# Build Rule to Determine Equipment for New Hire Using SAP Cloud Platform Business Rules
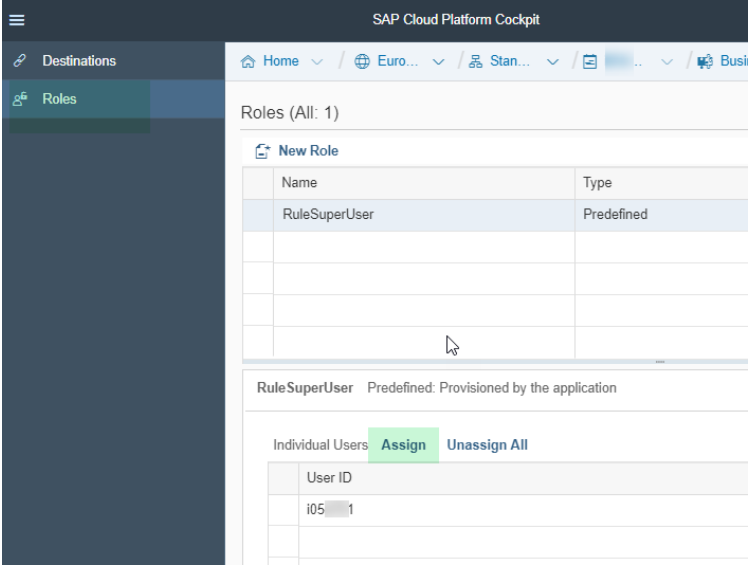
## Table of Contents
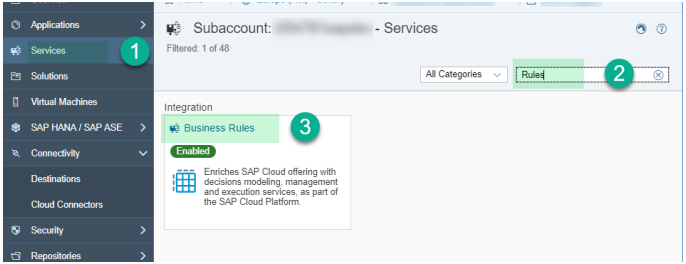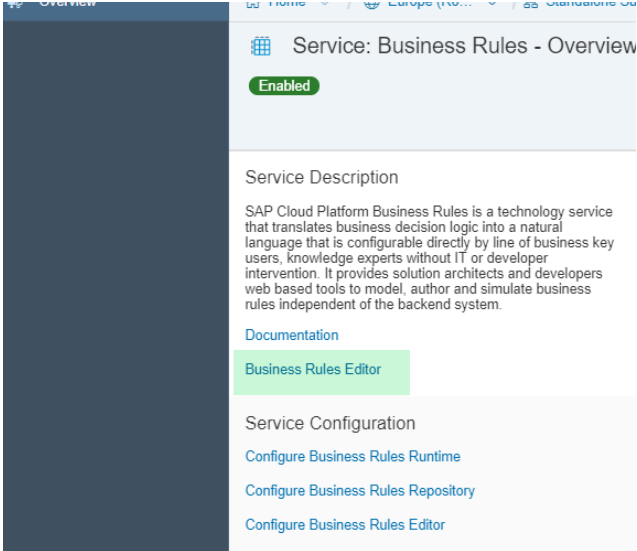
# Initial Setup
## Setting Permissions

| Explanation | Screenshot |
|---|---|
| Rules Run-time RuleSuperUser role<br><br>• Logon to your account in the SAP Cloud Platform Cockpit and navigate to **Services**<br>• Search for rules and select the **Business Rules** tile. |  |
| • Choose the **Configure Business Rules Runtime** link. |  |
| • Navigate to **Roles** and assign your user to the **RulesSuperUser** role.<br><br>Now you have the necessary permissions to run the rules. |  |

| Explanation | Screenshot |
|---|---|
| **Rules Repository RuleSuperUser Role**<br>• Return to *Service: Business Rules – Overview.*<br>• Choose the *Configure Business Rules Repository* link. | **Service: Business Rules - Overview**<br>`Enabled`<br><br>Service Description<br>SAP Cloud Platform Business Rules is a technology service that translates business decision logic into a natural language that is configurable directly by line of business key users, knowledge experts without IT or developer intervention. It provides solution architects and developers web based tools to model, author and simulate business rules independent of the backend system.<br>Documentation<br>Business Rules Editor<br><br>Service Configuration<br>Configure Business Rules Runtime<br>Configure Business Rules Repository<br>Configure Business Rules Editor |
| • Navigate to **Roles** and assign your user to the *RulesSuperUser* role.<br><br>Now you have the necessary permissions to deploy the rules. | **SAP Cloud Platform Cockpit**<br>Destinations — Home / Euro... / Stan... / ... / Busi<br>Roles<br>Roles (All: 1)<br>New Role<br><br>| Name | Type |<br>|---|---|<br>| RuleSuperUser | Predefined |<br><br>RuleSuperUser   Predefined: Provisioned by the application<br><br>Individual Users   Assign   Unassign All<br>| User ID |<br>| i05___1 | |

## Accessing Web-based Rules Editor from SAP Cloud Platform Cockpit

| Explanation | Screenshot |
|---|---|
| Finding rules editor web-tool link from SAP Cloud Platform cockpit<br><br>• Logon to your account in the SAP Cloud Platform Cockpit and navigate to **Services**<br>• Search for rules and select the **Business Rules** tile<br><br><br><br><br><br><br>• Choose the Business Rules Editor link | <br><br> |

| Explanation | Screenshot |
|---|---|
| ## Create Business Rules<br><br>### Create Rules Project<br><br>1. Open web-based rules editor determined earlier and login to the same.<br><br>2. In *Manage Projects* screen, click on ➕ button<br><br>3. In the *New Project* screen, enter the details of the project:<br><br>   **Name:** 'OnBoarding'<br><br>   **Description:** Business Rule Project for SFSF Employee Onboarding Scenario<br><br>4. **Save** the project<br><br>Note: Description is mandatory. It should be plain-text with letters and numbers, with no special character. | <br> |

## Create New Data Object

5. In your project screen, Click on the **DATA OBJECTS** tab

6. Click **Edit** button on the top-right corner of the screen

7. Click on the ✛ button

8. In the Data Object screen, enter the details as follows:

**Name:** EquipmentInfo
**Description:** Equipment Information
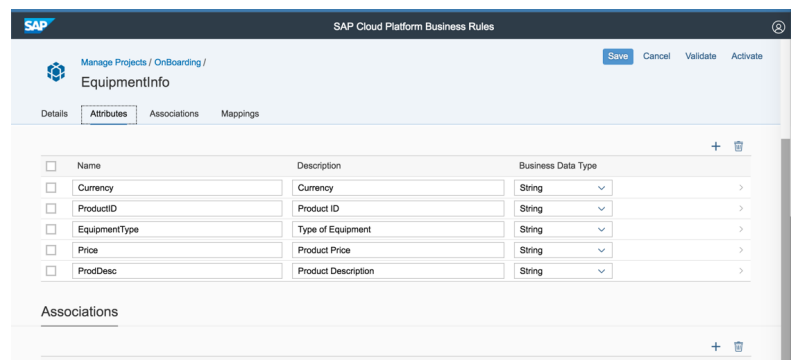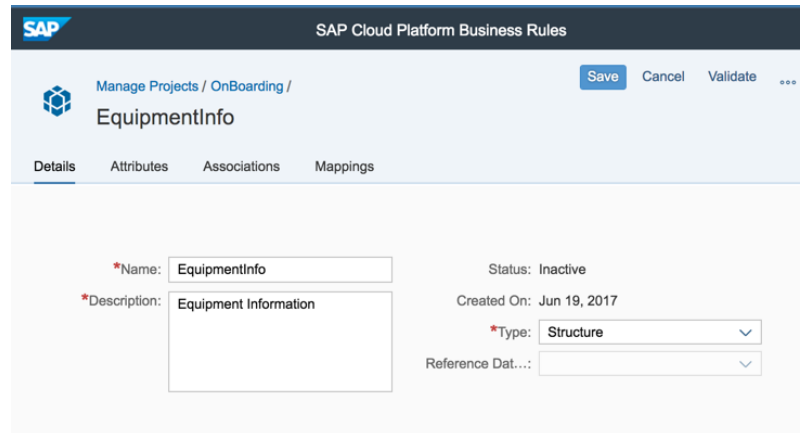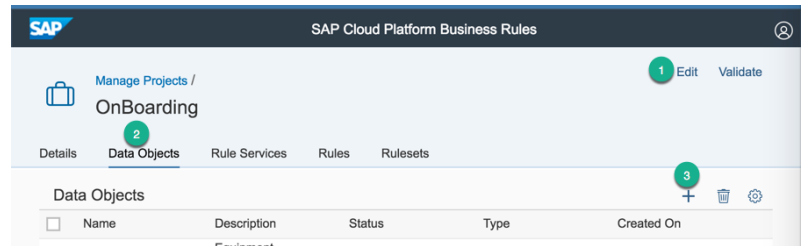
9. Switch to **ATTRIBUTES** tab

10. Use ✛ to add new attributes and enter the following details:

| Name | Description | Type |
|------|-------------|------|
| Currency | Currency | String |
| ProductID | Product ID | String |
| EquipmentType | Type of Equipment | String |
| Price | Product Price | Number |
| ProdDesc | Product Description | String |

11. Select an attribute row
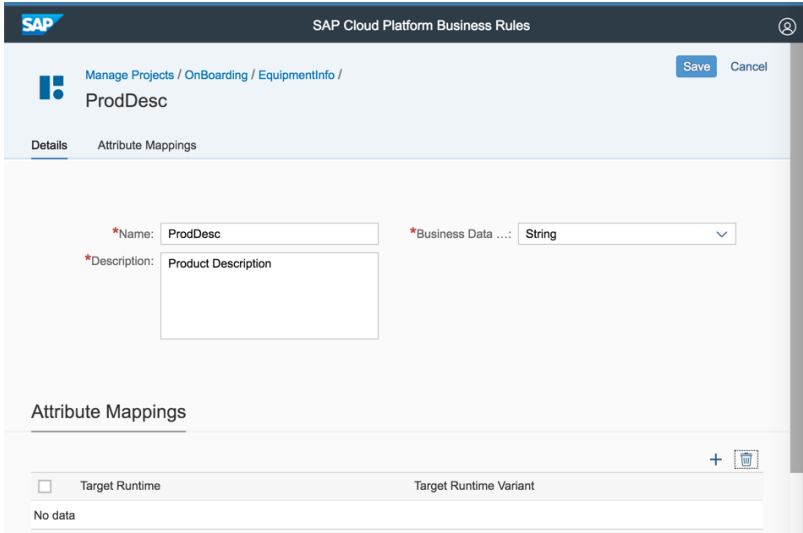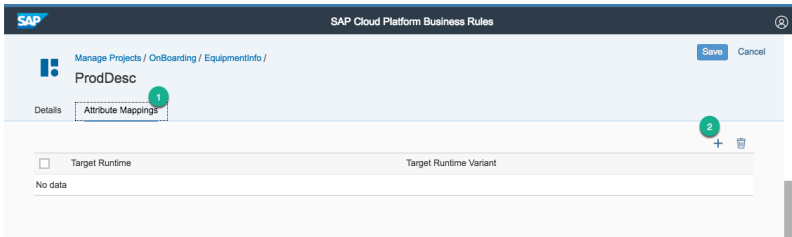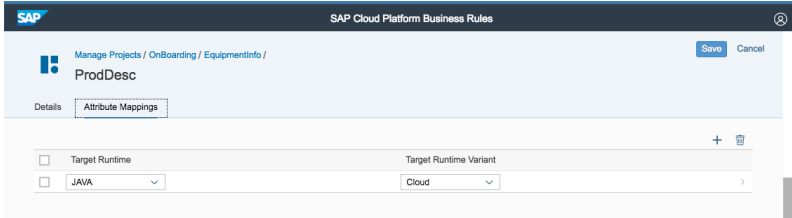
It will navigate you to another screen to modify the selected attribute

12. Switch to **ATTRIBUTE MAPPINGS**

| Explanation | Screenshot |
|---|---|
| 13. In *Target Runtime* section, click on the ＋ button<br><br>14. Select **JAVA** as Target Runtime and **Cloud** as Target Runtime Variant<br><br>15. Go back to the *EquipmentInfo* data object by clicking on the **EquipmentInfo** breadcrumb link on the top-left corner of the screen | |
| 16. Repeat the steps 11 – 15 to set the Target Runtime for all the remaining attributes of the equipment<br><br>Note: Setting Target Runtime is a mandatory step.<br><br>Information: *EquipmentInfo* data object is the output data object that will be used for actions in the decision table | |
| 17. Once you have defined all the attributes and set the attribute mappings, click on *Mappings* under the *EquipmentInfo* data object | |
| 18. In *Target Runtime* section, click on the ＋ button<br>19. Select **JAVA** as Target Runtime and **Cloud** as Target Runtime Variant | |

| Explanation | Screenshot |
|---|---|
| 20. **Activate** to activate the data object.<br><br>Note: Activate internally will save, validate and activate the data object. You can separately also click on Save and Validate buttons to save and validate the data object respectively |  |
| 21. Once the data object is activated successfully, note that the status of the object changes to *Active* |  |

| Explanation | Screenshot |
|---|---|
| 22. Navigate back to the rules project to create another Data Object<br><br>23. Repeat the steps from 5 – 20 to create a new data object with following details<br><br>In **Details** Section<br><br>**Name:** Employee<br>**Description:** Details of Employee<br><br>In **ATTRIBUTES** section<br><br>| | |

In **ATTRIBUTES** section:

| Name | Description | Type |
|---|---|---|
| jobTitle | Job title of recruit | String |
| company | Company Name | String |
| countryOfCompany | Country of Company | String |
| isFullTimeEmployee | Is full time employee | Boolean |

In **MAPPINGS** section

**Target Runtime:** JAVA
**Target Runtime Variant:** Cloud

Finally **Activate** the data object

24. Navigate back to the rules project

You will see two data objects created and activated

## Create New Rule

25. Switch to **RULES** tab

26. Click on ╋ button to add a new decision table

27. In the New Rule screen, select the DETAILS section and enter the following:

**Name:** DetermineEquipment

**Description:** Rule to determine equipment for the new hire based on the country and job title of the new hire.

**Hit Policy:** All Match

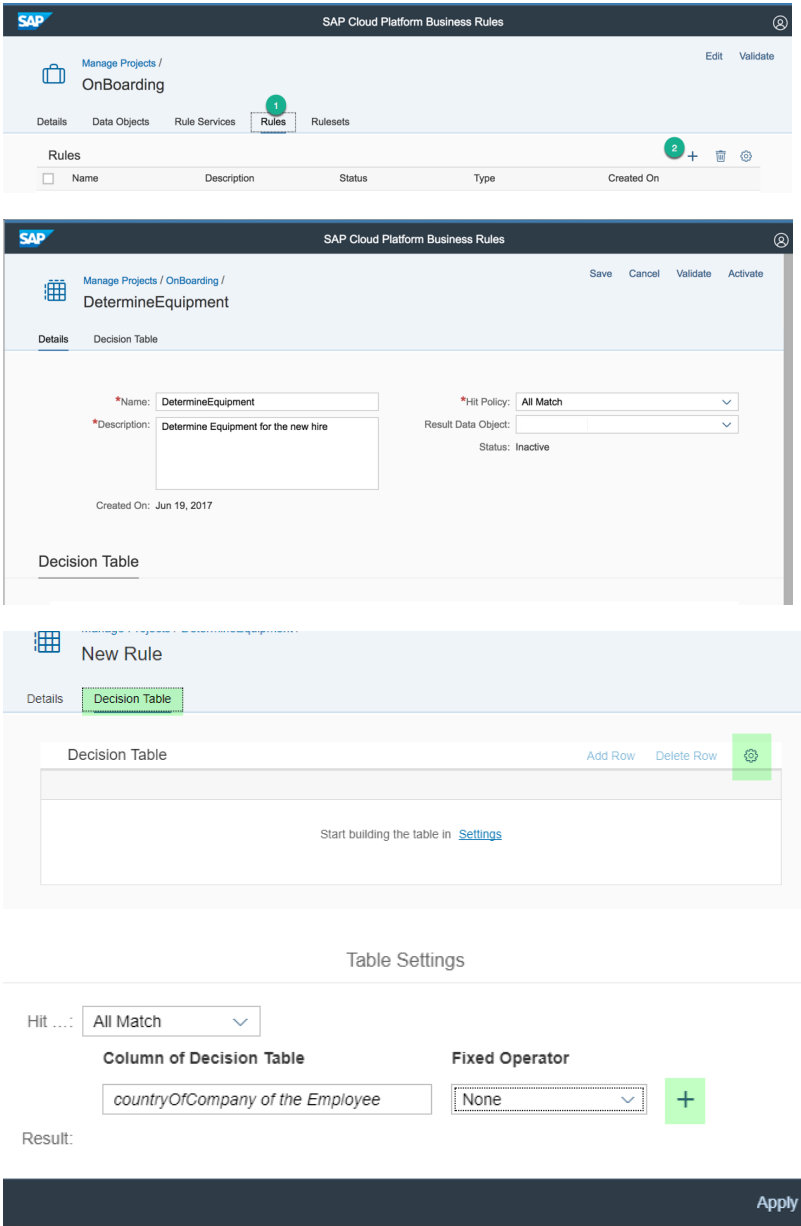28. Switch to **DECISION TABLE** tab and click on *Table Settings* icon ⚙

29. In the Table Settings popup, enter the following for the first condition column:

**Column:** countryOfCompany
**Fixed Operator:** None

30. Click on the ╋ button, as shown, to add the following condition columns in the similar way
    Enter the following details:
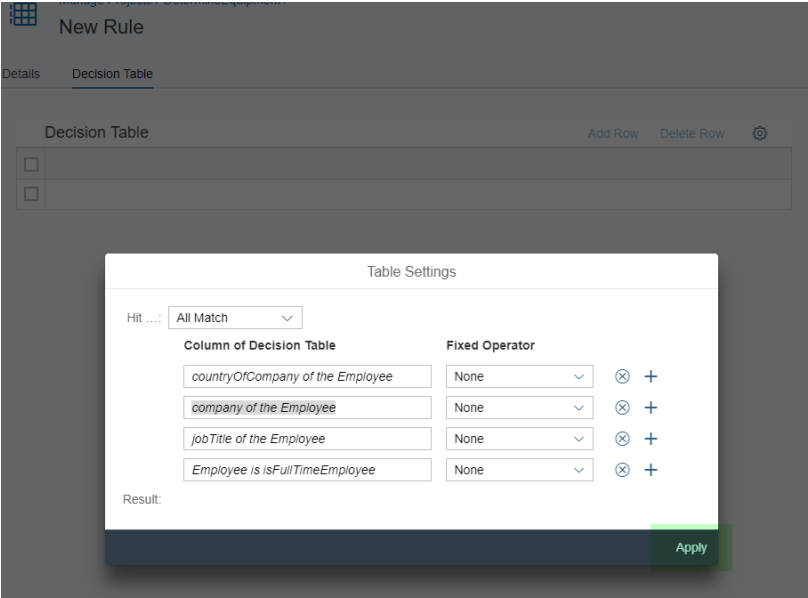
| Column of Decision Table | Fixed Operator |
|---|---|
| company of the Employee | None |
| jobTitle of the Employee | None |
| Employee is isFullTimeEmployee | None |

| Explanation | Screenshot |
|---|---|
| 31. Click on **Apply** button<br><br>Decision table gets created with the four selected columns as the condition column.<br><br><br><br><br><br>32. Switch to **DETAILS** section<br><br>33. Select *EquipmentInfo* as the *Result Data Object*<br><br>*34.* Click *Ok* on any subsequent dialog(s) and you'll see a message of *Result Data Object being changed* |  |

| Explanation | Screenshot |
|---|---|
| 35. Switch to **DECISION TABLE** tab<br>36. Click **Edit** on the top-right corner of the screen<br><br>37. In the row, enter the rules one after the other.<br><br>**countryOfCompany of the Employee:**<br>is equal to 'USA'<br>**company of the Employee:**<br>is equal to 'ACE_USA'<br>**jobTitle of the Employee:**<br>is like '%'<br>**Employee is isFullTimeEmployee:**<br>is equal to true or Employee is isFullTimeEmployee is equal to false<br>**ProdDesc:** 'Lovely Sound 5.1'<br>**Price:** 35.96<br>**EquipmentType:**<br>'Audio and Video'<br>**ProductID:** 'HT-1096'<br>**Currency:** 'EUR'<br><br>[Note: All the strings must be entered with single-quote. Kindly write this from scratch in the Rules Editor to avoid formatting issues]<br><br>38. Select the newly created row (check box) and click **Add Row → Insert After**, to insert a new row after the selected row. Refer to Appendix: Determine Equipment Rules to get all rules (or model as required for your usecase)<br><br>39. **Activate** the decision table<br><br>Note the status of the decision table to be **Active** if the decision table gets activated successfully.<br><br>40. Switch back to the rules project<br>41. You will see the decision table rule created and activated | |

## Create Rules Service

42. Switch to **RULES SERVICES** tab

43. Click on the **Edit** button on the top-right corner of the screen

44. Click on the + button to add a new rules service

45. Enter the following details:

**Name:** DetermineEquipment
**Description:** Service to determine equipment for the new hire
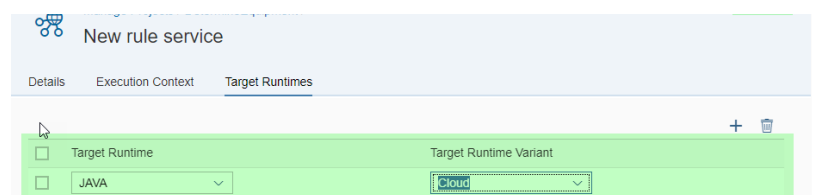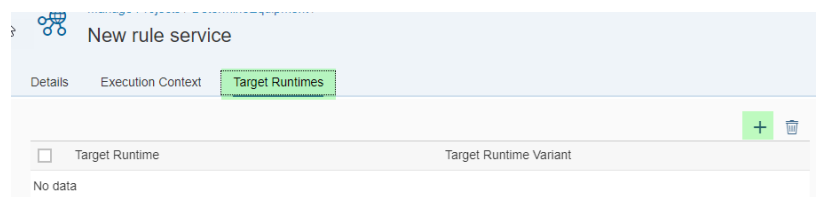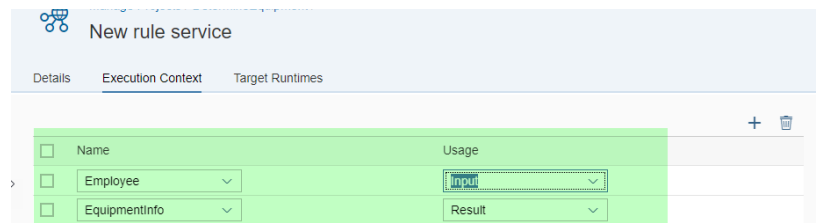
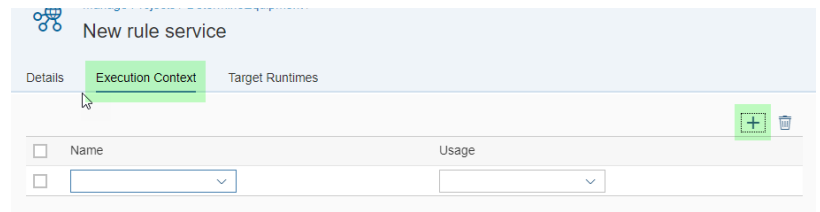46. Switch to **EXECUTION CONTEXT** tab
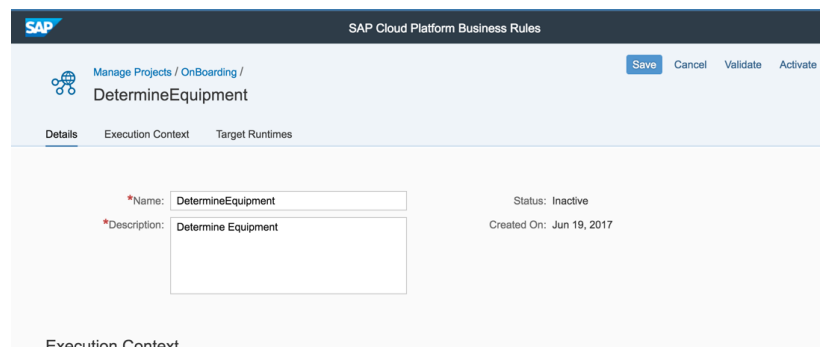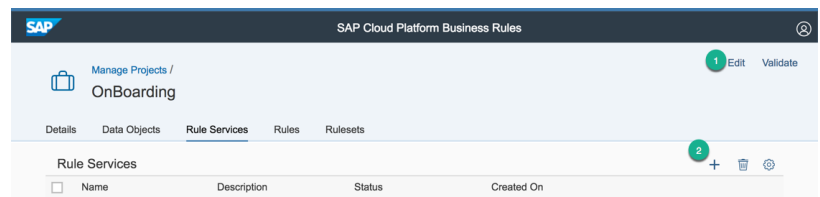
47. Click on the + button twice to add two new rows
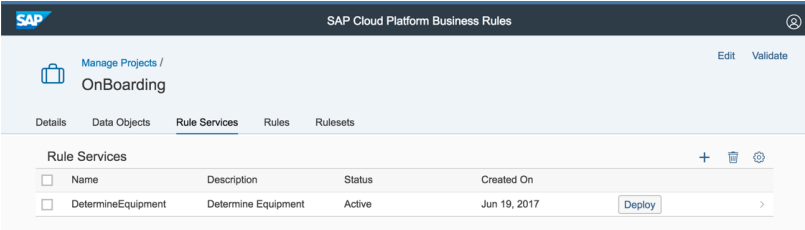
48. Select the following:
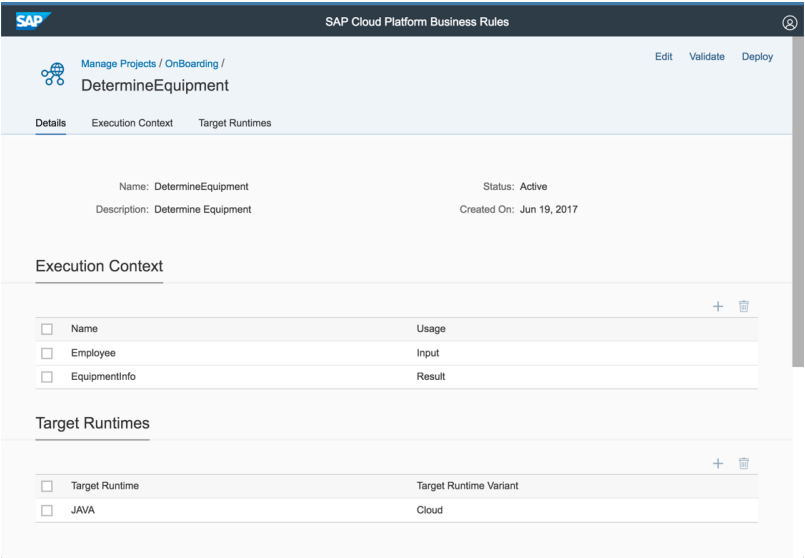
| Name | Usage |
|---|---|
| Employee | Input |
| EquipmentInfo | Result |

49. Switch to **TARGET RUNTIME** tab

50. Click on + button

| Explanation | Screenshot |
|---|---|
| 51. Select the following:<br><br>| Target Runtime | Target Runtime Variant |<br>|---|---|<br>| JAVA | Cloud | | |
| 52. Click on **Activate** button to activate the rule service | |
| Note the status of the rules service to be **Active** if the service gets activated successfully. | |
| 53. Switch back to the rules project. You will see the rule service is created and activated | |

## Create Ruleset

54. Switch to **RULESETS** tab to add a new ruleset
55. Click on the **Edit** button on the top-right corner of the screen

Note: Ruleset will define the execution sequence of the rule. You can add multiple rules in the ruleset and the execution order will be the order in which they are added. Note that the rules of same ruleset must have the same Output result data object. The result set will be the union of each rule execution in form of array

56. In the *New ruleset* screen, click on the **DETAILS** tab

57. Enter the following details:

**Name:** DetermineEquipment
**Description:** Rule set that contain the rules needed to determine the equipment required for a new hire
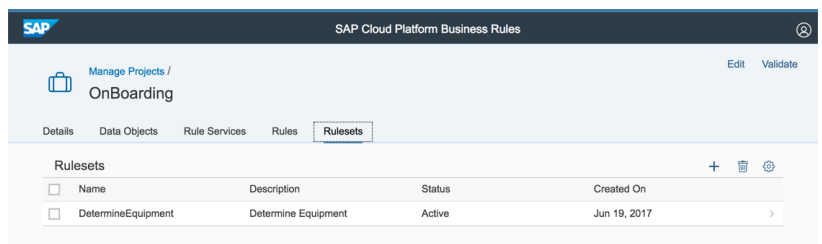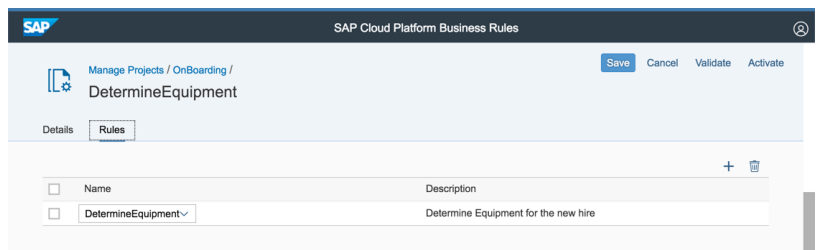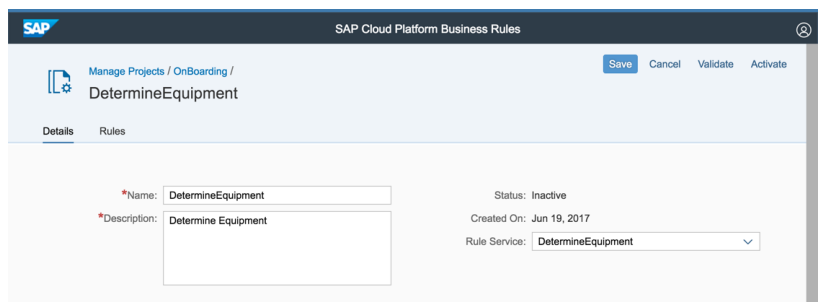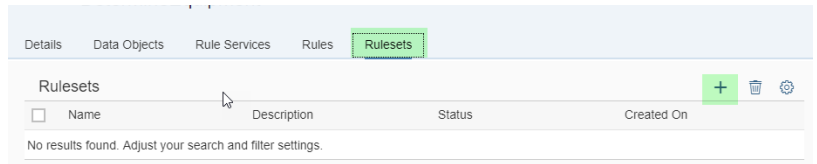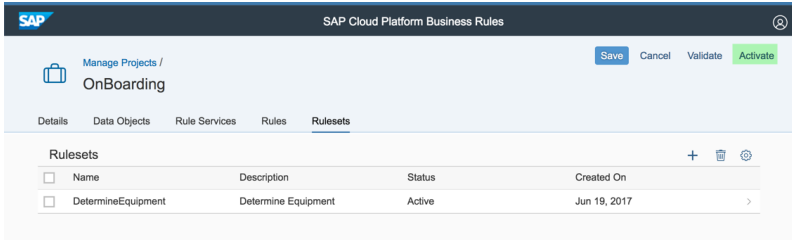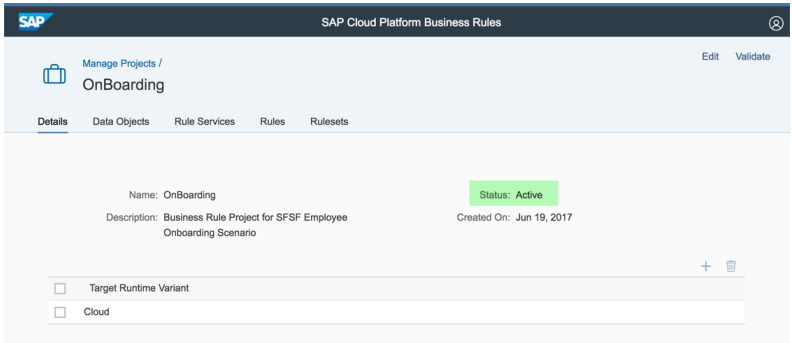**Rule Service:** DetermineEquipment

58. Switch to **RULES** tab
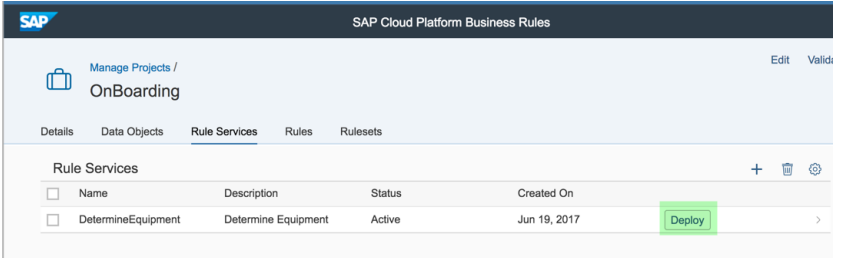
59. Click on ➕ button

60. Select the *'DetermineEquipment'* rule from the drop down

61. Activate the ruleset by clicking on the **Activate** button on top-right corner of the screen

| Explanation | Screenshot |
|---|---|
| Note the status of the ruleset changes to **Active** if the ruleset gets activated successfully. | |
| 62. Switch back to the rules project<br>63. Switch to **DETAILS** tab<br><br>64. Click on **Activate** button | |
| 65. Your rules project gets activated and the status gets changed to **Active** | |

| Explanation | Screenshot |
|---|---|
| **Deploy Rule Service**<br><br>66. Switch to **RULES SERVICES** tab<br><br>67. Select the rules service *'DetermineEquipment'*<br><br><br>68. Click on **Deploy** button<br><br>Note: Ensure that your rule, ruleset and all data objects are Active before you deploy<br><br>Note: Ensure that your rule service is in Active state before you deploy<br><br>Note: Ensure that the rule service is associated with at least one ruleset<br><br><br>69. Once deployed successfully, you will see a message stating **"Rule service deployed successfully "** | <br><br> |

# Appendix

## Determine Equipment Rules to get all rules

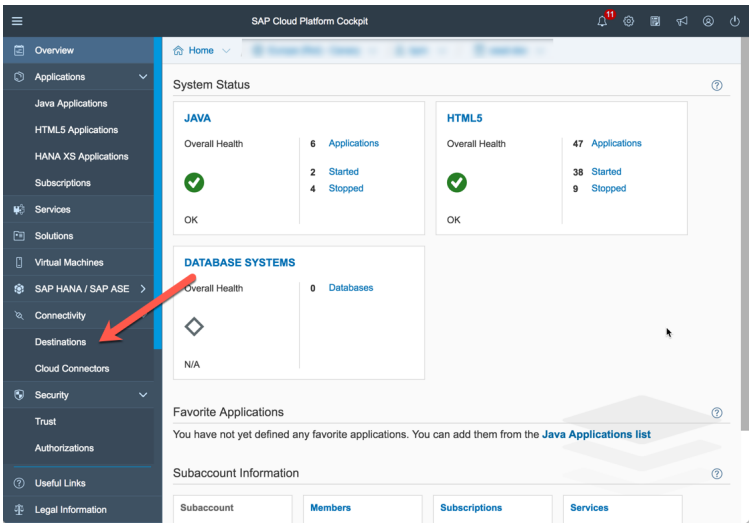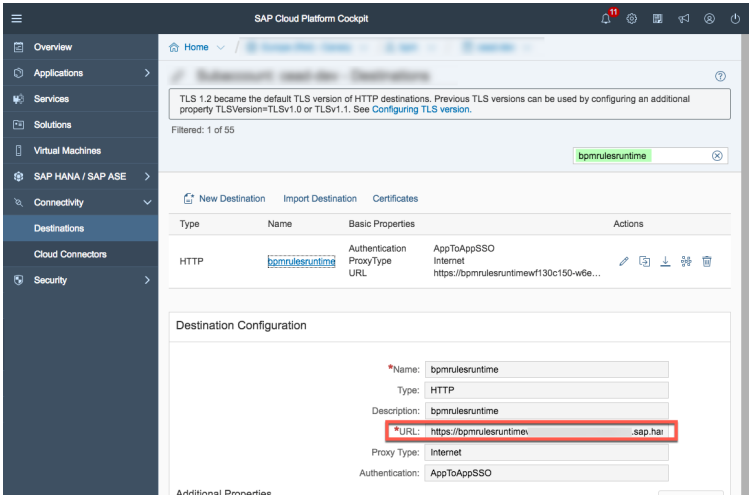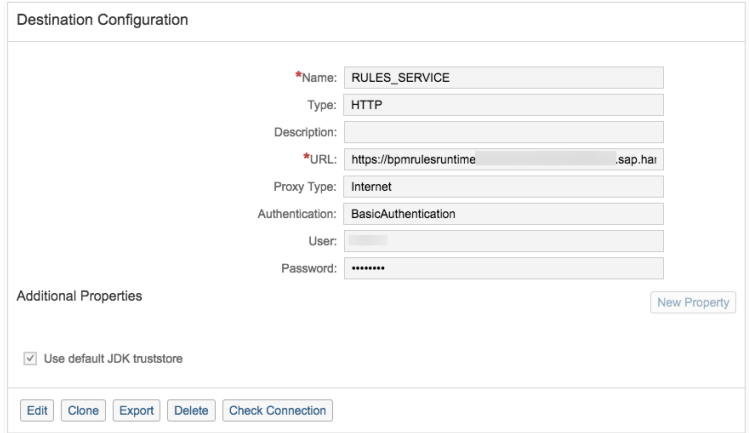| IF | | | | THEN | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| countryOfCompany of the Employee | company of the Employee | jobTitle of the Employee | Employee is isFullTimeEmployee | Price | ProdDesc | EquipmentType | ProductID | Currency |
| is equal to 'USA' | is equal to 'ACE_USA' | is like '%' | is equal to true or Employee is isFullTimeEmployee is equal to false | 35.96 | 'Lovely Sound 5.1' | 'Audio and Video' | 'HT-1096' | 'EUR' |
| is equal to 'USA' | is like '%' | is like '%' | is equal to true or Employee is isFullTimeEmployee is equal to false | 956.00 | 'Notebook Basic 15' | 'Notebook' | 'HT-1000' | 'EUR' |
| is equal to 'GBR' | is equal to '2000' | is like '%' | is equal to true or Employee is isFullTimeEmployee is equal to false | 6.90 | 'Notebook Lock' | 'Cables and Accessories' | 'HT-1119' | 'EUR' |
| is equal to 'GBR' | is equal to '2000' | is equal to 'Development' | is equal to true | 1,999.00 | 'Notebook Professional 17' | 'Notebook' | 'HT-1010' | 'EUR' |
| is equal to 'GBR' | is equal to '2000' | is equal to 'Engineer II' | is equal to true | 35.92 | 'Lovely Sound 5.1' | 'Audio and Video' | 'HT-1096' | 'EUR' |
| is equal to 'GBR' | is equal to '2000' | is equal to 'Engineer II' | is equal to true or Employee is isFullTimeEmployee is equal to false | 989.00 | 'Astro Laptop 2017' | 'Notebook' | 'HT-1251' | 'EUR' |

## Miscellaneous

The information below is an extra read if you are interested in know-how to get the URLs and how to make sure the user has the necessary roles etc. As a pre-requisite, administrative rights on the SAP Cloud Platform Cockpit is needed.

## Finding the Rules Runtime URL

You need to use the Runtime REST APIs. For this, you need the SAP Cloud Platform Business Rules Service runtime URL.

| Explanation | Screenshot |
| --- | --- |
| **Finding rules runtime link from SAP Cloud Platform cockpit**<br><br>Login to your account in the SAP Cloud Platform cockpit and navigate to *Connectivity* |  |

| Explanation | Screenshot |
|---|---|
| From the **Destinations** table, under the **Basic Properties** column, copy the **URL** link for runtime in the destination name **bpmrulesruntime**. |  |
| The URL to execute the business rule created in this document would be as shown on the right.<br><br>Here rule_service_name is OnBoarding::DetermineEquipment as per the project name and rules service name. | https://&lt;bpmruntimeURL&gt;/rules-service/v1/rules/invoke?rule_service_name=OnBoarding::DetermineEquipment |
| Create a SAP Cloud Platform Destination with the name **RULES_SERVICE** and the URL as was https://&lt;bpmruntimeURL&gt;/rules-service/v1/rules |  |