Open Automation Troubleshooting

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Troubleshooting

How do I verify that my module is registered with the platform?

Enable `com.cloupia.service.cIM.inframgr=DEBUG` under the `logging.properties` file, in the `/opt/infra/inframgr` directory. After enabling the debug, you will see the following message:

```
jar to be loaded:jar:
"Loading feature class " <moduleorFeatureName> " from feature definition file
```

If you do not find the `"Error while loading feature classes for "` error after a few lines, your module is added successfully.

After uploading zip file and restarting the Cisco UCS Director, check if the module features are uploaded successfully in Cisco UCS Director by verifying if the following three items are available in the `/opt/infra/inframgr/features` folder: <moduleId>.feature file, feature-<moduleId>.jar file, and <moduleId> folder.

How do I verify that my report is registered?

Enable `log4j.logger.com.cloupia.service.cIM.inframgr.reports.simplified=DEBUG` to view the status of the report registration.

What do I do if I'm not able to select a pod?

For choosing the custom-defined pod, you must provide the <moduleId>.xml file in the poddefinition folder to define your own pod. Also, ensure that the correct pod type is defined in the xml file.

For choosing a pod defined in Cisco UCS Director, ensure that the account type is defined in the pod definition file (`/opt/infra/inframgr/resources/LicenseBundle`).

What do I do if the module is not loading?

If your module is not loading, check for the following message in the `/opt/infra/inframgr/logfile.txt` file:

```
initDynamicFeatures(FeatureContainer.java:295) - Loading feature class
com.cisco.feature.tempOA.TempOAModule from feature definition file
/opt/infra/inframgr/features/TempOA.feature
2015-08-17 20:58:57,258 [main] ERROR initDynamicFeatures(FeatureContainer.java:317) - Error
 while loading feature classes for /opt/infra/inframgr/features/TempOA.feature
java.lang.ClassNotFoundException: com.cisco.feature.tempOA.TempOAModule
        at java.net.URLClassLoader$1.run(URLClassLoader.java:202)
        at java.security.AccessController.doPrivileged(Native Method)
        at java.net.URLClassLoader.findClass(URLClassLoader.java:190)
        at java.lang.ClassLoader.loadClass(ClassLoader.java:306)
        at java.lang.ClassLoader.loadClass(ClassLoader.java:247)
        at
com.cloupia.service.cIM.inframgr.FeatureContainer.initDynamicFeatures(FeatureContainer.java:305)

        at
com.cloupia.service.cIM.inframgr.FeatureContainer.loadFeatures(FeatureContainer.java:197)
       at com.cloupia.service.cIM.inframgr.FeatureContainer.<init>(FeatureContainer.java:52)

       at com.cloupia.service.cIM.inframgr.FeatureContainer.<clinit>(FeatureContainer.java:37)

        at com.cloupia.service.cIM.inframgr.InfraMgrImpl.initService(InfraMgrImpl.java:738)

        at com.cloupia.service.cIM.inframgr.APIProvider.initService(APIProvider.java:217)
        at com.cloupia.fw.services.provider.ServiceProvider.init(ServiceProvider.java:520)
        at com.cloupia.fw.services.provider.ServiceProvider.init(ServiceProvider.java:293)
        at com.cloupia.fw.services.provider.ServiceProvider.init(ServiceProvider.java:267)
        at com.cloupia.service.cIM.inframgr.InfraMgrMain.main(InfraMgrMain.java:176)
```

If you find the ClassNotFoundException error in the log file, check if the tempOA module name is declared in the `.feature` file.

If the path or the module file name is correctly defined in the `.feature` file, verify that the class does not end with `.java`.

What do I do if the report displays incorrectly in the menu?

Enable the `log4j.logger.com.cloupia.service.cIM.inframgr.reports.simplified=DEBUG` package to view the following logs:

```
Creating Simple Tabular Report Entry for compute.ComputeTabReport
2015-08-13 16:48:38,956 [main] DEBUG createEntry(ReportRegistryProxy.java:370) -
***************Registering Report compute.ComputeTabReport******************************
2015-08-13 16:48:38,956 [main] DEBUG createEntry(ReportRegistryProxy.java:371) - Report name
 : compute.ComputeTabReport
2015-08-13 16:48:38,957 [main] DEBUG createEntry(ReportRegistryProxy.java:372) - Report Type
 : 2
2015-08-13 16:48:38,957 [main] DEBUG createEntry(ReportRegistryProxy.java:373) - Is config
table false
2015-08-13 16:48:38,957 [main] DEBUG createEntry(ReportRegistryProxy.java:387) - Implementation
 class : class com.cloupia.feature.compute.reports.ComputeTabReportGenerator
2015-08-13 16:48:38,957 [main] DEBUG createEntry(ReportRegistryProxy.java:389) - Report label
 ComputeTabReport
2015-08-13 16:48:38,957 [main] DEBUG createEntry(ReportRegistryProxy.java:391) - Show in
summary false
2015-08-13 16:48:38,958 [main] DEBUG createEntry(ReportRegistryProxy.java:393) - Map Rules
UCSM_COMPUTE, 90305
2015-08-13 16:48:38,958 [main] DEBUG createEntry(ReportRegistryProxy.java:396) - Menu ID 50
2015-08-13 16:48:38,958 [main] DEBUG createEntry(ReportRegistryProxy.java:398) - Context
level -1
2015-08-13 16:48:38,959 [main] DEBUG createEntry(ReportRegistryProxy.java:400) - Management
 report false
2015-08-13 16:48:38,959 [main] DEBUG createEntry(ReportRegistryProxy.java:402) - Embedded
report true
2015-08-13 16:48:38,959 [main] DEBUG createEntry(ReportRegistryProxy.java:410) - Report
priority : 5
2015-08-13 16:48:38,959 [main] DEBUG createEntry(ReportRegistryProxy.java:419) - Management
 column index -1
2015-08-13 16:48:38,960 [main] DEBUG createEntry(ReportRegistryProxy.java:425) - Operation
level no_check
```

If you didn't override the getMapRules API for your report, you can see the report registered under the GlobalAdmin context. Your logs should be similar to the following logs:

```
Processing hierarchy for report  compute.ComputeEasyReport @ Menu ID: 50
2015-08-13 16:48:38,960 [main] DEBUG preProcessReportHierarchy(ReportRegistryProxy.java:129)
 - Setting map rule global_admin,10
2015-08-13 16:48:38,978 [main] DEBUG preProcessReportHierarchy(ReportRegistryProxy.java:144)
 - The Dynamic context level to be used -1
2015-08-13 16:48:38,978 [main] DEBUG registerReportWithActions(ReportRegistryProxy.java:171)
 - Registering Report compute.ComputeEasyReport as a ConfigTable report
2015-08-13 16:48:38,978 [main] DEBUG registerReportWithActions(ReportRegistryProxy.java:175)
 - No Actions are defined for the report compute.ComputeEasyReport
2015-08-13 16:48:38,979 [main] DEBUG createConfigTable(ReportRegistryProxy.java:197) -
Generating Config Table definition
2015-08-13 16:48:38,979 [main] DEBUG createConfigTable(ReportRegistryProxy.java:203) - The
report context type -1
2015-08-13 16:48:38,979 [main] DEBUG createConfigTable(ReportRegistryProxy.java:207) - The
Report entry context 10
2015-08-13 16:48:38,979 [main] DEBUG createConfigTable(ReportRegistryProxy.java:209) - The
Management column 0
2015-08-13 16:48:38,980 [main] DEBUG createConfigTable(ReportRegistryProxy.java:211) - The
Display column 1
2015-08-13 16:48:38,980 [main] DEBUG createEntry(ReportRegistryProxy.java:370) -
***************Registering Report
compute.ComputeEasyReport.config******************************
```

How do I verify that my module features were uploaded successfully?

After restarting Cisco UCS Director, verify that the following files are in the `/opt/infra/inframgr/features` directory:

- `<moduleId>.feature`
- `feature-<moduleID>.jar`
- `<moduleID>folder`

What if Cisco UCS Director does not restart successfully after uploading the module.zip file?

If your module has prevented Cisco UCS Director from starting, do the following:

- Delete the zip file from the `/opt/infra/uploads folder` directory.
- Analyze the logs.
- Update your module code.
- Reload the zip file.
- Restart Cisco UCS Director.

Note For Release 6.5 and later, you do not have to restart Cisco UCS Director to activate your module. The system enables your module as soon as it is uploaded.

What do I do if the `actionid_icon.json` file became corrupted?

This can happen if the server shuts down while you are uploading a module.

Retrieve the backup file `backup_actionid_icon.json` from the location `/opt/infra/web_cloudmgr/apache-tomcat/webapps/app/ux/resources` on the Cisco UCS Director server and restore the `actionid_icon.json` file. Once the server is up, try the upload again.

Why was I able to delete a module with an attached account? The account is still available and there was no warning message.

Check whether there is *accountType* information in the `module.properties` file.

Usually when you try to delete a module that has an associated account, you are prompted to delete the account before deleting the module. The framework relies on the *accountType* resource string in the module's `module.properties` file to identify the account. If the file does not include this field, the framework ignores the account and deletes the module.

Why am I not seeing the updates after I delete, modify, or disable my module?

Restart Cisco UCS Director. Adding a module does not require a restart of Cisco UCS Director. Modifying a module, deleting a module, or disabling a module still require the Cisco UCS Director appliance be restarted for the changes to take effect.

What should I do if I get the message `Module File(s) jar file: XXX or feature file: YYY with same name exists. Please rename the file(s) and try again`?

Why are modules that were "Enabled/Active" in the previous version of Cisco UCS Director now "Enabled/Inactive" after I upgrade my appliance?

Either of these issues can be a symptom that there is already a feature of the same name in the system. This can happen if you have added a new feature to the upgraded version of Cisco UCS Director with the same name as a feature in the earlier version. When the framework tries to upload your Open Automation module from the earlier version of Cisco UCS Director, it fails due to naming conflicts.

To address either of these issues, you must delete your module, restart your appliance, and upload your module bundle with a different module name. Do the following:

1. In `module.properties`, change your module name to something unique. Assume for this example that you call it *UniqueModuleName*.
2. Rename your feature file to *UniqueModuleName.feature*.
3. Rename your build files so that the module-generated bundle has the new module name suffix. For example, *feature-UniqueModuleName.zip*.
4. Update the `.feature` file entries to use *UniqueModuleName.jar*.
5. Build and upload the module.

Why does the screen never finish loading when I click on modify module and upload a newer version of my Open Automation module?

Usually this happens when the source bundle of the Open Automation module writes files or folders inside the features folder of the server file system (`/opt/infra/inframgr/features/<<feature name>>/`).

Open Automation modules should not create folders in this space. Open Automation modules may only write files into the folder `/opt/oa/<<featurename>>`. Do the following:

1. Modify the source code to prevent writing to the server feature folders.
2. Manually delete the folder `/opt/infra/inframgr/features/<<feature name>>`.
3. In the UI, repeat the modify action.

Why am I am unable to see the summary and description for a particular task in the Task Library documentation?

The task name specified in the `taskdoclet.xml` must exactly match the workflow task handler name.

If the HANDLER_NAME in your task config file appears as follows:

```
public static final String HANDLER_NAME = "My Workflow Task Handler Name";
```

Then the TaskDoc entry in `taskdoclet.xml` must appear as follows:

```
<TaskDoc>
<Task>My Workflow Task Handler Name</Task>
<Summary>My summary ...</summary>
<Description><![CDATA[
    My description ...
    ]]>
</Description>
</TaskDoc>
```

Why am I unable to see the updated task library after I successfully upload an Open Automation module?

You must regenerate the library document to see the latest updates. Do the following:

1. Navigate to **Orchestration** > **Workflows**
2. Click the **Task Library** action.
3. In the **Task Library** window, check **Regenerate Document**.
4. Click **Submit**.

Why does the Open Automation File Upload window persist after I upload a module? I can make the window disappear by refreshing the parent screen, at which point the module is Enabled but Inactive.

Ensure that your .feature file is named after your module ID. For example: If moduleId is `myFeatureName`, then name your feature file `myFeatureName.feature`.

The Cisco UCS Director framework requires the module's `.feature` file to activate the module upon upload. The system identifies and loads the `.feature` file by name, based on the module ID. If the name of the `.feature` file and the module ID are different, the `.feature` file does not load and the module is not activated.

Troubleshooting REST APIs of the Open Automation Module

This section provides solutions for problems that you may encounter while exposing the REST API support for Open Automation modules in the Cisco UCS Director user interface.

What do I do if the REST API browser does not show the REST APIs of the Open Automation modules?

If the REST API browser does not show the REST APIs of the Open Automation modules, do the following:

- Ensure that the following resource files are available at the <codebase>/moresource folder:
    - <moduleId>-api.mo
    - <moduleId>-url-mapiing.properties
- Check if the resource path names set in the resource files are same as in the `installMoPointer(MoParser parser)` registry in the XXXModule.java file.

  Example:

  ```
  MoPointer p = new MoPointer("ComputeAccount", "ComputeAccount", restAdaptor,
  ComputeAccountCreateConfig.class);
  ```

Where can I find the REST APIs of the Open Automation modules in the REST API browser?

In Cisco UCS Director, choose **Orchestration** and click **Rest API Browser**. You will find the REST APIs of the Open Automation modules under the folder name that you have set during the REST API registration as follows:

```
p.setCategory(ComputeConstants.REST_API_FOLDER_NAME);
```

How do I test the Open Automation REST APIs?

You can test the Open Automation REST APIs using one of the following:

- The REST API browser. See Cisco UCS Director REST API Getting Started Guide.
- A third-party REST Client (example, RESTClient). See Cisco UCS Director REST API Getting Started Guide.
- CloupiaScript. See Cisco UCS Director CloupiaScript Cookbook.
- A Python script. See Cisco UCS Director Open Automation Getting Started Guide.

How do I generate a JSON payload for a REST API call?

You can base a JSON payload on the XML request supplied by the REST API Browser.

For example, the XML request for creating a compute account is as follows:

```
<cuicOperationRequest>
<operationType>CREATE_COMPUTE_ACCOUNT</operationType>
<payload>
<![CDATA[
<ComputeAccount>
<accountName>Test1</accountName>
<status>Ok</status>
<ip>2.3.4.5</ip>
</ComputeAccount>
]]>
</payload>
</cuicOperationRequest>
```

The JSON payload for the above XML request is as follows:

```
var requestObj = {};
var computeAccount = {};
computeAccount.accountName = “Test1”;
computeAccount.status = “OK”;
computeAccount.ip = “2.3.4.5”;
requestObj.ComputeAccount = computeAccount;
var req = {};
req.operationType = "CREATE_COMPUTE_ACCOUNT";
req.payload = requestObj;
var requestPayload = {};
requestPayload.cuicOperationRequest = req;
```

Are there any samples that I can use as reference for developing REST APIs?

Yes, you can find the Foo sample and Compute sample in the SDK Bundle supplied with Cisco UCS Director.

Adapter based APIs are available in the Foo sample:

- FooAccount@CREATE_OA
- FooAccount@READ
- FooAccount@UPDATE_OA
- FooAccount@DELETE_OA
- FooAccount@CREATE (with the FormManagedList input)

Both Listener and Adapter based APIs are available in the Compute sample:

- Adapter based APIs:
    - ComputeAccount@CREATE_COMPUTE_ACCOUNT
    - ComputeAccount@UPDATE_COMPUTE_ACCOUNT
    - ComputeAccount@DELETE_COMPUTE_ACCOUNT
    - ComputeAccount@READ
    - ComputeAccount@CREATE (with the FormManagedList input)
- Listener based API
    - ComputeResource@READ
    - ComputeResource@CREATE
    - ComputeResource@UPDATE
    - ComputeResource@DELETE

Are there any examples of Python scripts for the Open Automation module?

Yes. See the Cisco UCS Director Open Automation Getting Started Guide.

How do I handle a `No task-handler found to execute the action xxx` error message in the response?

- Check whether the workflow task is registered in the `getTasks()` method of the `XXModule.java` file.
- Ensure that the task and handler names are the same.

How do I handle a `No output fields defined` error in the response?

Check whether the output fields are registered in the `getTaskOutputDefinitions()` method of the task file (for example, `ComputeAccountCreateAPITask.java`).

How do I handle a `java.lang.Exception: MoResourceIf resource is null` error message in the response?

Set the `@XmlRootElement` annotation in the config class.

The @READ API returns information about all resources when I request a single resource (/cloupia/api-v2/ComputeAccount/Test1).

Define the `@MoReference` annotation for the field in the config class to filter the details. For example, to fetch a specific resource detail, define the `@MoReference` annotation for the resource name in the config class.

Why can I not map an admin input to a task input?

You must set the `@UserInputField` annotation in the config class of the field for which you want to map the admin input to the task input.

Why do the task input fields do not have previously provided data when I am trying to change the input field values?

You must not assign or return null for `configEntryId` in the following setter and getter methods:

```
public long getConfigEntryId() {
 return configEntryId;
}
public void setConfigEntryId(long configEntryId) {
 this.configEntryId = configEntryId;
}
```

Debugging Open Automation

When you are debugging, you can trace problems through inframgr (Infra Manager) logs. You can get the inframgr logs through either the **Cisco UCS Director Shell** menu or the Cisco UCS Director GUI.

Before You Begin

You need shell admin access to use the debugging functions that are available in the **Cisco UCS Director Shell** menu (also known as shell admin). Refer to the Deploying the Module on Cisco UCS Director section in the Cisco UCS Director Open Automation Getting Started Guide, for more details about access to and use of the **Cisco UCS Director Shell** menu.

To use the shell admin approach:

- Open the **Cisco UCS Director Shell** menu.
- Choose **18, Tail Inframgr logs**.

To use the Cisco UCS Director GUI:

Step 1 Log in to the Cisco UCS Director GUI.

Step 2 Choose **Administration** > **Support Information**.

Step 3 From the **Support Information** drop-down menu, choose **Show Log**.

Step 4 From the **Show Log** drop-down menu, choose **Infra Manager**.

Step 5 Click **Show Logs**.
You can find the Infra Manager log file (logfile.txt) at the `/opt/infra/inframgr` path.
Developer can log error statements in the inframgr.out file at the `/var/log/ucsd` path, using the System.err.println statement or the printstacktrace statement. The logged error statements are used to identify the root cause for any exceptions or errors occurred.

Setting Up the Open Automation Debug Configuration

Perform the following steps to setup the debug configuration for an Open Automation project and run the application on debug mode.

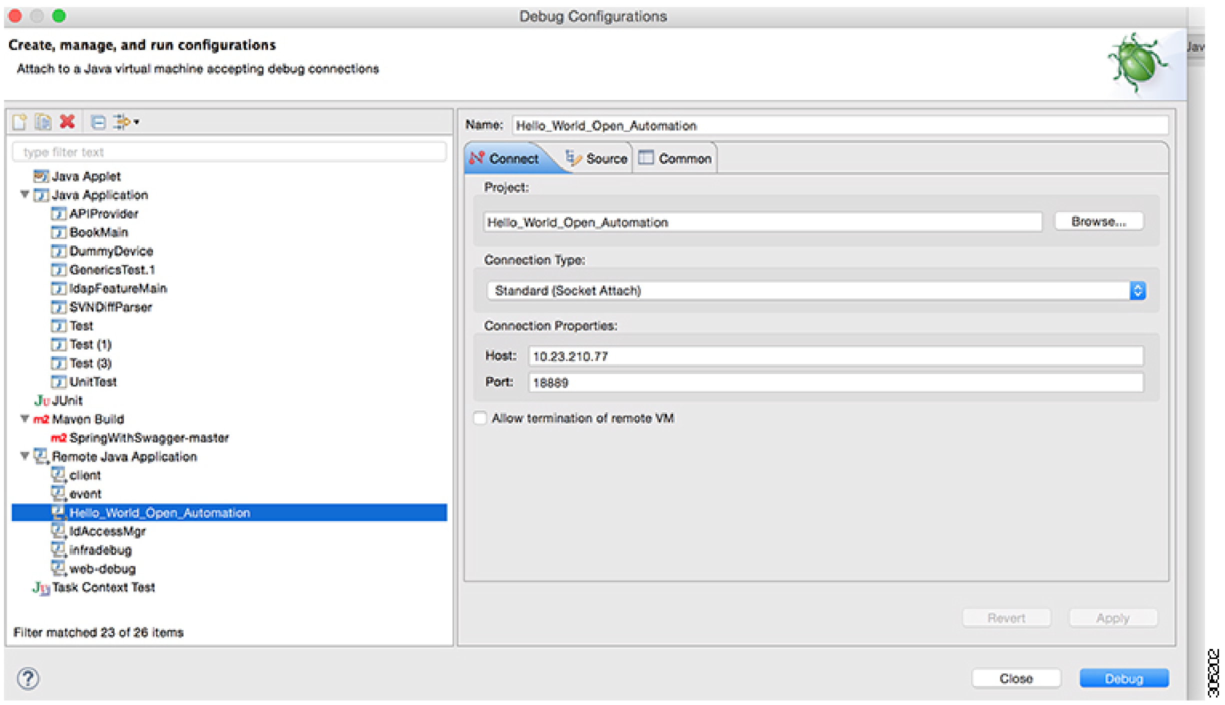
Step 1 Add the following line in bold next to `java` in the `/opt/infra/inframgr/run.sh` script.

```
java -Xdebug -agentlib:jdwp=transport=dt_socket,address=<port-number>,server=y,suspend=n -Xmx4096m
-Xmx4096m -Djava.security.manager -Djava.security.policy=security.policy -verbose:gc
```

Step 2 Replace `<port-number>` with the port number you want to use, then save the file.

Step 3 Create a debug configuration by right clicking on your Open Automation project in the Eclipse IDE and selecting **Debug As >Debug Configurations**.

Figure 1: Debug Configuration



Debug Configurations

Create, manage, and run configurations

Attach to a Java virtual machine accepting debug connections

type filter text

- Java Applet
- Java Application
  - APIProvider
  - BookMain
  - DummyDevice
  - GenericsTest.1
  - ldapFeatureMain
  - SVNDiffParser
  - Test
  - Test (1)
  - Test (3)
  - UnitTest
- JUnit
- Maven Build
  - SpringWithSwagger-master
- Remote Java Application
  - client
  - event
  - Hello_World_Open_Automation
  - ldAccessMgr
  - infradebug
  - web-debug
- Task Context Test

Filter matched 23 of 26 items

Name: Hello_World_Open_Automation

Connect | Source | Common

Project: Hello_World_Open_Automation

Connection Type: Standard (Socket Attach)

Connection Properties:

Host: 10.23.210.77

Port: 18889

Allow termination of remote VM

Step 4 To create remote a Java application configuration, select **Remote Java Application** and click **New**.

Step 5 Provide a name for the debug configuration.

Step 6 Click **browse** in the Project field and choose your Open Automation project.

Step 7 Leave the **Connection Type** as Standard (Socket Attach).

Step 8 Provide your VM IP address and port number as specified in the `run.sh` file.

Step 9 Click **Apply**.

Step 10 Add a breakpoint in your `module.java` class or anywhere in your module code.

Step 11 Start Cisco UCS Director by running shelladmin using option 4 – Start Services.

Step 12 In your Eclipse IDE, right click on your Open Automation project and select **Debug As > Remote Java Application Configuration Created**.

Step 13 Click **Debug** to start the debug session.