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Release Notes - V4.2.0.2.0
Oracle Utilities Application Framework

ORACLE

Introduction

This document provides an overview of features and enhancements available with Oracle Utilities Application Framework V4.2.0.2.0.

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New or Changed Features

Below is a summary of the current list of enhancements allocated for release with Oracle Utilities Application Framework V4.2.0.2.0. This list is subject to change.

Inbound Web Services Support (234)

Note: A new whitepaper, Web Services Best Practices, will be released to include details of this integration as well as migration processes.

In past releases of Oracle Utilities Application Framework, the XML Application Integration component (XAI) was used to provide an XML and Web Services integration for the products. Whilst this facility is sufficient for most needs it does not use the infrastructure as efficiently as possible and does not support the enhanced Web Services standards available today.

In Oracle Utilities Application Framework V4.2.0.2.0, a new JAX-WS based facility has been introduced to provide an alternative approach to defining, deploying, securing, monitoring and executing Web Services. This facility has the following features:

- **New Inbound Web Services object** - Web Services are defined using Inbound Web Services instead of XAI Inbound Services. For backward compatibility purposes, existing XAI Inbound Services can be redefined to take advantage of the new facilities without redesign. A new set of search and maintenance functions are available for Inbound Web Services. For example:

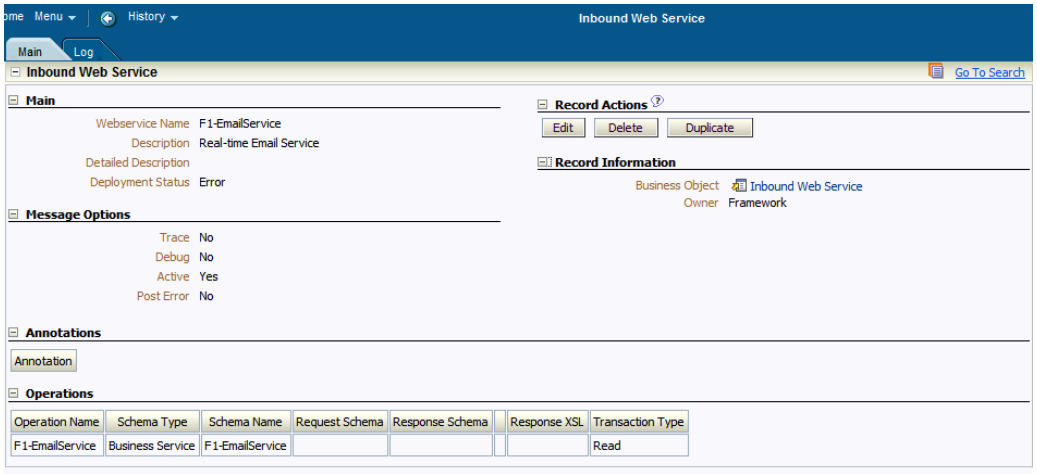

Figure 1 – Inbound Web Service Maintenance.

- **Operations Support** - Inbound Web Service now supports different operations per Web Service. To promote reuse it is possible to build a Web Service that can be used for multiple different calls by supporting configurable operations and schemas for each call. This allows the request and response to be different formats based upon the operation used. This also allows the Transaction Type to be mapped to an operation which is typically expected with java based Web Services. For backward compatibility, a default operation will be generated. For example:

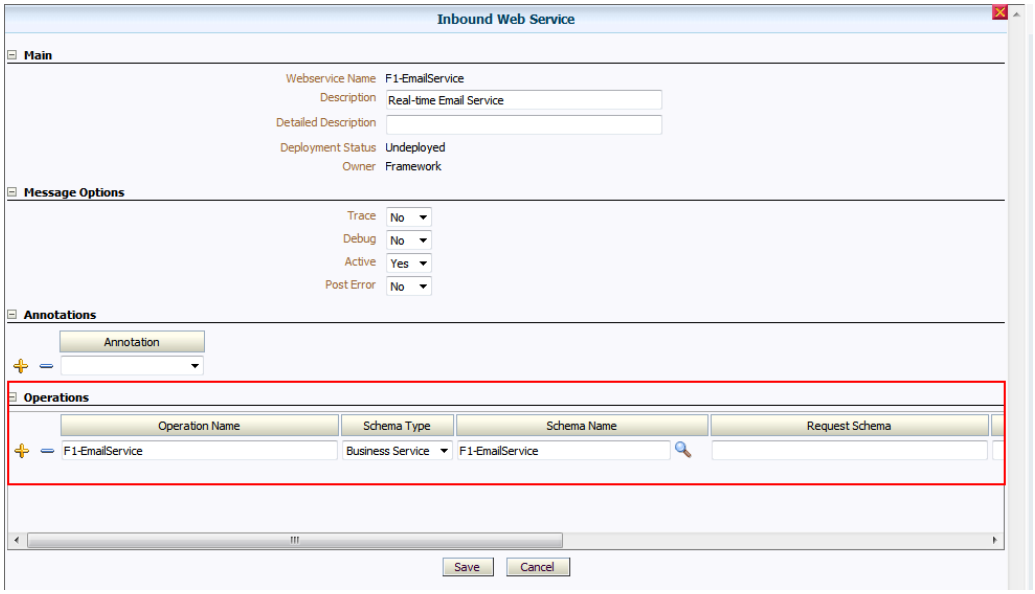

Figure 2 – Multiple operation support.

- **Native J2EE Web Services** – The Inbound Web Services deploys to the J2EE Web Application Server as individual JAX-WS based Web Services. This means that each Web Service is registered in the JNDI of the Web Application Servers deployed with the online system. This also means that the J2EE Web Application Server console can be used to track and monitor the individual Web Services. This harnesses the power of the J2EE Web Application Server using the security facilities in the server and native high availability facilities in the J2EE Web Application Server. For example:

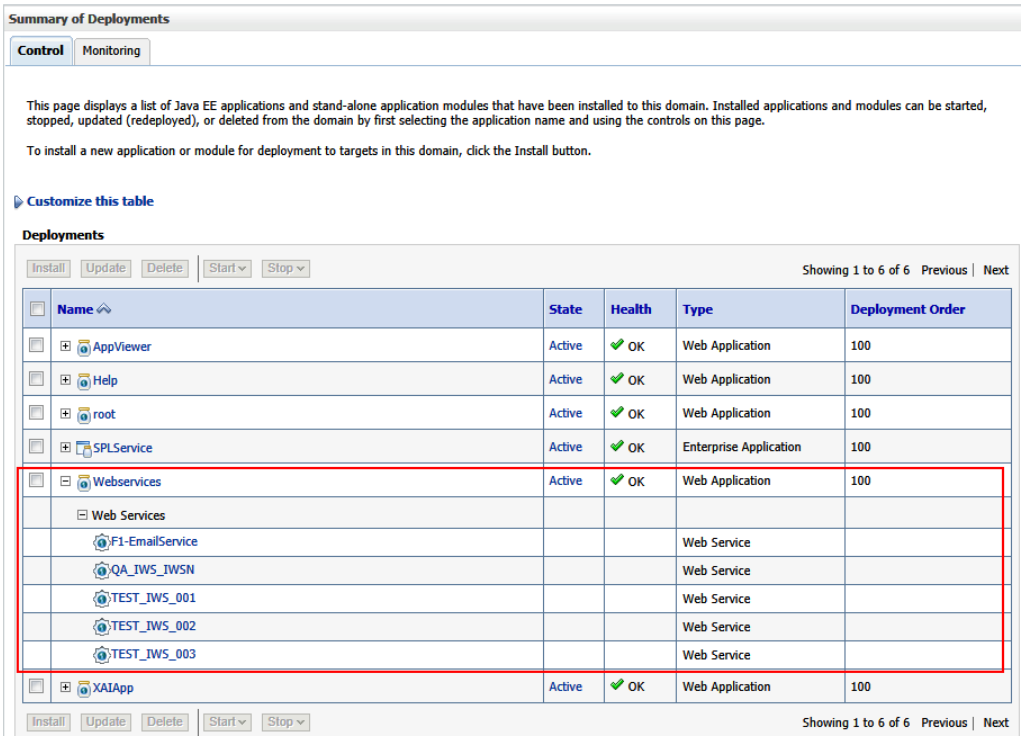

Figure 3 – Native deployments of Web Services

- **Performance Metrics** – Once the Web Service is deployed to the J2EE Web Application Server, then standard performance statistics provided by the server for Web Services are available for Inbound Web Services. These statistics are available from the J2EE Web Application Server administration console or Oracle Enterprise Manager. For example:

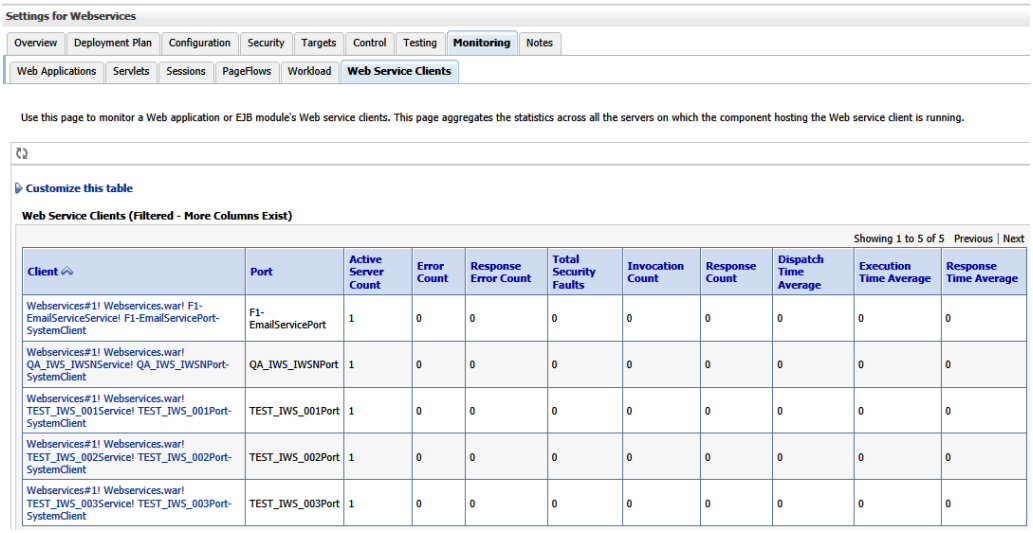

Figure 4 – Example Metrics for Web Services.

- **Deployment** - When using XAI an implementation of an Inbound XAI Service involved flushing the XAI Server cache to enable the execution of the new service. When using Inbound Web Services, the deployment of the Web Service to the J2EE Web Application Server involves a deployment activity. This deployment activity generates the necessary java files, WSDL and configuration files to complete the deployment. A new deployment features allows developers and administrators the ability to deploy the Inbound Web Services to the J2EE Web Application server without the need for outages or manual deployment steps. The new deployment has the following features:
    - **Deployment files created** - Creation of all necessary files used for the deployment without the need for manual interaction in creation of those files.
    - **Administration of deployment** - Deployment to the J2EE Web Application Server container using administration functions.
    - **Tracking of deployment status** – The deployment status of each web service can be tracked for auditing purposes.
    - **Redeployment alerting** – Changes to underlying objects used in Web Services may require a redeployment of the changes to the definitions deployed to the server. The tracking screen will indicate which services need to be redeployed to synchronize the deployment with the internal definitions.

    For example:

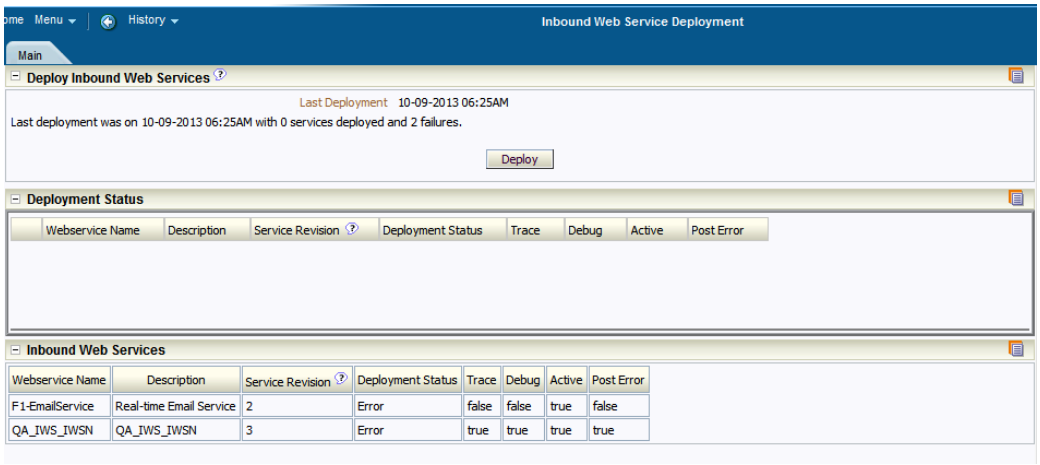

Figure 5 –Web Services Deployment.

- **Annotation Support** – Inbound Web Services supports annotations to provide enhanced support for security policies. It is possible to attach a WS-Policy compliant policy to the Inbound Web Service as part of the definition. This allows sites to attach custom policy files (as long as they are compliant with the WS-Policy support of the underlying J2EE Web Application Server container) for individual Web Services. For backward compatibility, a WS-Security compliant Username Token Policy is supplied. For example:

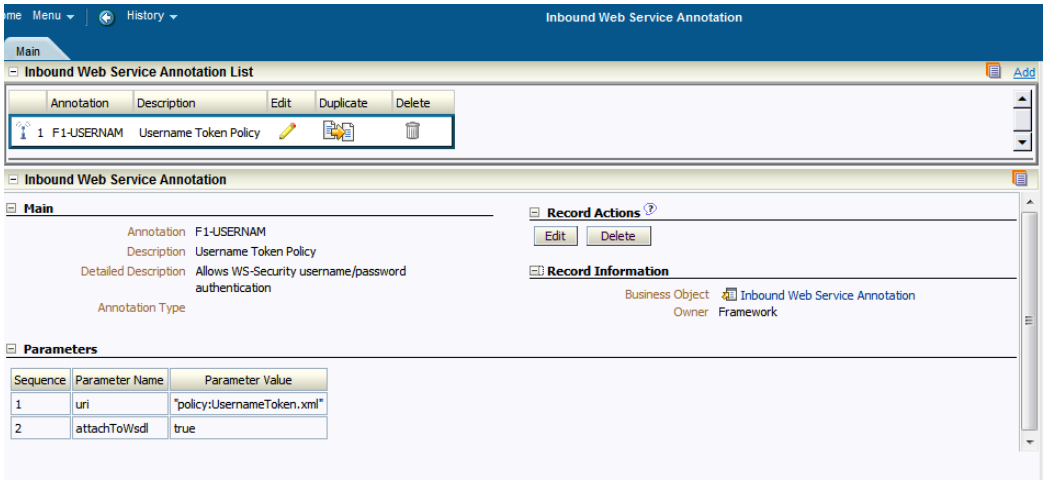

Figure 6 – Annotations for Web Services.

- **Policy Support** – If the J2EE Web Application Server supports policy management for Web Services at configuration time[1], then policies can be attached to the deployed Web Services from the J2EE Web Application Server rather than using Annotations. This will allow implementations to attach and manage policies from the J2EE Web Application Server administration console. For example:

[1] Oracle WebLogic supports Policy management for Web Services.

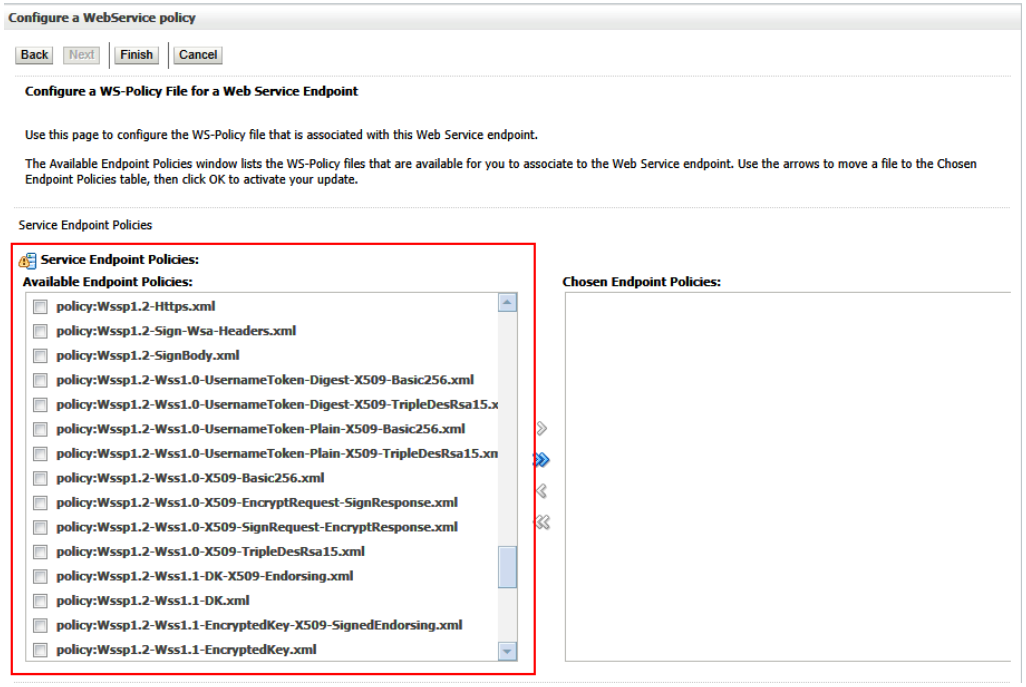

Figure 7 – Oracle WebLogic WS-Policy Support.

Note: Only policies that are Web Service wide will be supported in Oracle Utilities Application Framework V4.2.0.2.0. Policies that can apply to part of a Web Service are not supported at the present time.

- **Web Services Manager Support** – Oracle WebLogic 10.3.5 and above includes Web Services Manager which provides additional facilities:
    - **Additional WS-Policies –** Web Services Manager supplies additional WS-Policies that can be as alternatives to policies provided by Oracle WebLogic. For example:

Figure 8 – Oracle Web Services Policies Support

- **Web Service Access Rules** – Oracle Web Services Manager allows access rules to be attached to the Web Service to determine the conditions to allow or disallow access to the Web Service. For example:

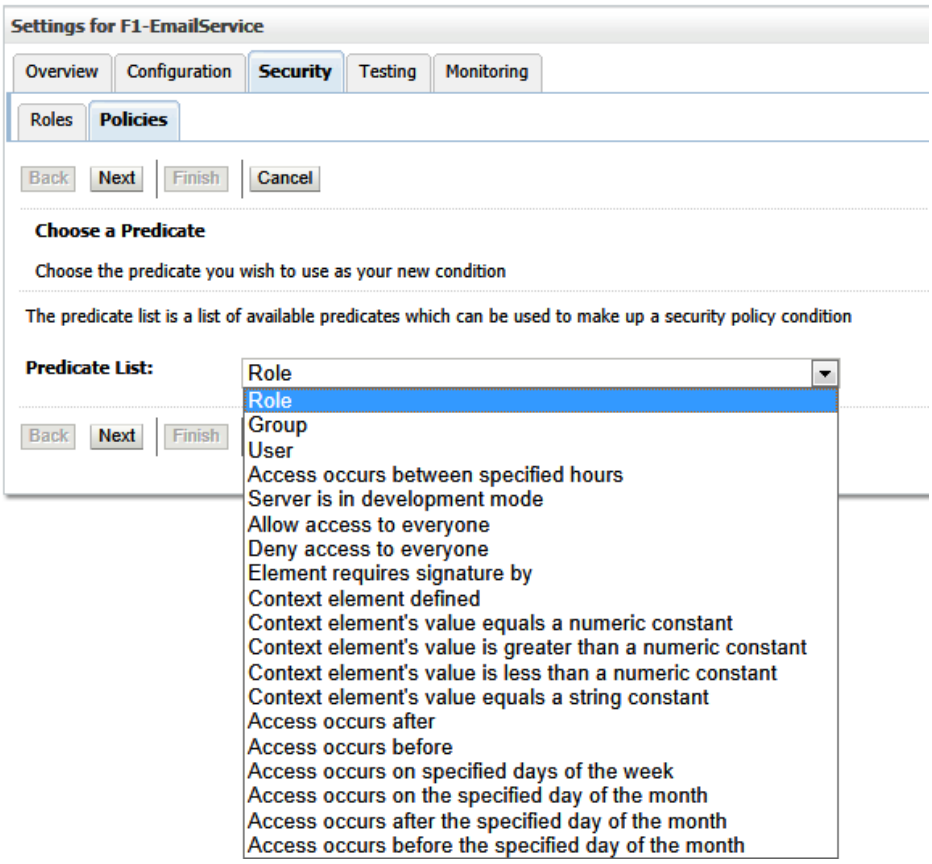

Figure 9 – Oracle Web Services Access Rules

Note: In a future release of Oracle Utilities Application Framework the XAI Servlet will be deprecated and replaced with this new facility. It is recommended to migrate existing XAI Inbound Services to Inbound Web Services.

Note: This features only supports the migrating XAI Inbound Services using the Business Adapter. XAI Inbound Services using other adapters must be migrated to the Business Adapter before migrating to Inbound Web Services.

Batch Stability Changes (429/16946713)

In previous releases of Oracle Utilities Application Framework changes to the Batch Framework to introduce the ability to cluster batch processes. Implementation of this facility required advanced configuration of the networking and tolerances used in Oracle Coherence. Due to this complexity the stability of the facility was compromised through misconfiguration. To address this, a number of enhancements have been implemented in Oracle Utilities Application Framework V4.2.0.2.0:

- **Template updates** – The templates used for configuration have been revised with new settings to optimize the configuration of the cluster. These settings are based upon customer experiences and recommendations from various teams within Oracle.
- **Cache Nodes** – With a large number of threadpools and/or nodes a few nodes should be reserved as cache nodes to minimize the communications across multiple modes. In Oracle Utilities Application Framework V4.2.0.2.0, it is possible to designate cache node, which do not run jobs, in the cluster to optimize the management and tracking of jobs across the cluster.
- **Global View Nodes** - In Oracle Utilities Application Framework V4.0.0.0.0 a JMX based facility was added to monitor threadpools and jobs within each threadpools. In Oracle Utilities Application Framework V4.2.0.0.0, this JMX was extended to provide a global batch view of any threadpool and any job within the cluster, from any node in the cluster. In Oracle Utilities Application Framework V4.2.0.2.0, that global batch view has been extended further to allow the definition of a specific global view node to connect to for management. This effectively allows the definition of an administration server for the batch monitoring and allows tools like `jconsole` and eventually Oracle Enterprise Manager connect to a specific node for batch tracking.
- **New Batch Edit facility** – One of the issues with clustered mode is the configuration of Oracle Coherence networking setup. In Oracle Utilities Application Framework V4.2.0.2.0 a new command line utility has been implemented to allow customers to build their configurations, quickly with advanced templates for single server, unicast and multicast based solutions. These new templates allow for advanced configuration and flexible options to allow for stable configurations and advanced problem diagnosis.

BI Bucket Object (16736533)

With the advent of Oracle Utilities Business Intelligence, a new object has been added to Oracle Utilities Application Framework V4.2.0.2.0 which holds the data configuration for data (known as Buckets) passed between the Oracle Utilities Application Framework based product and the Oracle Utilities Business Intelligence product.

Note: The data in this function is maintained by the Business Intelligence team and edge products.

Login Page Translation (14192814)

The past releases of the Oracle Utilities Application Framework the standard login page has been hard coded with prompts in different languages which required re-release when a new language pack was released. In Oracle Utilities Application Framework V4.2.0.2.0, the login page has been updated to read this information from the metadata at startup time. This means the login page dynamically alters to the available language packs and does not require a re-issue for each language pack.

Data Explorer Pagination (428/16190631)

By default the Oracle Utilities Application Framework returns up to 1000 records per query zone[2]. A new facility has been added into query zones to allow implementations to configure advanced pagination to allow larger records sets to be returned and scrolled efficiently. The facility allows for the following configuration:

- The **F1-DE**, **F1-DE-SINGLE** and **F1-DE-QUERY** zone types have an ability to configure pagination.
- The **Enable Pagination** (**PAGING**) parameter must enabled on the zone to enable the pagination feature.
- Page navigation can be configured to be buttons, links or icons with their location specified.
- The default key for pagination needs to be specified on the columns to hold the keys. The SQL used for the zone will also need to be altered to factor in the new pagination logic. For example:

```
SELECT TBL_NAME, FLD_NAME,
FROM CI_MD_TBL_FLD
[(PAGENEXT) where TBL_NAME >= :C1 and FLD_NAME > :C2]
[(PAGEPREV) where TBL_NAME <= :C1 and FLD_NAME < :C2]
ORDER BY TBL_NAME, FLD_NAME
```

- Optionally, it is possible to display the record count and other information (such as total records etc).

For example:

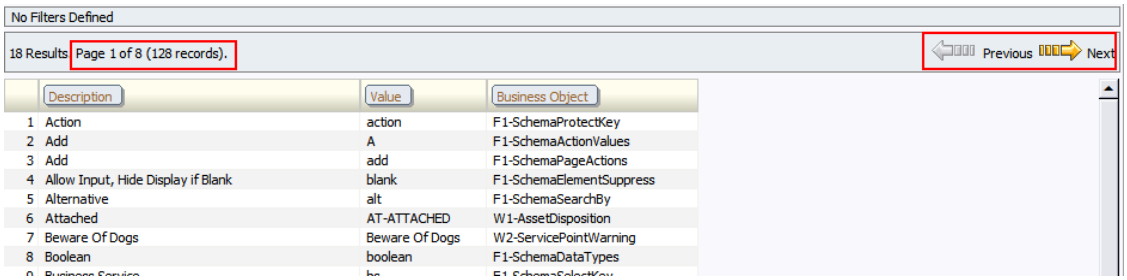

Figure 10 – Example query pagination

Smart Revision Control (16529274)

[2] This varies from zone to zone and in some zone types is a configurable parameter up to this value.

In Oracle Utilities Application Framework V2.2 the ability to manage versions of ConfigTools objects was implemented called *Revision Control*. Whilst this facility is sufficient for most version management needs, it was not optimal for team development. A new set of facilities have been added to improve Revision Control:

- New Set of zones to identify the status of all revision control objects that are currently in various statuses, by object type, object name or external reference. For example:

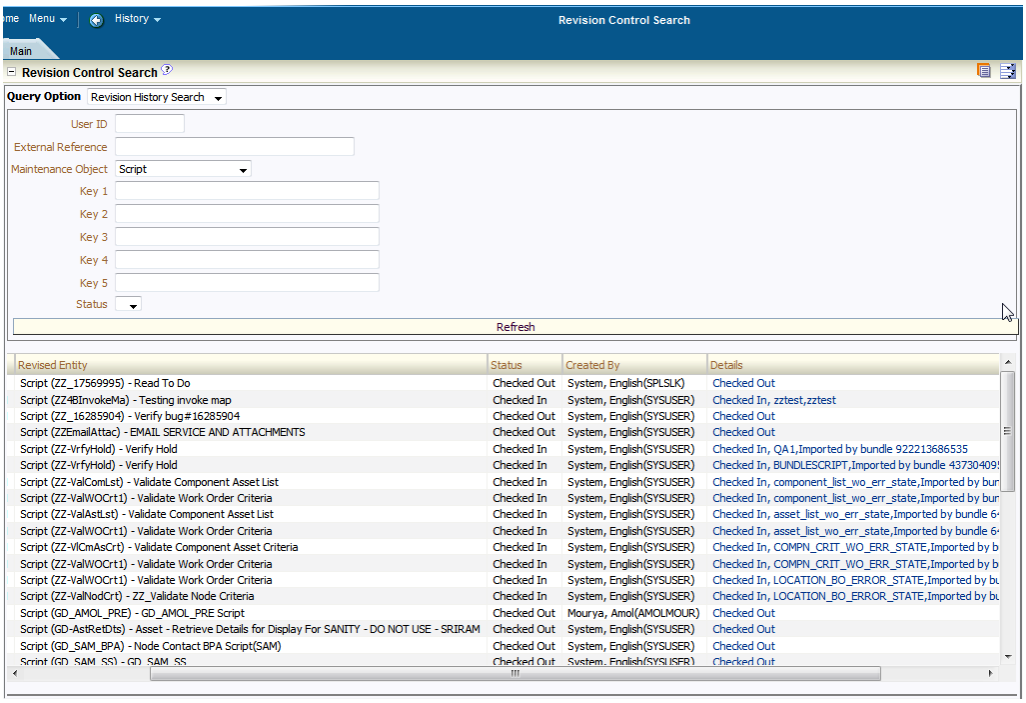

Figure 11 – Example Revision Control query

- It is now possible to check in, check out and force check in multiple items, using new Query Options, rather than operate on individual items. For example:

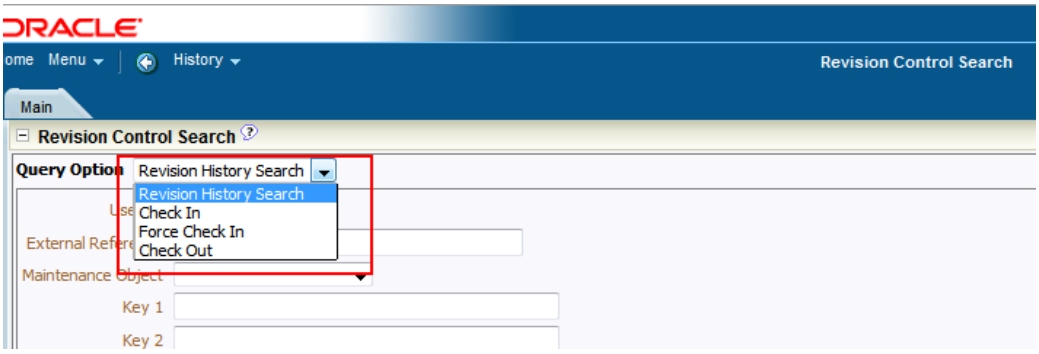

Figure 12 – Additional Multiple Revision Control Query options

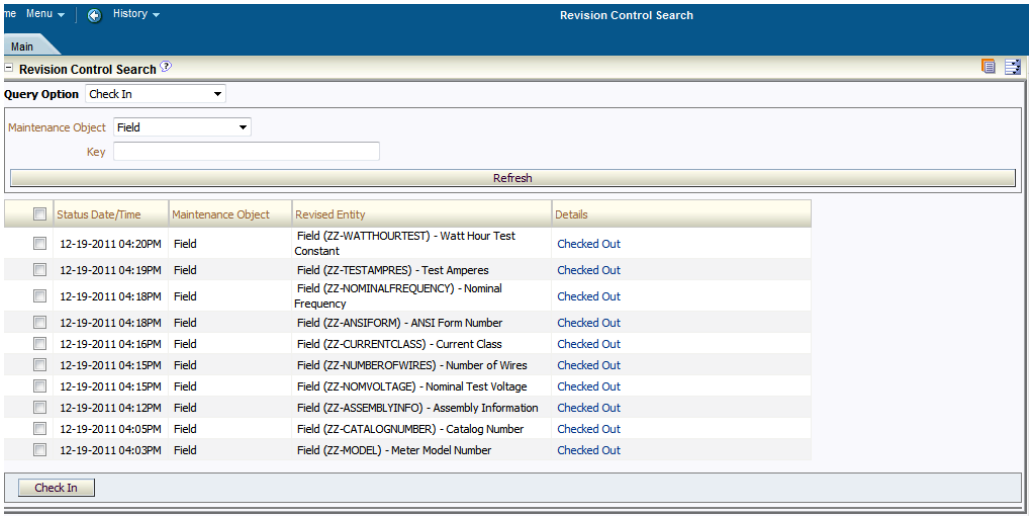

Figure 13 – Multiple Item Check In

- It is possible to, optionally, generate an email to developers when their object status is overridden using this new facility, using the inbuilt email adapter.

Configurable Pie Charts (17166515)

In previous Oracle Utilities Application Framework the pie charts are restricted to a 'pastel' color palette. In Oracle Utilities Application Framework V4.2.0.2.0 it is now possible to use other palettes. For example:

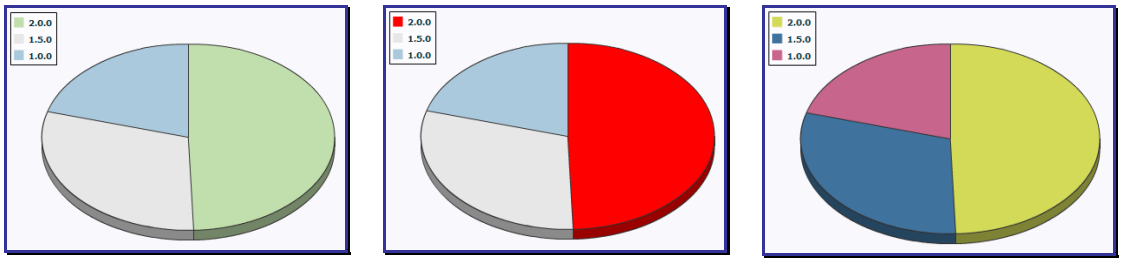

Figure 14 – Example default and alternative pie color palettes.

Note: The palettes shown above are a subset of what is possible in Oracle Utilities Application Framework V4.2.0.2.0.

Overriding HTML (14246243)

By default, each product can ship a set of UI Maps that are used to render screens for the product functionality. Due to record ownership, implementations cannot alter these UI Maps to suit their business, if required. In Oracle Utilities Application Framework FW4.2.0.2.0, a new override HTML option has been made available to allow customers to copy and alter the product UI Maps with an override set of HTML that will be used in place of the product UI Map. This feature can be enabled on the UI Map maintenance portal. For example:

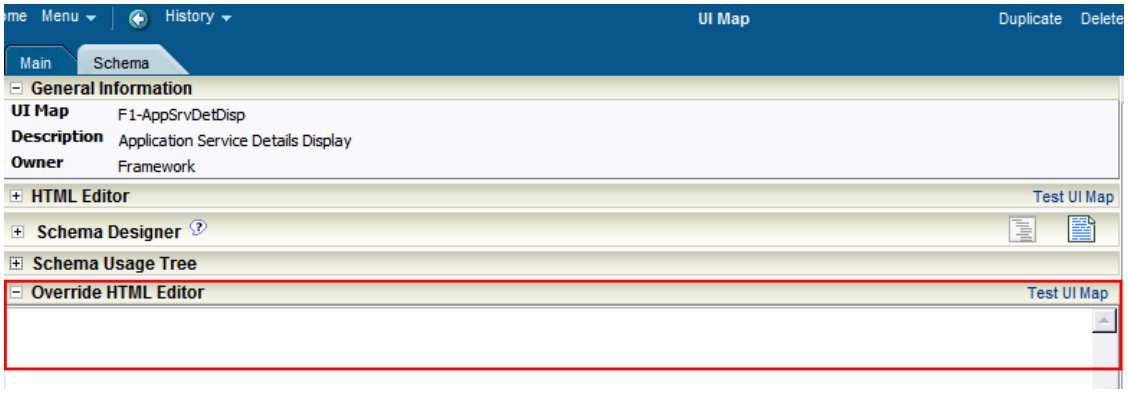

Figure 15 – Example Override HTML Editor

Return Records Uploaded from CSV (14757887)

In Oracle Utilities Application Framework V4.2.0.2.0 it is now possible to get feedback on successful loading of records from a comma separated values based file. There are two options available:

- Returning the number of records loaded successfully. For example:

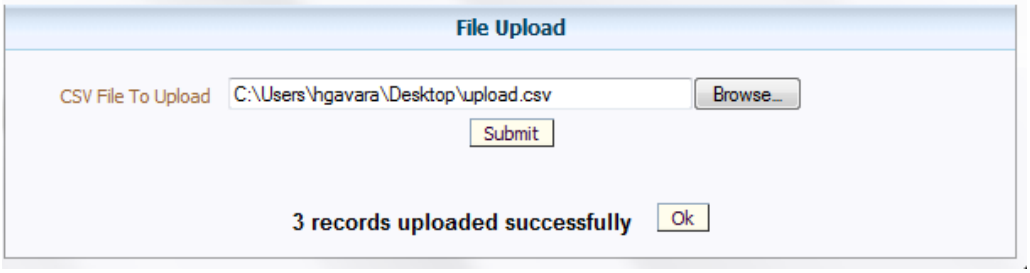

Figure 16 – Example feedback for Number of Records loaded from csv file

- Returning a simple status message indicating records have been loaded. For example:

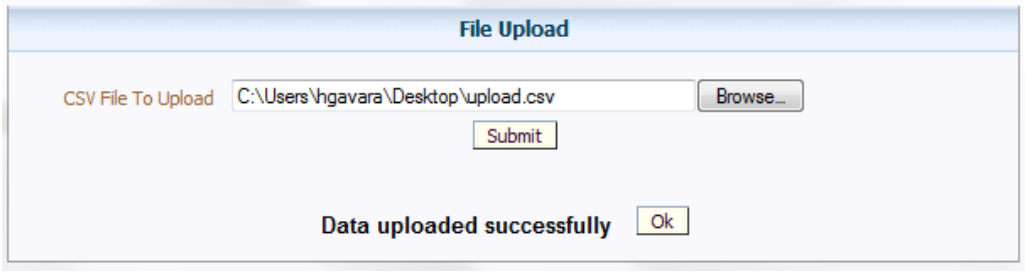

Figure 17 – Example feedback for successful load of records from csv file

BO Option for Maintenance BPA Script (436/16047750)

Typically a Maintenance BPA script is associated with a Maintenance Object as an option; in Oracle Utilities Application Framework V4.2.0.2.0 it is now possible to define a Maintenance BPA script at the Business Object level. This allows implementations to implement different BPA scripts for

maintenance of individual Business Objects for a Maintenance Objects. A new Business Object Option has been added for the definition of the Maintenance BPA script. For example:

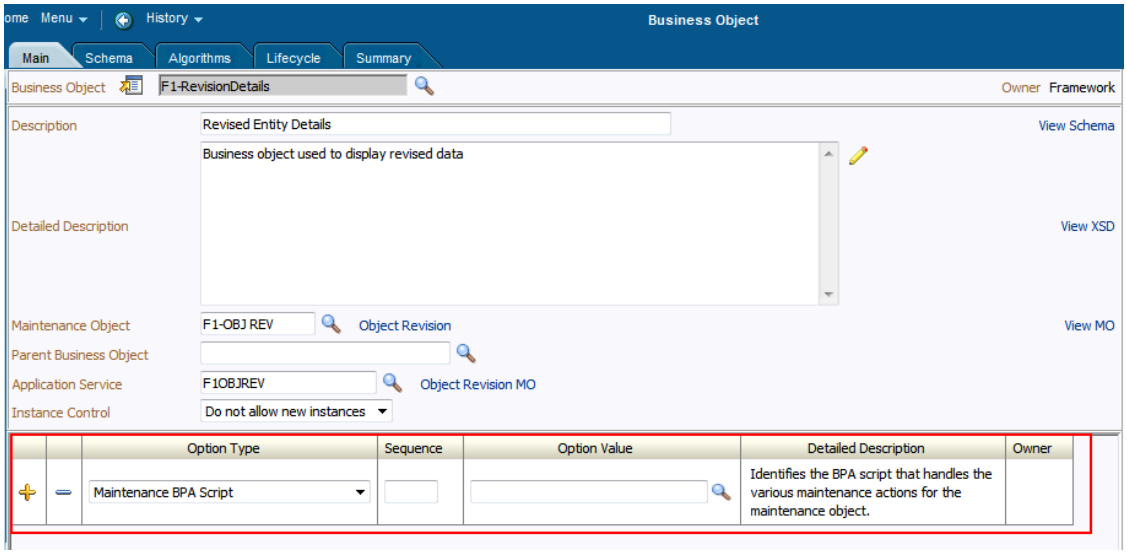

Figure 18 – Example Maintenance BPA script as a Business Object option.

Note: Business Objects defined for a Maintenance Object will use the Maintenance BPA Script, if defined, on the Maintenance Object unless the Business Object option is used.

Protect Field on Update/Add (438/15992897)

In the Oracle Utilities Application Framework, UI Hint functions can be used to determine the conditions whether a particular element is displayed or not using conditional strings (see **`uiHint:displayNone`** for more details). In Oracle Utilities Application Framework V4.2.0.2.0, a new UI Hint function as been introduced to determine when an element field can be protected (or not). This is typically used to protect a field on update (such as a key) or other condition. The new UI Hint function allows the eligibility of the protection in three different scenarios:

- **Field Value** – The value of an element in the schema can be used to determine whether another element is protected or not.
- **Function** – The return value of a javascript function call can be used to determine whether another element is protected or not.
- **Action** - The value of the transaction type (Add or Change) can be used to determine whether another element is protected or not.

If the condition is satisfied in each scenario, then the field is protected from changes.

This new feature is available from the Schema Designer. For example:

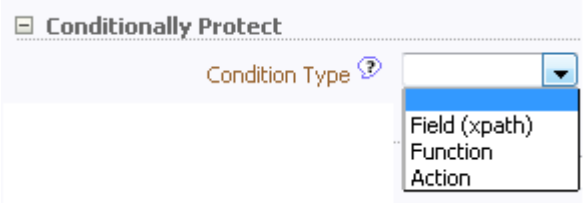

Figure 19 – Example Condition Type.

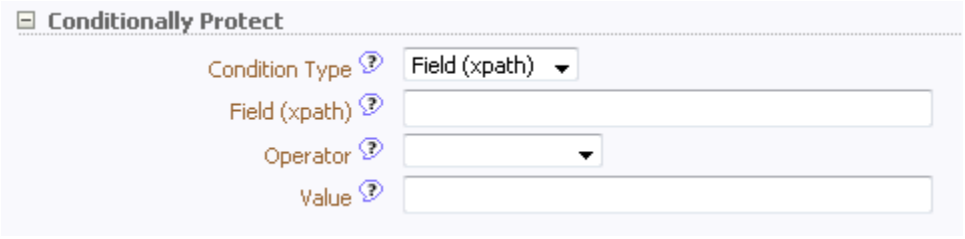

Figure 20 – Example Field/Xpath protection.

Figure 21 – Example Function protection.

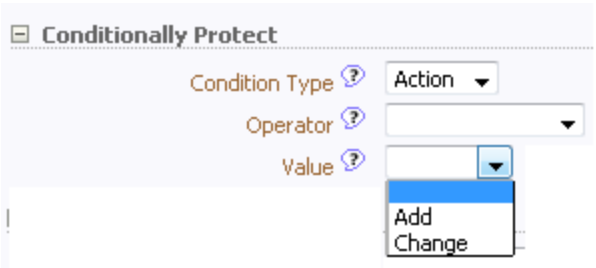

Figure 22 – Example Action protection.

Custom Error Pages For HTTP Servers (16942463)

By default, the J2EE Web Application Server generates simple default error pages for common HTTP errors. In Oracle Utilities Application Framework V4.2.0.2.0, it is now possible to replace those default error pages with custom error pages (including redirects) in the provided templates.

Increased Field Size for XAI Receiver Context (17019129)

The XAI Receiver Context value field has been increased in size from 50 characters to 4k characters to allow advanced configuration for encryption and larger than normal values.

Ability to hide some SQL errors from Log files (15967069)

In some Oracle Utilities Application Framework based products, it is possible to generate ORA-00054 errors even though the transaction is completed successfully, due to timing issues. These error message are typically recommended to be ignored. In Oracle Utilities Application Framework V4.2.0.2.0, these messages can be ignored and replaced with more friendly application specific messages.

Note: The initial release will only allow products to enable this feature. This may be expanded to customizations in future releases.

Custom Field Encryption

In past releases of Oracle Utilities Application Framework the standard AES-128 encryption algorithm was provided for field encryption. In Oracle Utilities Application Framework V4.2.0.2.0 it is possible to use alternative algorithms in the field encryption definition. For example:

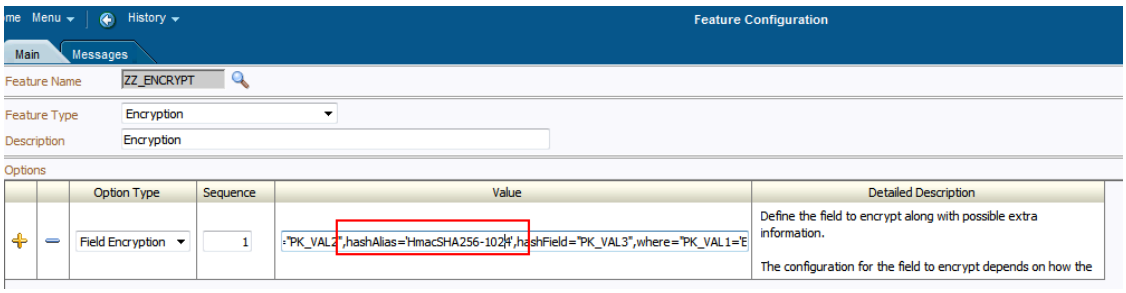

Figure 23 – Example Field Encryption.

Filter Encryption Support for Zones

The Oracle Utilities Application Framework allows encryption on specific fields on the database to be configured within a Feature Configuration. Whilst this covers the maintenance of fields, it causes issues in query zones when searching on encrypted fields. In Oracle Utilities Application Framework V4.2.0.2.0, it is now possible to setup the filter to be also encrypted, by referring to the Feature Configuration, to search using the same encryption (this allows hashed values to be used when specifying filters). For example:

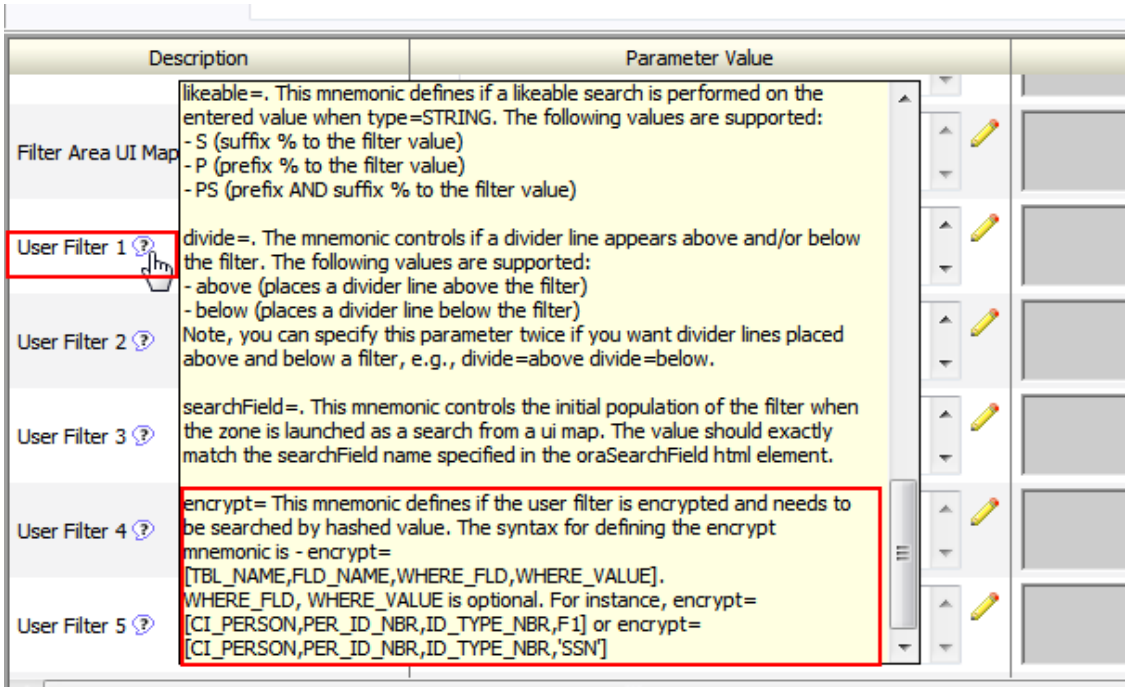

Figure 24 – Example Filter Encryption

Conditional Encryption

In Oracle Utilities Application Framework fields can be encrypted using a feature configuration. In Oracle Utilities Application Framework V4.2.0.2.0, this has been extended to allow for conditional encryption. The field encryption mnemonics have been extended to include a WHERE clause. For example:

```
field=ACCOUNT_NBR, where="ID_TYPE_CD='SSN'" alg="CMSIMPLE"
```

For example:

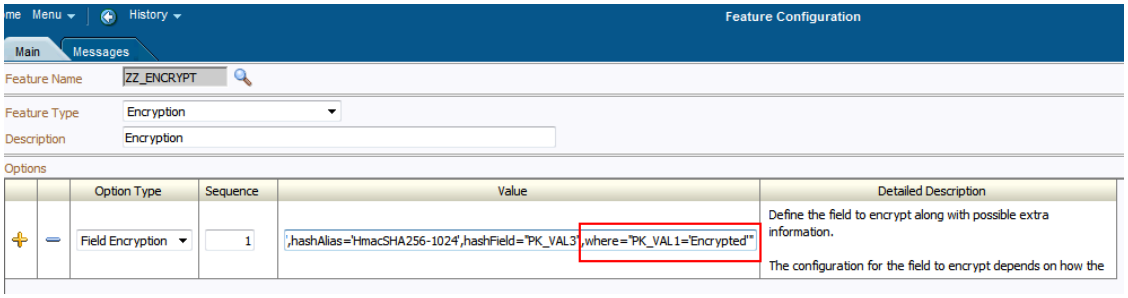

Figure 25 – Example Conditional Field Encryption

Keystore Support

In past releases of Oracle Utilities Application Framework, keys used for encryption for passwords and other data have been included in the Oracle Utilities Application Framework code. It is now possible to define, store and retrieve encryption keys using a secure java keystore.

The keystore functionality provides the following features:

- Keystores can be created using standard keytools or using the provided utilities.
- A default keystore will be created upon upgrade or installation. This default can be replaced with a custom keystore at installation or post installation time.
- By default the keystore will have the following attributes:
    - The keystore type will be in Java Cryptography Extension Key Store (JCEKS) format. This format is much stronger than the standard Java Key Store format. This can be overridden using the **`com.oracle.ouaf.system.keystore.type`** property.
    - The key alias used is *ouaf.system* by default. This can be overridden using the **`com.oracle.ouaf.system.keystore.alias`** property.
    - The signing algorithm used is *CBC* by default. This can be overridden using the **`com.oracle.ouaf.system.keystore.mode`** property.
    - The signing algorithm padding used is *PKCD5Padding* by default. This can be overridden using the **`com.oracle.ouaf.system.keystore.padding`** property.
    - The authentication message digesting algorithm is set to Keyed-Hash Message Authentication Code (HMAC) to be more secure. This is generated using the standard java **`keytool`** or the utilities provided.
    - The HMAC key alias used is *ouaf.system.hmac* by default. This can be overridden using the **`com.oracle.ouaf.system.keystore.hmac_key_alias`** property.
- The cryptography algorithm is no longer available from the existing command utilities. A new cryptography command utility is now provided called from the **`initialSetup[.sh]`** utility.
- A new utility is available to re-encrpyt data after keys have been changed.

Platforms

The following platforms are planned to be supported for Oracle Utilities Application Framework V4.2.0.2.0:

- Java Versions: Java 6 will be required for compilation but will support running under Java 7.
- Oracle Database: Oracle 11.2.0.3 and 12.1 will be supported.

- Client Browsers:
    - Internet Explorer 8/9/10 in compatibility mode
    - Mozilla FireFox 17ESR+
    - Google Chrome

Note: Whilst the Oracle Utilities Application Framework supports Mozilla Firefox and Google Chrome, check individual certifications of edge products for complete platforms.

TABLE 1 – SERVE PLATFORMS

OPERATING SYSTEM	OS SERVER ARCHITECTURE	WEB APPLICATION SERVERS
Sun Solaris 11 Sun Solaris 10	SPARC 64-Bit	Oracle WebLogic 10.3.6
IBM AIX 7.1	POWER 64-Bit	Oracle WebLogic 10.3.6 IBM WebSphere 8.5 ND IBM WebSphere 8.5
Oracle Linux 6.4 Oracle Linux 6.3 Oracle Linux 6.2 Oracle Linux 5.8	x86 64-Bit	Oracle WebLogic 10.3.6 *Oracle WebLogic 12.1.1*
Red Hat Linux 6	x86 64-Bit	Oracle WebLogic 10.3.6
Windows Server 2008R2	x86 64-Bit x86 32-Bit (Development Only)	Oracle WebLogic 10.3.6

Note: Oracle WebLogic 12.x support will be added post release with new optimized templates for Oracle WebLogic 12.

Deprecations

The following deprecations are carried over from Oracle Utilities Application Framework V4.2.0.0.0:

- The Multi-Purpose Listener will be removed from the installation from Oracle Utilities Application Framework V4.3.0.0.0. Customers and integrations need to migrate to the native adapters supplied with the Oracle Utilities Application Framework and Oracle Service Bus.
- The XAI Servlet will be removed in Oracle Utilities Application Framework V4.3.0.0.0. The Inbound Web Services supplied with this service pack will replace this facility. Inbound XAI Services must be redefined as Inbound Web Services and redeployed before the removal of the servlet.

Upgrade Candidates

The following Oracle Utilities Application Framework combinations are supported for upgrades:

- Oracle Utilities Application Framework V4.2.0.0.0 and above
- Oracle Utilities Application Framework V4.1.0.2.0 and above

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