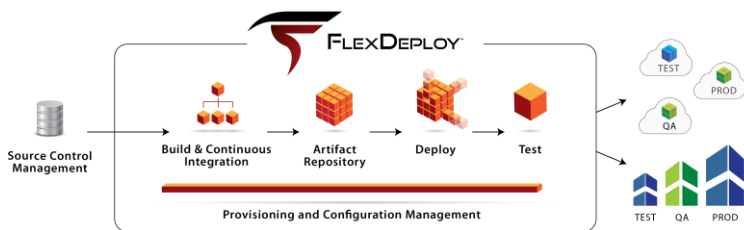## An Overview of Plugins and Integrations for Oracle Middleware Technology

Before and After… There's a better way

Historical approaches to the deployment of Oracle Fusion Middleware, Database, and Applications have used a combination of manual steps and home-grown scripting. This has led to slow, error-prone, and costly deployment and release processes, which for many customers, is simply unacceptable.

FlexDeploy is a DevOps and Application Release Automation (ARA) product which standardizes, orchestrates, and automates the lifecycle of provisioning, building, deploying, and releasing database, middleware configurations, application changes, and other related artifacts into non-production and production environments.

FlexDeploy Benefits in a nutshell

- **Accelerate Software Delivery**
  In many cases going from hours or days to minutes. Automation also increases the amount of change that can occur in a window and the size and complexity of change that can be accomplished per release.
- **Increase Productivity and Quality**
  Manual processes are error-prone, and troubleshooting deployment issues can be extremely difficult and time consuming. Improving the quality of your deployment and release processes will increase productivity and improve service levels across all environments.
- **Better Visibility**
  In addition to knowing what is in each environment for troubleshooting, the data helps meet compliance requirements and complete audits more effectively.
- **Reduce Cost and Risk**
  Reduce or eliminate the need to build and maintain scripts, perform manual steps, and troubleshoot and resolve failed or inaccurate deployments.

Overview of Features

FlexDeploy provides end-to-end automation and management capabilities across the deployment lifecycle, including the following high-level features.

- Workflow Editor and Runtime
- Provisioning and Configuration Management
- Build and Packaging
- Continuous Integration (CI)
- Artifact Repository
- Project and Application Management
- Pipeline and Release Automation

- Scheduling
- Security
- Approvals and Notifications
- Rollback
- Dashboards and Reporting
- Test Automation
- Plugins for open source and commercial technology

FlexDeploy for Fusion Middleware – DevOps and Continuous Delivery made easy

This paper is an overview of the out-of-the-box capabilities provided by plugins for Oracle SOA, OSB, BPM, ODI, WebLogic, and ADF. Additional FMW plugins are available for products such as B2B, OBIEE, WebCenter, and MFT, Oracle IaaS and PaaS, however, they will not be covered here.

Without FlexDeploy, Fusion Middleware customers take a variety of approaches to implement the deployment process, including fully manual, a combination of manual and scripted, or fully scripted via custom developed tools. Oracle customers who have created custom deployment tooling can attest to the time investment required to create and maintain such tools. For those who have manual procedures, or have partially automated the process, the pain points

are also well known. For example, the speed (or lack thereof) of deployments and the potential for injecting errors because of human mistakes. In addition, most deployment processes lack the role-based security, scheduling, notifications, reporting, and other release lifecycle management features provided out of the box by FlexDeploy. FlexDeploy's Fusion Middleware plugins hide the complexity of administration, build, and deployment operations.

Deeper dive into Fusion Middleware Plugins

SOA Suite and BPM
Supported Versions: 11g, 12c

FlexDeploy's SOA Suite plugin and FlexDeploy MDS plugin provide complete management of SOA or BPM composites. The plugins allow developers to focus on building composites and less time deploying and managing them.

Packaging
The plugin defines a set of configurable properties which are required to communicate with the SOA WebLogic managed server. Based on the properties, the plugin will generate a deployable SAR file.

Deployment
The plugin manages all aspects of the composite deployment such as:
- complete revision management
- rich property replacement
- configuration plan support
- MDS management of key composite objects

Oracle Service Bus (OSB)
Supported Versions: 11.1.1.7+, 12c

The FlexDeploy OSB plugin simplifies deployment and enables continuous integration. Easily package OSB components for deployment, then import these components across your OSB environments, both on-premises and in the cloud.

Packaging
Create a deployable OSB jar from either the OSB instance or an Eclipse or JDeveloper workspace.

Deploy
Deploy your jar file using the import operation. The import operation supports applying configuration/customization files to manage environment specific values. Beyond configuration files, FlexDeploy supports rich property replacement during deployment.

Track
Once deployed, FlexDeploy makes it easy to compare versions of your OSB components between environments ensuring changes do not get missed.

Oracle Data Integrator (ODI)
Supported Versions: 11.1.1.3+, 12c

The FlexDeploy ODI plugin provides the ability to move scenarios from development work repositories to target execution repositories, eliminating manual work and/or the cost to develop and maintain custom scripting. The plugin defines a set of configurable properties that are required to connect to the ODI Master and Work Repositories, and to fully customize the build and deployment behavior.

Packaging
The plugin exposes several build properties which provides flexibility in how ODI scenarios are packaged together as a unit.
- By Project
- By Version(s)
- Include/Exclude Regular Expressions (Object Name)
- Using ODI Markers (by Folder or Individual Object)

Deployment Characteristics
The FlexDeploy ODI plugin is highly scalable to support concurrent deployment of many projects. The key features are multi-threading for high throughput, and change detection to avoid deployment of scenarios which have not been modified.

Operations
- **Build** – operation to export scenarios from an ODI development repository and package them into artifacts, made available for deployment to one or more execution repositories.
- **Deploy** – operation to import the scenarios generated from a build operation into an ODI execution repository.

Oracle JDeveloper (ADF)
Supported Versions: 11.1.1.3+, 12c

Manual builds can lead to inconsistent results. FlexDeploy's JDeveloper plugin offers an alternative to manual processes and provides reproducible build results. As the plugin uses JDeveloper to perform the build, the results match how the developer performs their build and unit testing during development.

Packaging
JDeveloper plugin can be used to build
- EAR, WAR and JAR
- ADF Library JAR
- Metadata archives
- WebCenter Portal Assets

Oracle WebLogic
Supported Versions: 11.1.1.3+, 12c

The FlexDeploy WebLogic plugin provides the ability to deploy enterprise applications and shared libraries to WebLogic managed servers, eliminating manual work and/or the cost to develop and maintain custom scripting. The elimination of manual steps promotes consistency across all environments.

WebLogic plugin supports
- Production & Development mode installations
- Single or Multiple Node configurations
- Deployment to Managed Server, Cluster, Partition, Resource Groups or Resource Group Template

Deploy
Various deployment options include.
- Deploy EAR/WAR file as an application
- Deploy EAR/WAR/JAR file as a shared library
- Perform environment based property replacement before Deployment
- Clean up old shared library versions

WebLogic Configurations
WebLogic plugin allows for very simple configuration management using text files. Users can maintain configuration files in a Source Control system and manage it very easily using build & deploy workflows in FlexDeploy.
- Configure Generic, GridLink and Multi Data Sources
- Configure JMS Servers, Connection Factory, Queue, Distributed Queue, Topic, Distributed Topic, Quota, Foreign Servers, Template, JDBC and File based Stores
- Configure EIS entries

Miscellaneous Operations
WebLogic plugin supports various management operations such as
- Start, Stop and Restart Managed Server(s)
- Start, Stop and Restart entire WebLogic Domain
- Restart operation supports Rolling restart to minimize the impact to application users
- Start, Stop for Administration Server
- Start, Stop for Node Manager
- Configure ADF application with MDS Repository before deployment
- Run custom WLST script

The Bigger Picture - Beyond Plugins for Oracle Fusion Middleware

While the support for Fusion Middleware is extensive and important, FlexDeploy provides the ability to orchestrate and automate the entire deployment lifecycle for middleware, database, applications, and other software running on-premises and in the cloud. Most Oracle Fusion Middleware customers have a mix of 3rd party and open source tools, middleware, and applications across their environments. FlexDeploy customers can utilize one tool to anchor their DevOps and Application Release Automation needs across their IT landscape.