

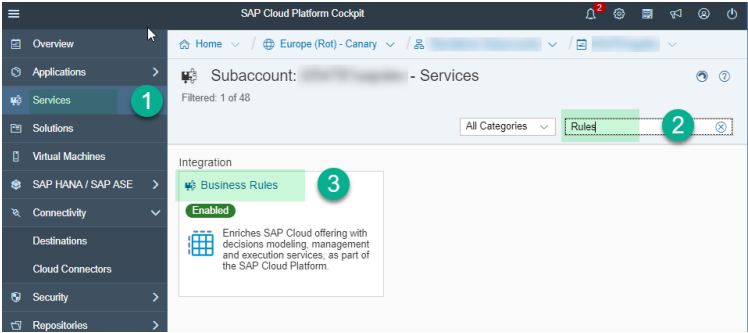
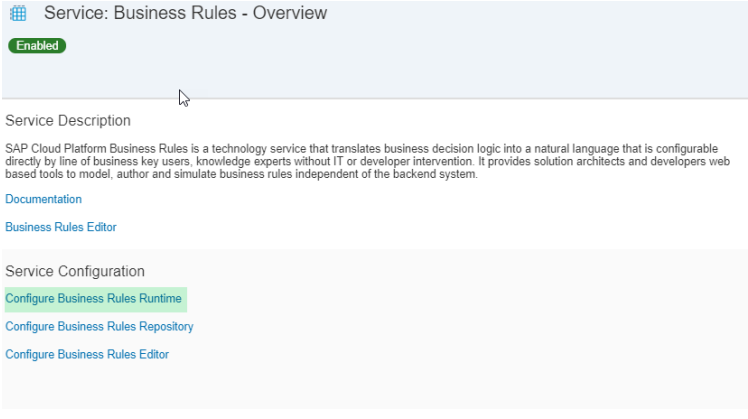
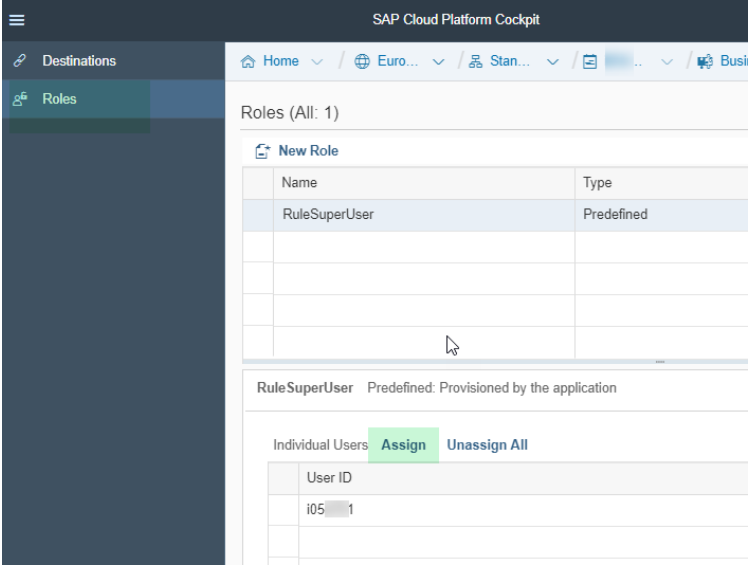





Build Rule to Determine Equipment for New Hire Using SAP Cloud Platform Business Rules

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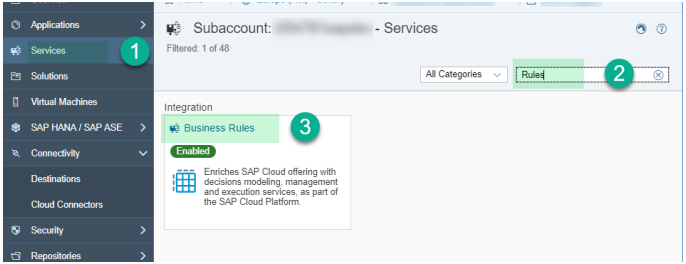
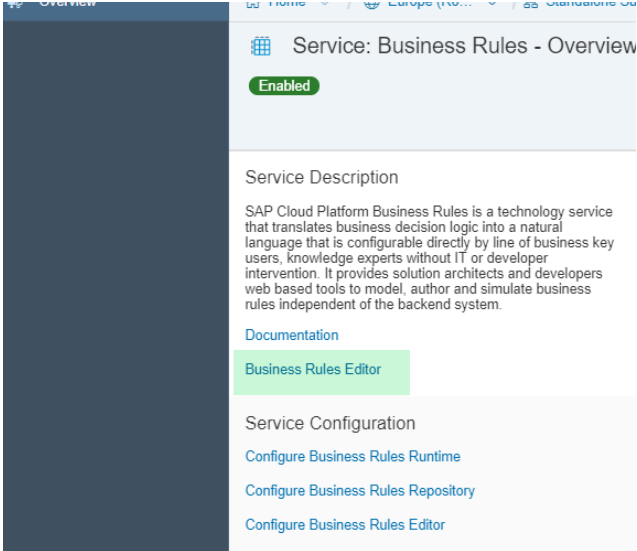
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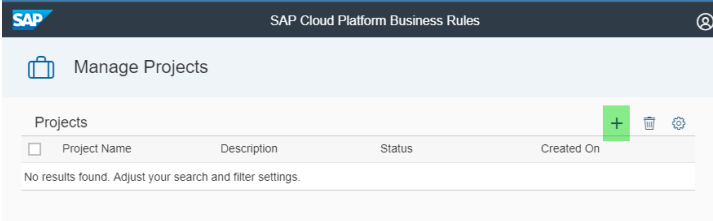
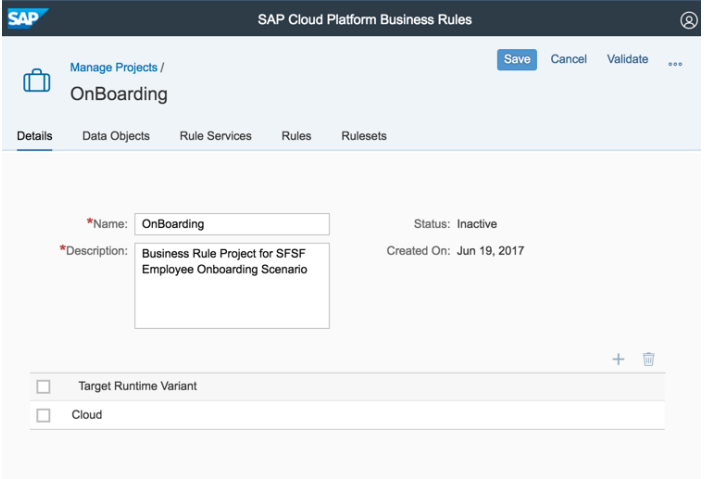
Initial Setup
Setting Permissions

Explanation	Screenshot
<p>Rules Run-time RuleSuperUser role</p> <ul style="list-style-type: none">• Logon to your account in the SAP Cloud Platform Cockpit and navigate to Services• Search for rules and select the Business Rules tile.	
<ul style="list-style-type: none">• Choose the Configure Business Rules Runtime link.	
<ul style="list-style-type: none">• Navigate to Roles and assign your user to the RulesSuperUser role. <p>Now you have the necessary permissions to run the rules.</p>	

Explanation	Screenshot																
<p>Rules Repository RuleSuperUser Role</p> <ul style="list-style-type: none">Return to <i>Service: Business Rules – Overview</i>.Choose the <i>Configure Business Rules Repository</i> link. <p>Now you have the necessary permissions to deploy the rules.</p>	<div><div><div><div></div><div>Service: Business Rules - Overview</div></div><div><div>Enabled</div></div></div><div><div>Service Description</div><div>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.</div><div>Documentation</div><div>Business Rules Editor</div></div><div><div>Service Configuration</div><div>Configure Business Rules Runtime</div><div>Configure Business Rules Repository</div><div>Configure Business Rules Editor</div></div></div> <div><div><div><div><div></div><div>Destinations</div></div><div><div></div><div>Roles</div></div></div><div><div><div>Roles (All: 1)</div><div><div>New Role</div><table><tr><th>Name</th><th>Type</th></tr><tr><td>RuleSuperUser</td><td>Predefined</td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr><tr><td> </td><td> </td></tr></table></div><div><div>RuleSuperUser</div><div>Predefined: Provisioned by the application</div></div><div><div>Individual Users</div><div><div>Assign</div><div>Unassign All</div></div><table><tr><th>User ID</th></tr><tr><td>i051</td></tr><tr><td> </td></tr><tr><td> </td></tr></table></div></div></div></div></div>	Name	Type	RuleSuperUser	Predefined									User ID	i051		
Name	Type																
RuleSuperUser	Predefined																
User ID																	
i051																	

Accessing Web-based Rules Editor from SAP Cloud Platform Cockpit

Explanation	Screenshot
<p>Finding rules editor web-tool link from SAP Cloud Platform cockpit</p> <ul style="list-style-type: none"> Logon to your account in the SAP Cloud Platform Cockpit and navigate to Services Search for rules and select the Business Rules tile 	
<ul style="list-style-type: none"> Choose the Business Rules Editor link 	

Explanation	Screenshot
<h2>Create Business Rules</h2> <h3>Create Rules Project</h3> <ol style="list-style-type: none">1. Open web-based rules editor determined earlier and login to the same.2. In <i>Manage Projects</i> screen, click on  button3. In the <i>New Project</i> screen, enter the details of the project: Name: 'OnBoarding' Description: Business Rule Project for SFSF Employee Onboarding Scenario4. Save the project <p>Note: Description is mandatory. It should be plain-text with letters and numbers, with no special character.</p>	 

Create New Data Object

- In your project screen, Click on the **DATA OBJECTS** tab
- Click **Edit** button on the top-right corner of the screen

- Click on the **+** button

- In the Data Object screen, enter the details as follows:

Name: EquipmentInfo

Description: Equipment Information

- Switch to **ATTRIBUTES** tab

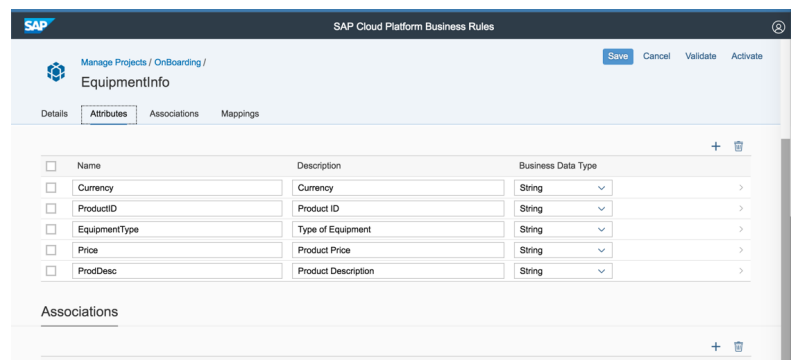
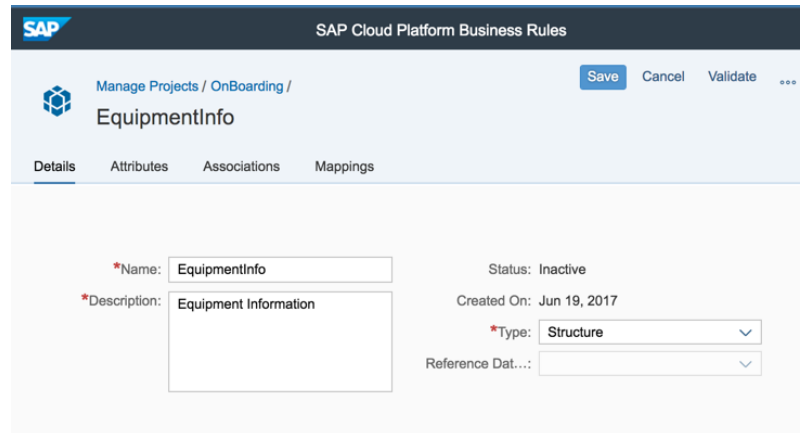
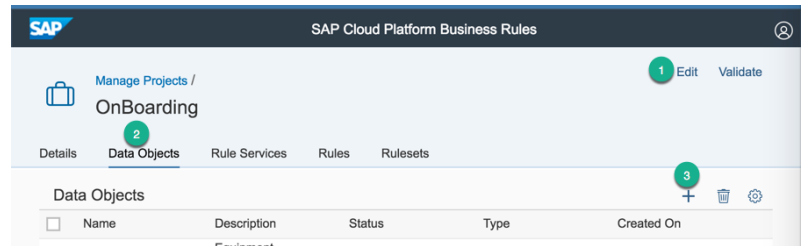
- Use **+** to add new attributes and enter the following details:

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

- Select an attribute row

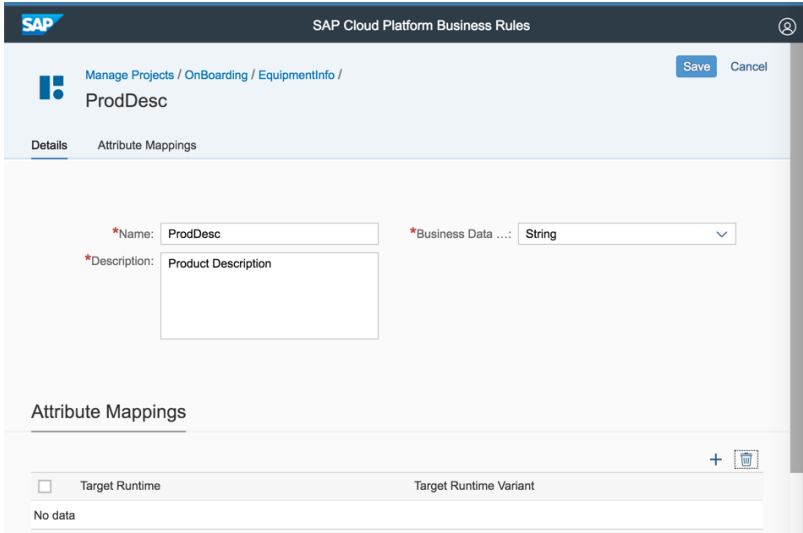
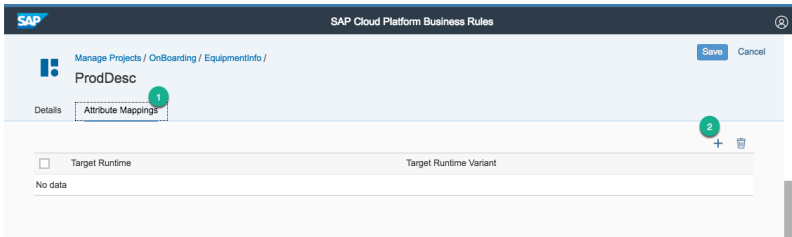
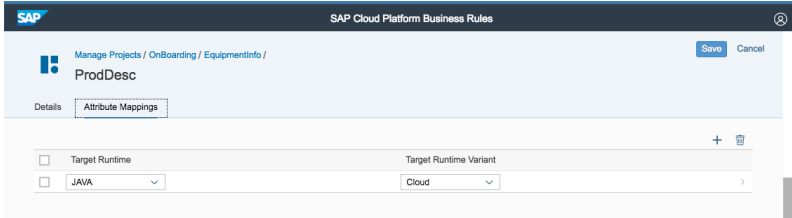
It will navigate you to another screen to modify the selected attribute

- Switch to **ATTRIBUTE MAPPINGS**



Attributes

Name	Description	Business Data Type
ProdDesc	Product Description	String
Price	Product Price	String
EquipmentType	Type of Equipment	String
ProductID	Product ID	String
Currency	Currency	String

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

Explanation

20. **Activate** to activate the data object.

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*

Screenshot

SAP Cloud Platform Business Rules

Manage Projects / OnBoarding / EquipmentInfo

Save Cancel Validate Activate

Details Attributes Associations **Mappings**

Target Runtime Target Runtime Variant

No data

SAP Cloud Platform Business Rules

Manage Projects / OnBoarding / EquipmentInfo

Save Cancel Validate Activate

Details Attributes Associations **Mappings**

Target Runtime Target Runtime Variant

JAVA Cloud

SAP Cloud Platform Business Rules

Manage Projects / OnBoarding / EquipmentInfo

Save Cancel Validate **Activate**

Details Attributes Associations **Mappings**

Attributes

Name	Description	Business Data Type
Currency	Currency	String
ProductID	Product ID	String
EquipmentType	Type of Equipment	String
Price	Product Price	String
ProdDesc	Product Description	String

Associations

Name	Description	Target Data Object Name
No data		

Mappings

SAP Cloud Platform Business Rules

Manage Projects / OnBoarding / EquipmentInfo

Edit Val

Details Attributes Associations Mappings

Name: EquipmentInfo

Description: Equipment Information

Status: Active

Created On: Jun 19, 2017

Type: Structure

Attributes

Name	Description	Business Data Type
Currency	Currency	String

Explanation

22. Navigate back to the rules project to create another Data Object

23. Repeat the steps from 5 – 20 to create a new data object with following details

In Details Section

Name: Employee

Description: Details of Employee

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

Screenshot

The first screenshot shows the 'Details' tab for the 'Employee' data object. The 'Name' is 'Employee' and the 'Description' is 'Employee'. The 'Status' is 'Inactive' and it was 'Created On: Jun 19, 2017'. The 'Type' is 'Structure' and the 'Reference Data Object' is empty.


The second screenshot shows the 'Attributes' tab. It lists attributes with checkboxes: 'Name' (Job Title, String), 'company' (Company Code, String), 'countryOfCompany' (Country of Company, String), and 'isFullTimeEmployee' (Is Fulltime Employee, Boolean).

The third screenshot shows the 'Mappings' tab. It lists mappings with checkboxes: 'Target Runtime' (Target Runtime Variant, Cloud) and 'JAVA' (Cloud).

The fourth screenshot shows the 'Data Objects' tab in the 'OnBoarding' project. It lists two data objects: 'EquipmentInfo' (Equipment Information, Active, Structure, Created On: Jun 19, 2017) and 'Employee' (Employee, Active, Structure, Created On: Jun 19, 2017).

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 

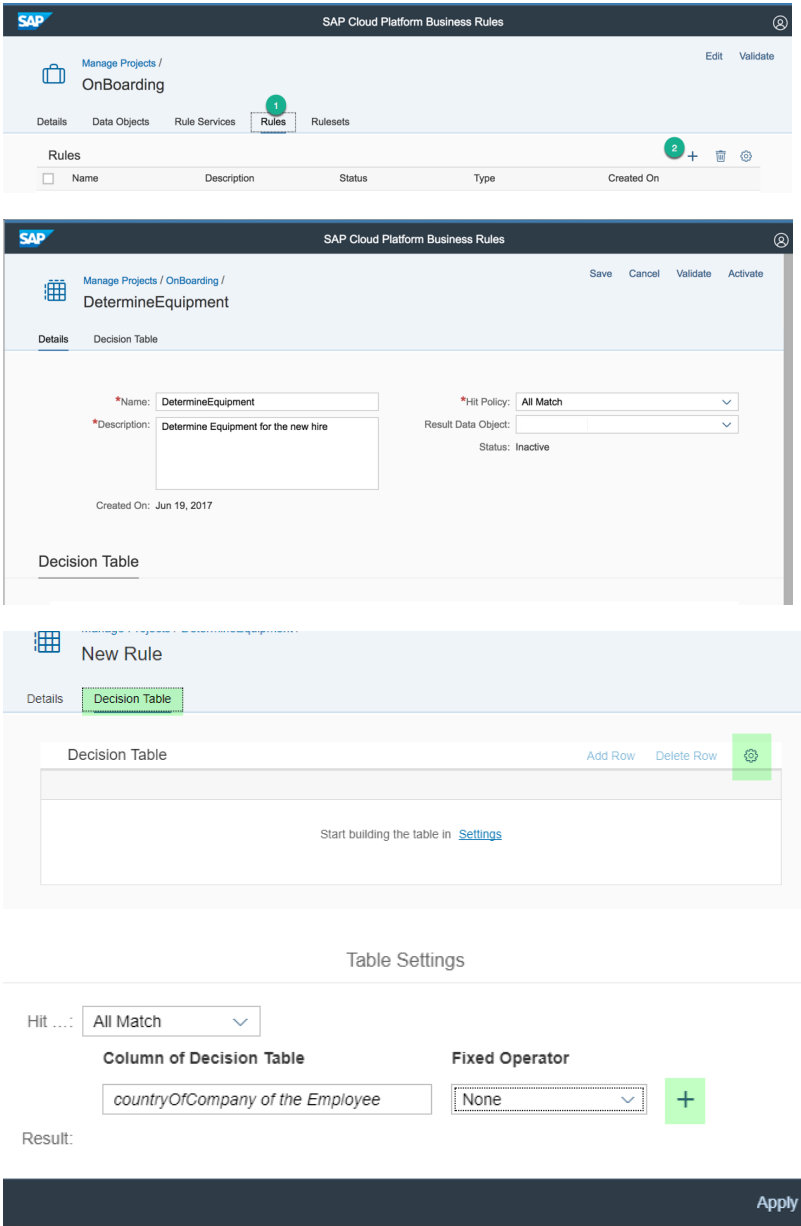
29. In the Table Settings popup, enter the following for the first condition column:

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



The screenshot shows the SAP Cloud Platform Business Rules interface. The top navigation bar includes 'Manage Projects / OnBoarding' and 'Rules' tab. The 'Rules' tab is selected, showing a list of rules. The 'DetermineEquipment' rule is highlighted. The 'Details' section shows the rule name 'DetermineEquipment', description 'Rule to determine equipment for the new hire based on the country and job title of the new hire', and hit policy 'All Match'. The 'Decision Table' section shows a table with columns for 'Country of Company' and 'Job Title of Employee'. The 'Table Settings' section shows the 'Hit Policy' set to 'All Match' and the 'Fixed Operator' set to 'None'. The 'Result' section shows the output 'Employee is isFullTimeEmployee'.

Table Settings

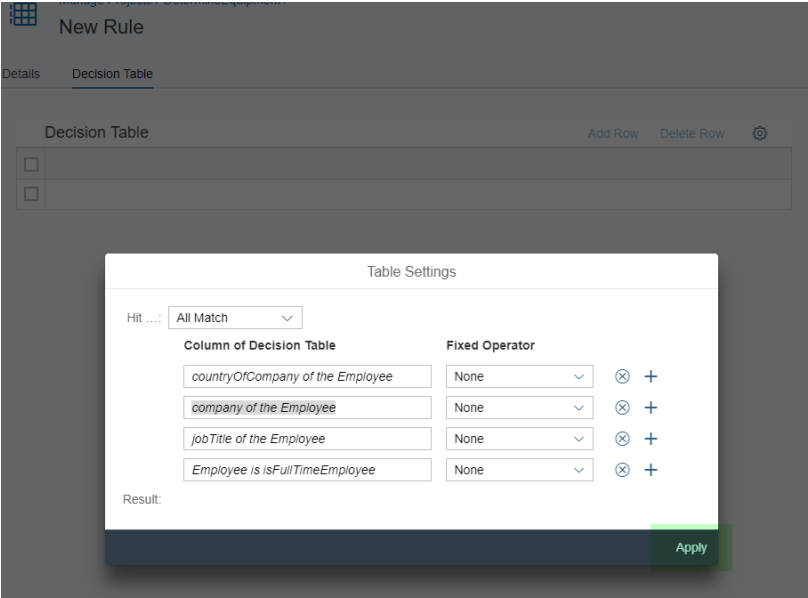
Hit ...: All Match

Column of Decision Table: countryOfCompany of the Employee

Fixed Operator: None

Result: Employee is isFullTimeEmployee

Apply

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

Explanation

35. Switch to **DECISION TABLE** tab
 36. Click **Edit** on the top-right corner of the screen

37. In the row, enter the rules one after the other.

countryOfCompany of the Employee:

is equal to 'USA'

company of the Employee:

is equal to 'ACE_USA'

jobTitle of the Employee:

is like '%'

Employee is isFullTimeEmployee:

is equal to true or Employee is

isFullTimeEmployee is equal to false

ProdDesc: 'Lovely Sound 5.1'

Price: 35.96

EquipmentType:

'Audio and Video'

ProductID: 'HT-1096'

Currency: 'EUR'

[Note: All the strings must be entered with single-quote. Kindly write this from scratch in the Rules Editor to avoid formatting issues]

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)

39. **Activate** the decision table

Note the status of the decision table to be **Active** if the decision table gets activated successfully.

40. Switch back to the rules project
 41. You will see the decision table rule created and activated

Screenshot

The screenshots show the SAP Cloud Platform Business Rules interface for the 'DetermineEquipmentRules' project. The interface includes a 'Details' tab and a 'Decision Table' tab. The 'Decision Table' tab displays a table with 'If' and 'Then' columns. The 'If' column contains conditions for 'country...', 'compan...', 'jobTitle ...', and 'Employ...'. The 'Then' column contains values for 'ProdDesc', 'Price', 'Equipm...', 'ProductID', and 'Currency'.

The first screenshot shows the 'Decision Table' tab with empty fields. The second screenshot shows the 'Decision Table' tab with a single row of rules. The third screenshot shows the 'Decision Table' tab with multiple rows of rules, including the one created in step 38.

If		Then						
country...	compan...	jobTitle ...	Employ...	ProdDesc	Price	Equipm...	ProductID	Currency
<input type="checkbox"/>	countryOfCompany of th...	company of the Employee	jobTitle of the Employee					
<input type="checkbox"/>	is equal to 'USA'	is equal to 'ACE_USA'	is like '%'					
<input checked="" type="checkbox"/>	is equ...	is equ...	is lik...	is equ...	'Love...	35.96	'Audio...	'HT-10...
<input type="checkbox"/>	is equ...	is equ...	is lik...	is equ...	'Lovely...	35.96	'Audio...	'HT-10...
<input type="checkbox"/>	is equ...	is like...	is like...	is equ...	'Noteb...	956.00	'Noteb...	'HT-10...
<input type="checkbox"/>	is equ...	is equ...	is like...	is equ...	'Noteb...	6.90	'Cable...	'HT-11...
<input type="checkbox"/>	is equ...	is equ...	is equ...	is equ...	'Noteb...	1,999.00	'Noteb...	'HT-10...
<input type="checkbox"/>	is equ...	is equ...	is equ...	is equ...	'Lovely...	35.92	'Audio...	'HT-10...
<input type="checkbox"/>	is equ...	is equ...	is equ...	is equ...	'Astro ...	989.00	'Noteb...	'HT-12...

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

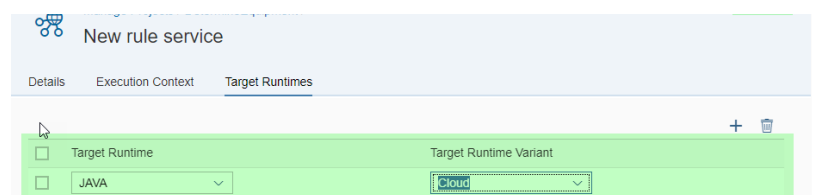
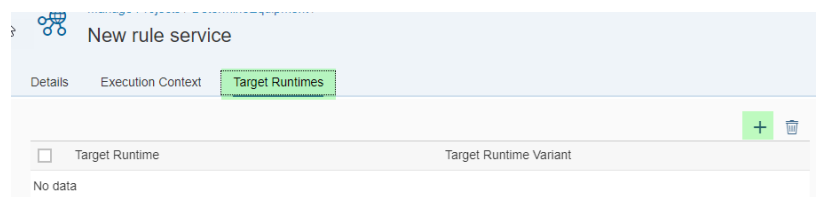
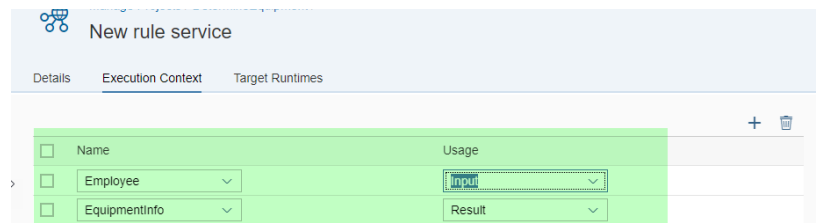
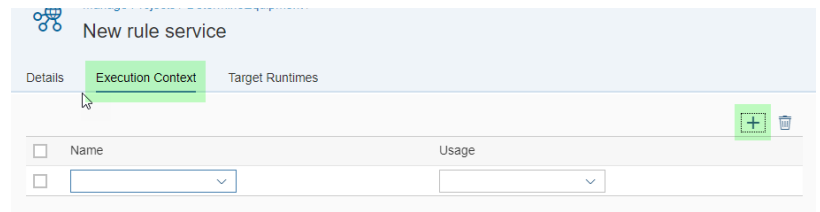
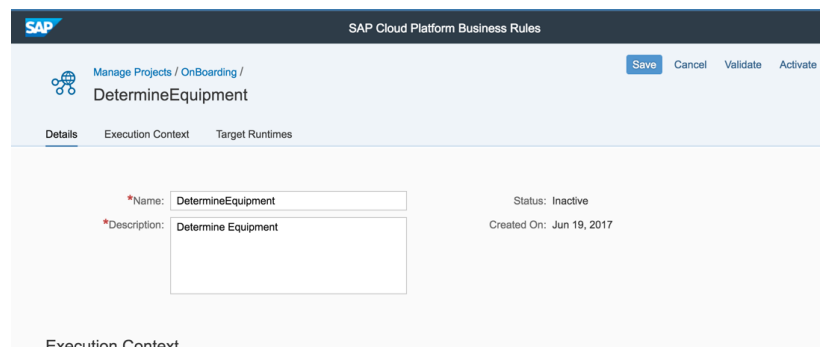
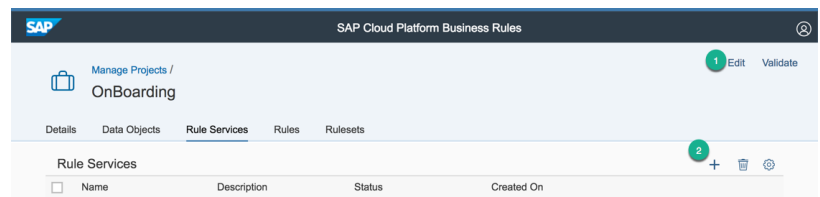
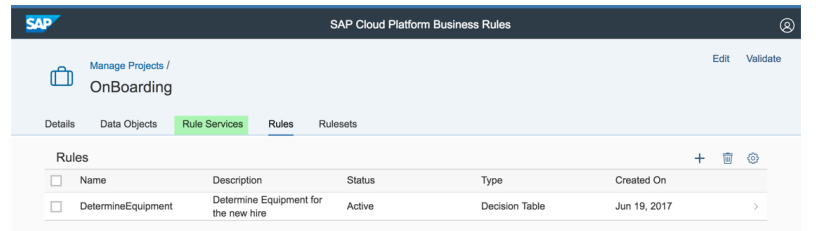
47. Click on the **+** button twice to add two new rows

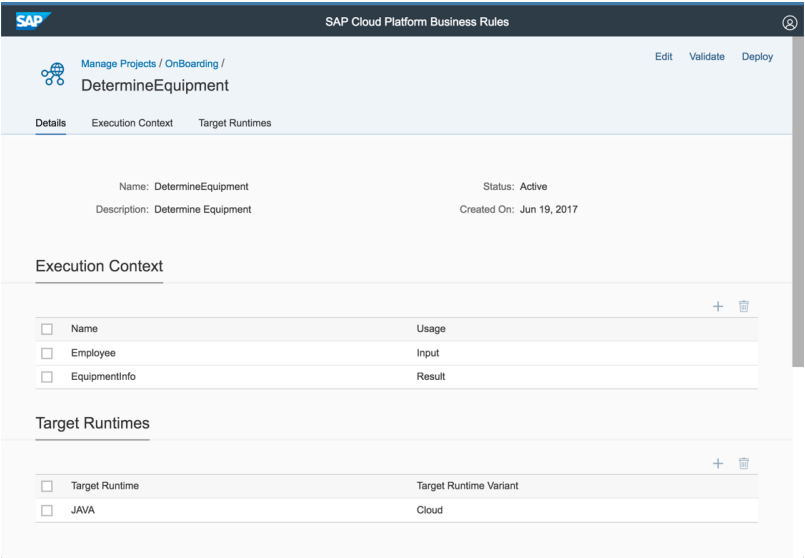
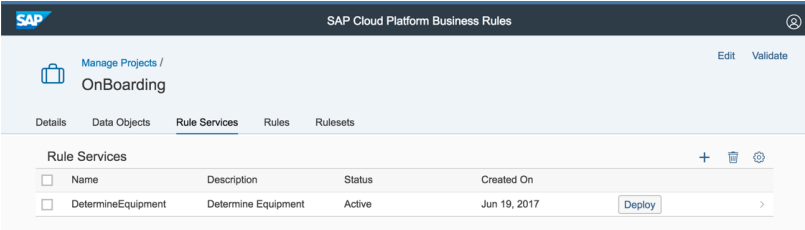
48. Select the following:

Name	Usage
Employee	Input
EquipmentInfo	Result

49. Switch to **TARGET RUNTIME** tab

50. Click on **+** button



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

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

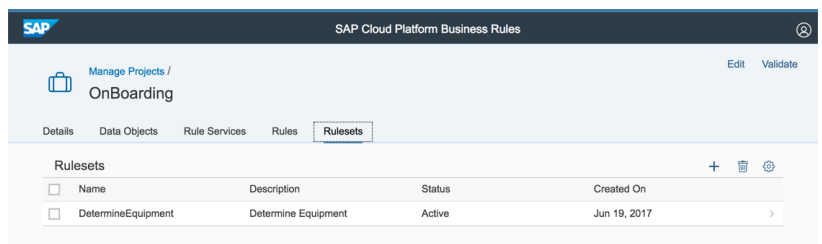
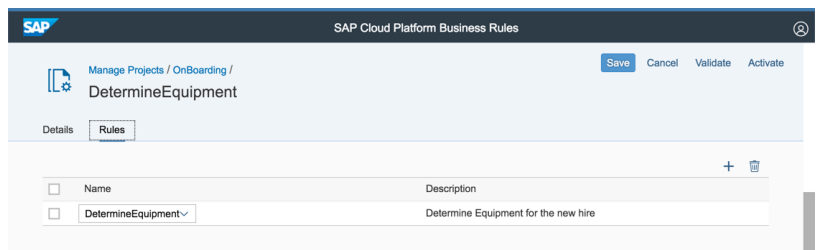
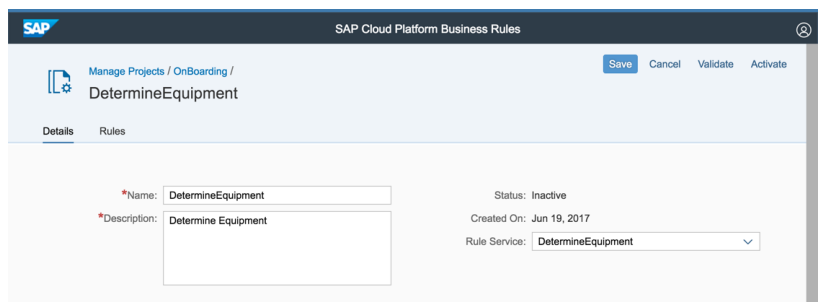
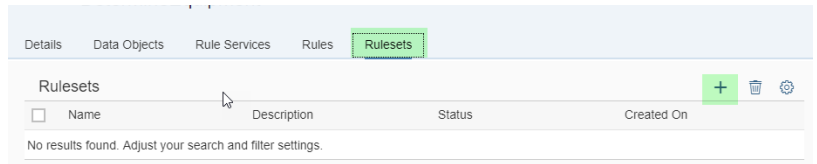
Rule Service: DetermineEquipment

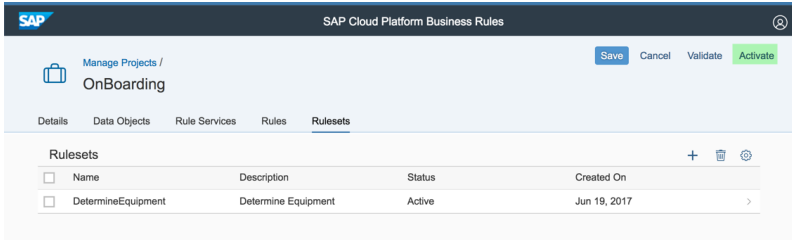
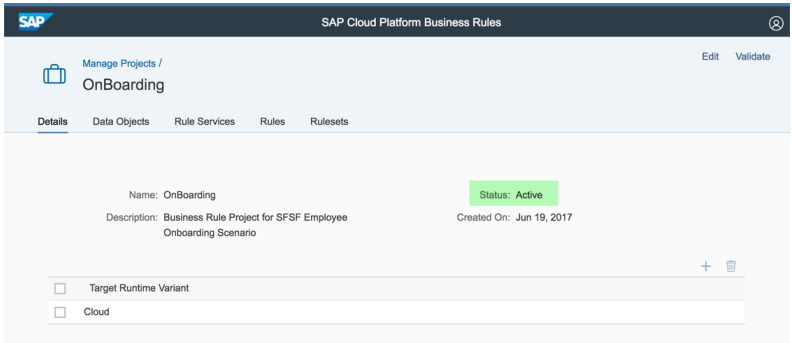
58. Switch to **RULES** tab

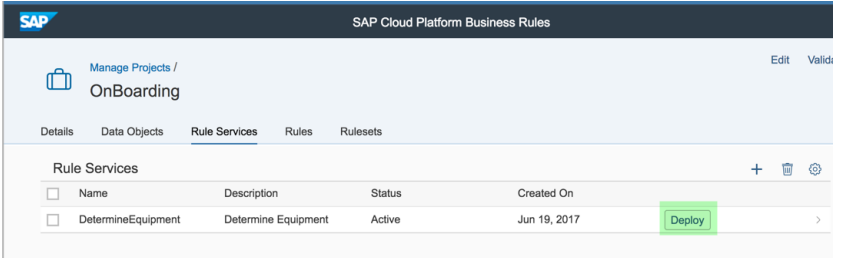
59. Click on **+** button

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

Explanation	Screenshot
<p>Deploy Rule Service</p> <p>66. Switch to RULES SERVICES tab</p> <p>67. Select the rules service 'DetermineEquipment'</p> <p>68. Click on Deploy button</p> <p>Note: Ensure that your rule, ruleset and all data objects are Active before you deploy</p> <p>Note: Ensure that your rule service is in Active state before you deploy</p> <p>Note: Ensure that the rule service is associated with at least one ruleset</p> <p>69. Once deployed successfully, you will see a message stating "Rule service deployed successfully"</p>	 <p>The screenshot shows the SAP Cloud Platform Business Rules interface. The top navigation bar includes 'Manage Projects / OnBoarding' and 'Edit Valid'. The main content area has tabs for 'Details', 'Data Objects', 'Rule Services', 'Rules', and 'Rulesets'. The 'Rule Services' tab is active, displaying a table with columns: Name, Description, Status, and Created On. The table contains one entry: 'DetermineEquipment', 'Determine Equipment', 'Active', and 'Jun 19, 2017'. A green 'Deploy' button is visible next to the entry. Below the table, a message box states 'Rule service is deployed successfully'.</p>

Appendix

Determine Equipment Rules to get all rules

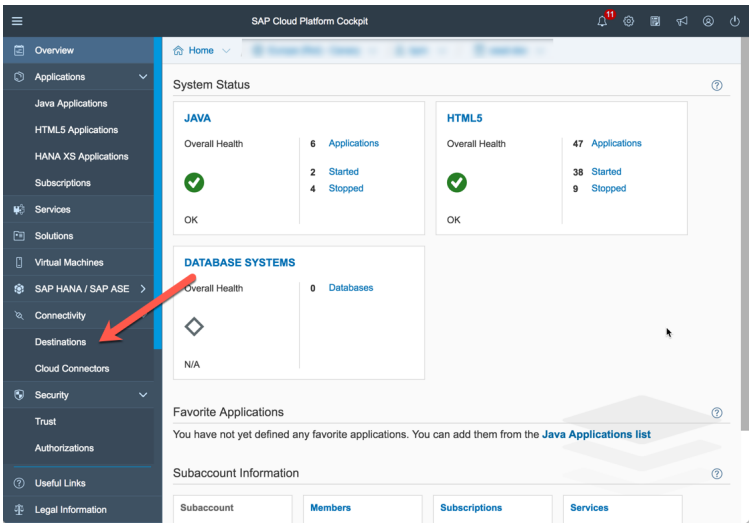
IF				THEN				
countryOfCompany of the Employee	company of the Employee	jobTitle of the Employee	Employee is isFullTimeEmployee	Price	ProdDesc	EquipmentType	ProductID	Currency
is equal to 'USA'	is equal to 'ACE_USA'	is like '%'	is equal to true or Employee is isFullTimeEmployee is equal to false	35.96	'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'

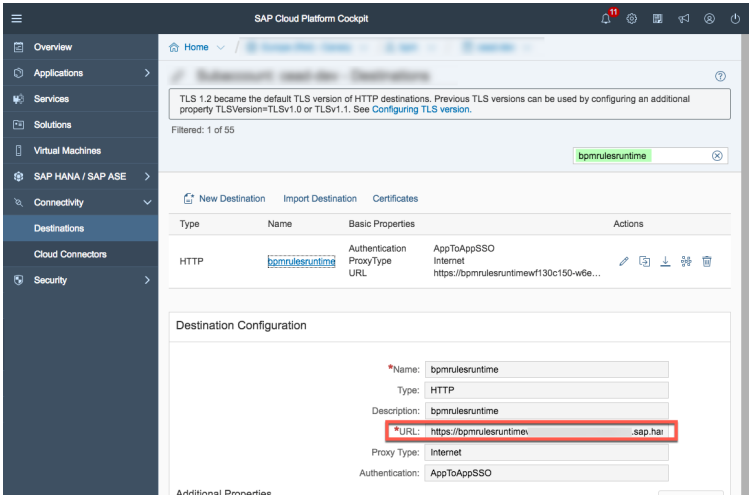
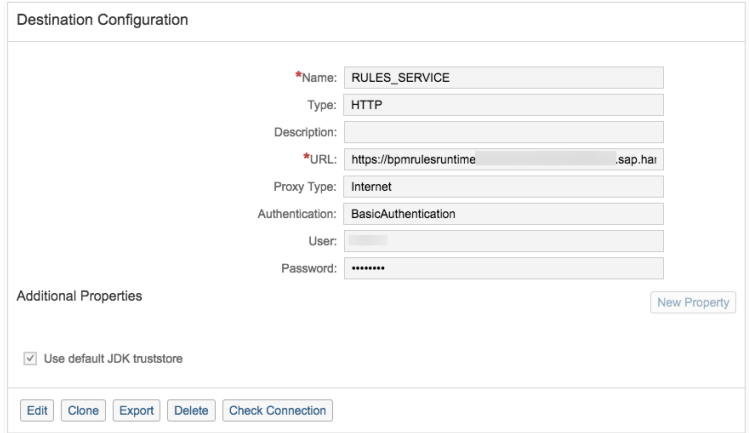
Miscellaneous

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
<p>Finding rules runtime link from SAP Cloud Platform cockpit</p> <p>Login to your account in the SAP Cloud Platform cockpit and navigate to Connectivity</p>	 <p>The screenshot shows the SAP Cloud Platform Cockpit interface. On the left sidebar, the 'Connectivity' menu item is highlighted with a red arrow. The main area displays 'System Status' for JAVA and HTML5 applications, and 'DATABASE SYSTEMS'. The JAVA section shows 'Overall Health' as 'OK' with 6 Applications (2 Started, 4 Stopped). The HTML5 section shows 'Overall Health' as 'OK' with 47 Applications (38 Started, 9 Stopped). The DATABASE SYSTEMS section shows 'Overall Health' as 'N/A' with 0 Databases. Below the system status, there are sections for 'Favorite Applications' and 'Subaccount Information'.</p>

Explanation	Screenshot
From the Destinations table, under the Basic Properties column, copy the URL link for runtime in the destination name bpmrulesruntime .	 The screenshot shows the SAP Cloud Platform Cockpit interface. On the left is a navigation menu with options like Overview, Applications, Services, Solutions, Virtual Machines, SAP HANA / SAP ASE, Connectivity, Destinations, Cloud Connectors, and Security. The 'Destinations' section is selected. The main area displays a table of destinations. One destination named 'bpmrulesruntime' is highlighted. Below the table, the 'Destination Configuration' for 'bpmrulesruntime' is shown. It includes fields for Name (bpmrulesruntime), Type (HTTP), Description (bpmrulesruntime), URL (https://bpmrulesruntime.sap.ha...), Proxy Type (Internet), and Authentication (AppToAppSSO). The URL field is highlighted with a red box.
The URL to execute the business rule created in this document would be as shown on the right. Here rule_service_name is OnBoarding::DetermineEquipment as per the project name and rules service name.	<p><a href="https://<bpmruntimeURL>/rules-service/v1/rules/invoke?rule_service_name=OnBoarding::DetermineEquipment">https://<bpmruntimeURL>/rules-service/v1/rules/invoke?rule_service_name=OnBoarding::DetermineEquipment</p>
Create a SAP Cloud Platform Destination with the name RULES_SERVICE and the URL as was https://<bpmruntimeURL>/rules-service/v1/rules	 The screenshot shows the 'Destination Configuration' form in the SAP Cloud Platform Cockpit. The form is for a destination named 'RULES_SERVICE'. It includes fields for Name (RULES_SERVICE), Type (HTTP), Description, URL (https://bpmrulesruntime.sap.ha...), Proxy Type (Internet), Authentication (BasicAuthentication), User, and Password (masked with asterisks). There is a checkbox for 'Use default JDK truststore' and a 'New Property' button. At the bottom, there are buttons for Edit, Clone, Export, Delete, and Check Connection.