

REST API Services Deployment in WebSphere  
Oracle FLEXCUBE Investor Servicing  
Release 14.6.0.0.0  
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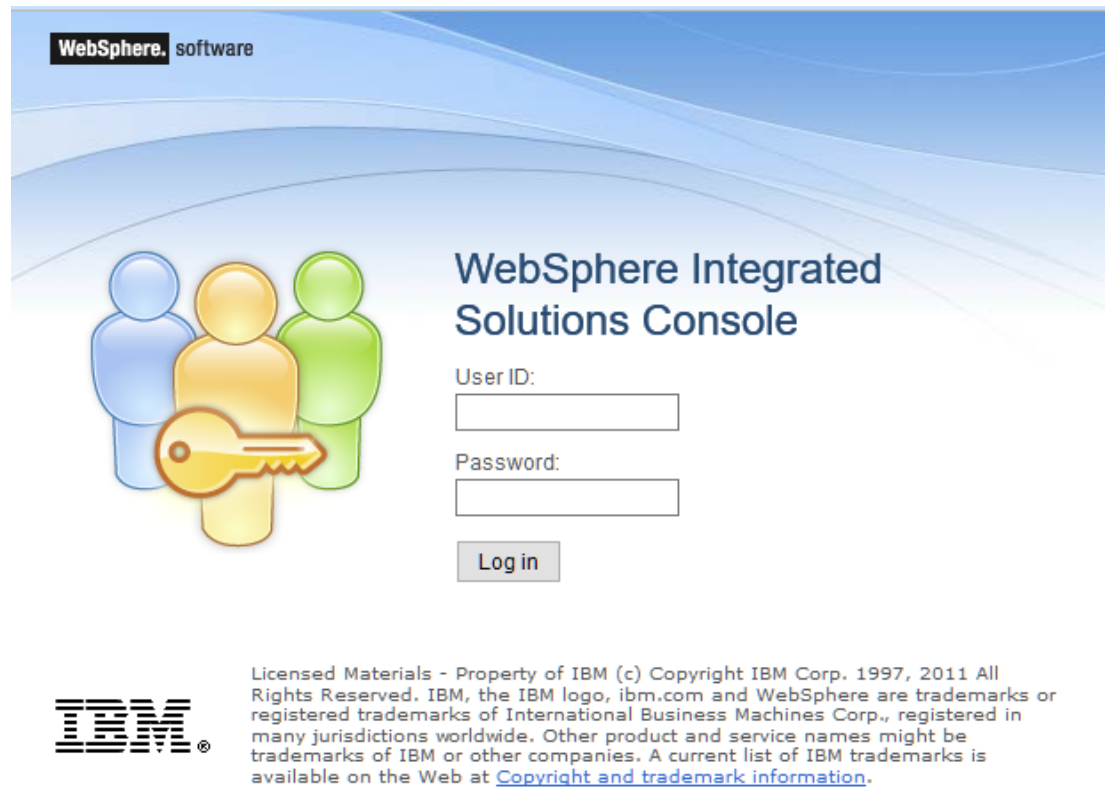
# 1. Oracle FLEXCUBE Investor Servicing Solutions

This document describes step to install REST Services into WebSphere application server in full.

## 1.1 REST API Services Full Deployment

Before deploying the EAR, please create a Datasource **jdbc/FCJDevDSSMS** that will be referring to the API DB. More details of creating the data source can be found in the Resource Creation document

Launch WebSphere console following screen will be displayed.



The image shows the WebSphere Integrated Solutions Console login screen. At the top left, there is a 'WebSphere. software' logo. In the center, there is a graphic of three stylized human figures (blue, orange, and green) with a large yellow key in front of them. To the right of this graphic, the text 'WebSphere Integrated Solutions Console' is displayed. Below this text, there are two input fields: 'User ID:' and 'Password:'. A 'Log in' button is located below the password field. At the bottom left, the IBM logo is visible. To the right of the IBM logo, there is a block of text: 'Licensed Materials - Property of IBM (c) Copyright IBM Corp. 1997, 2011 All Rights Reserved. IBM, the IBM logo, ibm.com and WebSphere are trademarks or registered trademarks of International Business Machines Corp., registered in many jurisdictions worldwide. Other product and service names might be trademarks of IBM or other companies. A current list of IBM trademarks is available on the Web at [Copyright and trademark information](#).'

**UserID:** Enter user name password

Click on 'Log in' and the following screen is displayed:

The screenshot shows the WebSphere Integrated Solutions Console home page. The top navigation bar includes the WebSphere logo, a 'View: All tasks' dropdown, and links for 'Welcome was9005', 'Help', 'Logout', and the IBM logo. The left sidebar contains a tree view with categories like 'Welcome', 'Guided Activities', 'Servers', 'Applications', 'Services', 'Resources', 'Security', 'Environment', 'System administration', 'Users and Groups', 'Monitoring and Tuning', 'Troubleshooting', 'Service integration', and 'UDDI'. The main content area is titled 'Welcome' and contains a paragraph explaining the console's purpose. Below the text is a table with two columns: 'Suite Name' and 'Version'. The table lists 'WebSphere Application Server' with version '9.0.0.5'. On the right, there is a panel titled 'About this Integrated Solutions Console' showing version information and a license notice.

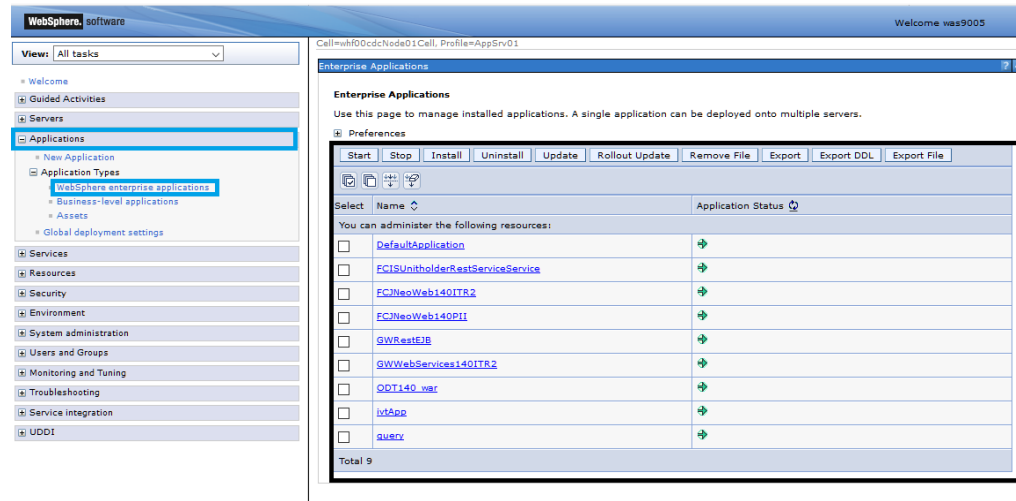
Suite Name	Version
WebSphere Application Server	9.0.0.5

Expand Applications from the left panel and the following screen will be displayed.

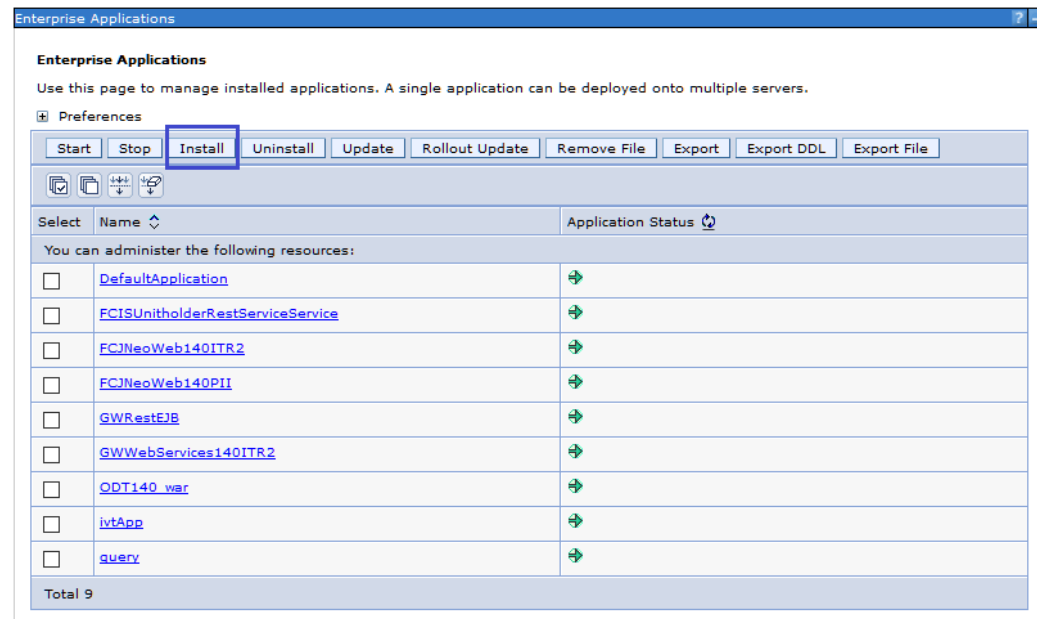
This screenshot shows the same WebSphere Integrated Solutions Console interface, but with the 'Applications' menu item in the left sidebar expanded. The expanded menu shows sub-items: 'New Application', 'Application Types' (which is further expanded to show 'WebSphere enterprise applications', 'Business-level applications', and 'Assets'), and 'Global deployment settings'. The main content area remains the same 'Welcome' page with the table and right-hand panel.

Suite Name	Version
WebSphere Application Server	9.0.0.5

Expand Application Types >> WebSphere application type from the left panel and the following screen will be displayed.



Click on Install and the following screen will be displayed. Click Browse to select required rest EAR files.



The following screen is displayed:

Enterprise Applications

Preparing for the application installation

Specify the EAR, WAR, JAR, or SAR module to upload and install.

**Path to the new application**

☒ Local file system

Full path

No file selected.

☐ Remote file system

Full path

## Choose File

Browse and select the EAR file.

Enterprise Applications

Preparing for the application installation

Specify the EAR, WAR, JAR, or SAR module to upload and install.

**Path to the new application**

☒ Local file system

Full path

FCISUnitholderRestServiceService.ear

☐ Remote file system

Full path

Click Next and the following screen will be displayed.

Enterprise Applications

Preparing for the application installation

Specify the EAR, WAR, JAR, or SAR module to upload and install.

**Path to the new application**

☒ Local file system

Full path

Browse... FCISUnitholderRestServiceService.ear

☐ Remote file system

Full path

Browse...

Next Cancel

Click Next and the following screen will be displayed.

Enterprise Applications

Preparing for the application installation

Close page

**How do you want to install the application?**

☒ Fast Path - Prompt only when additional information is required.

☐ Detailed - Show all installation options and parameters.

☒ Choose to generate default bindings and mappings

Previous Next Cancel

Click Next and the following screen will be displayed.

Install New Application

Specify options for installing enterprise applications and modules.

→ Step 1: Select installation options  
Step 2: Map modules to servers  
Step 3: Map virtual hosts for Web modules  
Step 4: Metadata for modules  
Step 5: Summary

Select installation options

Specify the various options that are available for your application.

☐ Precompile JavaServer Pages files

Directory to install application

☒ Distribute application

☐ Use Binary Configuration

☐ Deploy enterprise beans

Application name  
FCISUnitholderRestServiceServ

☒ Create MBeans for resources

☐ Override class reloading settings for Web and EJB modules

Reload interval in seconds

☐ Deploy Web services

Validate Input off/warn/fail  
warn

☐ Process embedded configuration

File Permission

Allow all files to be read but not written to  
Allow executables to execute  
Allow HTML and image files to be read by everyone

File Permission

Allow all files to be read but not written to  
Allow executables to execute  
Allow HTML and image files to be read by everyone

.\*\dll=755;.\*\so=755;.\*\a=755;.\*\sl=755

Application Build ID  
Unknown

☐ Allow dispatching includes to remote resources

☐ Allow servicing includes from remote resources

Business level application name  
Create New BLA

Asynchronous Request Dispatch Type  
Disabled

☐ Allow EJB reference targets to resolve automatically

☐ Deploy client modules  
Client deployment mode  
Isolated

☐ Validate schema

Next Cancel



Click Next and the following screen will be displayed.

Cell: whf00cdcNode01Cell, Profile: AppEnv01 Close page

**Install New Application**

Specify options for installing enterprise applications and modules.

**Step 1** Select installation options  
**→ Step 2: Map modules to servers**  
 Step 3 Map virtual hosts for Web modules  
 Step 4 Metadata for modules  
 Step 5 Summary

**Map modules to servers**

Specify targets such as application servers or clusters of application servers where you want to install the modules that are contained in your application. Modules can be on the same application server or dispersed among several application servers. Also, specify the Web servers as targets that serve as routers for requests to this application in configuration file (plugin-cfg.xml) for each Web server is generated, based on the applications that are routed through.

Clusters and servers:  
 WebSphere:cell=whf00cdcNode01Cell,node=whf00cdcNode01,server=server1 Apply

Select	Module	URI	Server
<input type="checkbox"/>	FCISUnitholderRestServiceService.war	FCISUnitholderRestServiceService.war;WEB-INF/web.xml	WebSphere:cell=whf00cdcNode01Cell,node=whf00cdcNode01,server=

Previous **Next** Cancel

Click Next and the following screen will be displayed.

**Install New Application**

Specify options for installing enterprise applications and modules.

**Step 1** Select installation options  
 Step 2 Map modules to servers  
**→ Step 3: Map virtual hosts for Web modules**  
 Step 4 Metadata for modules  
 Step 5 Summary

**Map virtual hosts for Web modules**

Specify the virtual host for the Web modules that are contained in your application. You can install Web modules on the same virtual host or disperse them among several hosts.

☒ Apply Multiple Mappings

Select	Web module	Virtual host
<input type="checkbox"/>	FCISUnitholderRestServiceService.war	default_host

Previous **Next** Cancel

**Install New Application**

Specify options for installing enterprise applications and modules.

**Step 1** Select installation options  
 Step 2 Map modules to servers  
 Step 3 Map virtual hosts for Web modules  
**→ Step 4: Metadata for modules**  
 Step 5 Summary

**Metadata for modules**

The metadata-complete attribute defines whether the deployment descriptor for this module is complete. Set the metadata-complete attribute to "true" to merge and persist annotation-based metadata with existing XML-based deployment descriptor metadata to avoid scanning of annotation-based metadata each time the module is read. If the attribute remains "false", then the annotation-based metadata is scanned each time the module is read and can impact performance.

Module	URI	metadata-complete attribute
FCISUnitholderRestServiceService.war	FCISUnitholderRestServiceService.war;WEB-INF/web.xml	<input type="checkbox"/>

Previous **Next** Cancel

Click Finish and the following screen will be displayed and Save the EAR deployed.

ADMA5016I: Installation of FCISUnitholderRestServiceService started.

ADMA5067I: Resource validation for application FCISUnitholderRestServiceService completed successfully.

ADMA5058I: Application and module versions are validated with versions of deployment targets.

ADMA5005I: The application FCISUnitholderRestServiceService is configured in the WebSphere Application Server repository.

ADMA5005I: The application FCISUnitholderRestServiceService is configured in the WebSphere Application Server repository.

ADMA5081I: The bootstrap address for client module is configured in the WebSphere Application Server repository.

ADMA5053I: The library references for the installed optional package are created.

ADMA5005I: The application FCISUnitholderRestServiceService is configured in the WebSphere Application Server repository.

ADMA5001I: The application binaries are saved in /scratch/software/WebSphere/AppServer/profiles/AppSrv01/wstemp/1123733957/workspace/cells/whf00cdNo/FCISUnitholderRestServiceService.ear/FCISUnitholderRestServiceService.ear

ADMA5005I: The application FCISUnitholderRestServiceService is configured in the WebSphere Application Server repository.

SECJ0400I: Successfully updated the application FCISUnitholderRestServiceService with the appContextIDForSecurity information.

ADMA5005I: The application FCISUnitholderRestServiceService is configured in the WebSphere Application Server repository.

ADMA5005I: The application FCISUnitholderRestServiceService is configured in the WebSphere Application Server repository.

ADMA5113I: Activation plan created successfully.

ADMA5011I: The cleanup of the temp directory for application FCISUnitholderRestServiceService is complete.

ADMA5013I: Application FCISUnitholderRestServiceService installed successfully.

Application FCISUnitholderRestServiceService installed successfully.

To start the application, first save changes to the master configuration.

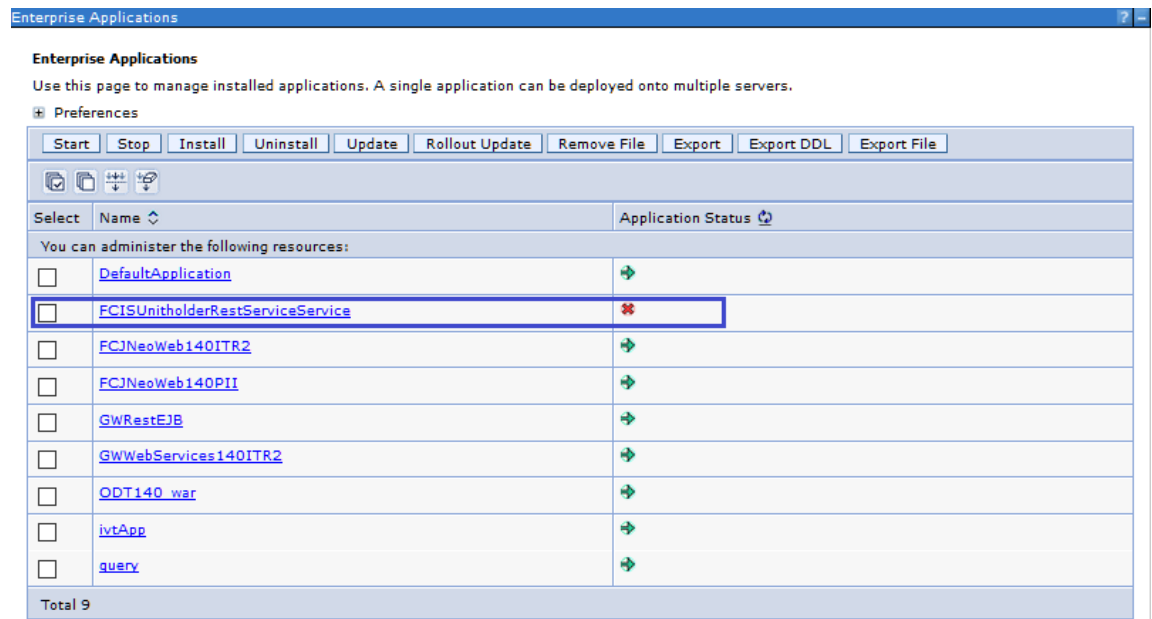
Changes have been made to your local configuration. You can:

- [Save](#) directly to the master configuration.
- [Review](#) changes before saving or discarding.

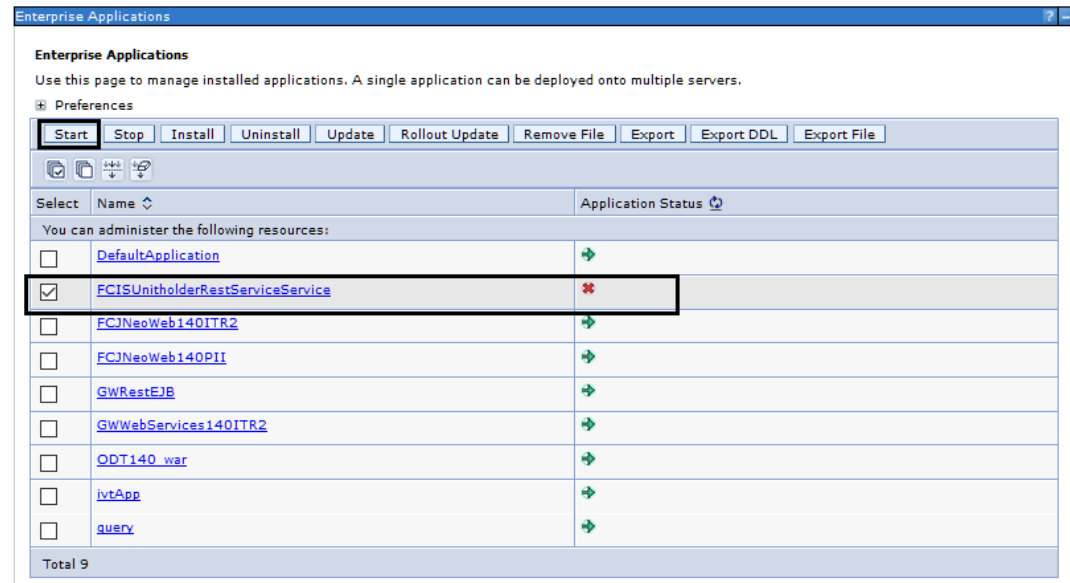
To work with installed applications, click the "Manage Applications" link.

[Manage Applications](#)

Once the EAR is deployed click on WebSphere enterprise applications following screen will be displayed where the deployed EAR can be found in resources column.



Check the application/EAR and click on Start the following screen will be displayed and your application will be in running.



The following screen is displayed:

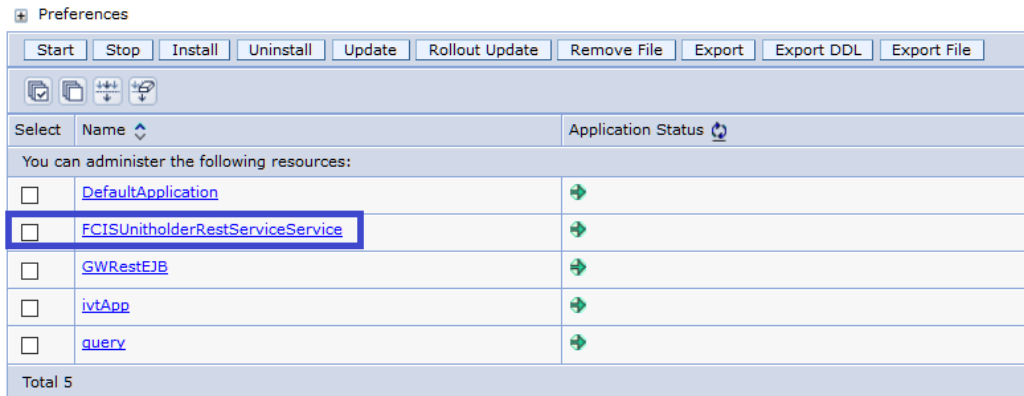
The screenshot displays the 'Enterprise Applications' management interface. At the top, a 'Messages' box indicates that the application 'FCISUnitholderRestServiceService' was successfully started on 'server1' and node 'whf00cdcNode01'. Below this, the 'Enterprise Applications' section provides instructions and a 'Preferences' link. A toolbar contains buttons for 'Start', 'Stop', 'Install', 'Uninstall', 'Update', 'Rollout Update', 'Remove File', 'Export', 'Export DDL', and 'Export File'. The main area features a table with columns 'Select', 'Name', and 'Application Status'. The table lists nine applications, with 'FCISUnitholderRestServiceService' highlighted. A 'Total 9' summary is shown at the bottom of the table.

Select	Name	Application Status
<input type="checkbox"/>	<a href="#">DefaultApplication</a>	➔
<input type="checkbox"/>	<a href="#">FCISUnitholderRestServiceService</a>	➔
<input type="checkbox"/>	<a href="#">FCJNeoWeb140ITR2</a>	➔
<input type="checkbox"/>	<a href="#">FCJNeoWeb140PII</a>	➔
<input type="checkbox"/>	<a href="#">GWRestEJB</a>	➔
<input type="checkbox"/>	<a href="#">GWWebServices140ITR2</a>	➔
<input type="checkbox"/>	<a href="#">ODT140_war</a>	➔
<input type="checkbox"/>	<a href="#">ivtApp</a>	➔
<input type="checkbox"/>	<a href="#">query</a>	➔

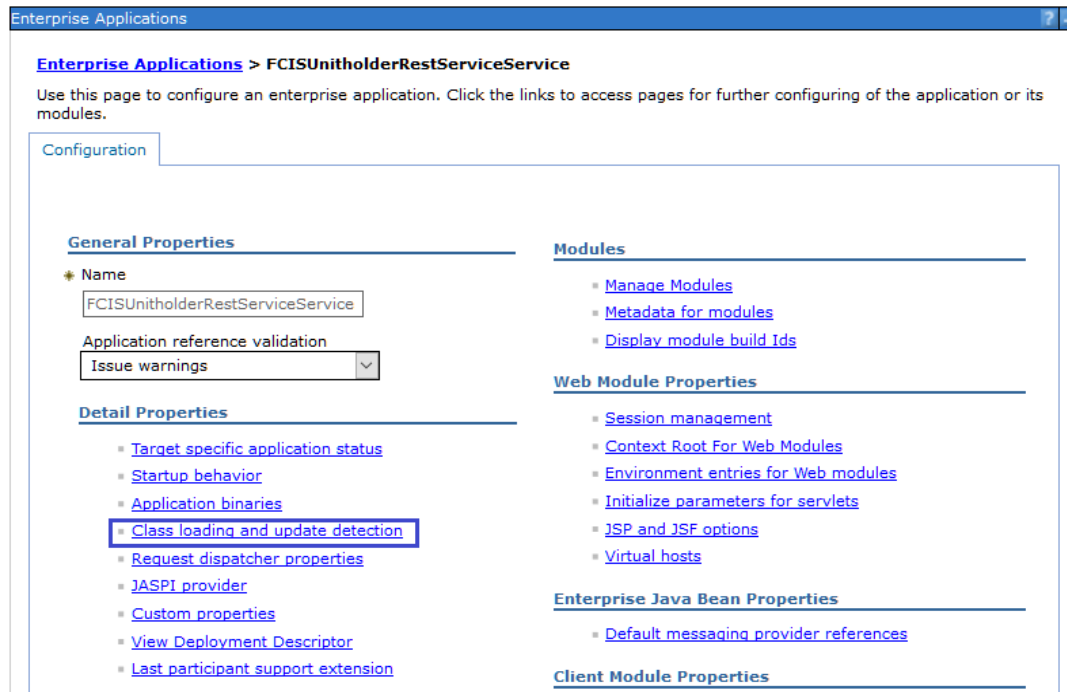
Total 9

Note: Above steps are same for GWRESTEJB also.

After installation click on the service (This step is done to generate swagger.json)



Click On Class loading and update detection



Select Class loaded with local class loader first (parent last) and click Apply.

**General Properties**

**Class reloading options**

☐ Override class reloading settings for Web and EJB modules

Polling interval for updated files  
 Seconds

**Class loader order**

☐ Classes loaded with parent class loader first

☒ Classes loaded with local class loader first (parent last)

**WAR class loader policy**

☒ Class loader for each WAR file in application

☐ Single class loader for application

**Apply** OK Reset Cancel

Click Save.

Enterprise Applications

Messages

⚠ Changes have been made to your local configuration. You can:

- [Save](#) directly to the master configuration.
- [Review](#) changes before saving or discarding.

⚠ The server may need to be restarted for these changes to take effect.

[Enterprise Applications](#) > [FCISUnitholderRestServiceService](#) > **Class loader**

Use this page to configure the reloading of classes when application files are updated.

Configuration

**General Properties**

**Class reloading options**

☐ Override class reloading settings for Web and EJB modules

Polling interval for updated files  
 Seconds

**Class loader order**

☐ Classes loaded with parent class loader first

☒ Classes loaded with local class loader first (parent last)

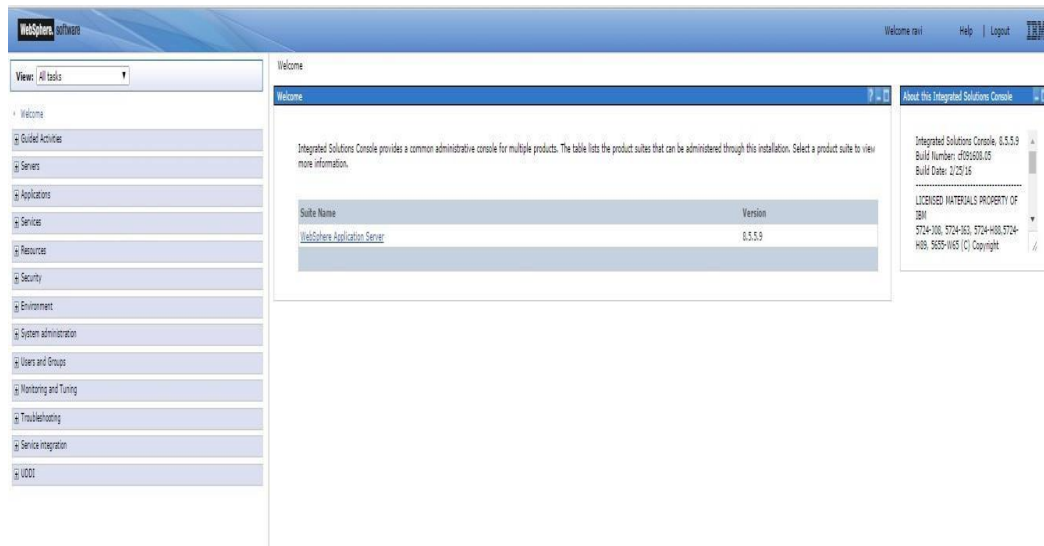
## 1.2 Enabling Logs for REST Application

Launch WebSphere console following screen will be displayed.



**User ID:** Enter user name

Click on 'Log in' and the following screen is displayed:





Expand 'Server Type' and Click WebSphere application servers and the following screen is displayed:

Cell=orcs222433Node01Cell, Profile=AppSrv01

**Application servers**

Use this page to view a list of the application servers in your environment and the status of each of these servers. You can also use this page to change the status of a specific application server.

**Preferences**

Name	Node	Host Name	Version
You can administer the following resources:			
server1	orcs222433Node01	orcs222433.in.oracle.com	ND 8.5.5.9
Total 1			

Click server1 and the following screen is displayed:

**General Properties**

Name: server1

Node name: orcs222433Node01

☒ Run in development mode

☒ Parallel start

☒ Start components as needed

Access to internal server classes: Allow

**Server-specific Application Settings**

ClassLoader policy: Multiple

Class loading mode: Classes loaded with parent class loader first

Apply OK Reset Cancel

**Container Settings**

- Session management
- ☒ SIP Container Settings
- ☒ Web Container Settings
- ☒ Portlet Container Settings
- ☒ EJB Container Settings
- ☒ Container Services
- ☒ Business Process Services

**Applications**

- Installed applications

**Server messaging**

- Messaging engines
- Messaging engine inbound transports
- WebSphere MQ link inbound transports
- SIB service

**Server Infrastructure**

- ☒ Java and Process Management
- ☒ Administration
  - Java SDKs

**Communications**

- ☒ Ports
- ☒ Messaging
  - Communications Enabled Applications (CEA)

**Performance**

- Performance Monitoring Infrastructure (PMI)
- Performance and Diagnostic Advisor Configuration

**Security**

- Security domain
- Default policy set bindings
- JAX-WS and JAX-RPC security runtime

**Troubleshooting**

- NCSA access and HTTP error logging
- Diagnostic trace service
- Logging and tracing
- Change log detail levels (Use this page to view and modify the properties for the diagnostic)

**Additional Properties**

- Class loader viewer service
- Endpoint listeners
- Debugging service
- Thread pools
- Reliable messaging state
- Web server plug-in properties

Click Diagnostic trace service and the following screen is displayed:

Application servers > server1 > Diagnostic trace service

Use this page to view and modify the properties of the diagnostic trace service. Diagnostic trace provides detailed information about how the application server components run within this managed process. Changes on the Configuration panel apply when the server is restarted. Changes on the Runtime panel apply immediately.

Configuration Runtime

General Properties

Trace Output

- ☐ None
- ☐ Memory Buffer
  - Maximum Buffer Size: 8 thousand entries
- ☒ File
  - Maximum File Size: 20 MB
  - Maximum Number of Historical Files: 5
  - File Name: %SERVER\_LOG\_ROOT%trace.log

Trace Output Format: Basic (Compatible)

Apply OK Reset Cancel

Additional Properties

[Change log detail levels](#)

Change log detail levels

Click Change log detail levels and the following screen is displayed:

Application servers > server1 > Diagnostic trace service > Change log detail levels

Use log levels to control which events are processed by Java logging. Click Components to specify a log detail level for individual components, or click Groups to specify a log detail level for a predefined group of components. Click a component or group name to select a log detail level. Log detail levels are cumulative; a level near the top of the list includes all the subsequent levels.

Configuration Runtime

General Properties

Change log detail levels

☐ Disable logging and tracing of potentially sensitive data (WARNING: This might cause the log detail level setting to be modified when it is applied on the server.)

Select components and specify a log detail level. Log detail levels specified here will apply to the entire server. Expand Components and Groups and click Components to specify a log detail level for individual components, or click Groups to specify a log detail level for a predefined group of components. Click a component or group name to select a log detail level. Log detail levels are cumulative.

\*=info: com.ofss.\*=all

Components and Groups

Correlation

Enable log and trace correlation so entries that are serviced by more than one thread, process, or server will be identified as belonging to the same unit of work.

☐ Enable log and trace correlation

- ☒ Include request IDs in log and trace records
- ☐ Include request IDs in log and trace records and create correlation log records
- ☐ Include request IDs in log and trace records, create correlation log records, and capture data snapshots

Apply OK Reset Cancel

Change log detail levels

Add the entry com.off.\*=all to the existing entry (i.e., now it will be \*=info: com.ofss.\*=all)

Restart the server post the change

The logs will now be written into the log area that is specified in the configuration Application servers > server1 > Diagnostic trace service.



REST API SERVICES Deployment in WebSphere  
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Oracle Financial Services Software Limited  
Oracle Park  
Off Western Express Highway  
Goregaon (East)  
Mumbai, Maharashtra 400 063  
India

Worldwide Inquiries: Phone: +91 22 6718 3000  
Fax: +91 22 6718 3001  
[www.oracle.com/financialservices/](http://www.oracle.com/financialservices/)

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