ORACLE ENTERPRISE MANAGER 12c

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Oracle Best Practices for Managing Fusion Application: Discovery of Fusion Instance in Enterprise Manager Cloud Control 12c

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Executive Overview

Managing Fusion Applications with Enterprise Manager Cloud Control 12c (EMCC) begins with the Discovery Process. The Discovery Process brings Fusion Apps targets into EMCC, and forms the basis for proactive management of Fusion Apps.

In addition to discovery, EMCC provides a number of tools that assist Administrators in organizing, maintaining, and deleting Fusion Apps targets and services.

The purpose of this whitepaper is to provide instructions on Oracle's Best Practices for discovering and maintaining Fusion Apps targets and services. The key aspects of this whitepaper include:

- Understanding the pre-requisites for the Discovery Process
- Understanding and executing Diagnostic Pre-checks, which identify and remediate potential obstacles to a successful Discovery
- Understanding and executing the Best Practices for Fusion App Discovery
- How to associate Weblogic Domains, such as BI or IDM, to a Fusion App Instance
- How to add or alter targets and target properties within a Fusion App Instance using the Refresh Process

Applicable versions of Enterprise Manager

This whitepaper is based on EM 12c R4, using the Fusion Apps Plug-in version 12.1.0.6. However, many of the capabilities addressed in this whitepaper also exist in previous versions of Enterprise Manager 12c, as well as previous versions of the Fusion Apps Plug-in.

This whitepaper is based on an instance of Fusion Applications version 12.1.0.7, but almost all of the capabilities presented in this whitepaper apply to earlier and later versions of Fusion Applications as well.

Prerequisites before discovering Fusion Instance

Prior to discovering the Fusion Instance, administrators need to ensure that the host and database targets that support the Fusion instance have been discovered in EM 12c
For detailed instructions on how to discover these targets, please refer to Enterprise Manager Cloud Control Basic Installation Guide, Chapter 9: Installing Oracle Management Agents section.

Also make sure that proper credentials are set for the all the hosts that will be used for Fusion Instance Discovery. For detailed instructions on how to set up credentials, please refer to Enterprise Manager Cloud Control Administrator's Guide, Chapter 10.3.3.3: Specifying Host and Database Credentials

After completing the prerequisite steps, proceed to the next section "Diagnostic Pre-Checks".

Diagnostics Pre-checks

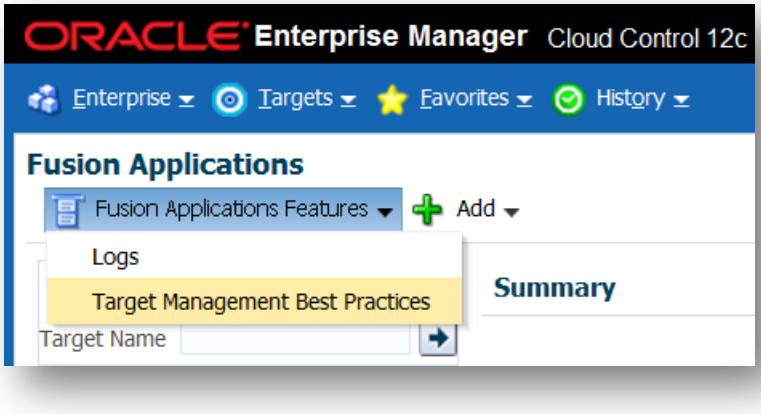
The purpose of Diagnostic Pre-Checks is to identify specific steps or tasks that might cause the Discovery process to fail. This feature can be also used to make sure that the configuration and setup needed for several other EM management features to work, such as logs management, support workbench, and IDM management. In addition, the pre-checks provide recommendations and guidance on how to fix these warnings or errors. Administrators can then correct the errors, and re-run the Diagnostic Pre-Checks. If all of the pre-checks complete successfully, it is usually an indication that the Discovery process will also complete successfully.

Examples of the pre-checks include:

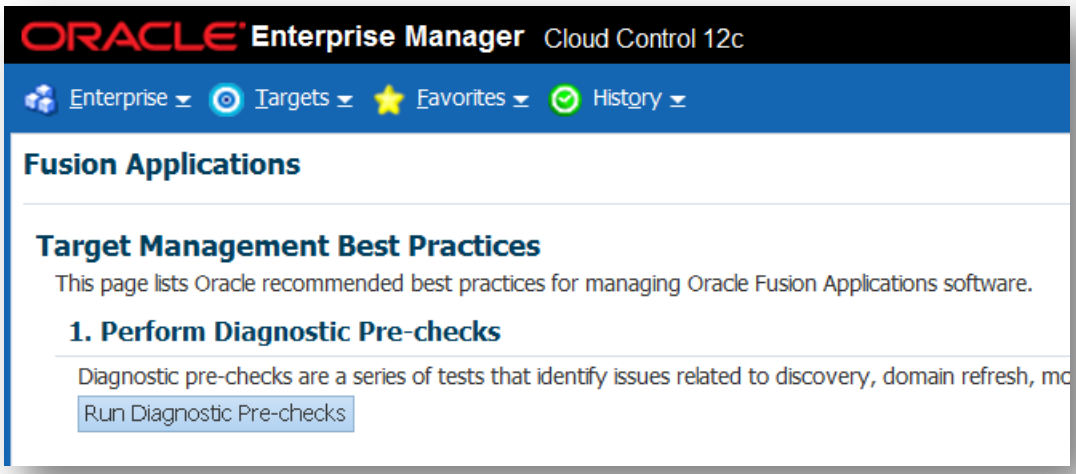
- Validating that base agents as well as pre-requisite plug-ins are deployed on targets
- Validating that permissions are correctly set
- Validating jmx connections
- Validating the availability of all relevant servers

A complete list of all of the pre-checks, their severity, and suggested resolutions, can be found in the Appendix of this whitepaper.

To start the Diagnostic Pre-checks, go to Targets > Fusion Applications and select **Target Management Best Practices** under Fusion Application Features drop down list.

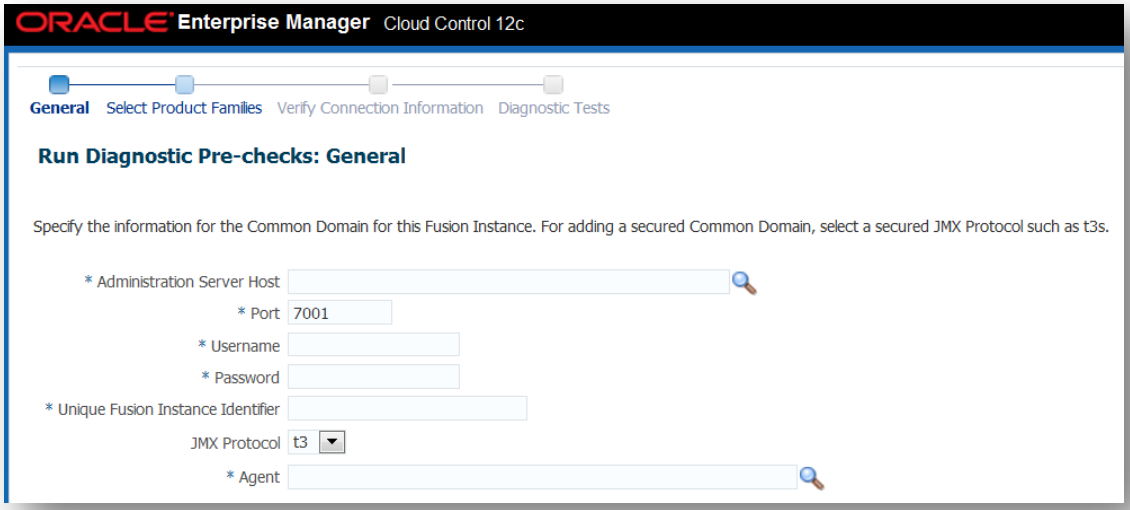


Click **Run Diagnostic Pre-Checks** to start the Diagnostic Pre-Checks.



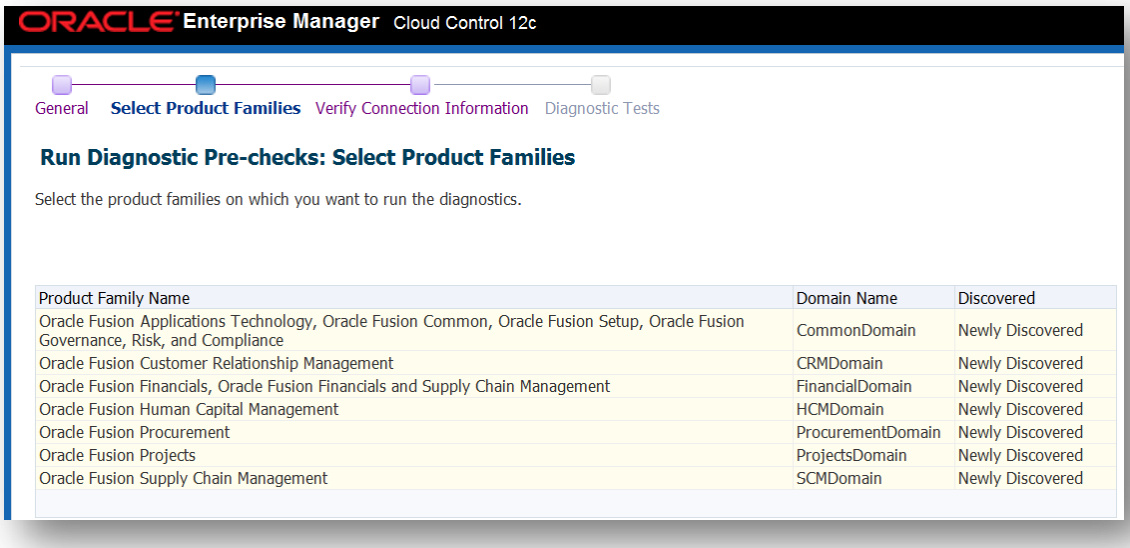
The first step is to provide the specific information for this Fusion Instance.

Administrators need to provide the host name of the Admin Server in the Common Domain, as well as the port and credentials. Lastly, administrators need to provide a unique name for the Fusion Instance.



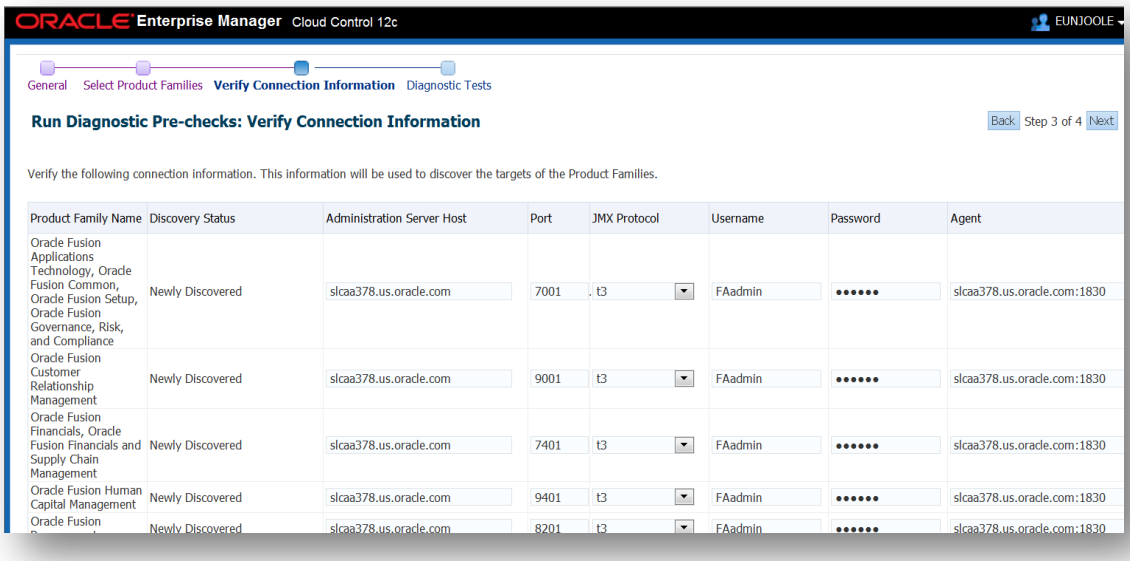
Clicking **Next** initiates the process of determining which FA Product Families and Products exist in that specific FA Instance. Once all the product families are retrieved, click **Close** to proceed to next step.

On the 2nd step, select either individual or multiple Product Families to run the diagnostic pre-checks.

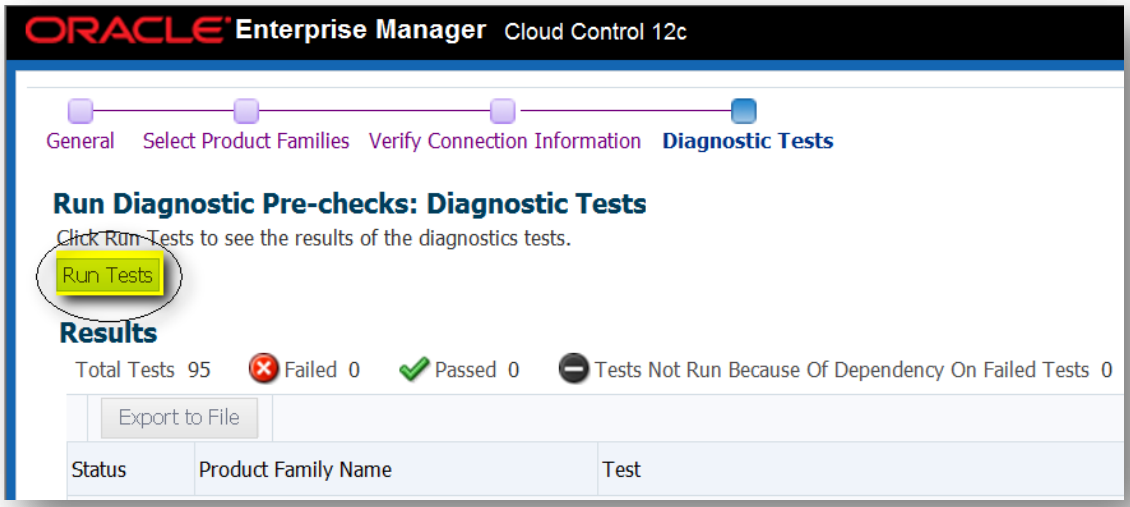


Once Administrators select the desired Product Families on which to run the pre-checks, click **Next** to verify the connection information of Fusion Product Families. Administrators can verify that the Host/Port values are correct for each Prodcut Family, as well as the credentials. Typically, these values will default in correctly.

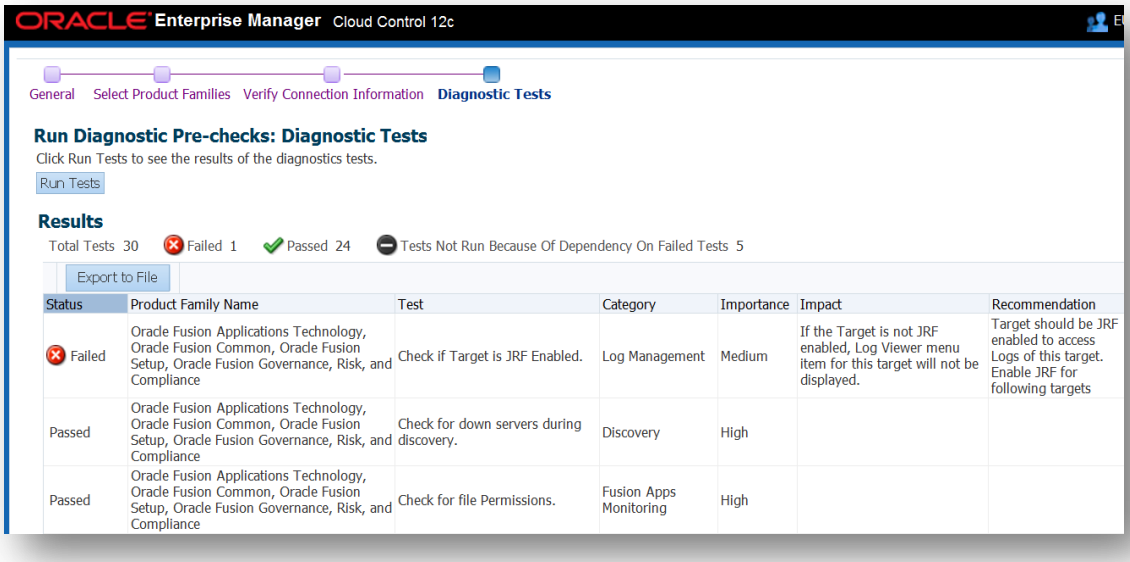
Click **Next** if the value is correct.



The last step in the interview is Diagnostic Tests. Click **Run Tests** button to start the Diagnostic Pre-checks for Fusion Instance.



Once the test has completed, the results can be viewed on-line. The example below shows that one of the targets is not enabled for JRF. The impact of this error is also displayed, as well recommendations on how to correct the error.

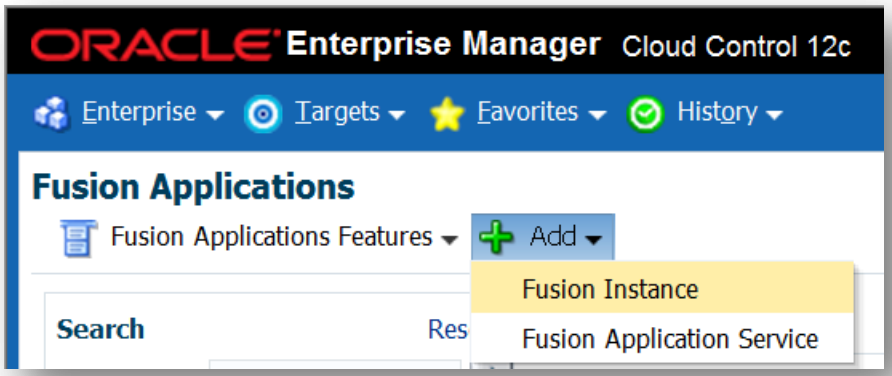


Also note that the Diagnostic Pre-Checks can be run multiple times, so once the errors have been corrected, it is recommended to run the Pre-Check one last time. Once the Diagnostic Pre-Checks have completed successfully, proceed to Fusion Instance Discovery.

Fusion Instance Discovery

Discovery is the process of adding Fusion Apps targets into the Enterprise Manager repository.

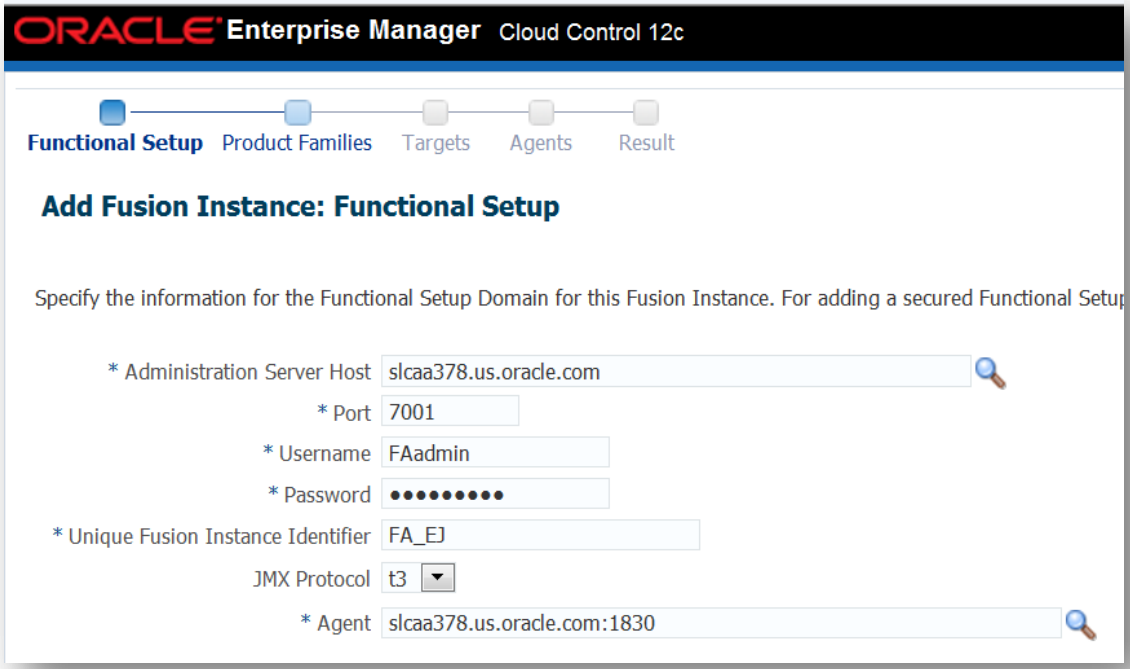
To discover a Fusion Instance, go to Targets > Fusion Applications and click **Add** drop-down menu and select **Fusion Instance**.



Fusion discovery process discovers all targets of all types that are present in the Fusion instance itself and this includes all the FA WLS domains. User can also use EMCLI command to discover Fusion Instance. Please refer to Oracle Enterprise Manager Command Line Interface 12c Release, Ch4: Verb References – EM CLI Verbs – discover_fa for detail information.

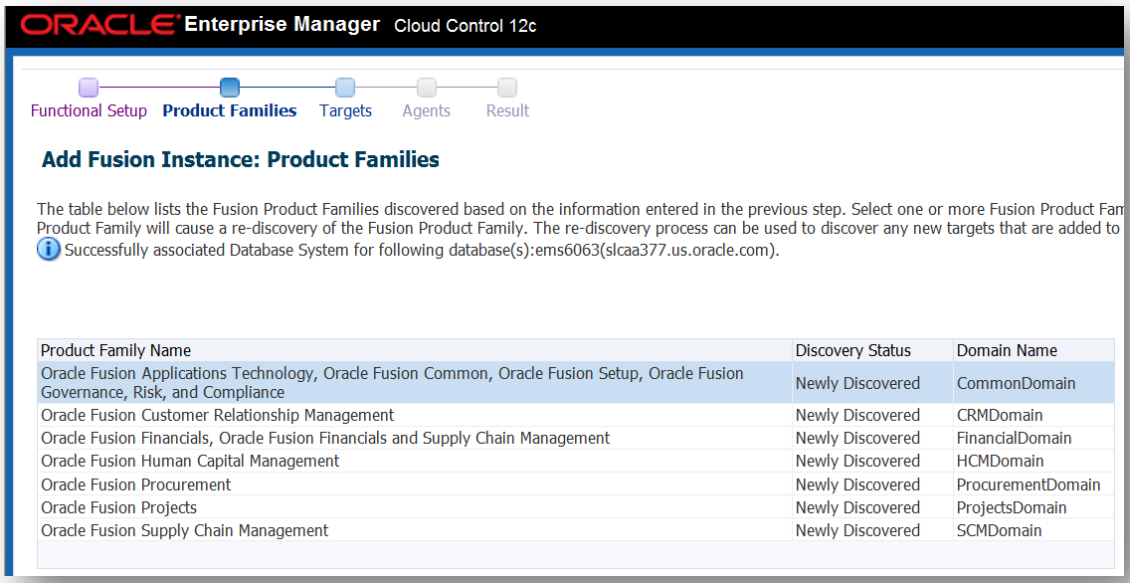
Administrators need to provide the host name of the Admin Server in the Common Domain, as well as the port and credentials. The respective agent values will typically default to the Admin Server. Lastly, Administrators need to provide a unique name for the Fusion Instance.

If the values that have been specified are valid, then EM will find all the product families that belong to this Fusion Instance. Click **Close** button to proceed of adding Product Families.



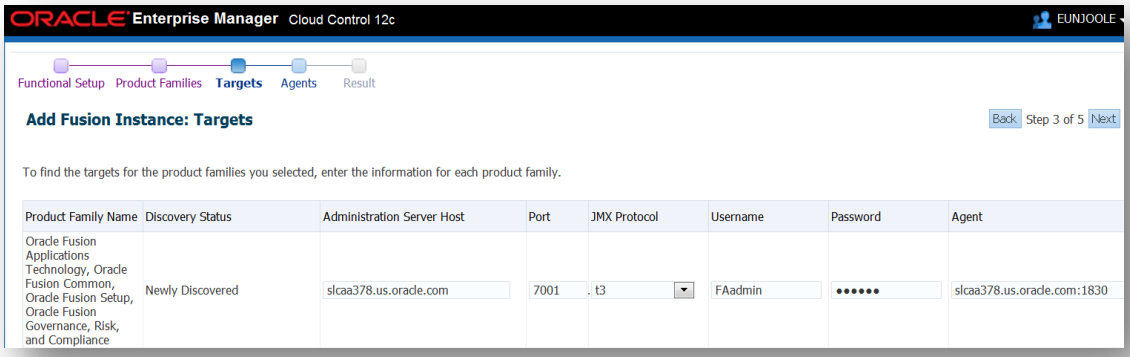
In the second step, select one or more Fusion Application Product Families to be discovered. Customers do not need to add all the Product Families in this step. Customer can add more Product Families after Discovery is completed by performing **Refresh Fusion Instance** (addressed in a later chapter).

Once the Product Families are selected, click **Next.**



The third step in the interview process allows administrators to verify that the parameters for the individual Product Family are correct. If necessary, Administrators can alter Hosts, Ports, Protocols, credentials, and agents.

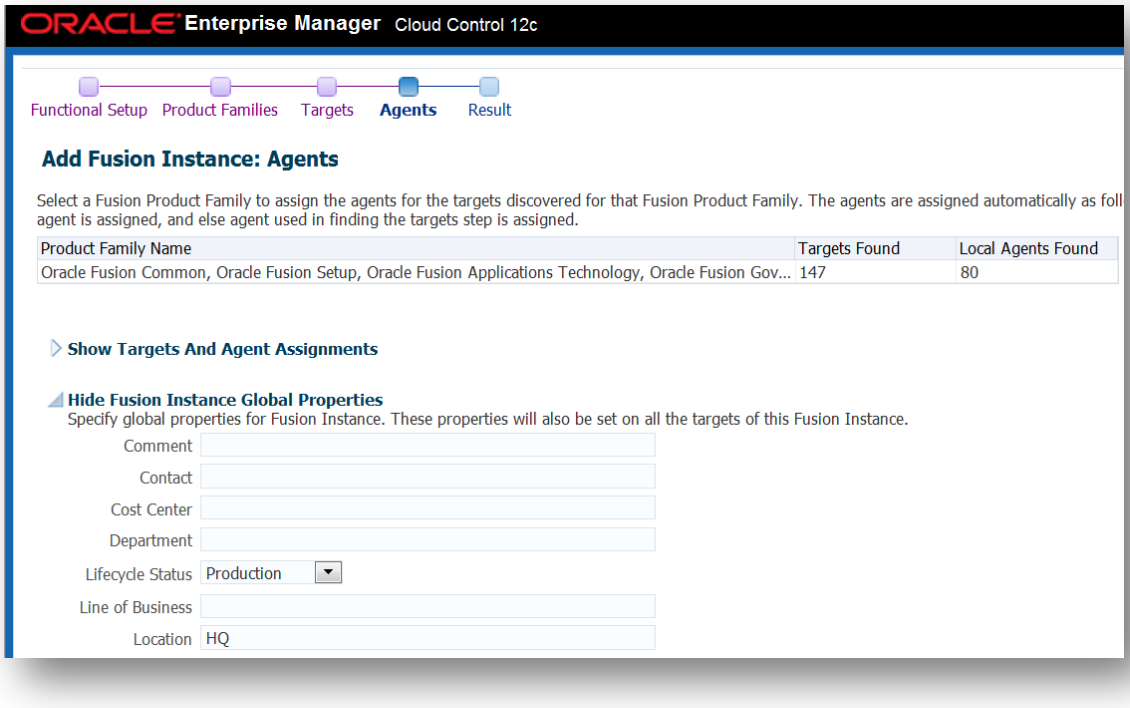
Once the values are verified, click **Next.** A window will open to validate the parameters. Click **Close** once it confirms the product families are found.



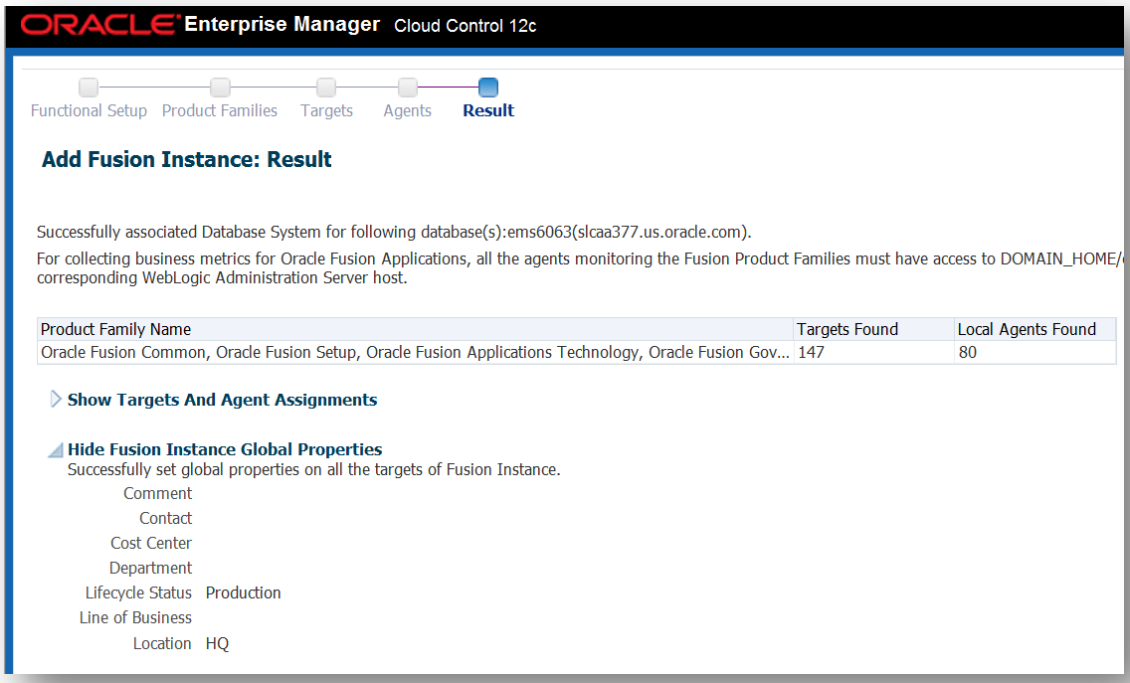
In the fourth step, the agents will be assigned to the product families that were discovered.

Customers also have the opportunity to attribute Global Target Properties to the Fusion Apps targets. This is a very convenient and efficient way to attribute Global Target Properties to multiple Fusion Apps targets. Remember that the target values specified will be attributed to each one of the Fusion Apps targets identified in a particularly Discovery job/session. Setting Global properties is useful when using Administration Group to manage Fusion Application.

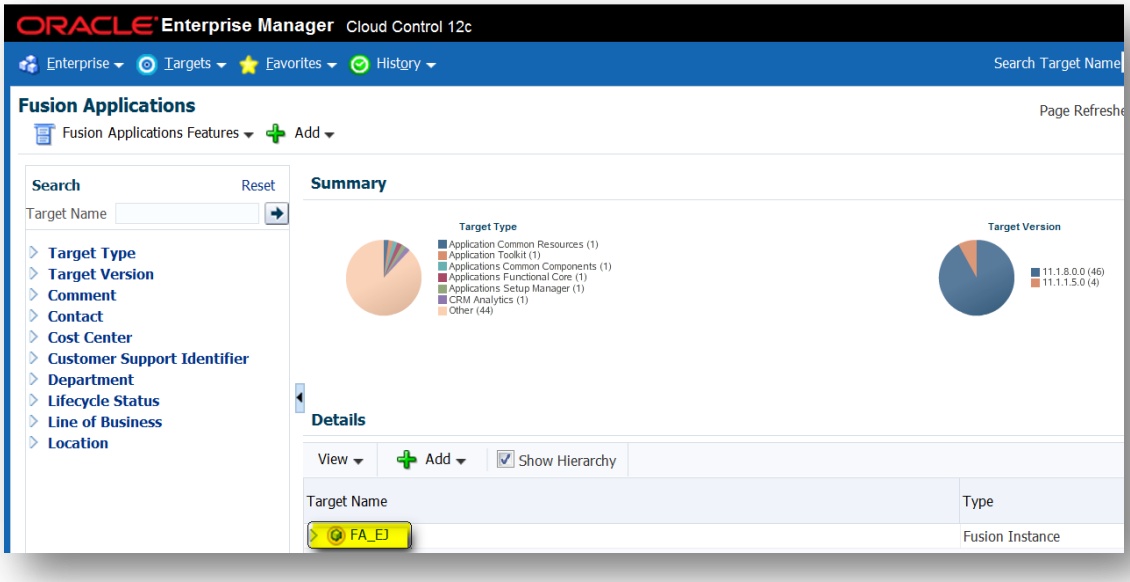
For detailed information on using Administration Group and its best practice, please refer to Fusion Apps Administration: Case Study - Utilizing Administration Groups and Target Properties for Efficient Administration on OTN.



Click **Finish** to complete the process of adding Fusion Instance.

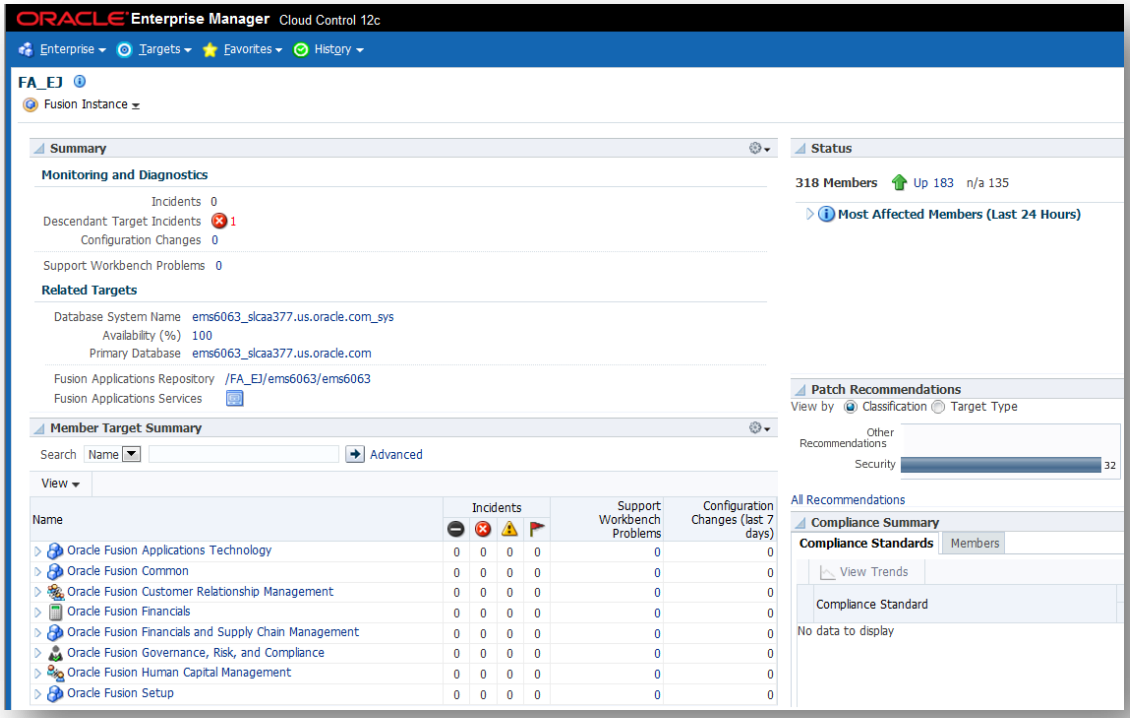


Once Fusion Instance discovery is completed, navigate to Targets > Fusion Applications to view all of the targets associated with the FA instance.

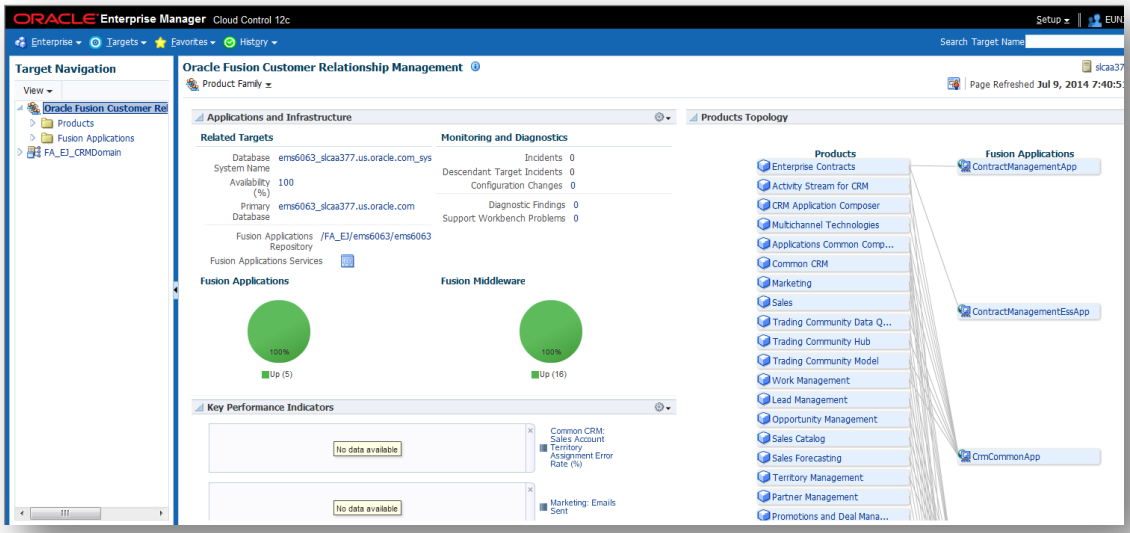


Click on the Fusion Instance target, and it will bring to the home page of Fusion Instance, shown below. The Fusion Instance home page provides the holistic view of all of the targets within the Fusion Instance. It lists all the Product Families that have been discovered, and

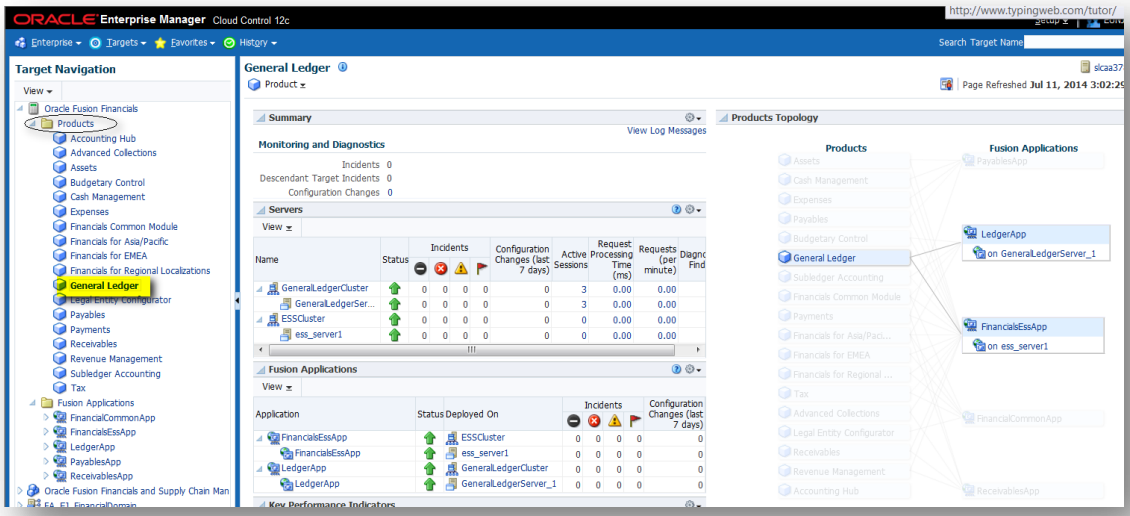
customers can further customize which regions they want to appear on their homepage, such as member status, patch recommendations, and monitoring/diagnostic summaries, just to name a few.



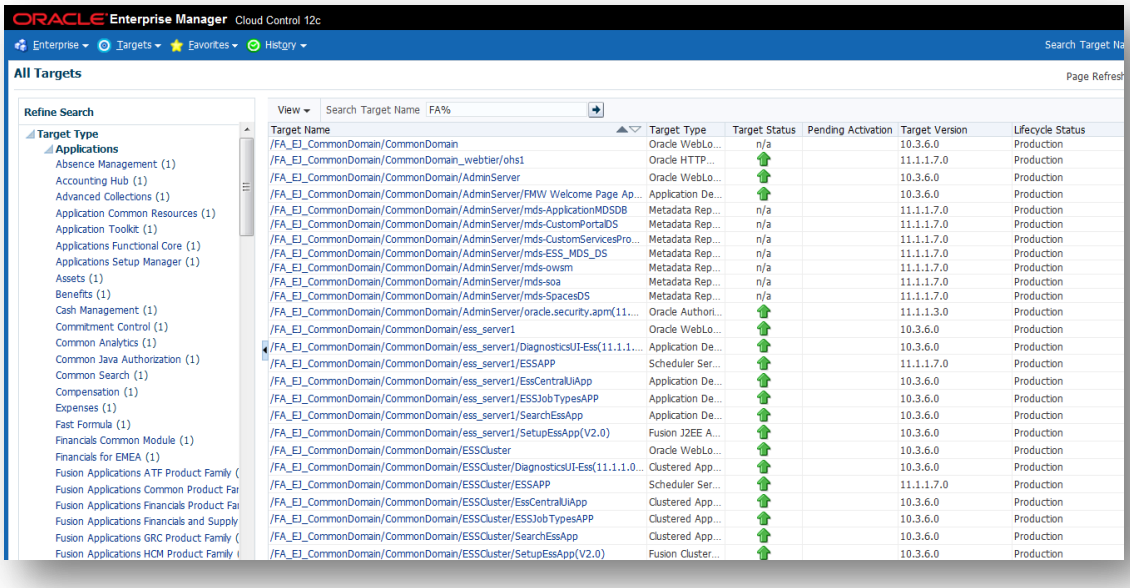
Customers can drill down further into individual Product Families. Clicking on the one of the Product Family name takes the user to the Product Family homepage. The Product Family home page provides information on Target Availability, Monitoring and Diagnostics status, KPI, Job Request information, and Product Topology.



If customer wants to drill down to individual product information, expand the Products on the left panel and click on one of the products to get to the Product Home page. The Product Home page shows not only the general monitoring and diagnostics information; it also provides the information on its Cluster Servers and Applications, including their status, where it is deployed on, Incidents, and Configuration changes, etc.



In addition to viewing FA targets from the FA homepages, customers can view FA targets via **Targets > All Targets.** Put a search criteria such as “%Fusion%” and it will list all the Fusion related targets that were discovered in a table view. This list will make easier for Admin to access the Fusion related targets in a single page.



Additional Associations

The Fusion Discovery process discovers all of the targets that are attached to a Fusion Instance. However, there are some other infrastructure WLS domains are not discovered as part of the Fusion discovery process, including:

- Business Intelligence (BI)
- Identity Management (IDM)
- Oracle Social Network (OSN)
- Oracle HTTP Server (OHS)
- Oracle Webchat

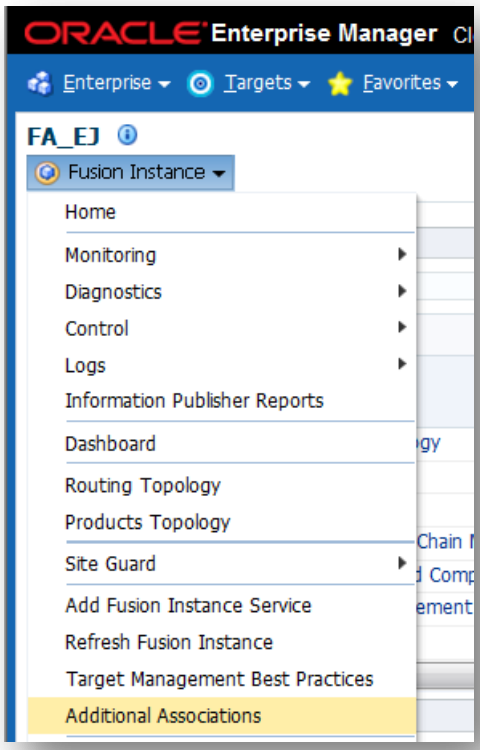
Many customers want to be able to manage these targets as if they belonged to the FA Instance. EM Cloud Control can automatically add stand-alone targets if is registered as a proxy with the discovered domain. The process for associating these targets to an FA Instance is discussed in this section.

The benefits of associations are:

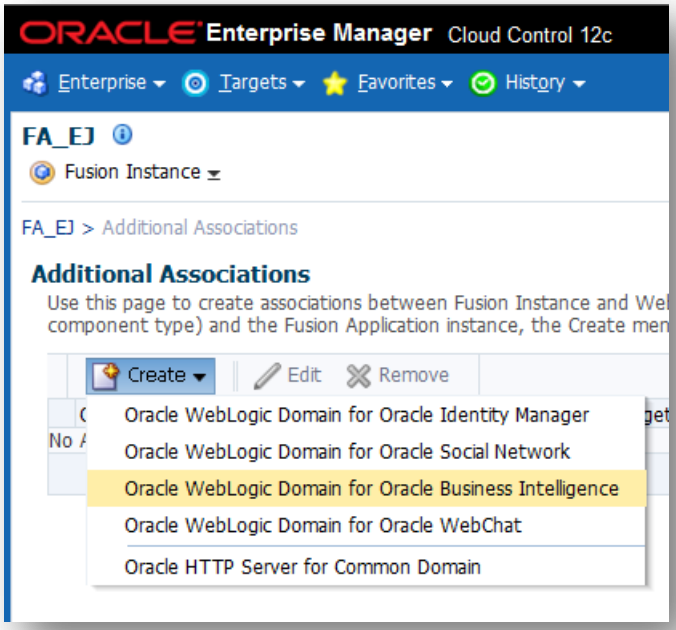
- Less error-prone to discover and associate these targets to the Fusion Applications related targets
- Administrators can manage the Fusion Applications-related targets in a centralized manner

Note that all of the above targets need to have been discovered previously in EMCC. Assuming that these targets exist in EMCC, they can be associated to the FA instance.

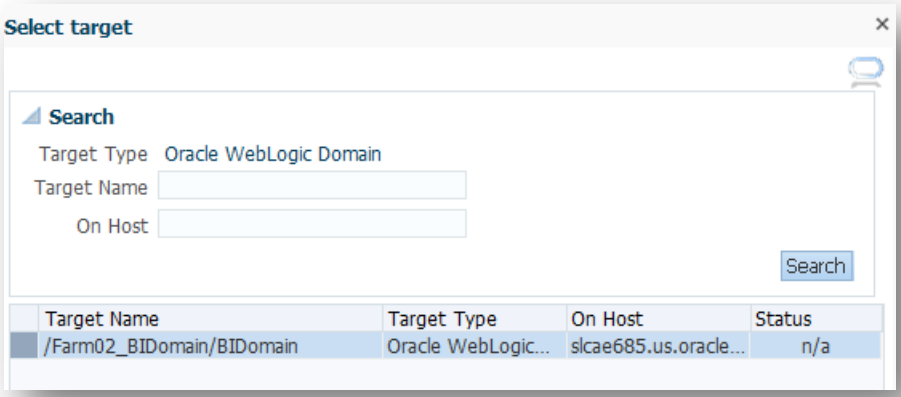
Go to Fusion Instance home page, click Fusion Instance drop down menu and select **Additional Associations**.



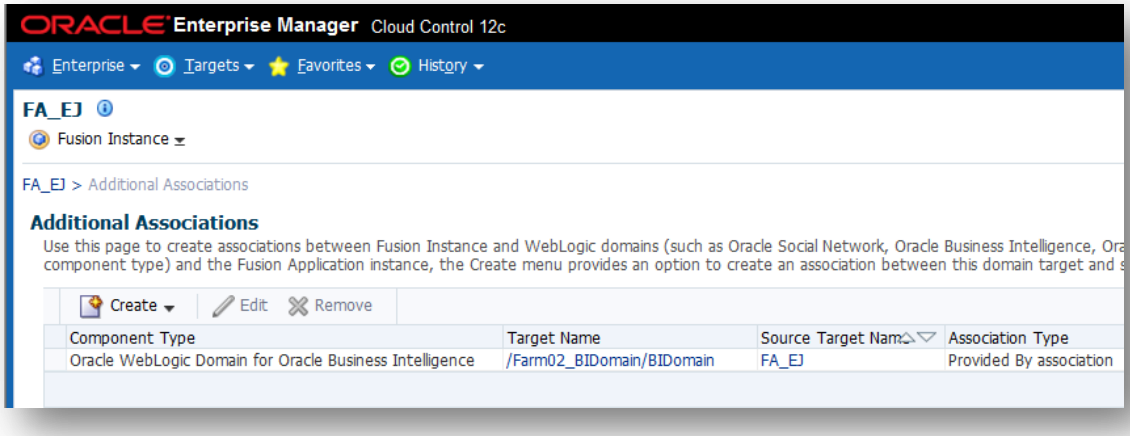
Click **Create** and select one of the products that system admin wants to associate to the Fusion Instance.



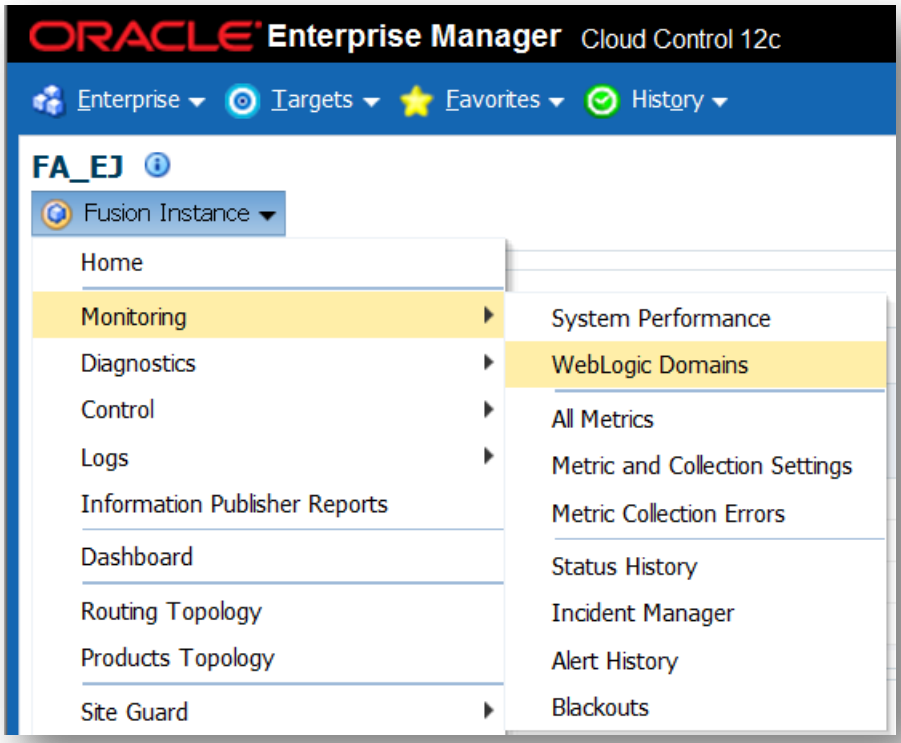
Select the target that needs to be associated to Fusion Instance. In this demo, BI domain has been selected to add to the Fusion Instance.



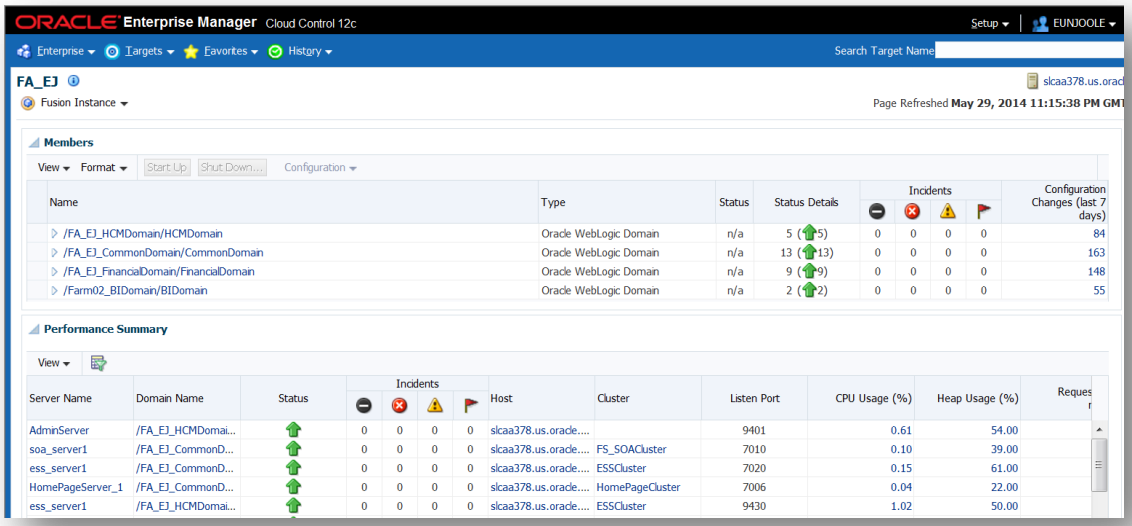
Once the target is selected, then it will automatically be associated with the Fusion Instance.



In order to validate that the association was successful, navigate to the FA instance Homepage, and select **Monitoring > WebLogic Domains.**



This page shows all the members of WebLogic Domains and Performance Summary of all Servers. The newly associated domain should appear along with the other Fusion App Product Family domains.

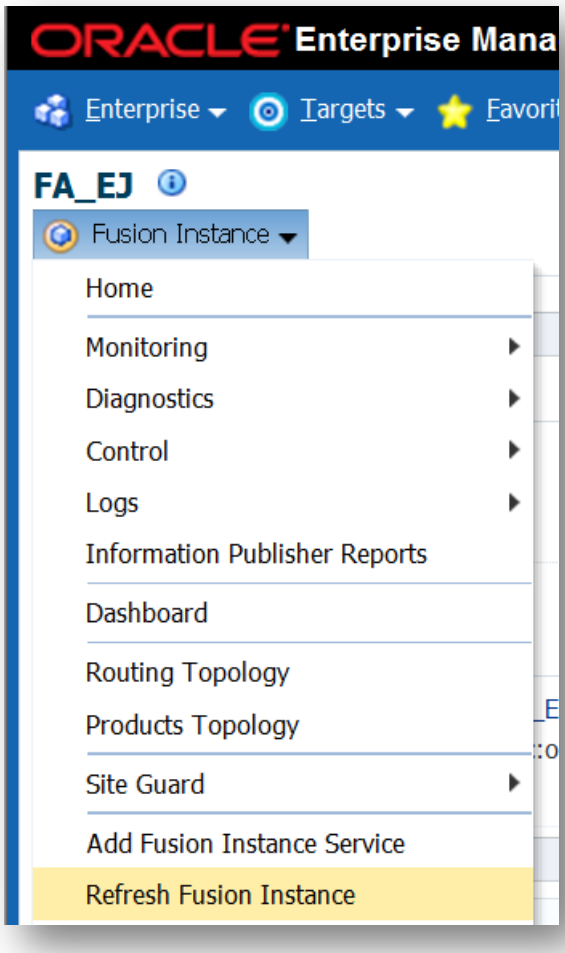


Refreshing Fusion Instance

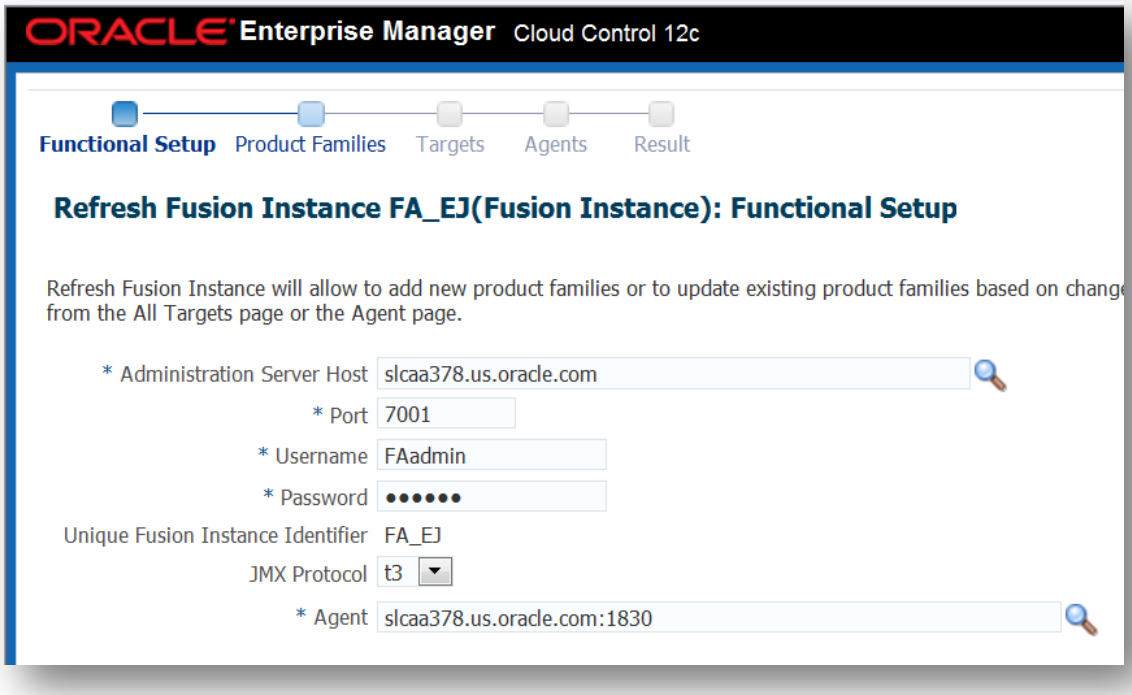
Customers can add new targets, or refresh existing targets, into an existing Fusion Instance.

For example, customers might want to add Product Families, or might want to alter Target Property values to targets within an existing Product Family.

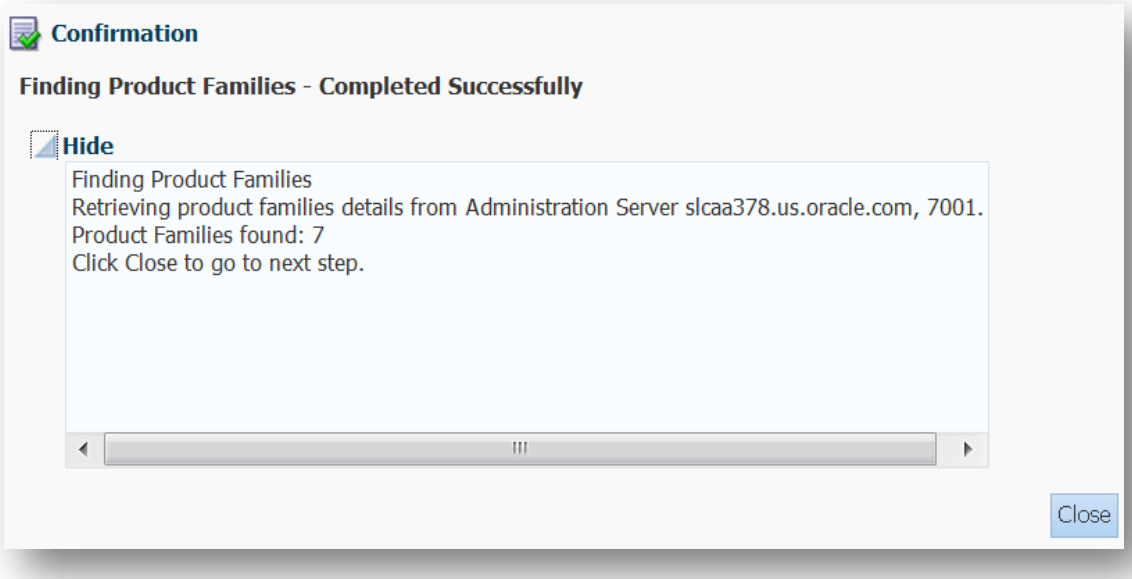
To refresh an FA Instance, from the FA Instance homepage, click drop down menu from **Fusion Instance** and select **Refresh Fusion Instance.**



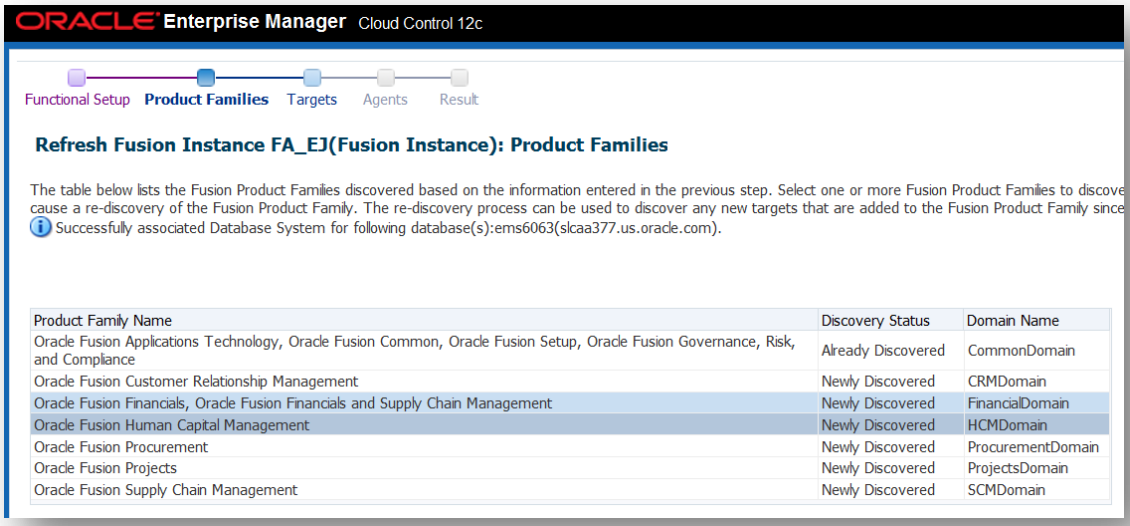
The process of refreshing a Fusion Apps Instance is exactly the same as the Discovery process, discussed previously.



The first step is to provide parameters from the Common Domain Admin Server. In most cases, the correct values should be pre-populated. Click **Next** and browser will open to show how many product families are found.

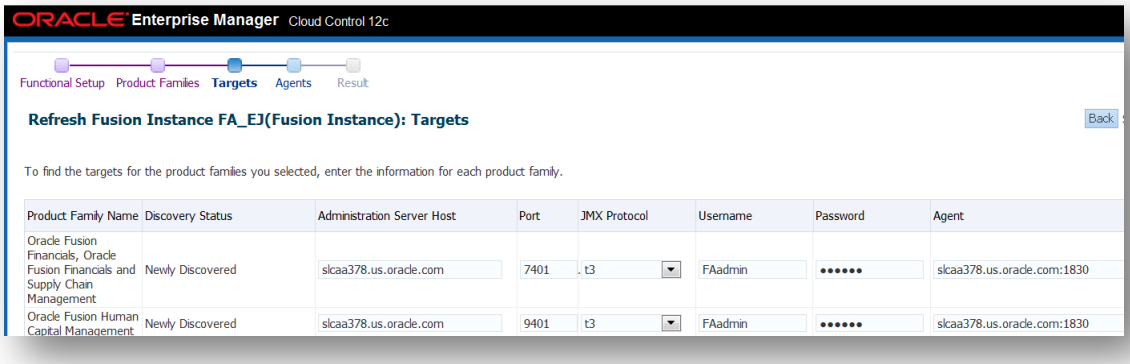


The second step is to select the Product Families to be added or altered. Product Familes that have been previously discovered are shown as “Already Discovered” whereas new product families are shown as “Newly Discovered”. Highlight the product families that Administrators want to add or modify and click **Next**.

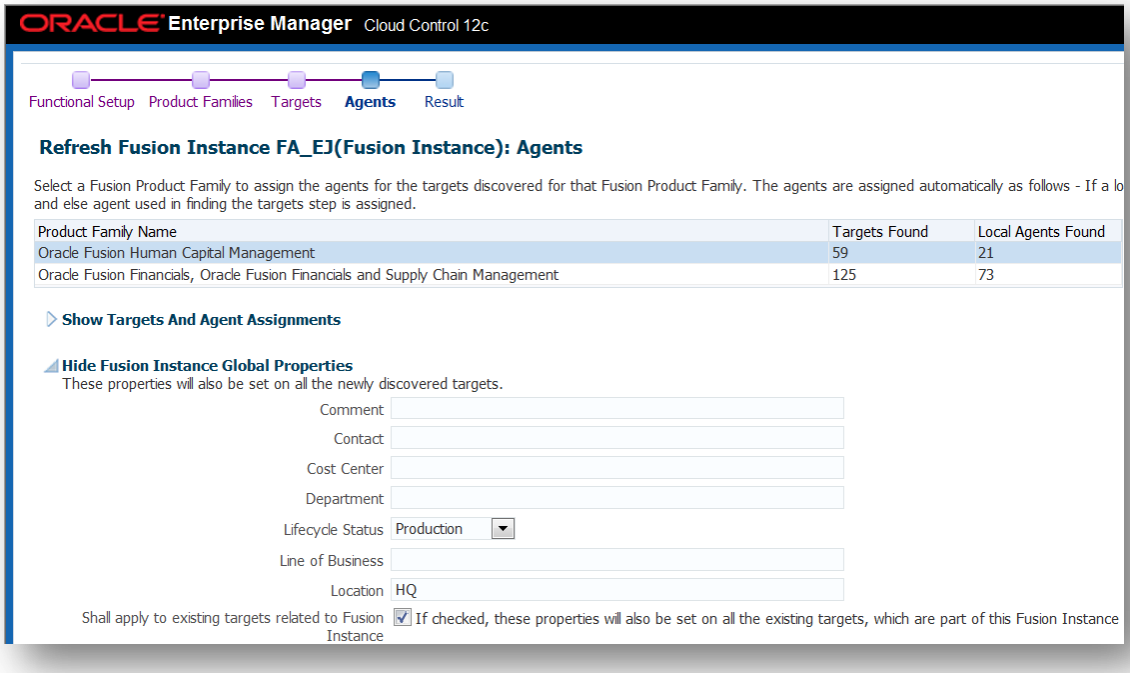


The third step is to validate the parameters for each Product Family. Most of the values should be pre-populated.

Click **Next** and window will show all the targets that belong to each Product Family.



The fourth step validates the agents assigned to the respective Product Families. Customers can also assign Global Properties to the targets. Note that the global property values are already set based on the value from the previously discovered process. By checking **Shall apply to existing targets related to Fusion Instance,** these values will be attributed to the targets in this refresh job/session.



Click **Next** will open the browser for saving product families. Once the product families are saved, close the browser and check the **Result** page. The Result page shows all the targets and its global properties. Click **Finish** and Enterprise Manager will render to Fusion Instance home page with newly added product families.

Adding Fusion Application Service

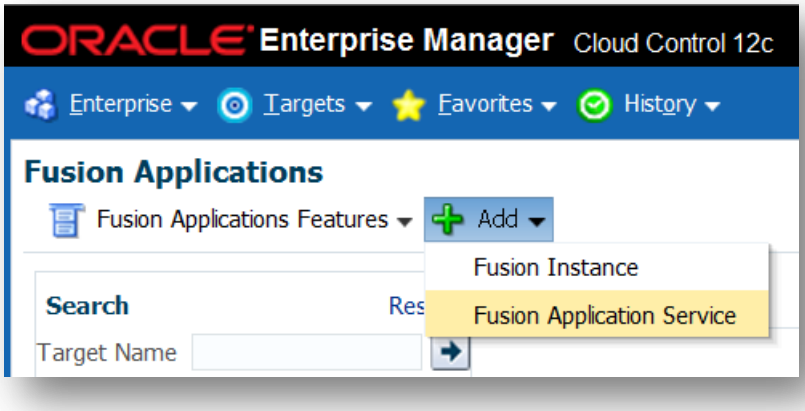
The Fusion Apps Plug-in (12.1.0.6 and later) also provides the ability to automate the creation and deployment of Service Tests. In particular, the FA Plug-in provides:

- Seeded Oracle ATS synthetic scripts
- Automated deployment of synthetic scripts to beacons
- Automates the creation of Service Tests (based on the synthetic scripts)
- Presents the Service tests logically, by Instance/Product Family/Product hierarchy on the Fusion Apps List Page

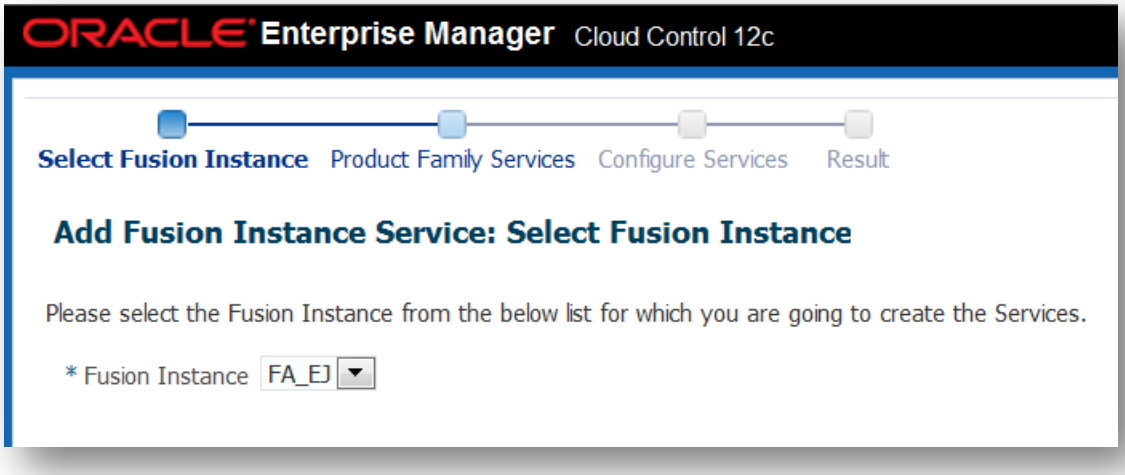
Service Tests, along with the Service Level Management framework, provide important monitoring and management capabilities for Fusion Applications. The benefits of using Service tests and Service Level Management are:

- System Admin can monitor and manage the Fusion Applications proactively
- System Admin can isolate where the problem occurs by checking the Service Tests that are deployed in various beacons
- System Admin can take advantage of Service Level Management framework

To add the Fusion Application Service, navigate to Targets > Fusion Application. Click the **Add** button and select **Fusion Application Service**.



If there are multiple Fusion Instances, select the one that user wants to create the service for it.



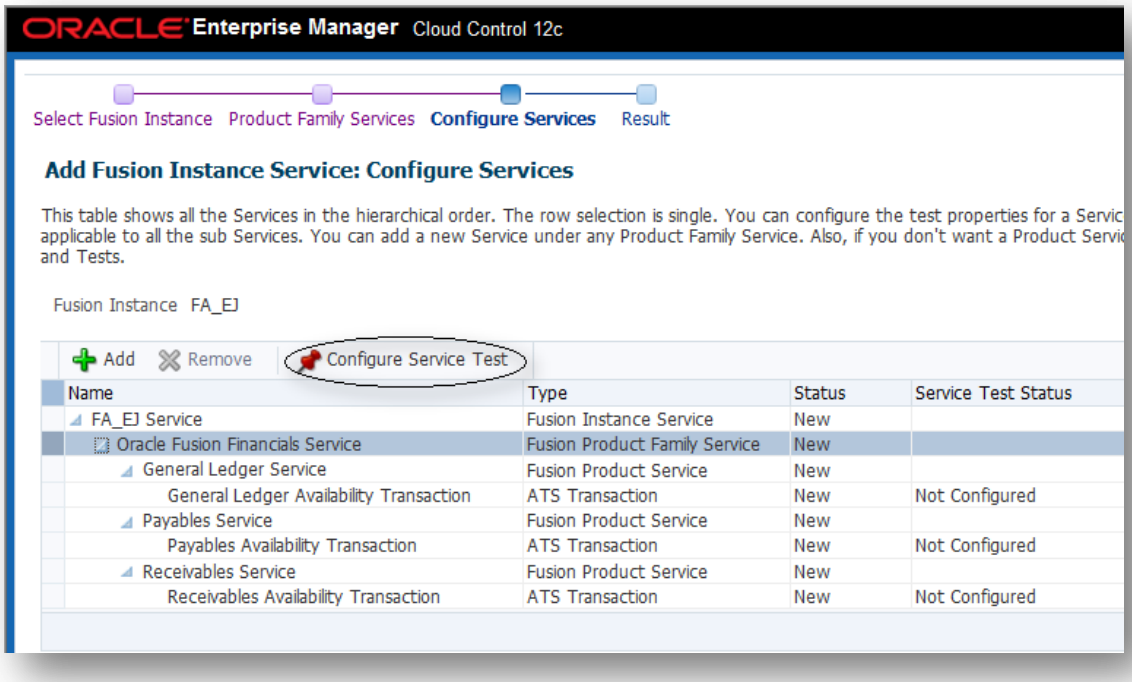
Next, select one or more Product Family Services from the list to configure the product services and tests.

The third step allows the Admin to configure the Service Tests. Tests can be configured in two ways:

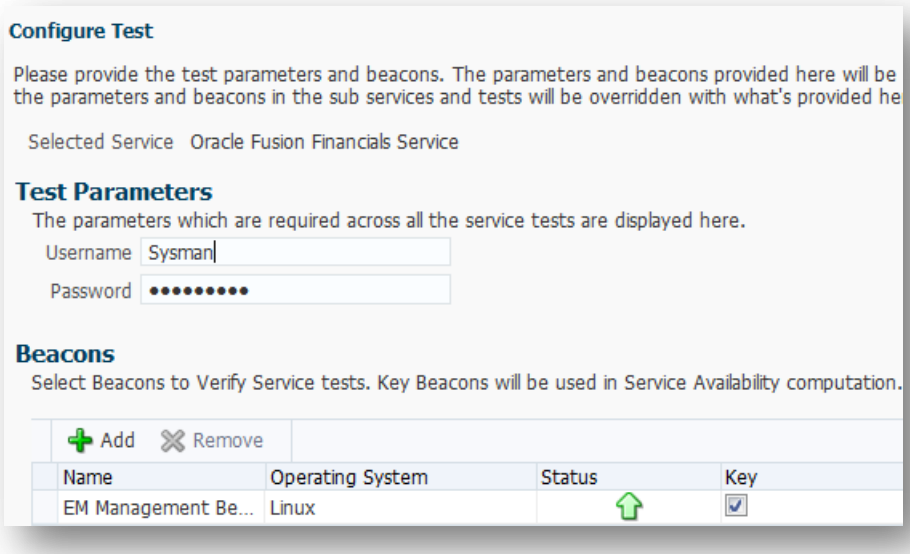
In groups: By highlighting either the Product Family or Product, Administrators can configure all of the existing Service Tests that exist *within that particular group*. That is, all of the Service Tests will have the same credentials and run on the same beacon(s).

Individually: Administrators can configure individual Synthetic Scripts by highlighting them and clicking “Configure Service Test”.

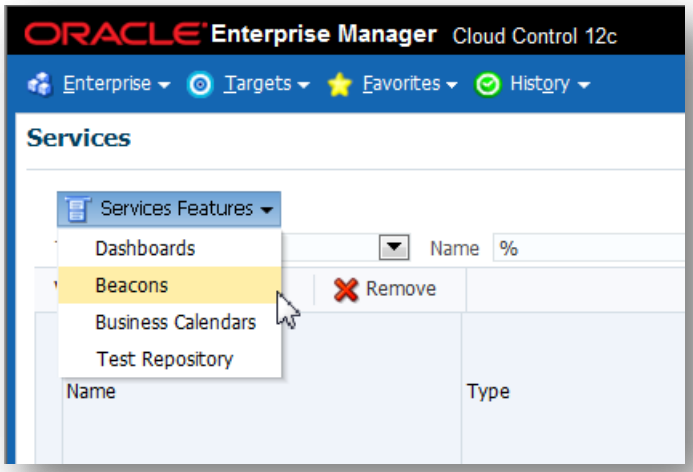
Customers can also add or remove individual Synthetic Tests**.**



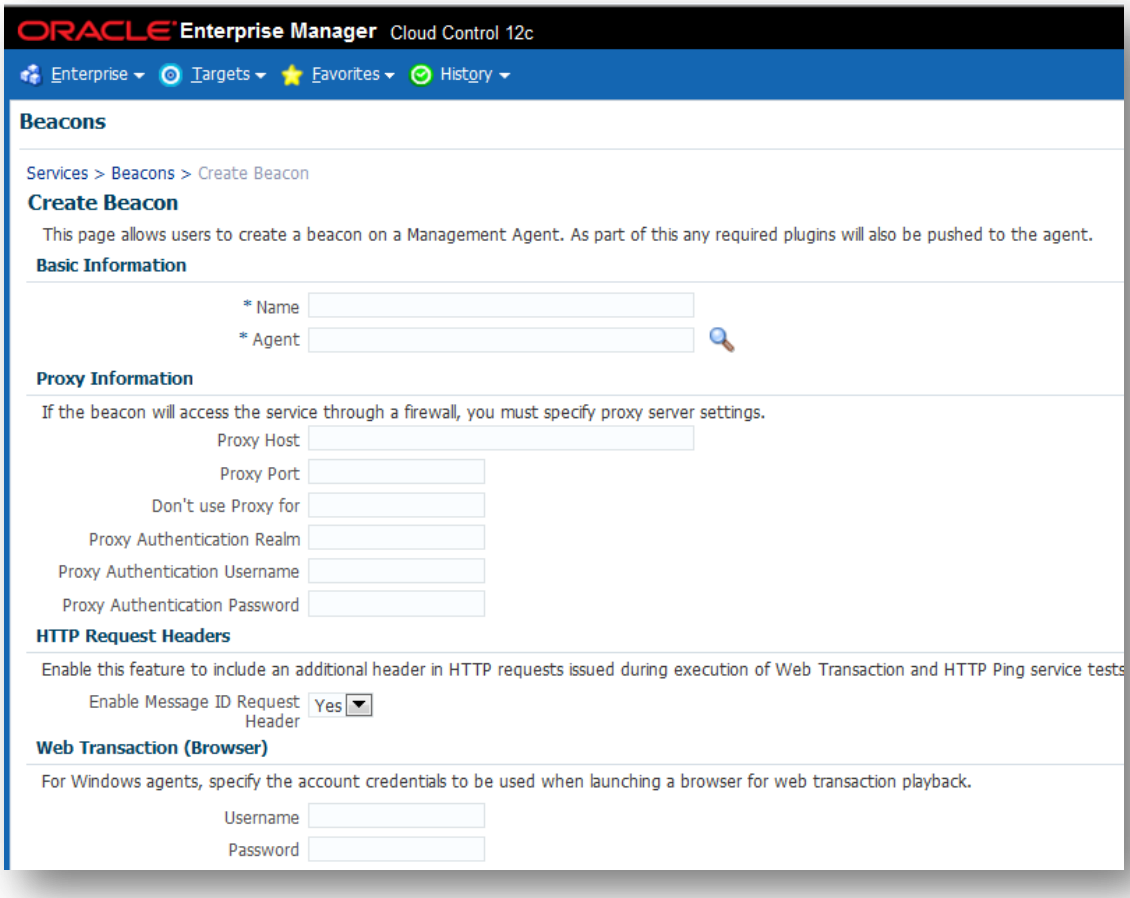
Click **Configure Service Test**. Provide the Username and Password and Add the Beacons where this service will run against.



In case there are no Beacons that have been previously created, go to Targets > Services and click the **Service Features** drop down menu and click **Beacons**.

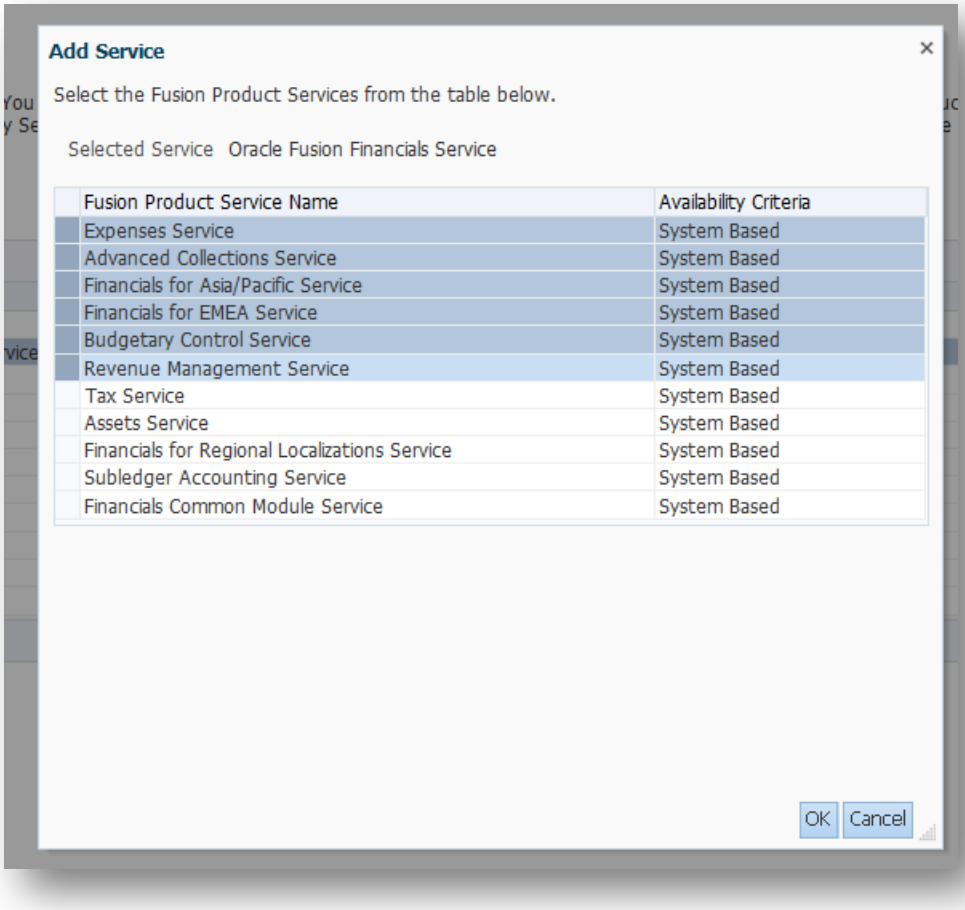


Click **Create** button and provide the basic information, such as Name that user wants to name the Beacon and select the Agent where this beacon will be deployed.

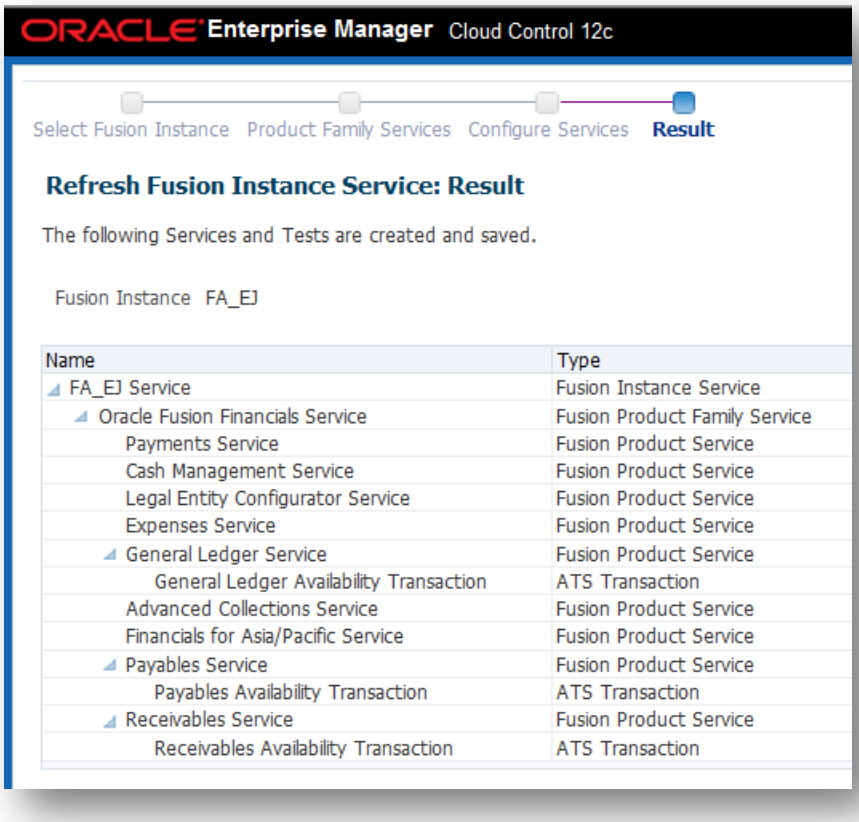


After the Beacon is created, go back to the Service Configuration step and add the Beacon to the service.

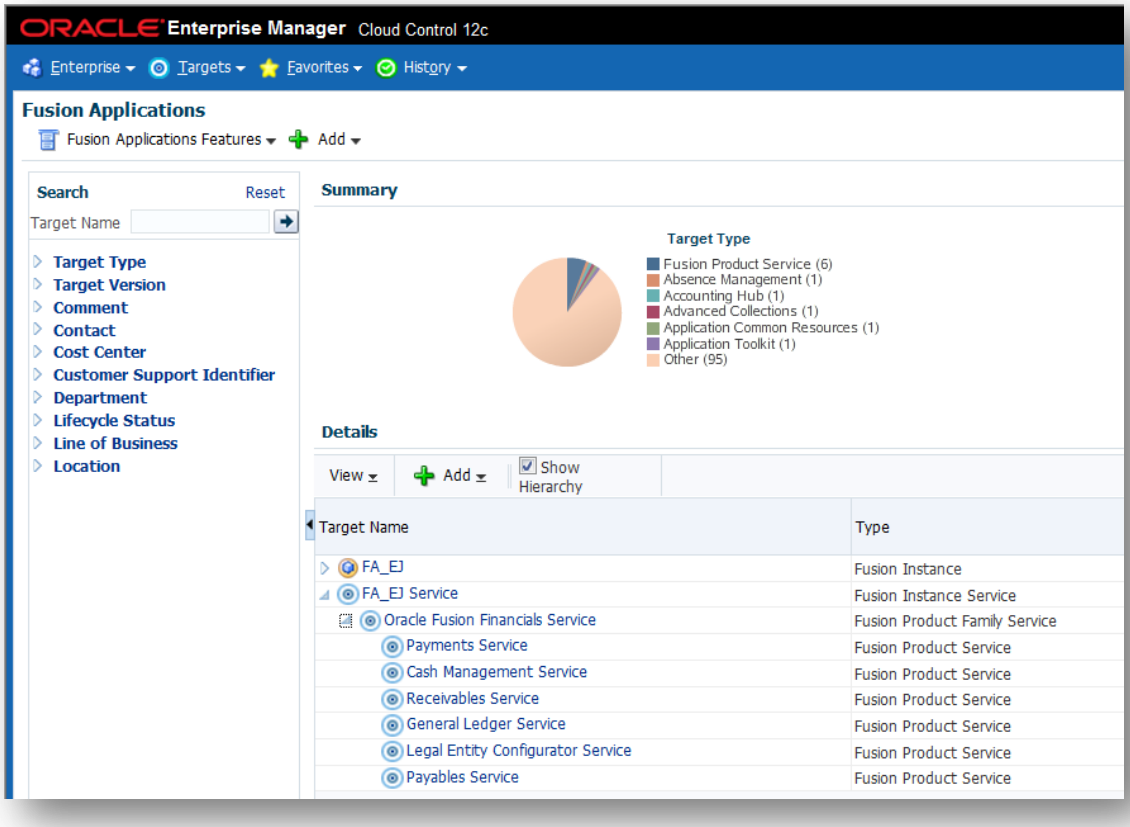
Once the services are configured, highlight the Fusion Product Family Service and click **Add** button. List of System Based Service will show up and select the Service(s) that system admin wants to add additionally.



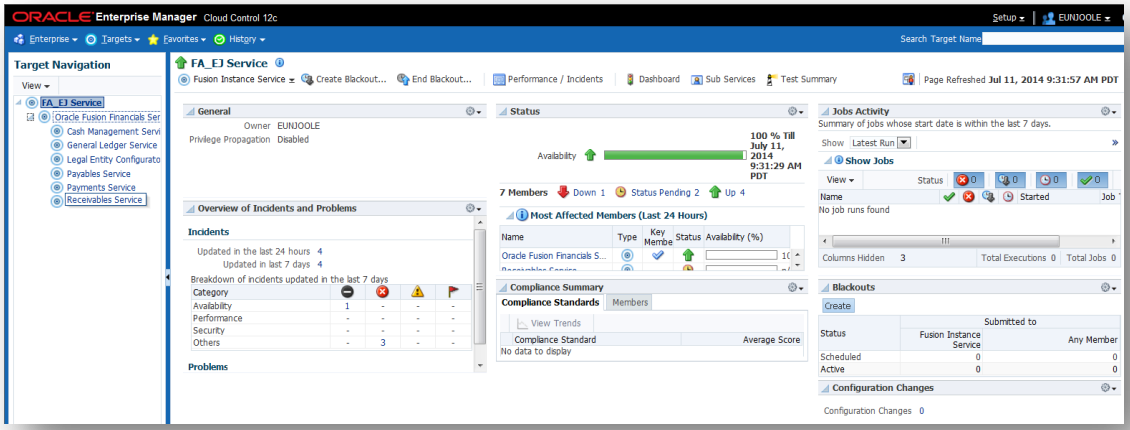
Click **Add Targets**. The Add process will deploy the synthetic script to the beacon, and create the Service Test. The Result page shows all the services that will be added to the system.



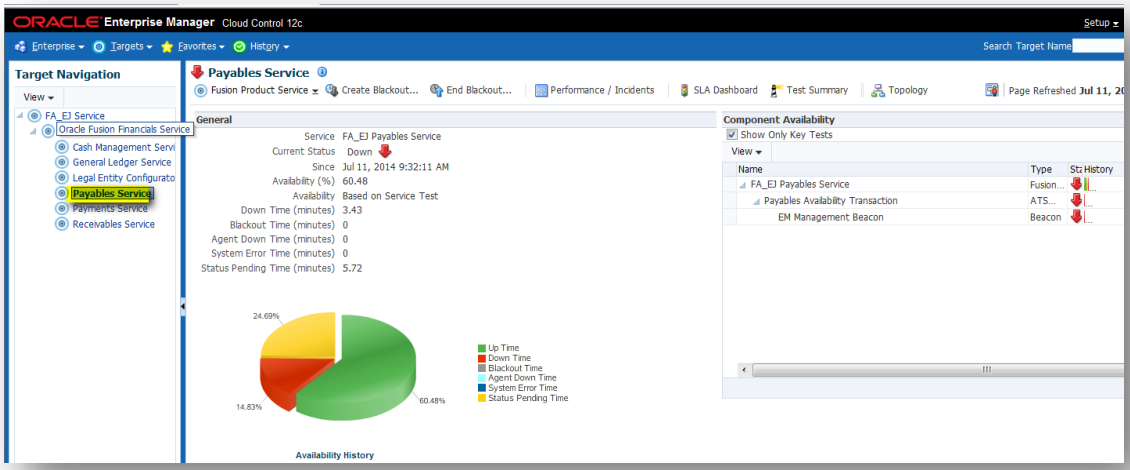
Click **Finish** and go to Targets > Fusion Applications to access the Service in hierarchical way or Targets > Service to see the individual services.



Click the Fusion Instance Service to see all the system related Service data, including Overview of Incidents and Problem, Status, Job/Activity, Compliance Summary, Blackout schedule/status, Configuration Changes, etc. Administrators can also add/edit Performance and Usage metrics, create or plan for Blackout, and access SLA Dashboard by clicking the menu on the top.



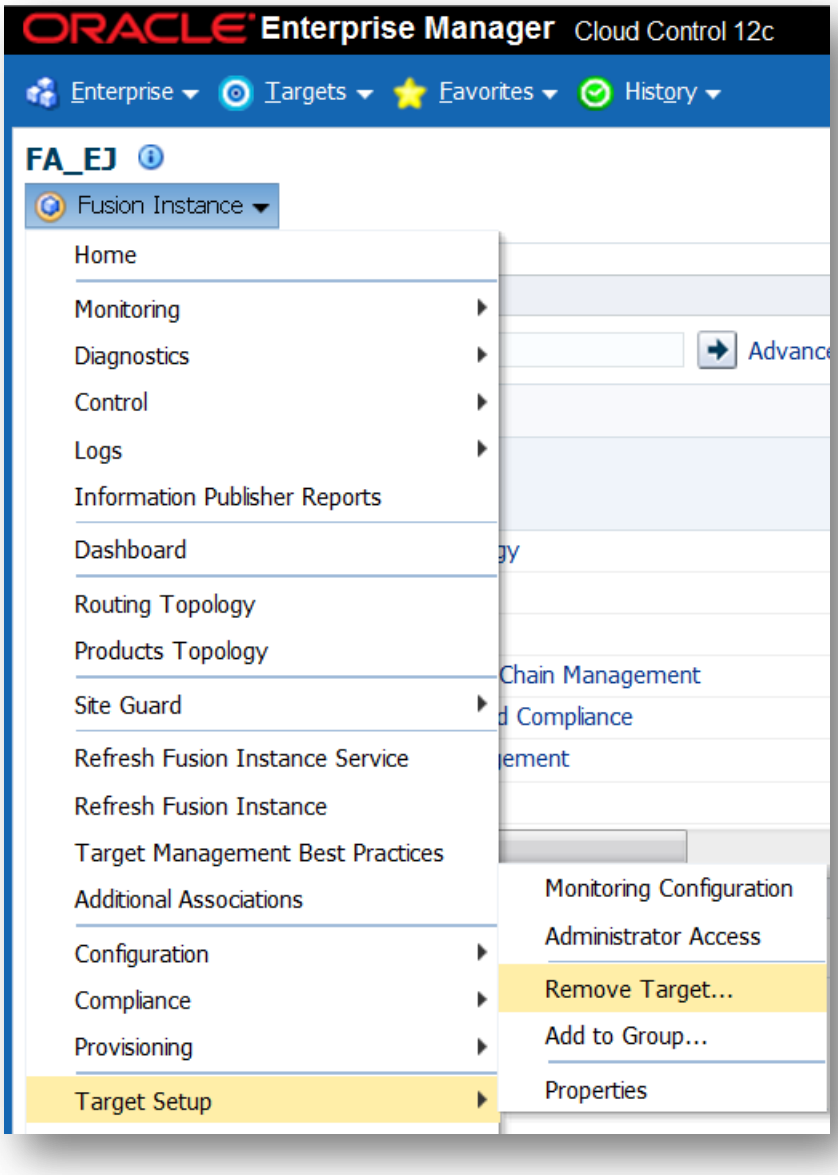
By expanding the Fusion Application service in the left panel, Product Family level or individual service can be accessed and system admin can check the component availability and service status.



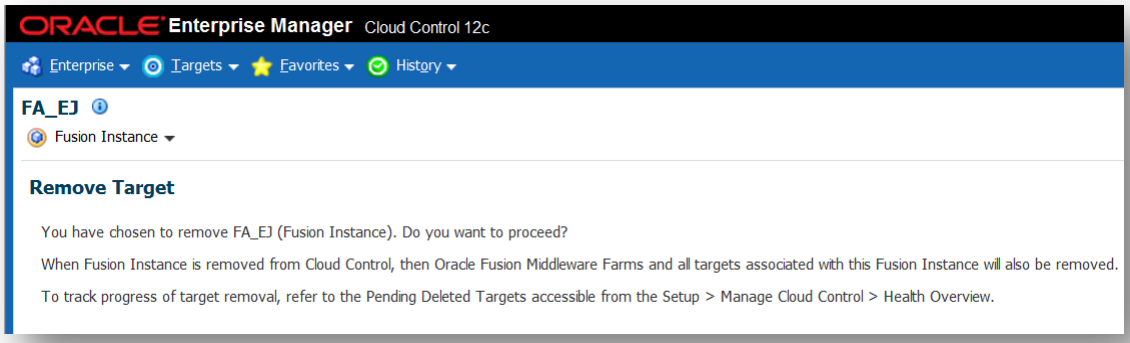
Delete Process of Fusion Instance

The process of deleting a Fusion Instance, or any FA target, is straightforward.

From any FA Homepage (i.e., Instance, Product Family, Product, Target), go to Target Setup and select **Remove Target** .



Click **Yes** to remove the Fusion Instance and it will remove all of the Fusion Application targets that are associated to this Fusion Instance.



Conclusion

The purpose of this whitepaper is to provide instructions on Oracle's Best Practices for discovering and maintaining Fusion Apps targets and services.

Enterprise Manager 12c Cloud Control (EM 12c) provides comprehensive procedure for discovering, maintaining, and organizing Fusion Apps targets and services.

Administrators can validate their environments using Diagnostic Pre-checks to identify potential obstacles to a successful Discovery. The Discovery wizard provides step by step instructions on discovering a Fusion Instance.

Once the Fusion Apps targets exist in EMCC, Administrators can perform a number of actions. They can refresh that Fusion App Instance with new Product Families, or edit those targets' Global Properties. They can associate related Weblogic domains, such as BI or IDM, to that Fusion App Instance. Finally, they can deploy seeded Fusion App Service tests automatically.

Appendix

This table lists the entire tests that are performed during Diagnostic Pre-Checks. Please check any failed test that user encountered and follow the recommendation to fix the issue. Also note that this list can be subject to change when the new release comes out. This list is based on Enterprise Manager Cloud Control 12c Release 4.

Validation Check / Test	Impact	Recommendation
Verify that targets can be discovered		
Check JMX Connection to Admin Server	Unable to discover targets	Bring up the Admin Server. Verify connection details and credentials provided during discovery.
Check FMW Discovery Integration plug-in	User will not be able to discover targets.	Make sure Fusion Application plug-in is deployed on Agent
Check FMW Discovery Integration plug-in	User will not be able to monitor discovered targets, some of the features will not work correctly.	Plug-in version should be same on all agents. Upgrade the EM Plug-in
Ensure that the WebLogic Server listen address is not set to 0.0.0.0	Without a host, the local agent cannot be assigned, which in turn affects Support Workbench and patching availability	Installing an agent makes a host target discoverable. Figure out the right host, if host value is 0.0.0.0
Ensure that the WebLogic Server listen address is set	Without a listen address, the local agent cannot be assigned, which in turn affects Support Workbench and patching availability	Set the listen address for the following WebLogic Servers
Ensure that targets are monitored by a local agent	A missing local agent affects Support Workbench and patching availability	Installing an agent makes a host target discoverable. Figure out the right host, if host value is 0.0.0.0
Check for discovery of all host targets	Without a host, the local agent cannot be assigned, which in turn affects Support Workbench and patching availability	Installing an agent makes a host target discoverable. Figure out the right host, if host value is 0.0.0.0
Check for down servers during discovery	Down servers cannot be patched. Log Viewer feature can't be used. SWB feature can't be used	Ensure that all servers are up prior to initial discovery. The following servers are down:

Checks for discovery of all Fusion Instance databases	Undiscovered Fusion Instance databases will not be monitored	Take steps to discover Fusion Instance databases not previously discovered
Check association with an Identity Management domain	Problems with target associations can adversely affect features such as Topology Viewer, Site Guard, and so forth	Create association with Identity Management domain
Check association with Business Intelligence domain	Problems with target associations can adversely affect features such as Topology Viewer, Site Guard, and so forth	Create association with Business Intelligence domain
Check association with Oracle Social Networking domain	Problems with target associations can adversely affect features such as Topology Viewer, Site Guard, and so forth	Create association with Oracle Social Networking domain
Check AdminServer is up	Target cannot be discovered	Ensure that AdminServer is up prior to initial discovery. User will not be able to see log messages for any targets deployed on this domain. Bring up the AdminServer.
Check for non JRF target during discovery	User cannot use SWB and Log Viewer feature for this target	Target is not JRF enabled, some features will not be applicable for this target.
Check for non JRF domain during discovery	User cannot use the Log Viewer feature for this domain	Use JRF template for domain to use Log Viewer feature
Check for invalid Target Version and Version Category	Log Viewer menu item for target will not be displayed	Verify the metric collection is completed for this target and Log Viewer supported version is provided
Check for EM user privileges to view logs	Log Viewer menu item for target will not be displayed	User requires minimum “Ability to view Fusion Middleware Logs” privilege to view log files
Check for firewall mis-configuration for socket connection	User will not be able to download log messages	OMS server is not able to identify host of MBean Server, verify the firewall settings and host name configuration for target
Check for incorrect privileges	User will not be able to	WebLogic credential with

of preferred credential for WLS	execute dumps	Admin privilege is required to execute image dumps
Check for ADR Home existence	User will not be able to login to SWB	Ensure that user has all permission to create folder

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Author: Eunjoo Lee
Contributing Authors: Kenneth Baxter

Oracle Corporation
World Headquarters
500 Oracle Parkway
Redwood Shores, CA 94065
U.S.A.

Worldwide Inquiries:
Phone: +1.650.506.7000
Fax: +1.650.506.7200

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Hardware and Software, Engineered to Work Together