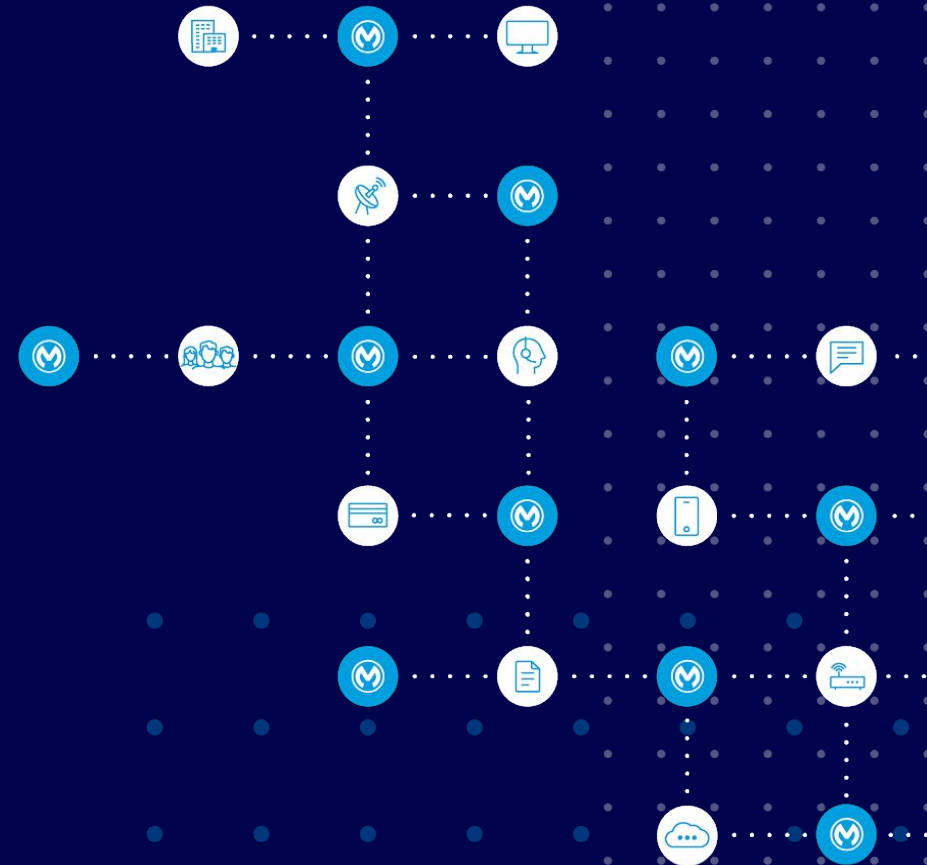




Custom Connector

Friends Of Max

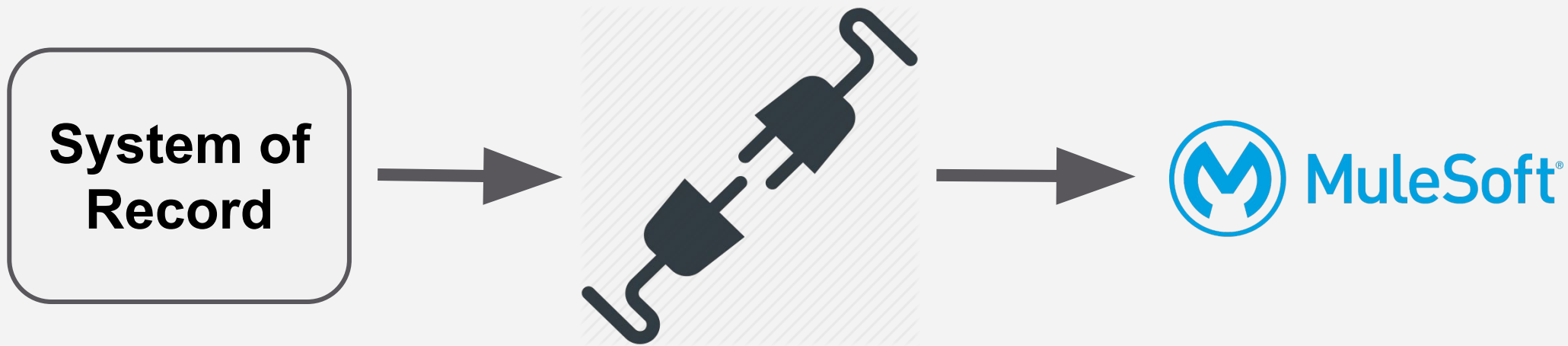


What is a Connector?



It is an interface that facilitates the connection between a sender & receiver.

What is a Connector?

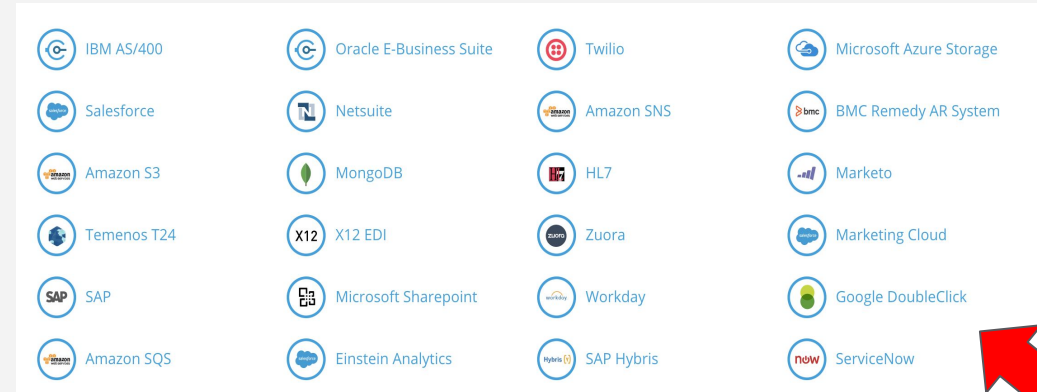


A connector is a software that provides a connection between a Mule flow and an external resource. The resource can be any source of content, such a database, protocol, or API.

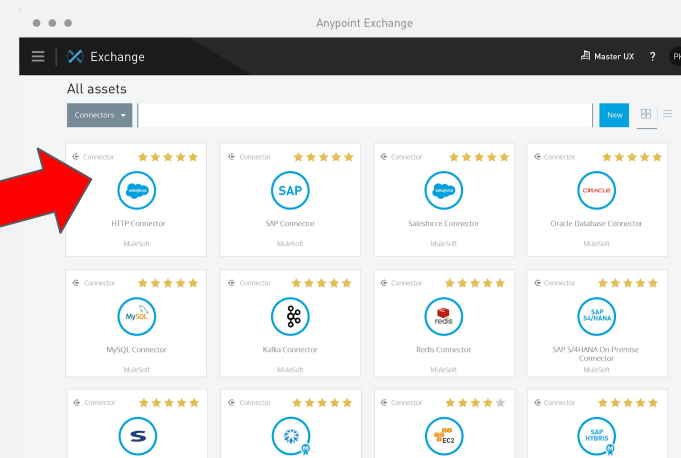
You want it, we got it!



- Anypoint connector are reusable components that integrate Mulesoft application with 3rd party SaaS/Non-SaaS/APIs
- 200+ Connectors & Premium Connectors
- Advantage
 - Reduces Complexity
 - Simplifies Authentication
 - Easier Maintenance
 - Easier transformations.



SPECIALTY PREMIUM CONNECTORS ARE AVAILABLE ON EXCHANGE

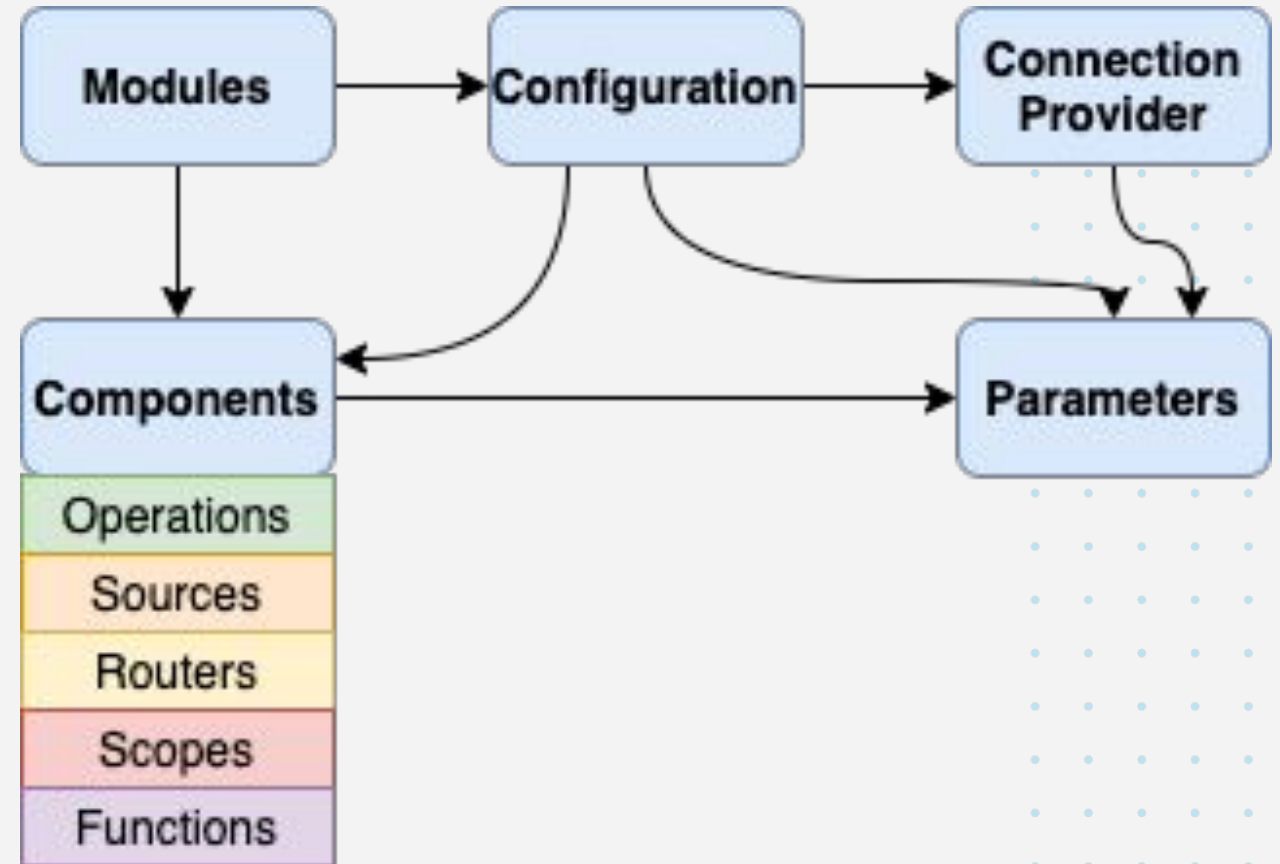


MORE THAN 200 CONNECTORS ARE FREE TO USE!

Mule 4 SDK

Object Model

1. **Components:** Given a set of parameters, they can be executed to produce or alter messages in a flow
2. **Configuration:** They are set of configurable parameters, that affect the behavior of the module or the connector.
3. **Connection Provider:** Interface responsible for creating, disconnection, and describing a connection.
4. **Parameters:** They are the most granular elements on the module & are used across the framework



Steps to build custom connector



Prepare

- Generate Project Structure using Maven
- Clean/install Libraries in local repository
- Import into IDE

Design/Develop

- Design the flow
- Use SDK & 3rd party libraries to create the connector

Deploy/Install

- Install Connector in the local repository
- Update POM & Use Connector in your Anypoint application

Share

- Discover from Exchange

Prepare

Pre-requisites



1. Java Development Kit 8 (JDK 8) to compile and build your Java code.
2. Apache Maven, version 3.3.9 or higher, to manage your project's build.
3. IDE - Anypoint Studio or IntelliJ
4. Anypoint account credentials

Two overlapping terminal window screenshots. The top window shows the output of the 'java -version' command, indicating OpenJDK 1.8.0_252. The bottom window shows the output of the 'mvn -version' command, indicating Apache Maven 3.6.3 and Java version 15.0.1.

```
stilwalli — -zsh — 80x24
[stilwalli@stilwalli-ltm ~ % java -version
openjdk version "1.8.0_252"
OpenJDK Runtime Environment (AdoptOpenJDK)(build 1.8.0_252-b09)
OpenJDK 64-Bit Server VM (AdoptOpenJDK)(build 25.252-b09, mixed mode)
stilwalli@stilwalli-ltm ~ % ]

stilwalli — -zsh — 80x24
[stilwalli@stilwalli-ltm ~ % mvn -version
Apache Maven 3.6.3 (cecedd343002696d0abb50b32b541b8a6ba2883f)
Maven home: /usr/local/Cellar/maven/3.6.3_1/libexec
Java version: 15.0.1, vendor: N/A, runtime: /usr/local/Cellar/openjdk/15.0.1/lib
exec/openjdk.jdk/Contents/Home
Default locale: en_US, platform encoding: UTF-8
OS name: "mac os x", version: "10.15.7", arch: "x86_64", family: "mac"
stilwalli@stilwalli-ltm ~ % ]
```

Prepare Project Setup



1. Create the project structure using the template given by Mulesoft
mvn org.mule.extensions:mule-extensions-archetype-maven-plugin:1.2.0:generate

2. Get it ready to import in the Anypoint studio

mvn eclipse:clean eclipse:eclipse

3. Import it in Anypoint Studio

```
stilwalli@stilwalli-ltm studio-workspace % mvn org.mule.extensions:mule-extensions-archetype-maven-plugin:1.2.0:generate
[INFO] Scanning for projects...
[INFO] -----< org.apache.maven:standalone-pom >-----
[INFO] Building Maven Stub Project (No POM) 1
[INFO] -----[ pom ]-----
[INFO] --- mule-extensions-archetype-maven-plugin:1.2.0:generate (default-cli) @ standalone-pom ---
* Enter the name of the extension (empty for default):
Oracle Cloud Infrastructure Connector
* Enter the extension's groupId (empty for default):
org.mule.extensions
* Enter the extension's artifactId (empty for default):
mule-oracle-cloud-connector
* Enter the extension's version (empty for default):
0.0.1
* Enter the extension's main package (empty for default):
org.oracle.oci
[INFO] Generating project in Batch mode
[INFO] Archetype repository not defined. Using the one from [org.mule.extensions:mule-extensions-archetype:1.2.0] found in catalog remote
[INFO] Using following parameters for creating project from Archetype: mule-extensions-archetype:1.2.0
[INFO] Parameter: groupId, Value: org.mule.extensions
[INFO] Parameter: artifactId, Value: mule-oracle-cloud-connector
```

```
mule-oracle-cloud-connector - ssh - 159x52
[INFO] -----< org.mule.extensions:mule-oracle-cloud-connector >-----
[INFO] Building Oracle Cloud Infrastructure Extension 0.0.1
[INFO] -----[ mule-extension ]-----
[WARNING] The POM for org.apache.maven.plugins:maven-site-plugin:jar:3.6.1 is missing, no dependency information available
[WARNING] Failed to retrieve plugin descriptor for org.apache.maven.plugins:maven-site-plugin:jar:3.6.1: Plugin org.apache.maven.plugins:maven-site-plugin:jar:3.6.1 or one of its dependencies could not be resolved: failure to find org.apache.maven.plugins:maven-site-plugin:jar:3.6.1 in http://repository.mulesoft.org/releases / was cached in the local repository, resolution will not be reattempted until the update interval of mulesoft-plugin-releases has elapsed or updates are forced
[WARNING] The POM for org.apache.maven.plugins:maven-site-plugin:jar:3.6.1 is missing, no dependency information available
[WARNING] Failed to retrieve plugin descriptor for org.apache.maven.plugins:maven-site-plugin:jar:3.6.1: Plugin org.apache.maven.plugins:maven-site-plugin:jar:3.6.1 or one of its dependencies could not be resolved: failure to find org.apache.maven.plugins:maven-site-plugin:jar:3.6.1 in http://repository.mulesoft.org/releases / was cached in the local repository, resolution will not be reattempted until the update interval of mulesoft-plugin-releases has elapsed or updates are forced
[INFO] --- maven-eclipse-plugin:2.18:eclipse (default-cli) @ mule-oracle-cloud-connector ---
[INFO] Deleting file: .project
[INFO] Deleting file: .classpath
[INFO] Deleting file: .wtmodules
[INFO] Deleting file: .settings
[INFO] --- maven-eclipse-plugin:2.18:eclipse (default-cli) > generate-resources @ mule-oracle-cloud-connector ---
[INFO] --- maven-processor-plugin:2.2.4:process (process) @ mule-oracle-cloud-connector ---
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by net.sf.cglib.core.ReflectUtils$1 (file:/Users/stilwalli/.m2/repository/cglib/cglib-nodep/3.2.5/cglib-nodep-3.2.5.jar) to method java.lang.ClassLoader.defineClass(java.lang.String,byte[],int,int,java.security.ProtectionDomain)
WARNING: Please consider reporting this to the maintainers of net.sf.cglib.core.ReflectUtils$1
WARNING: Use --illegal-access=warn to enable warnings of further illegal reflective access operations
WARNING: All illegal access operations will be denied in a future release
SLF4J: Failed to load class "org.slf4j.impl.StaticLoggerBinder".
SLF4J: Defaulting to no-operation (NOP) logger implementation
SLF4J: See http://www.slf4j.org/codes.html#StaticLoggerBinder for further details.
[WARNING] diagnostic: warnings Supported source version 'RELEASE_8' from annotation processor 'org.mule.runtime.ast.internal.extension.loader.ASTExtensionResourceGeneratorAnnotationProcessor' less than -source '15'
[INFO] --- maven-eclipse-plugin:2.18:eclipse (default-cli) < generate-resources @ mule-oracle-cloud-connector ---
[INFO] --- maven-eclipse-plugin:2.18:eclipse (default-cli) @ mule-oracle-cloud-connector ---
[INFO] Using Eclipse Workspace: /Users/stilwalli/AnypointStudio/studio-workspace
[INFO] Adding default classpath container: org.eclipse.jdt.launching.JRE_CONTAINER
[INFO] Wrote settings to /Users/stilwalli/AnypointStudio/studio-workspace/mule-oracle-cloud-connector/.settings/org.eclipse.jdt.core.prefs
[INFO] Wrote Eclipse project for "mule-oracle-cloud-connector" to /Users/stilwalli/AnypointStudio/studio-workspace/mule-oracle-cloud-connector.
[INFO]
[INFO] BUILD SUCCESS
[INFO]
[INFO] Total time: 4.443 s
[INFO] Finished at: 2020-12-21T11:36:58-05:00
[INFO]
stilwalli@stilwalli-ltm mule-oracle-cloud-connector % []
```


Prepare Project Setup



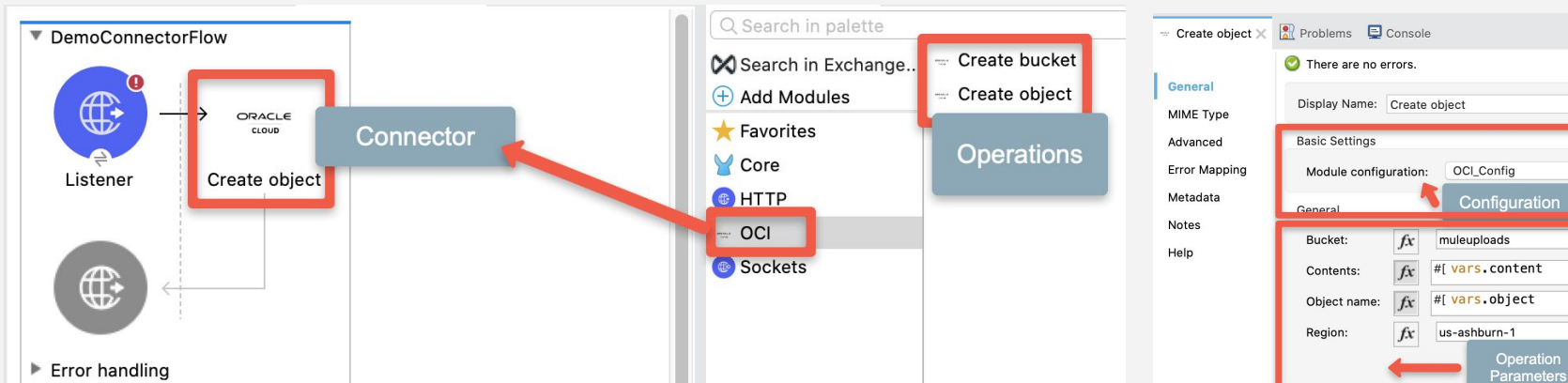
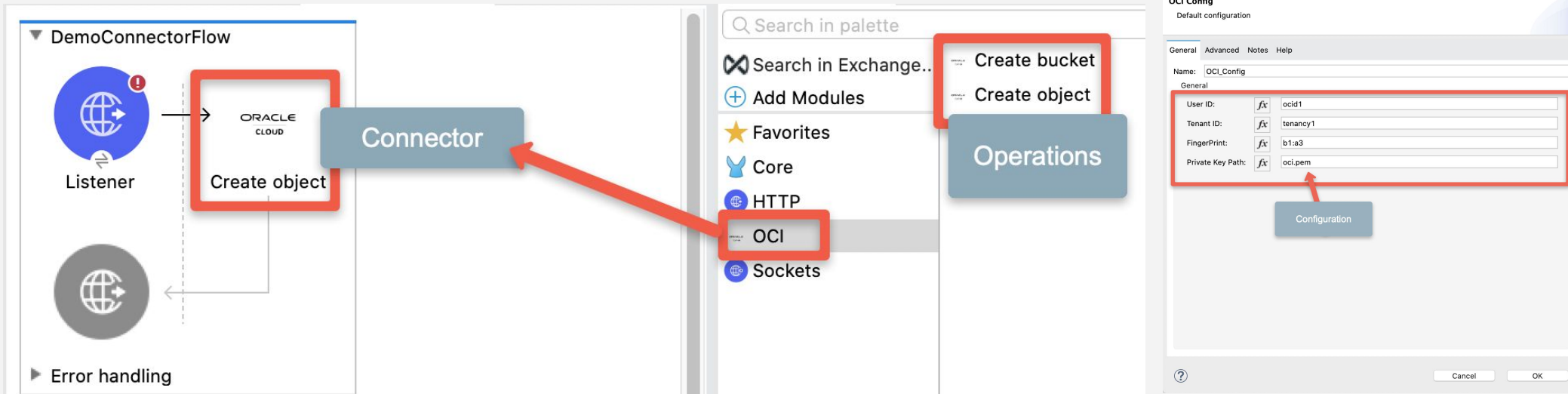
The screenshot displays the Mule Studio IDE interface with several components highlighted for project setup:

- Package Explorer:** A red box labeled "Project Structure" highlights the project tree on the left, showing the directory structure including `src/main/java`, `src/main/resources`, and `testconnector`.
- testconnectorFlow:** A red box highlights the "Retrieve info" connector icon in the flow diagram.
- Mule Palette:** A red box highlights the "Retrieve info" and "Say hi" connectors in the palette.
- Global Element Properties:** A red box highlights the "Oracle Cloud Infrastructure Config" configuration dialog, showing the "General" tab with fields for "Name" and "Connection".
- Parameters:** A red box highlights the "Parameters" tab in the configuration dialog, showing the "Required parameter" and "Friendly Name" fields.
- OracleCloudInfrastructureConfiguration.java:** A red box highlights the "Config id" field in the configuration dialog.

The "Global Element Properties" dialog for "Oracle Cloud Infrastructure Config" shows the following details:

- Name:** Oracle_Cloud_Infrastructure_Config
- Connection:** OracleCloudInfrastructureConnection.java
- Required parameter:** `fx` (with a value of 100)
- Friendly Name:** `fx` (with a value of 100)
- Config id:** `fx` (with a value of 100)

Design/Develop Connector Output



Deploy

Installation/Deploy/Testing



1. Deploy the connector to local repository
mvn install -DskipTests
2. Updated Anypoint application pom with the new dependency

```
<dependencies>
  <dependency>
    <groupId>org.mule.connectors</groupId>
    <artifactId>mule-http-connector</artifactId>
    <version>1.5.22</version>
    <classifier>mule-plugin</classifier>
  </dependency>
  <dependency>
    <groupId>org.mule.connectors</groupId>
    <artifactId>mule-sockets-connector</artifactId>
    <version>1.2.0</version>
    <classifier>mule-plugin</classifier>
  </dependency>
  <dependency>
    <groupId>org.oracle.oci</groupId>
    <artifactId>oci-connector</artifactId>
    <version>0.0.49</version>
    <classifier>mule-plugin</classifier>
  </dependency>
</dependencies>
```

3. Test the flow

Share

Contribute to Exchange



1. Update Maven setting.xml with anypoint account credentials
2. Connector's POM changes
 - a. Change Group ID to Mulesoft Organization.
 - b. Add repository information
3. Execute **mvn clean -dskipTest deploy** to submit to exchange

Additional Resources

Contribute to Exchange

1. Mule 4 SDK.
2. OCI Connector Git

