Lab Guide

Service Mapping and Discovery Pattern Designer

Oded Tsur and Aleck Lin

Default Login / Password:

admin / Knowledge17

itil / Knowledge17

employee / Knowledge17

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Lab Goal

Lab 1.0 Create a Pattern

This lab explains ways to know when and how to use pattern designer for horizontal discovery, including how to:

- Plan the pattern
- Create a TOMCAT unified pattern
- Edit the pattern steps
- Test the pattern's logic
- View and check the pattern's outcome

During this lab, you create a pattern step-by-step with details and parameters given in advance. Please review and understand each step before you enter the details to simulate how you would have done it yourself if you had to create the pattern independently. Beyond the functionality of the pattern designer the lab introduces you to the methodology and way of thinking when building a new pattern.

Plan the Pattern Gather

1. Before you start, take a few minutes to think of the data you need to before editing a pattern, what is the required sequence of steps and what is the outcome of each step.

2. Remember that the final outcome is population of the two CIs involved.

3. Note that this pattern is executed as part of both horizontal and top-down discoveries.

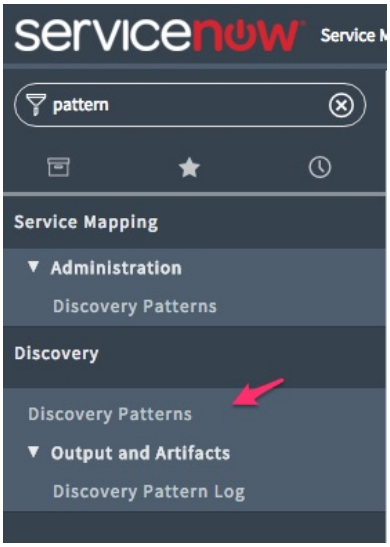
Navigate to the Discovery Patterns

1. Navigate to the unique instance URL provided to you.

2. Log in with provided credentials.

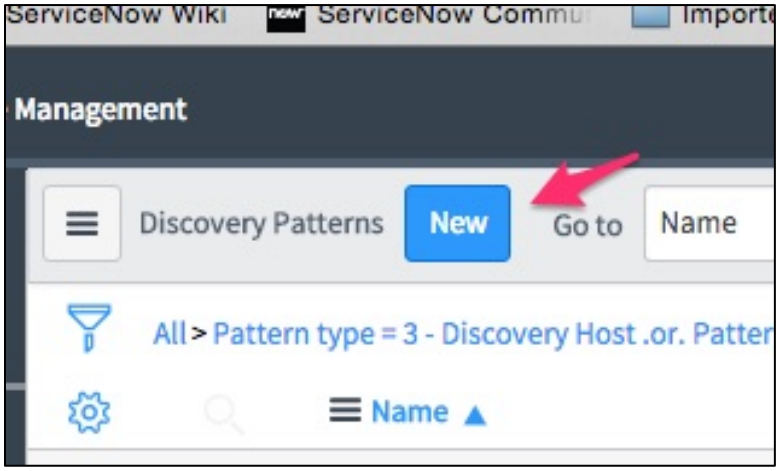
3. Search for **pattern**.

4. Click **Discovery Patterns**.



Create a TOMCAT Pattern

1. On Discovery Patterns, click **New**.



2. Edit the pattern details as shown in the next section.

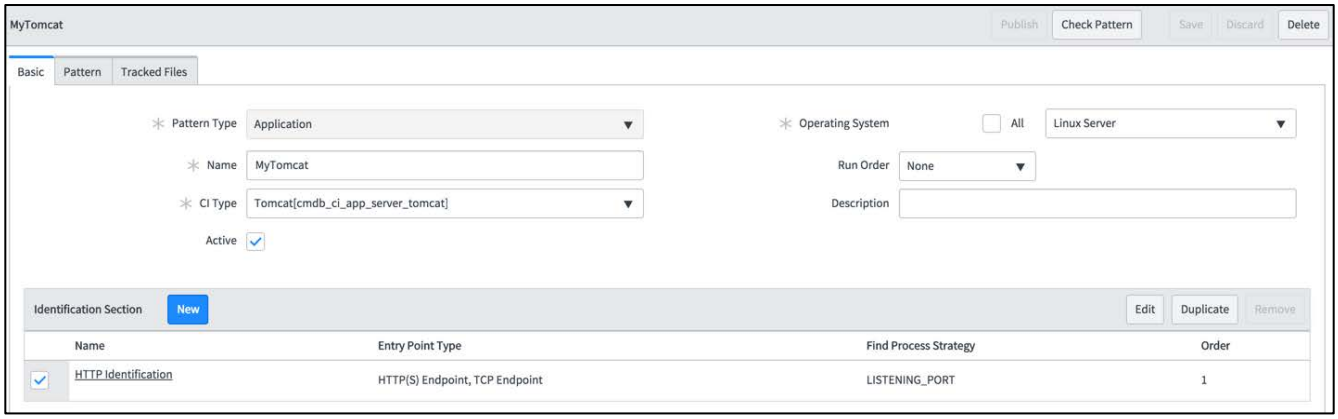
Enter the Pattern Details

1. Enter the following information in the pattern details form.
   Pattern type: **Application**
   Name: **MyTomcat**
   CI type: **Tomcat [cmdb_ci_app_server_tomcat] (choose from the list)**
   Active: **Checked**
   Operating system: **Linux Server**

2. Add a **New** identification section. Press **New**.
   Name: **HTTP Identification**
   Entry Point Type: **HTTP(S) Endpoint** and **TCP Endpoint**
   Find Process Strategy: **LISTENING_PORT**
   Order: **1**

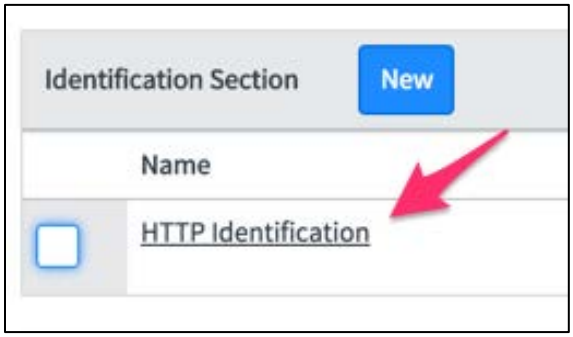
   Menu: **Click Save**

3. Make sure the new pattern is identical to the pattern in the example.



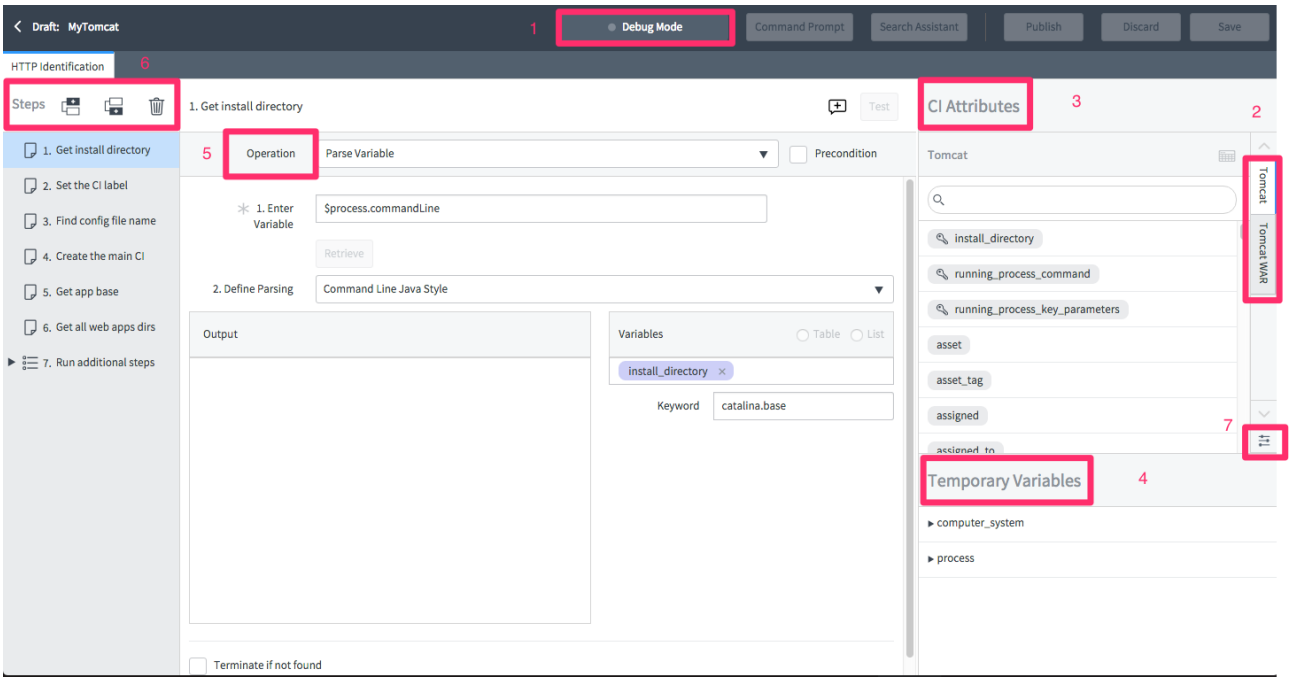
Edit the Pattern Steps

1. Press the **HTTP Identification** link to enter the pattern designer.



Note: A new tab opens:

Pattern Designer Areas Map

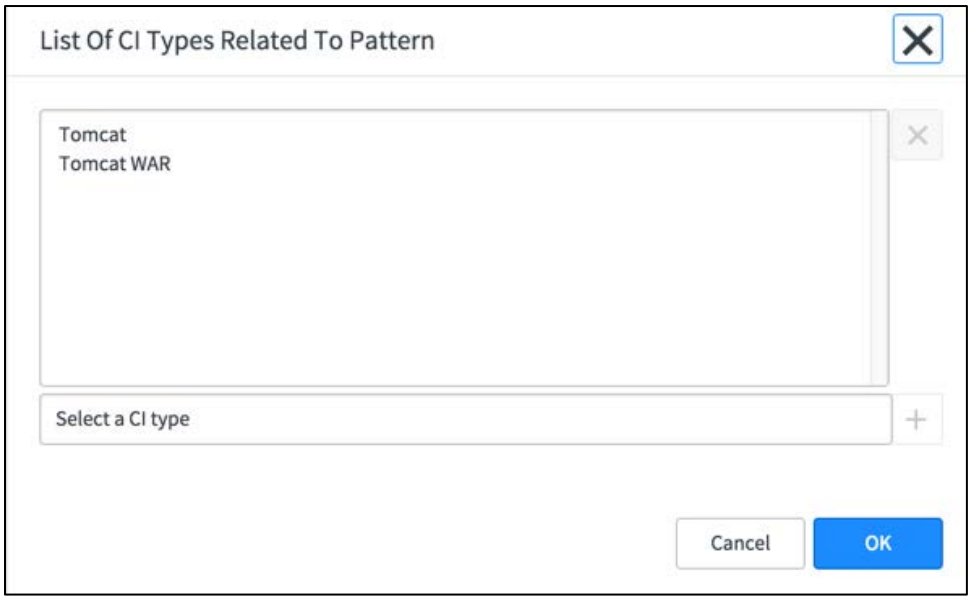


1. On/Off Debug mode button
2. CI Tabs
3. CI Attributes section
4. Temporary variables section
5. Operation selection
6. Steps management
7. CI Selection button

Pattern Designer – Add the WAR CI

1. In the CI Attributes pane on the CI Tabs, click this icon:  (See #7 in the areas map)

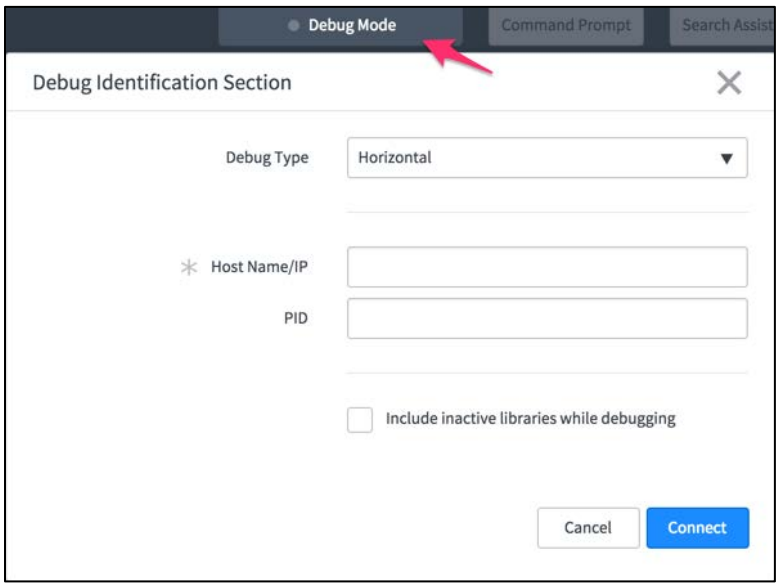
2. Click **Select a CI type** field. Choose the Tomcat WAR and press the **+** sign.
   Note: After Tomcat WAR is first selected you'll need to click again on the **Select a CI type** field and select the Tomcat WAR shown as a tree view, again.



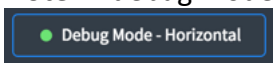
3. Click **OK.** You should now see two tabs under the CI Attributes pane, one for each CI.

Pattern Designer – Entering Debug Mode

1. Click **Debug**.



2. Debug Type: **Horizontal**
   Enter the Host Name/IP: **< IP from Instructor >**
   Click **Connect**.

   Note: A debug mode was set. As long as the Debug button displays a green mark, 

a debug mode is set. Press the same button in order to exit this mode. The debug mode helps remain in context, see parameters' values online, run commands online, and test the step.

Pattern Designer – Step 1

1. Double click the default step name and rename it to **Get Install directory**.



   Note: In the following steps this action is repeated for each new step. Rename a step by **double-clicking** its name.

2. Enter the following information in the pattern designer form:

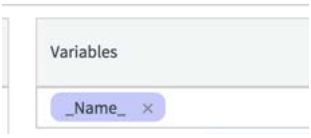
   Operation: **Parse variable**
   Enter variable: **$process.commandLine**

   Note: When clicking the **$process** sign you'll see available variables

   Press **Retrieve**

3. Select the content to parse – Define parsing: **Command line Java style**

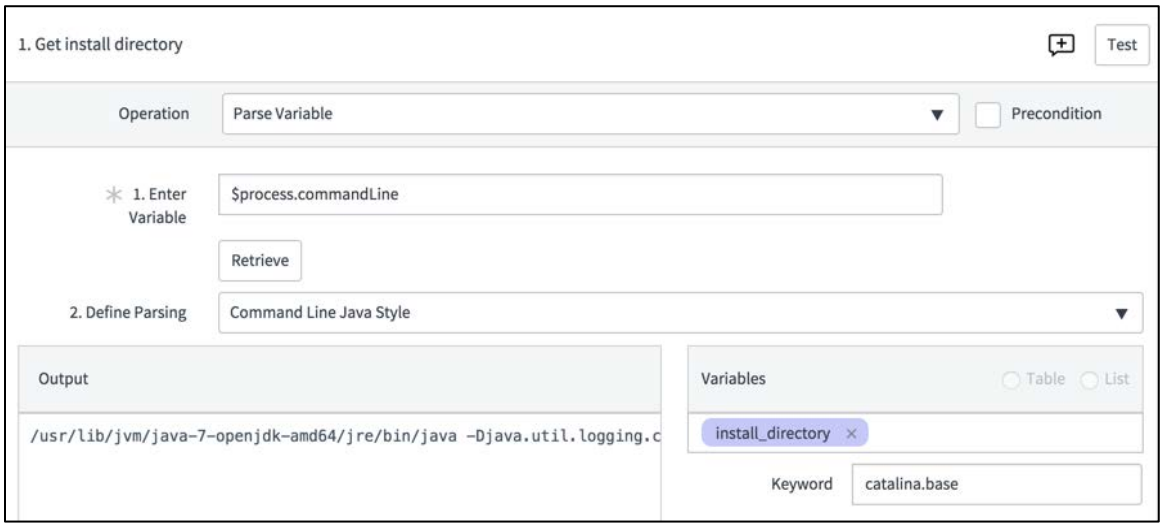
4. In the Output field, mark the text **/opt/tomcat** (may use browser search to locate)

   Rename 

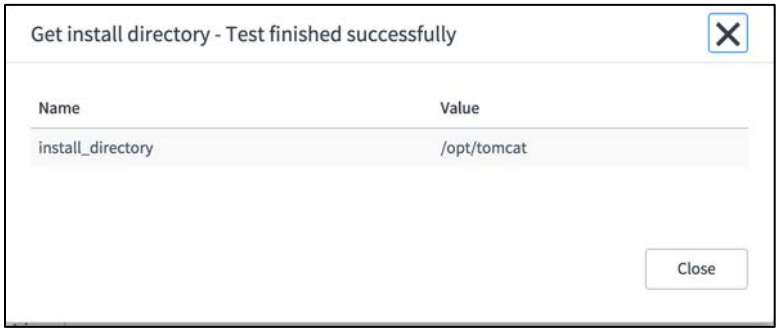
to **install_directory**.
   The Variables section should show the related Keyword.

Step 1 Success Verification

1. Your screen should look like the example.



2. Click **Test** to make sure the step works and that the install_directory variable is populated with the **/opt/tomcat string**:



Pattern Designer – Step 2

1. On the upper-left view menu, select **New Step Below**. 

2. Name the step **Set the CI Label**.

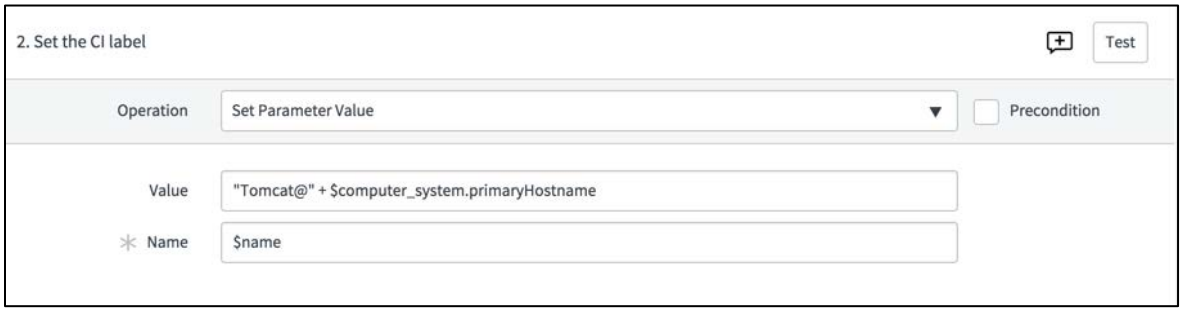
3. Enter the following information in the pattern designer form:

   Operation: **Set Parameter Value**
   Value: **"Tomcat@" + $computer_system.primaryHostname**
   Name: **$name**

   Click **Test** to make sure the step works, variable **name** shows in the Temporary variables pane.

Step 2 Success Verification

1. Your screen should look like the example.



Pattern Designer – Step 3

1. On the upper-left menu, select **New Step Below**. 
   Name the step **Find config file name**.

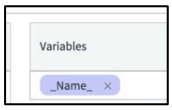
2. Enter the following information in the pattern designer form:

   Operation: **Parse command output**

   Set command details:

   Command: **"ls -1 " + $install_directory + "/conf"**
   Define Parsing: **Delimited Text**
   Include Lines: **server.xml$** (file name ends with this string)
   Exclude lines: **_back** (example for cases of backup files)

3. Press **Run Command**

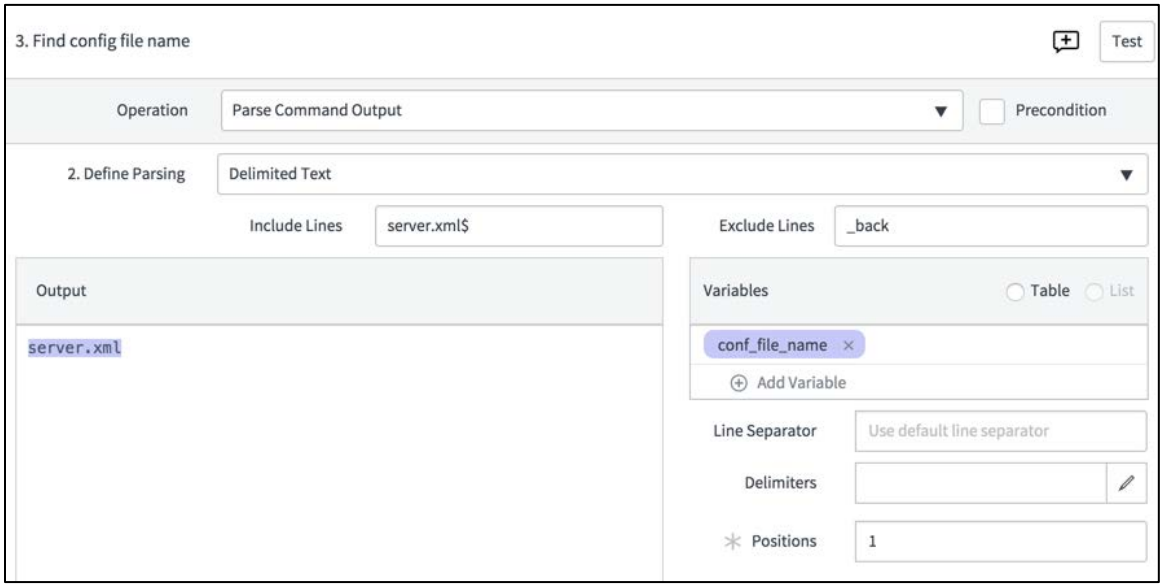
4. Mark **server.xml** In the field 

   enter **conf_file_name** as the Name.

5. Set Positions: **1**.

Step 3 Success Verification

1. Your screen should look like the example:



Pattern Designer – Step 4

1. On the upper-left menu, select **New Step Below**.

2. Name the step **Create the main CI**.

3. Enter the following information in the pattern designer form:

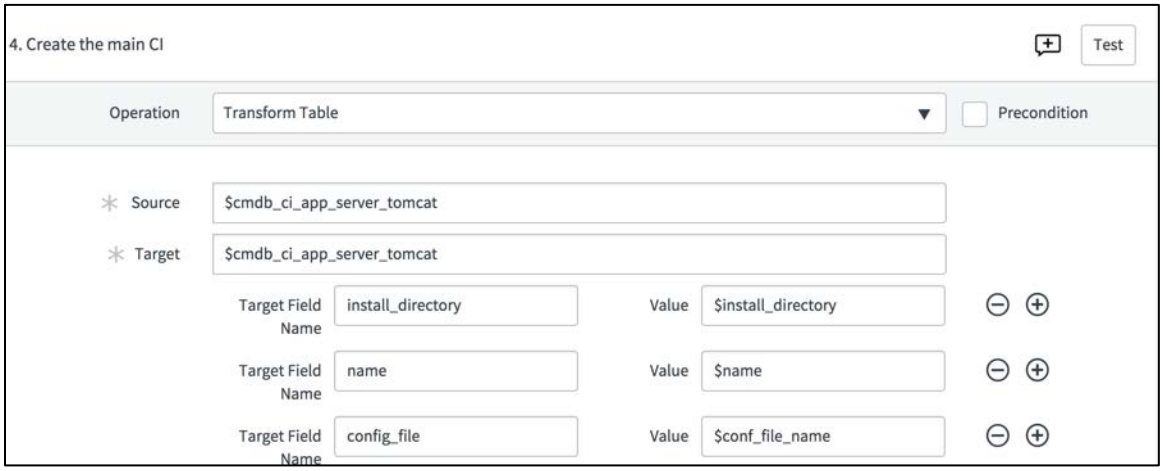
   Operation: **Transform table**
   Source: **$cmdb_ci_app_server_tomcat**
   Target: **$cmdb_ci_app_server_tomcat**

4. Target Field Name: **Install_dir** Value: $**Install_directory**
   Target Field Name: **name** Value: $**name**
   Target Field Name: **config_file** Value: $**conf_file_name**

   Note: Press the **+** sign to add an attribute.

Step 4 Success Verification

1. Your screen should look like the example:



Pattern Designer – Step 5

1. On the upper-left menu, select **New Step Below**.

2. Name the step **Get app base**.

3. Enter the following information in the pattern designer form:

   Operation: **Parse file**
   Select file, File path: **$install_directory + "/conf/" + $conf_file_name**
   Define Parsing: **XML file**

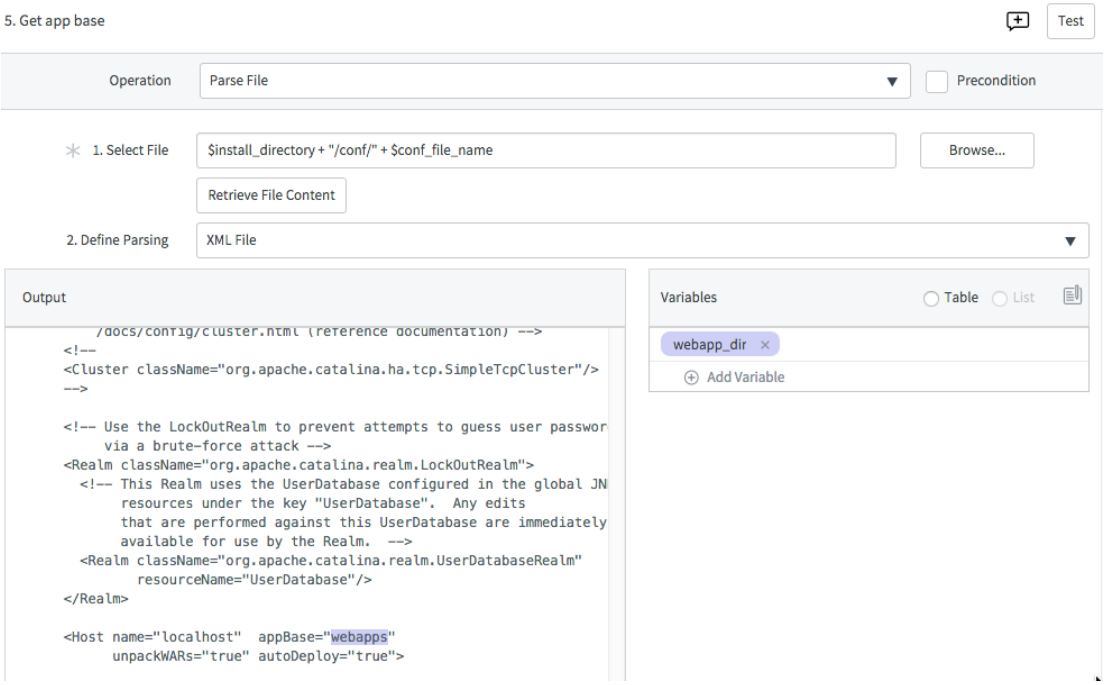
4. **Retrieve file**. Use this button to retrieve the file.

5. With the left mouse button, mark the value of **webapps**. A pop-up dialog window opens for a variable name. Enter: **webapp_dir**.

6. Notice that the color of the marked value corresponds to the color of the new variable.

Step 5 Success Verification

1. Your screen should look like the example:



Pattern Designer – Step 6

1. On the upper-left menu, select **New Step Below**.

2. Name the step **Get all web apps dirs**.

3. Enter the following information in the pattern designer form:

   Operation: **Parse command output**
   Set Command Details: **"ls -all " + $install_directory + "/" + $webapp_dir + "/*/WEB-INF/web.xml"**
   Define parsing: **Delimited Text**

4. Press **Run command** button.

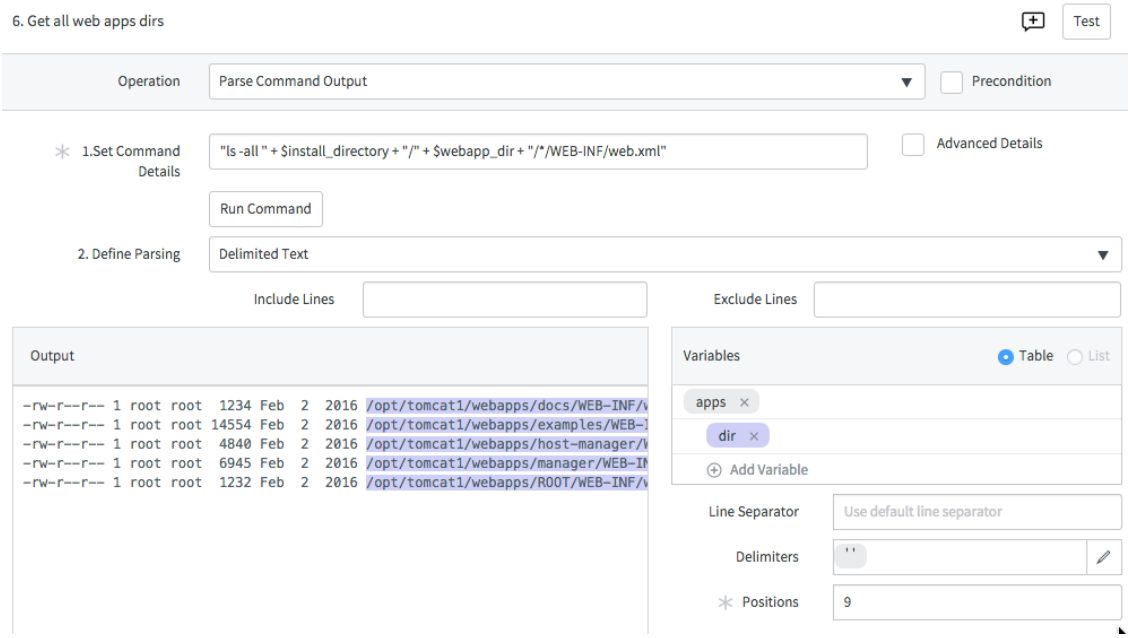
5. Mark the directory string: **"/opt/tomcat/webapps…"** up to the row end.
   A pop-up dialog window opens for a variable name. Enter: **dir**.

6. Under the Variables section:
   Click the **Table** option and enter the table name: **apps**



Step 6 Success Verification

1. Your screen should look like the example:



Pattern Designer – Step 7

1. On the left menu, rename the step to **Run additional steps**.

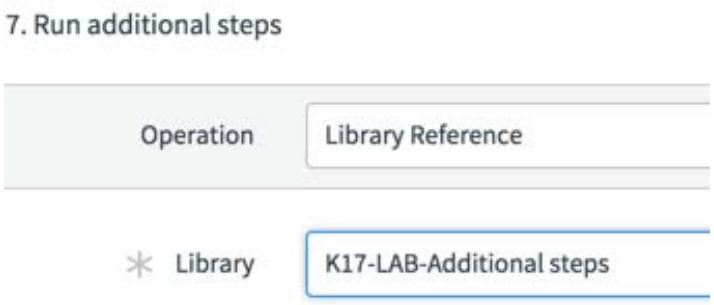
2. Enter the following information in the pattern designer form:

   Operation: Library Reference
   Library: K17-LAB-Additional steps

Note: This library was created in order to save you typing time.

Step 7 Success Verification

1. Your screen should look like the example:

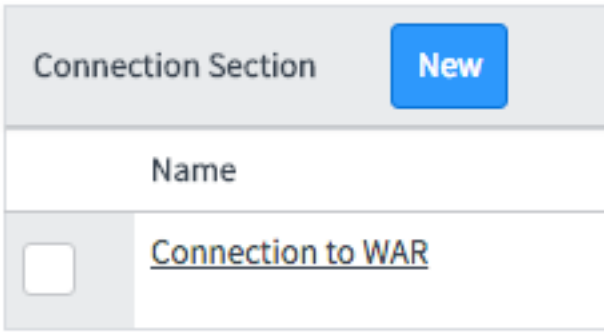


Create a Connection Section – Step 8

1. Exit the Identification section, back to the pattern form.
2. In the Connection Section press **New**.



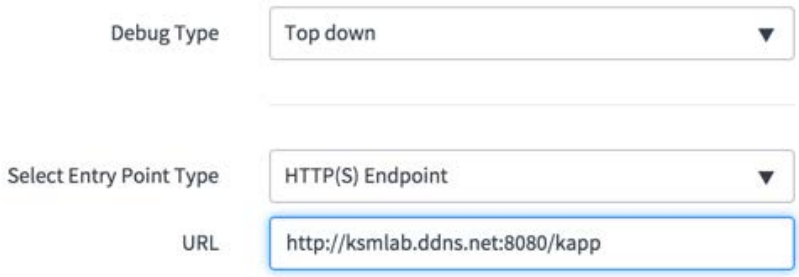
3. Your screen should look like the example:



4. Press the **Connection to WAR** link to enter the pattern designer new connection section. in the pattern designer, press **Debug Mode**. A top down Debug form opens.

5. In the Debug form:

   Select Entry Point Type: **HTTP(S) Endpoint**
   URL: **http://ksmlab.ddns.net:8080/kapp**



6. Press **Connect**.

Step 8 Success Verification

1. Your screen should look like the example:



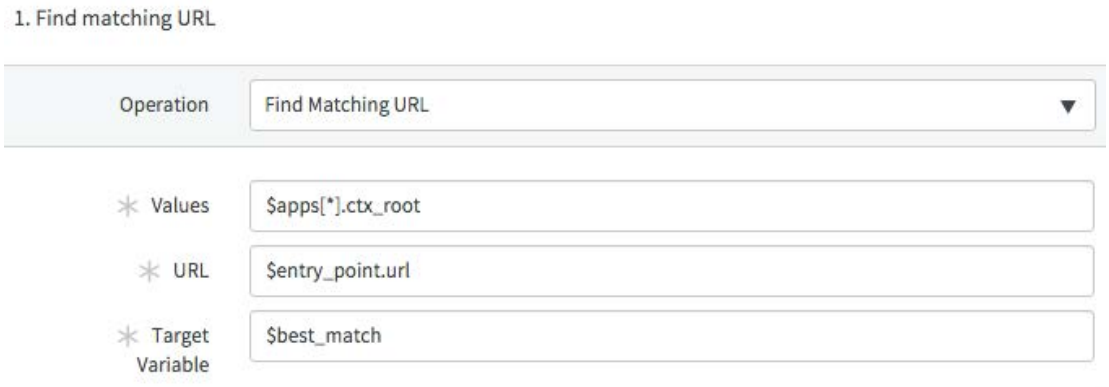
Pattern Designer – Connection to WAR – Step 1

1. On the upper-left menu, select **New Step Below**.
2. Name the step **Find matching URL**.
3. Enter the following information in the pattern designer form:

   Operation: **Find matching URL**
   URL: **$entry_point.url**
   Values: **$apps[*].ctx_root**
   Target Variable: **$best_match**

Step 1 Success Verification

1. Your screen should look like the example:



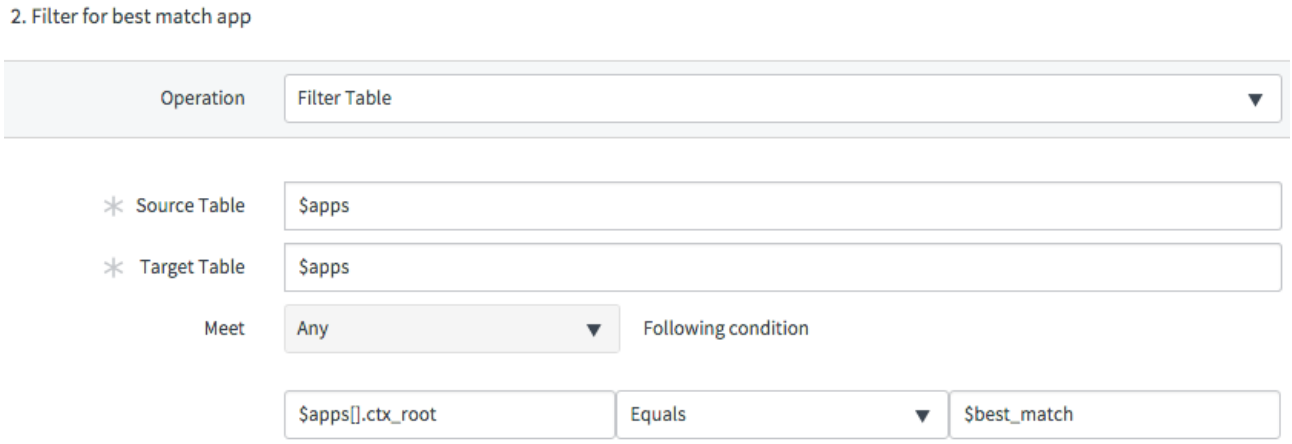
Pattern Designer – Connection to WAR – Step 2

1. On the upper-left menu, select **New Step Below**.
2. Name the step **Filter for best match app**.
3. Enter the following information in the pattern designer form:

   Operation: **Filter Table**
   Source Table: **$apps**
   Target Table: **$apps**
   Meet **Any** Following condtion
   $apps[].ctx_root Equals $best_match

Step 2 Success Verification

1. Your screen should look like the example:



Pattern Designer – Connection to WAR – Step 3

1. On the upper-left menu, select **New Step Below**.

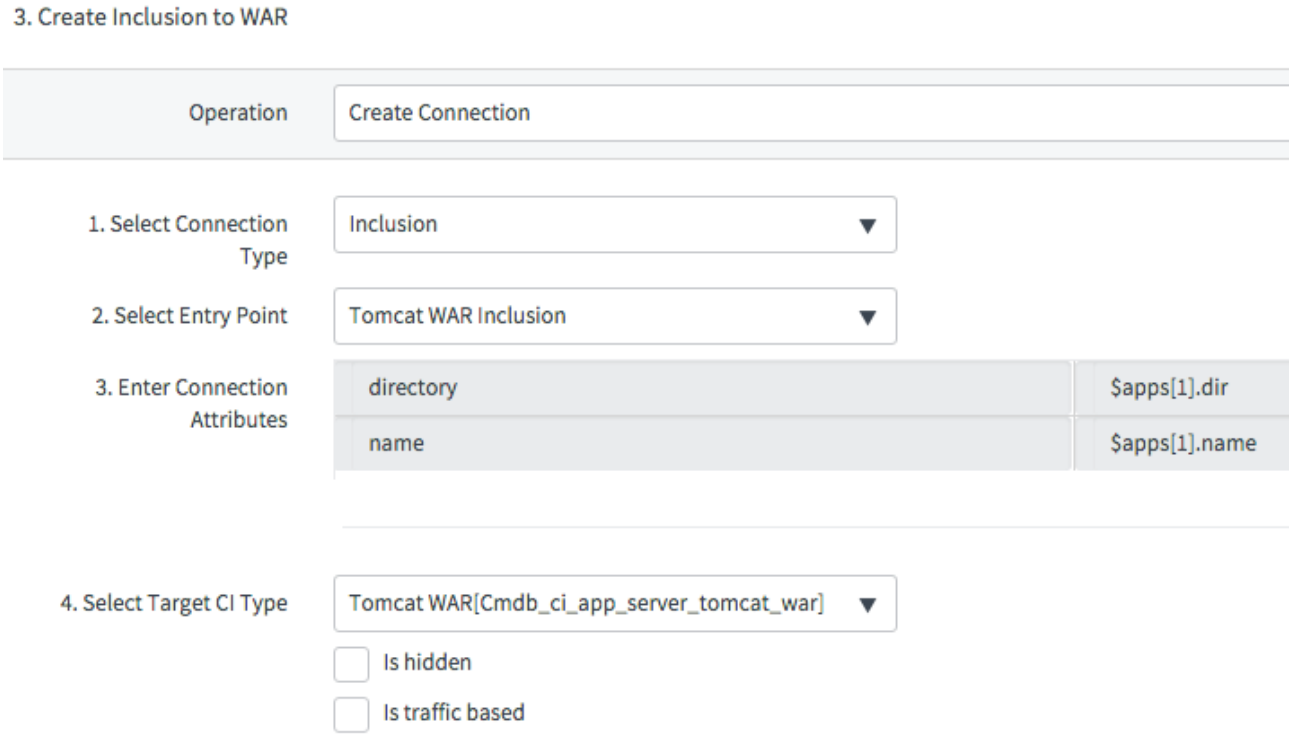
2. Name the step **Create Inclusion to WAR**.

3. Enter the following information in the pattern designer form:

   Operation: **Create Connection**
   Select Connection Type: **Inclusion**
   Select Entry Point: **Tomcat WAR Inclusion**
   MeetEnter Connection Attributes:
   directory **$apps[1].dir**
   name **$apps[1].name**
   Select Target CI Type**: Tomcat WAR[cmdb_ci_app_server_tomcat_war]**
   Is hidden: **Un-Cheked**
   Is traffic based: **Un-Cheked**

Step 3 Success Verification

1. Your screen should look like the example:



Finalize the Pattern Creation

1. Press **Save** and **Publish**.

Lab Goal

Lab 2.0 Run the Pattern

This lab explains how to run the new pattern created, and it explains how to understand the bigger picture of the underlying mechanism. In this lab, you perform the following operations:

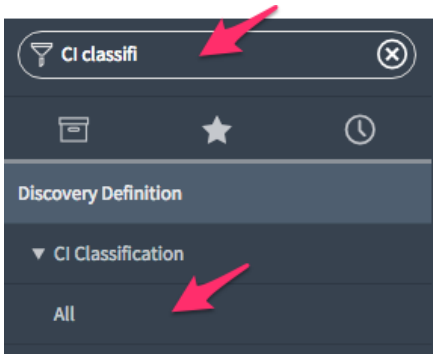
- Set your pattern to be triggered
- Run quick discovery
- Make sure the discovery is successfully done
- Inspect the related CIs and dependency map

The Mechanism

When running a quick discovery, the system interrogates the processes on the Linux machine. This discovery triggers MyTomcat pattern as a result of pre defined classification.

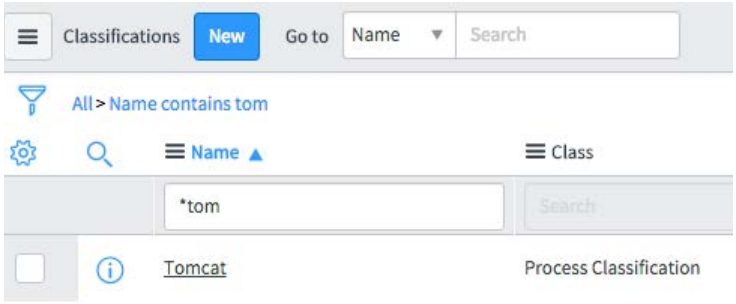
Set Tomcat process classification

1. **In the search field search for** CI classifi**.**



2. Click **All**.

3. Search for Name = ***Tom**

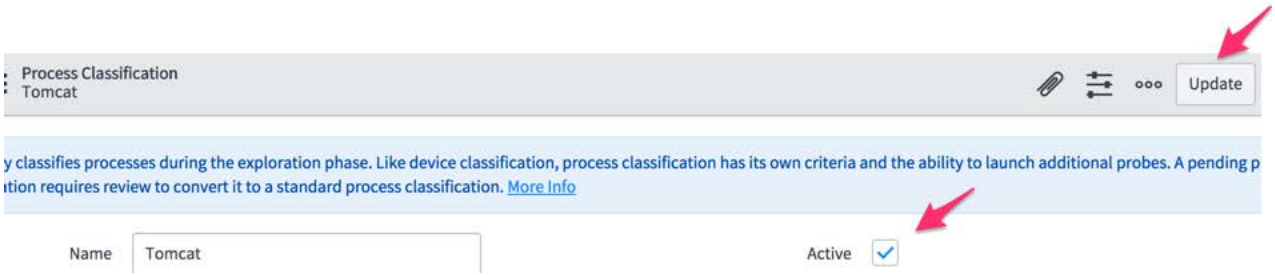


4. Click on **Tomcat** to enter the classification definition

5. Scroll down and update the Pattern name in the **Pattern** column in the **Triggered probes** tab to be **MyTomcat**, the update is done by double clicking the field:

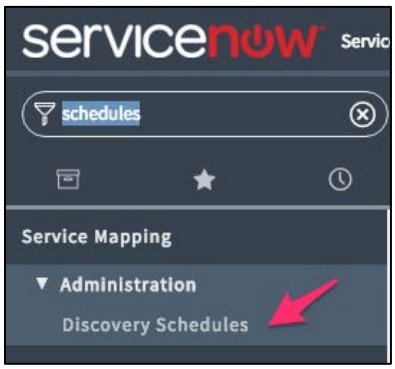


Make sure to check the **Active** checkbox and press **Update**.



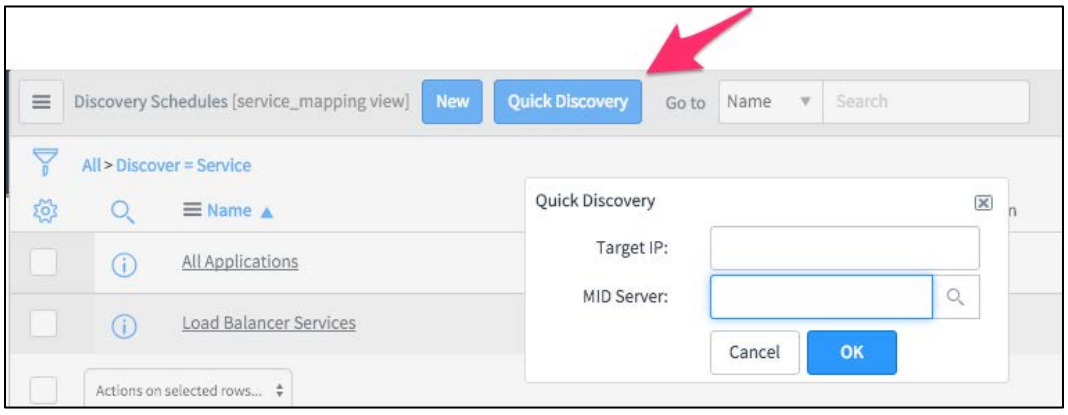
Run Quick Discovery

1. In the search field, search for **schedules**.



2. Click **Discovery Schedules**.

3. Click the **Quick Discovery** button.

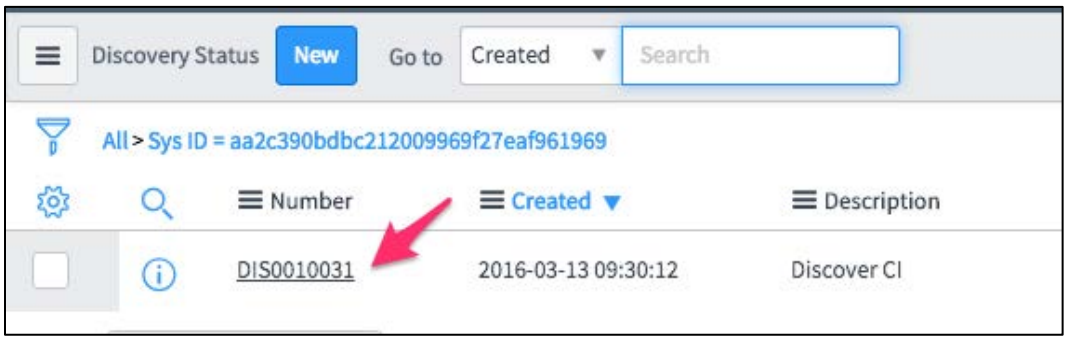


2. Enter the following information in the **Quick Discovery** window:

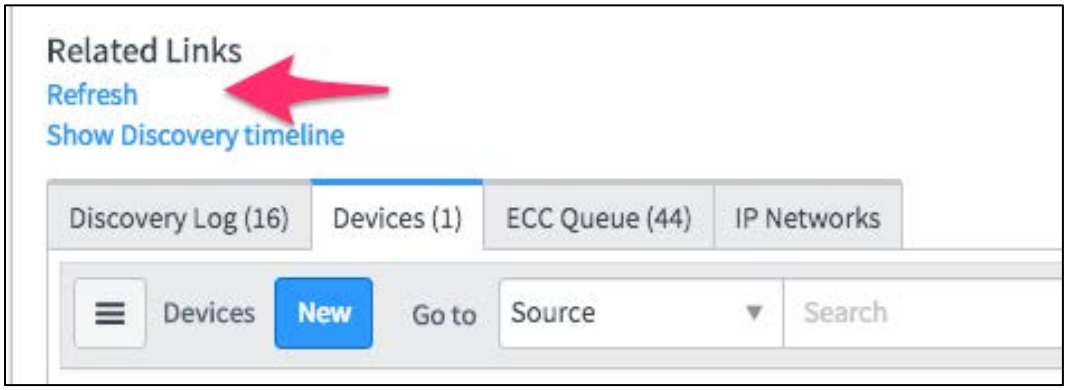
   Target IP: **< IP from Instructor >**
   MID Server: **lab_midserver**

Make Sure the Discovery is Successfully Done

1. Click the **Number** of the launched discovery.



4. **Refresh** the screen until the **State** of the discovery is **completed** and then press **Devices**.



Inspect the Related CIs and Dependency Map

1. In the Search field, search for **tomcat**.
2. Inspect the discovered TOMCAT CIs, notice their names are identical.
3. You may try to independently change one step so that the CI name is unique.
4. Once your update step is done, Press **Save** and **Publish**.
5. To Check your update, rerun the discovery.

Lab Goal

This lab explains the difference between the two types of discovery and the different use of the patterns. In this lab, you perform the following operations:

- Create a business service
- Discover the "kapp" application within the same TOMCAT
- View the overall picture

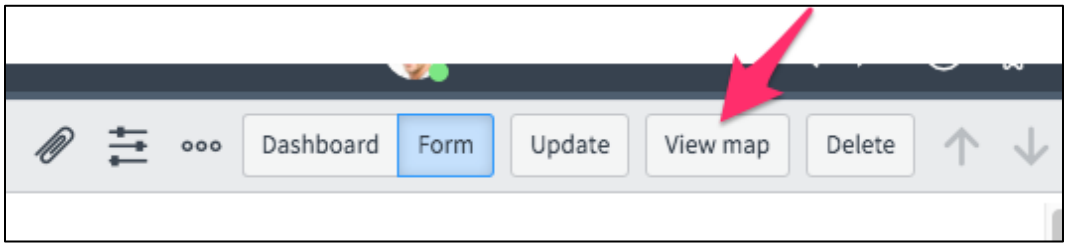
Lab 3.0
Top Down Discovery

Create a Business Service

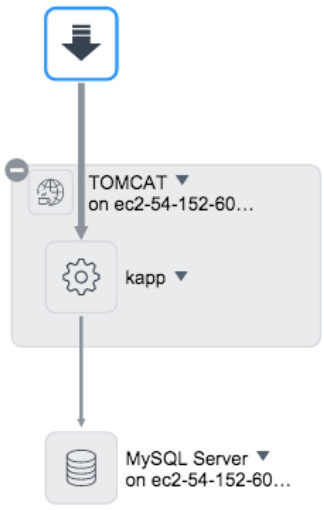
1. Navigate to **business services**.
2. Press **NEW**.
3. Enter a **Name** "**Tomcat kapp**" for the business service.
4. Press **Save**.
5. Press **New** on the form bottom Entry points pane to add an **Entry point**:
   Type: **HTTP/S**
   URL: **http://ksmlab.ddns.net:8080/kapp**
6. Press **Submit**.

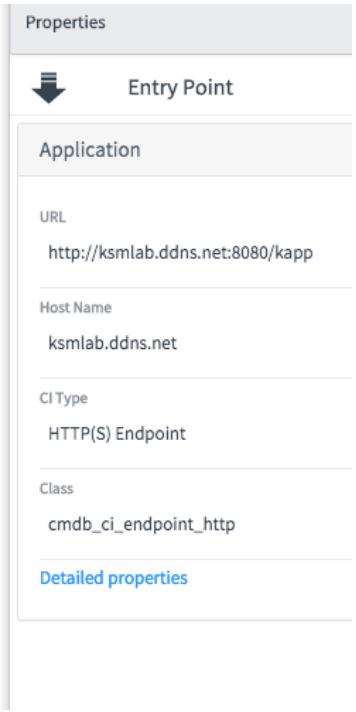
View the Business Service kapp

1. Press **View Map**.



2. View the topology map of the business service called **Tomcat kapp**.

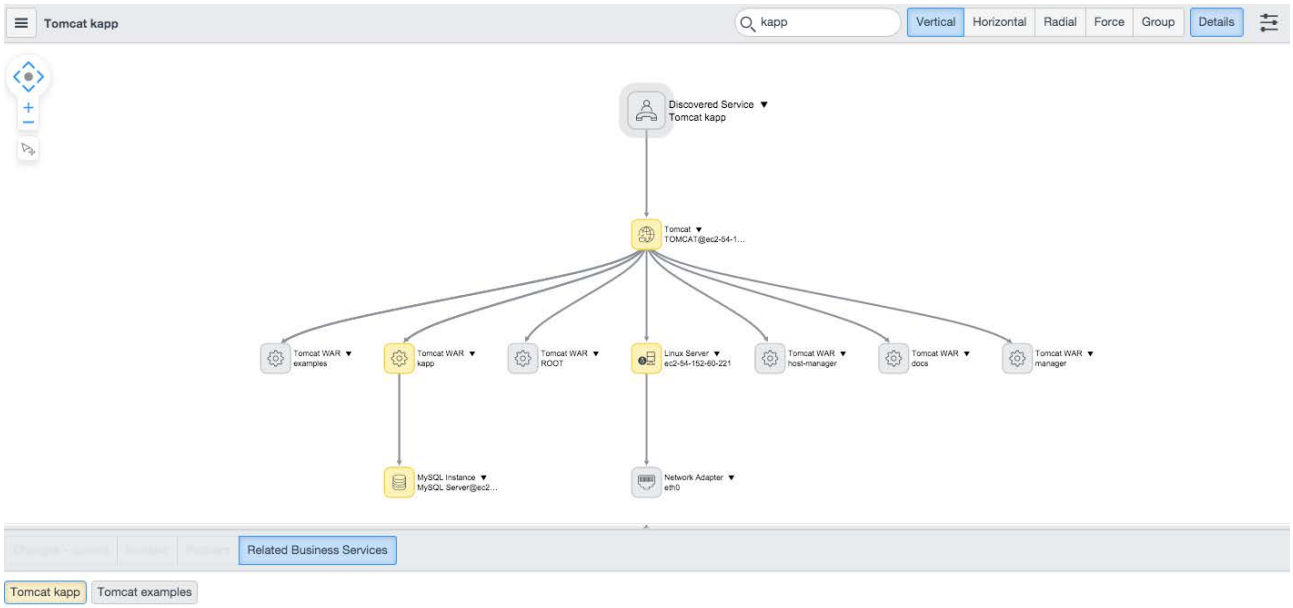




View the Overall Picture

1. Search for **Dependency views**.
2. Click on **View Map**.
3. In the **Search for CI** field enter **kapp** to located the discovered service.
4. Press the **Details** button on the right.
5. A **Related Business Services** section opens, displaying a button, **Tomcat kapp**.
6. Press the button; you may see that CIs related to the business service in yellow.

7. Your screen should look like the example.



8. Six WARs are associated with this TOMCAT, but only **kapp** is related to the Top Down discovery.