User Guide - Using the Path Finder feature

- In CAST Imaging **2.12**, the Path Finder feature is available by default.
- In CAST Imaging **2.11**, the Path Finder feature is in **beta mode** and is disabled by default. To enable it, see below.

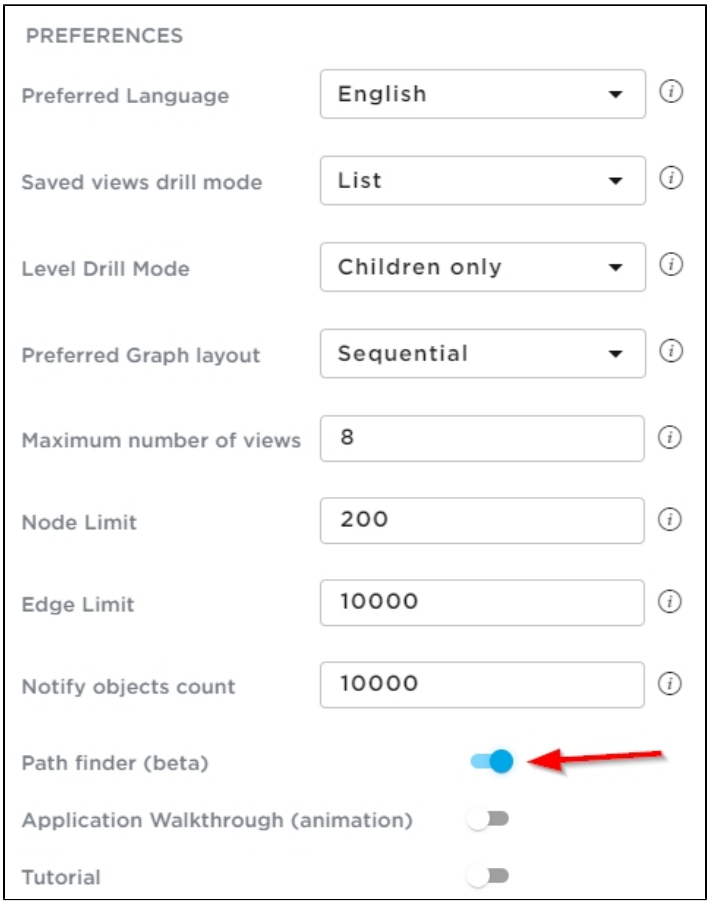
Introduction

The Path Finder feature in default mode will automatically produce a view displaying **all the possible paths** or the **shortest path** (depending on the chosen options) from the selected **source object** to a given **destination/target object** - this includes any paths between the source object's **child objects** and the target object or its child objects. The feature is available at Object level in all scopes.

A similar feature called **Show Paths** is also available - see **User Guide - GUI - Menus and Icons**.

Enabling/disabling the feature for CAST Imaging 2.11

In CAST Imaging 2.11, the Path Finder feature is disabled. To enable it, click the Path Finder slider in the **display preferences**:



Note that in CAST Imaging 2.9 only, it is necessary to modify a properties file to enable the feature. To do so, locate the following file:

```
Microsoft Windows
%PROGRAMFILES%\CAST\ImagingSystem\nginx\html\app-config.js

Docker
/opt/imaging/web/dist/app-config.js
This file is located in a running container. To enter the container, run the following command "docker exec -it
server bin/sh" and then locate and edit the required file.
```

Find the following line in the file:

```
,pathFinder:!1};
```

Change the **1** to a **0** to enable the feature:

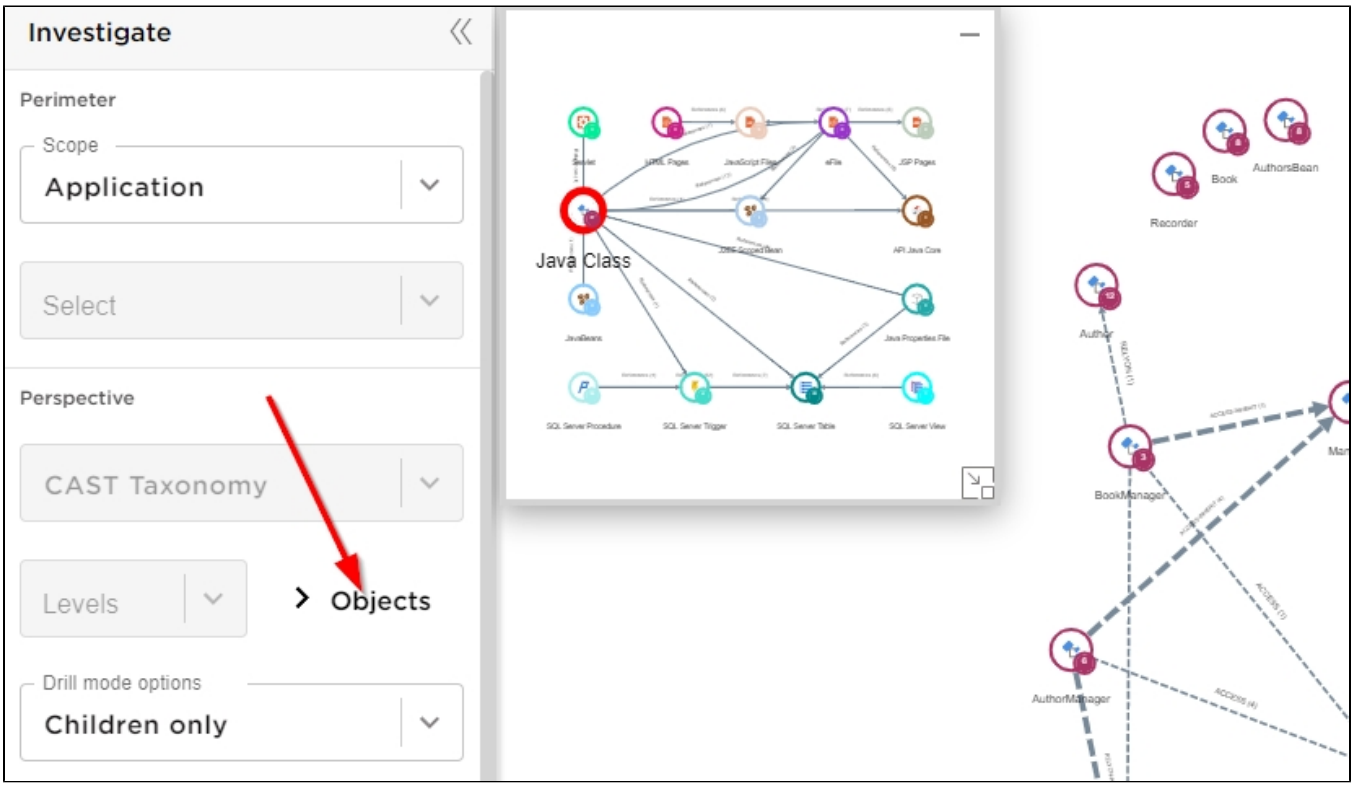
```
,pathFinder:!0};
```

Save the file and then restart the following service/container to ensure the change is taken into account:

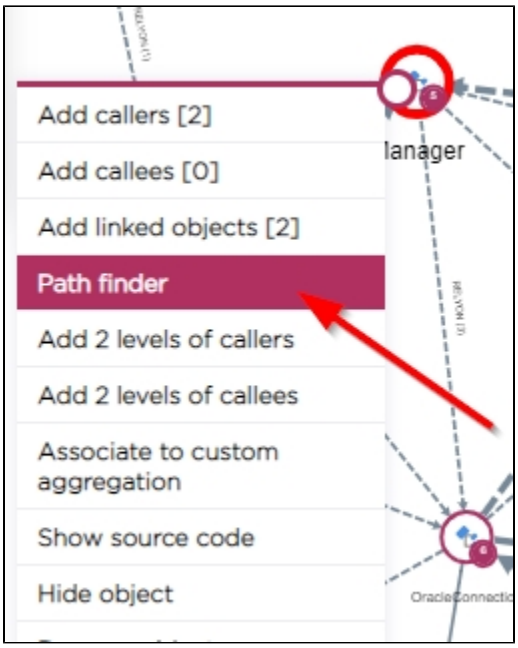
Microsoft Windows	CAST Imaging - imaging-service
Docker	server

Accessing the feature

To access the Path Finder feature, you must be working at **Object level** in any scope:



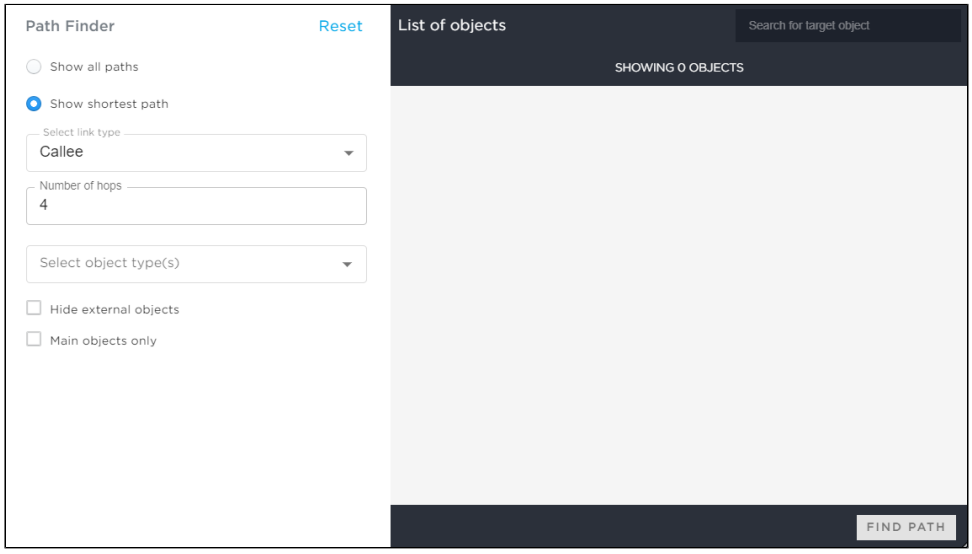
Right click an object in the view and select **Path Finder** from the contextual menu - this object will then be designated the **Source** object:

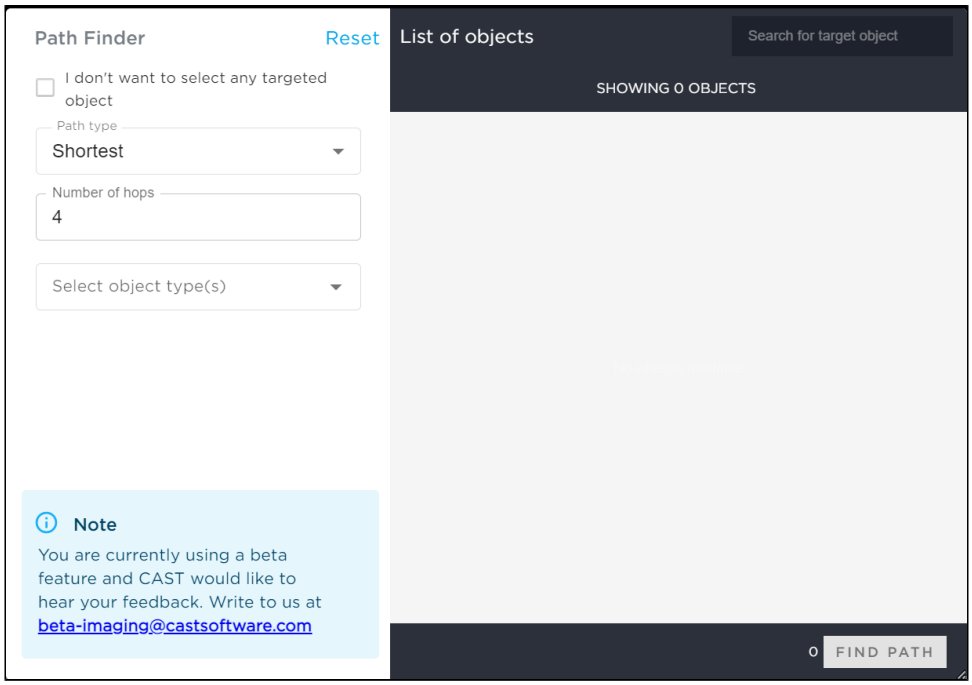


Using the feature

When the **Path Finder** option is clicked, the following dialog box is displayed enabling you to configure how the Path Finder feature will function:

Click to enlarge

2.13	
2.12	

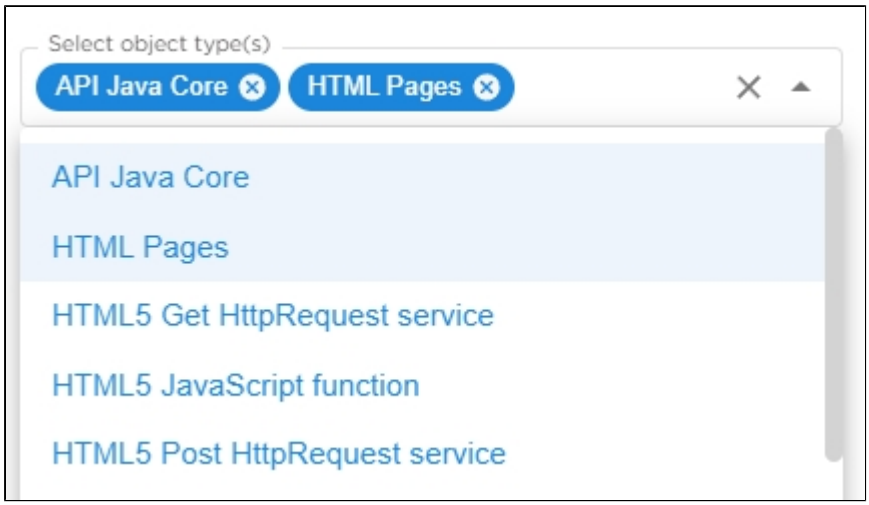
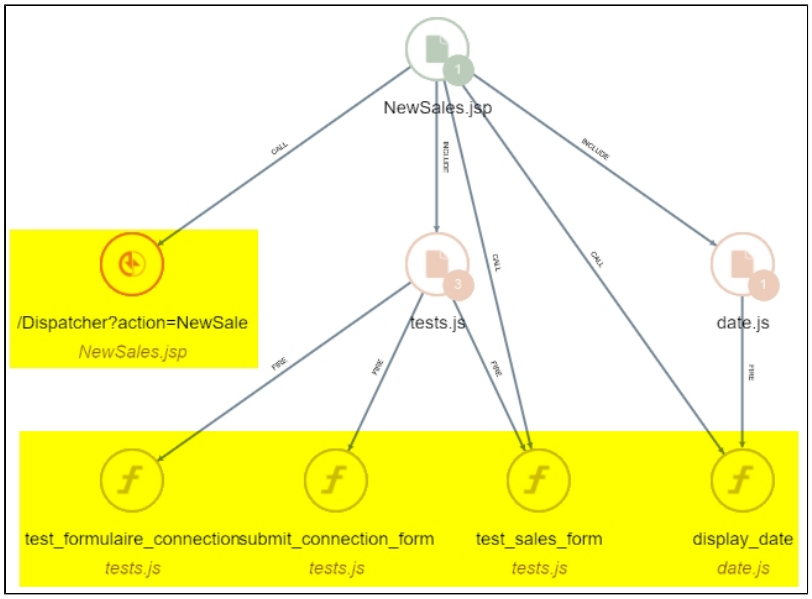
2.11	

Left hand panel

The left hand panel displays the feature configuration options:

2.12

Show all paths /shortest path	• **All** - discover and display all possible paths between the **Source** and **Target** objects • **Shortest** - discover and display the shortest path between the **Source** and **Target** objects
Select link type	Choose either **Callee** or **Caller** to determine the type of links to other objects that will be taken into account by the Path Finder feature: • Choosing **Callee** will only show other objects that are **called by** the source object. • Choosing **Caller** will only show other objects that are **calling** the source object.
Number of hops	Defines the **maximum** number of objects between the **Source** and **Target** objects. By default this is set to **4** and can be changed as required. Note that changing to above 10 can impact performance - the higher the number, the more objects need to be discovered, therefore impacting performance.

Select object types	Allows you to **filter on specific objects and is mandatory** - i.e. no potential target objects will be displayed unless you specify **at least one object type** in this field. You can combine **multiple** object types if required. Click in the field to select an object type from the drop down list: only those object types available in the current application will be listed. 
Hide external objects **Main objects only**	Use these options to filter the type of objects in the results: • **Hide external objects** > External objects are those that are considered "third-party", i.e. frameworks and libraries rather than custom source code. • **Main objects only** > This option will exclude any sub-objects, for example, those highlighted in yellow below are sub-objects and would not be displayed if the **Main objects only** option is ticked. 

2.11

I don't want to select any targeted object	This option changes the behaviour of the Path Finder feature: **Not enabled (default)** — Paths are shown between two objects (source and target). **Enabled** — No target object is defined and instead, a call graph is displayed from the chosen source object. All **callees** of the selected object will be displayed in the view.

<table>
<tr>
<td>Path type</td>
<td>Depending on the selected option:
<table>
<tr>
<td>I don't want to select any targeted object DISABLED</td>
<td>

Shortest - discover and display the shortest path between the Source and Target objects
All - discover and display all possible paths between the Source and Target objects

</td>
</tr>
<tr>
<td>I don't want to select any targeted object ENABLED</td>
<td>

Spanning Tree
Expand Config

Two different types of Call Graph display algorithm: these are defined by Neo4j (the third party tool and are explained in more detail in https://neo4j.com/labs/apoc/4.1/graph-querying/path-expander/ (Exp and paths with config and Expand a spanning tree).
</td>
</tr>
</table>
</td>
</tr>
<tr>
<td>Number of hops /depths</td>
<td>Depending on the selected option:
<table>
<tr>
<td>I don't want to select any targeted object DISABLED</td>
<td>Number of hops

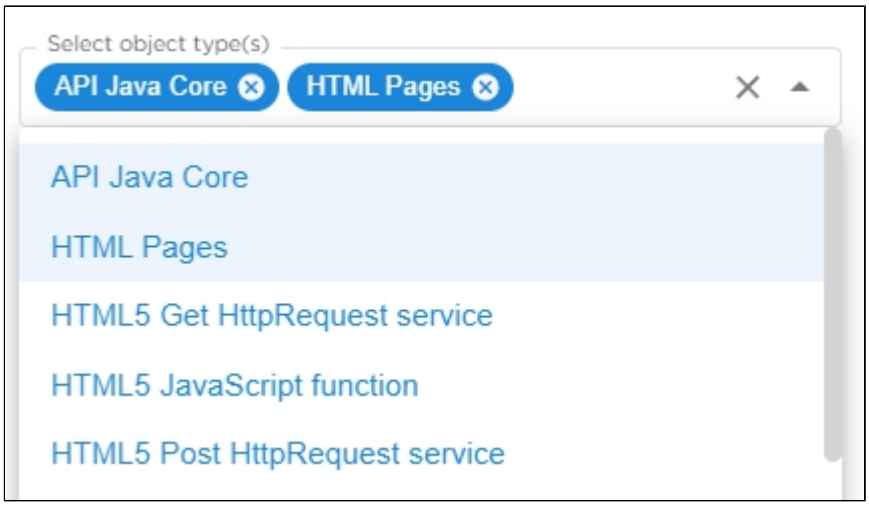
Defines the maximum number of objects between the Source and Target objects. By default this is set to 4 and can be changed as required. Note that changing to above 10 can impact performance - the higher the number, the more objects need to be discovered, therefore impacting performance.</td>
</tr>
<tr>
<td>I don't want to select any targeted object ENABLED</td>
<td>Number of depths

Defines the maximum number of levels in the call graph. By default this is set to 4 and can be changed as required. Note that changing to above 10 can impact performance - the higher the number, the more objects need to be discovered, therefore impacting performance.</td>
</tr>
</table>
</td>
</tr>
<tr>
<td>Number of paths</td>
<td>This option is only available when:

I don't want to select any targeted object is DISABLED
AND the All option has been selected.

It enables you to define the maximum number of paths between the Source and Target objects. By default this is set to 5 and can be changed as required. Note that changing to above 5 can impact performance - the higher the number, the more paths need to be discovered, therefore impacting performance.

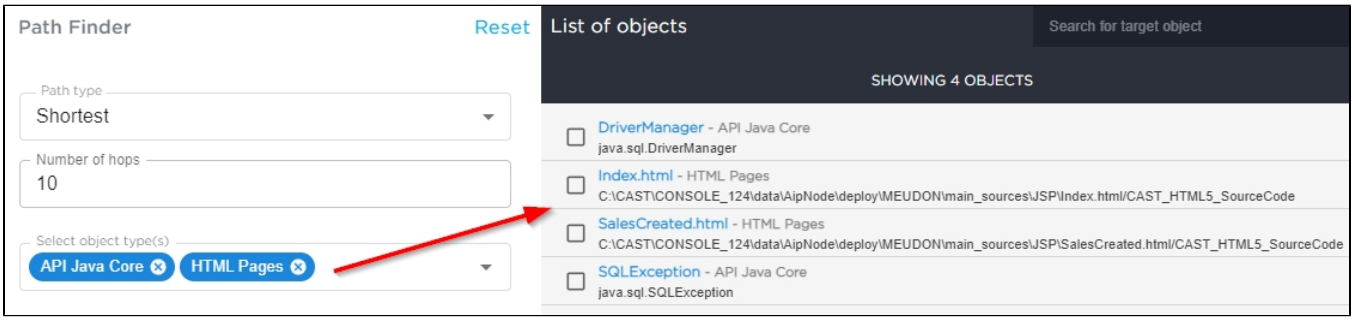
</td>
</tr>
</table>

Select object types	This option is only available when **I don't want to select any targeted object** is **DISABLED**. It allows you to **filter on specific objects and is mandatory** - i.e. no potential source objects will be displayed unless you specify **at least one object type** in this field. You can combine **multiple** object types if required. Click in the field to select an object type from the drop down list: only those object types available in the current application will be listed. 

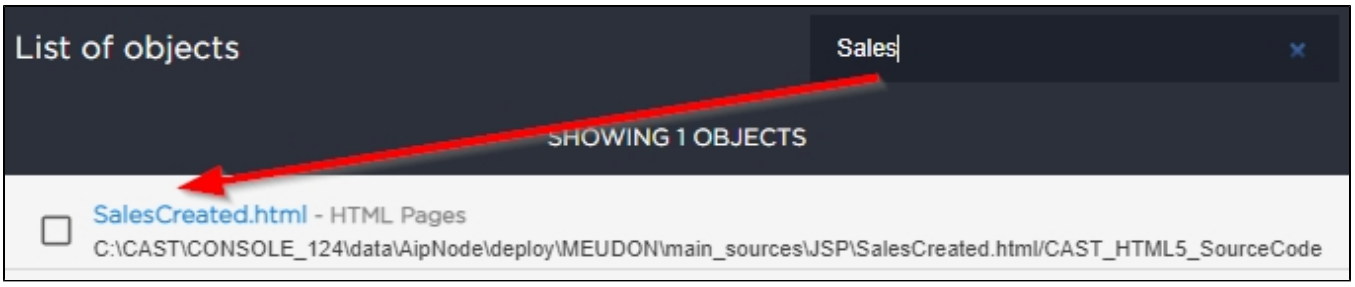
Right hand panel

This panel displays the list of **potential target objects** for the Path Finder operation and. Objects will only be listed here when at least one object type is selected in the left hand panel (and the **I don't want to select any targeted object** is **DISABLED** in older releases):

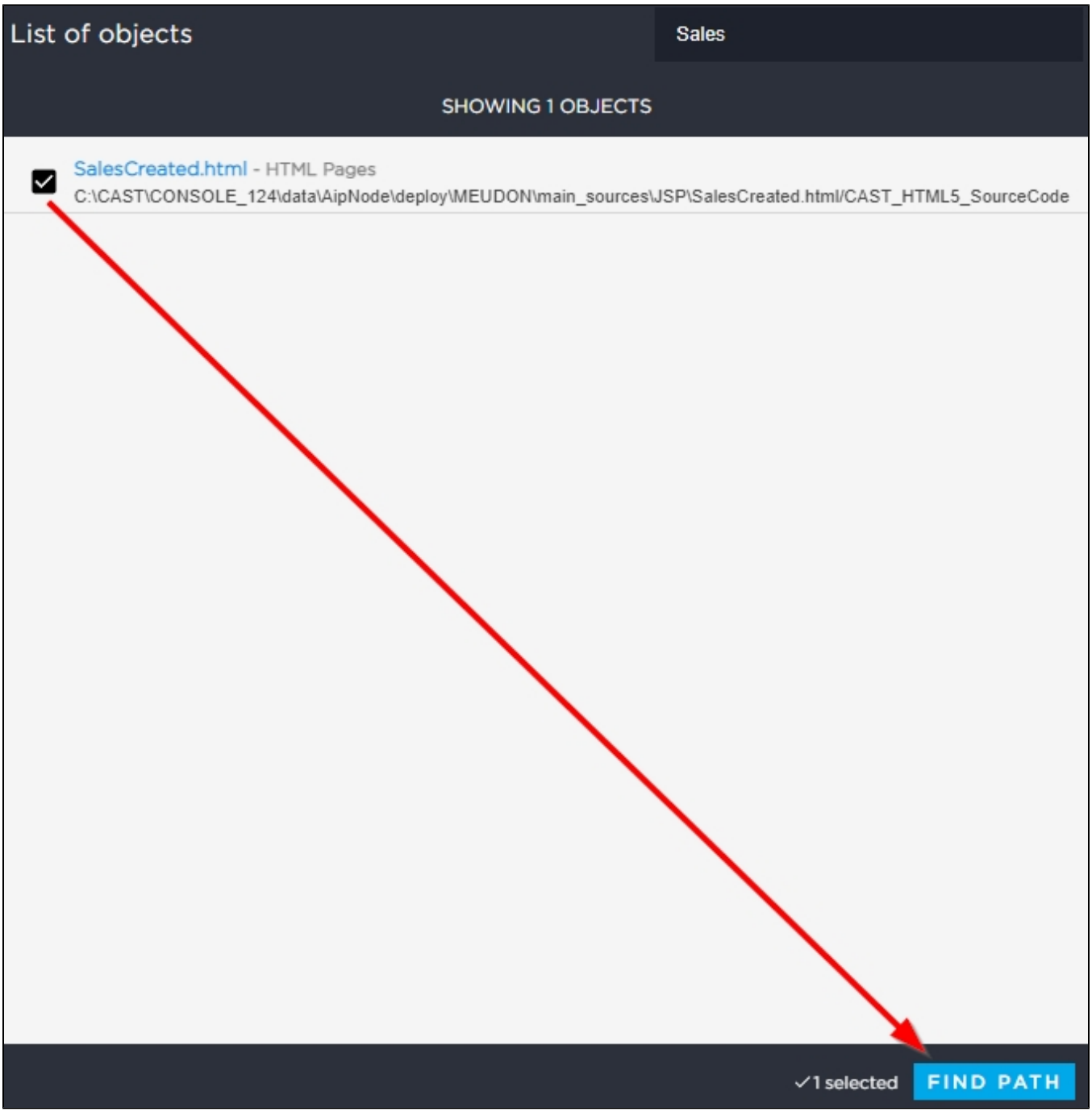
Click to enlarge



If a large number of objects are listed and you know which specific object you want to select as the Target, you can use the search box in the upper right corner - this functions on the object's name and is case sensitive:

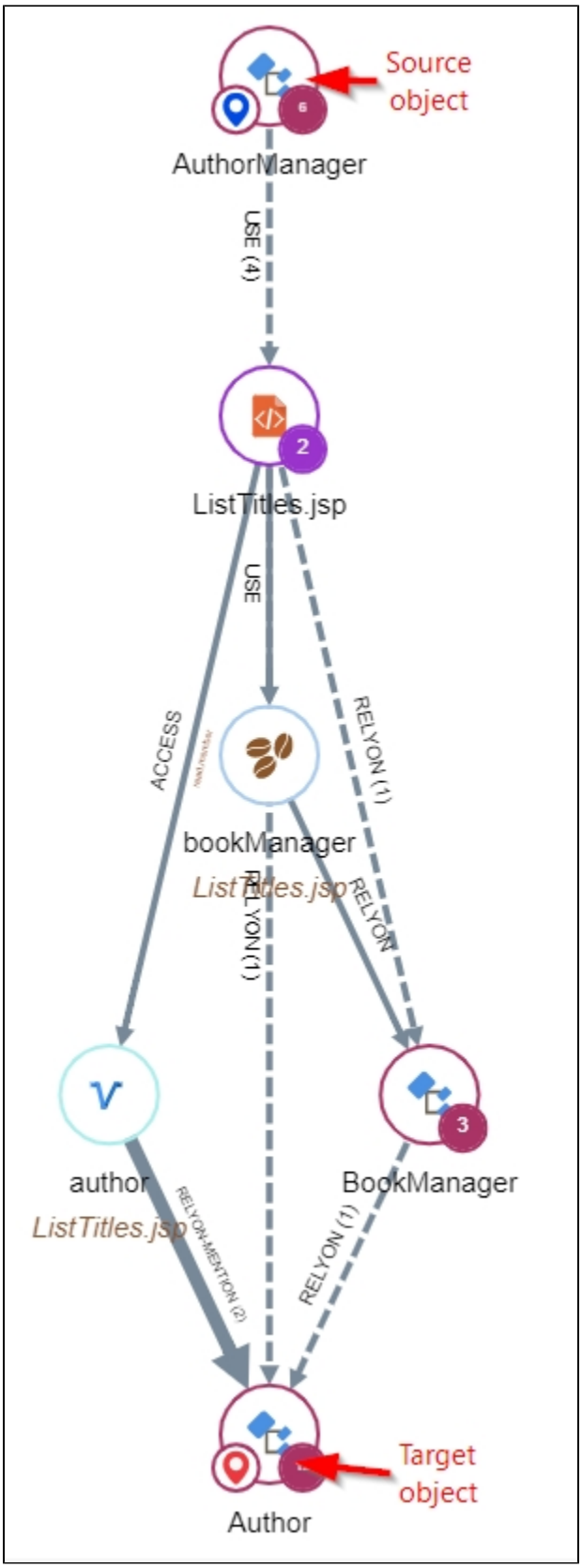


When you have located the object you want to set as the Target, **tick it** and then click **Find Path**:



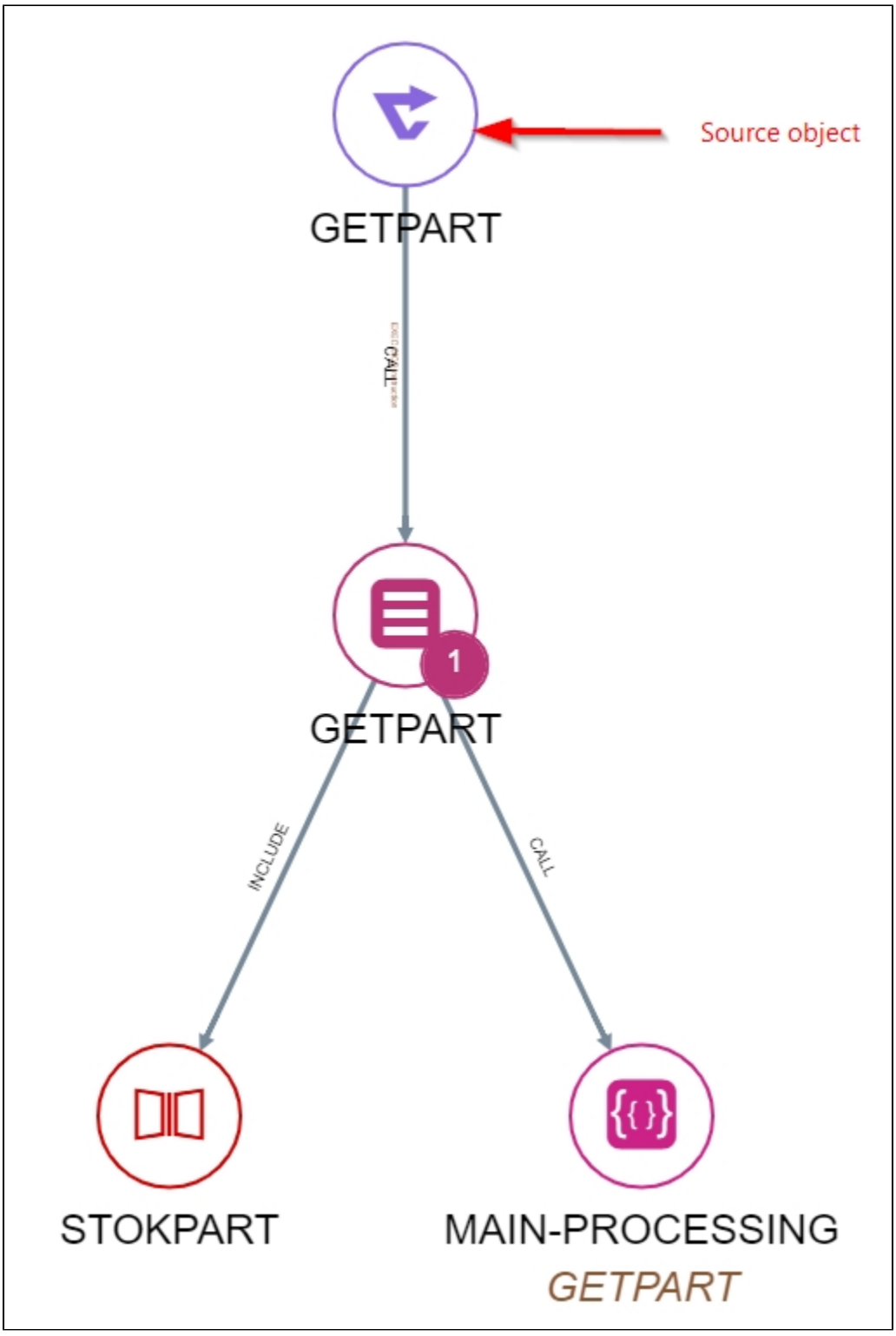
Results

When **Find Path** is clicked the view is updated. It will shows the **Source** and **Target** objects and the **paths between them** (respecting the options that have been configured). In the example below, the "All" option was selected, showing all possible paths between the Source and Target objects:



Call Graph feature feature when "I don't want to select any targeted object" is ENABLED in 2.11

Shows the Call Graph from the selected source object - all callees from the selected object are displayed:


Source object
GETPART
CALL
1
GETPART
INCLUDE
CALL
STOKPART
MAIN-PROCESSING
GETPART