

PROMETHEUS INSTRUCTION MANUAL

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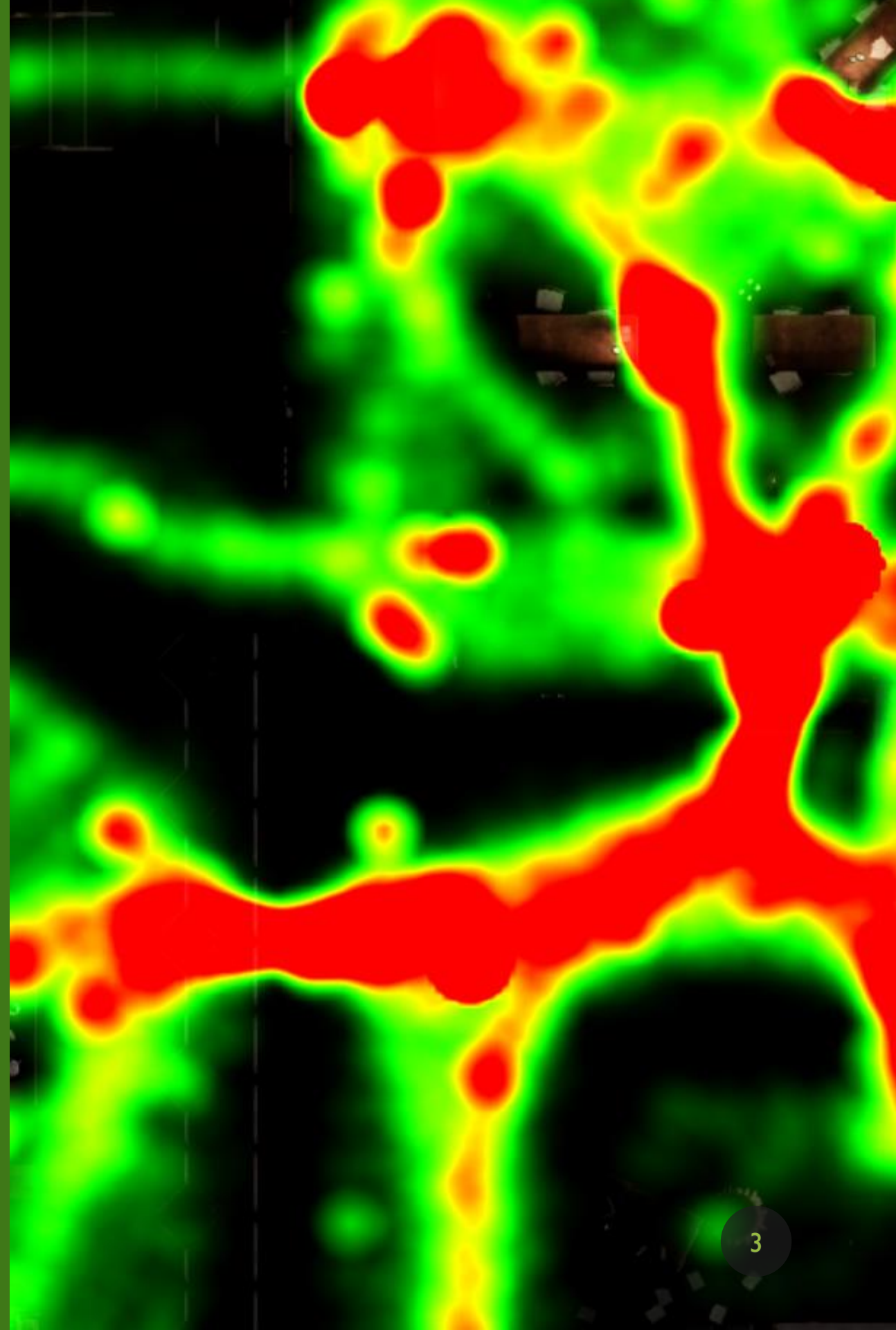
Producer

C26

CONTENTS

- Installing Prometheus
- Integrating Prometheus
- Collecting Data With Prometheus
- Viewing Data With Prometheus
- Notes
- Upgrading Prometheus To Your Engine Version
- Additional Resources

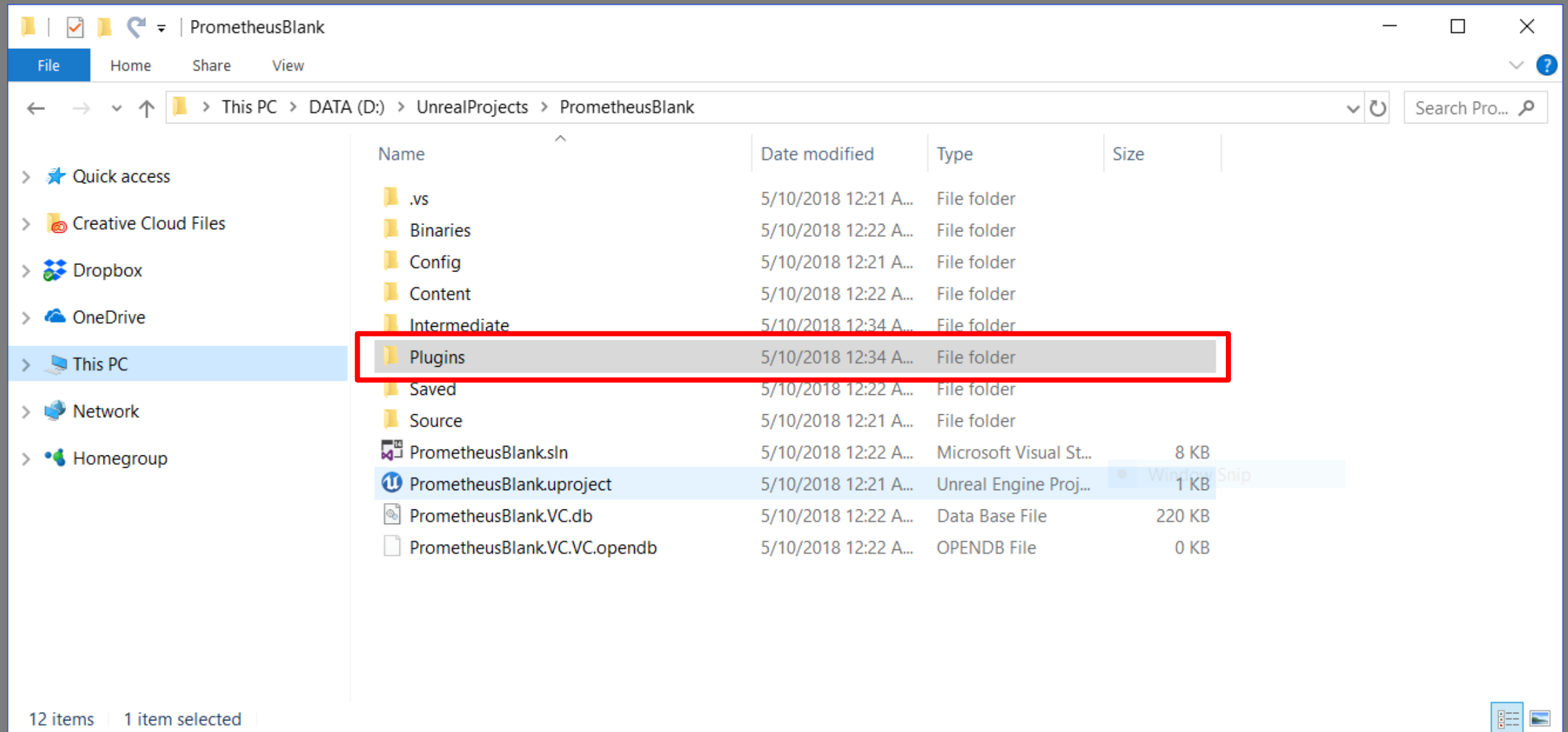
INSTALLING PROMETHEUS



CREATE/LOCATE PLUGIN FOLDER

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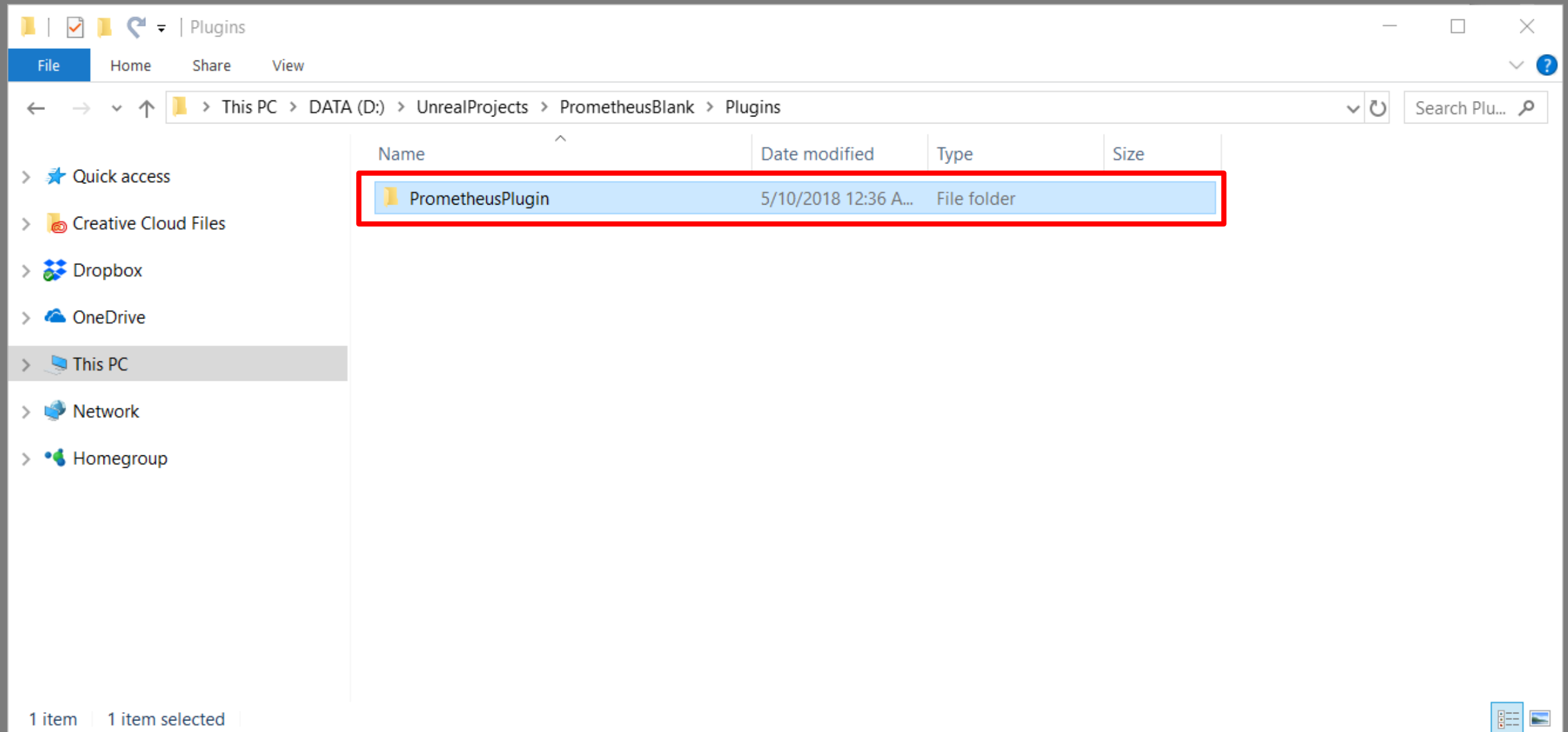
- Create a new folder, name it “Plugins”
- Unreal knows to look in this folder for plugins



PASTE PROMETHEUS FOLDER INTO PLUGIN FOLDER

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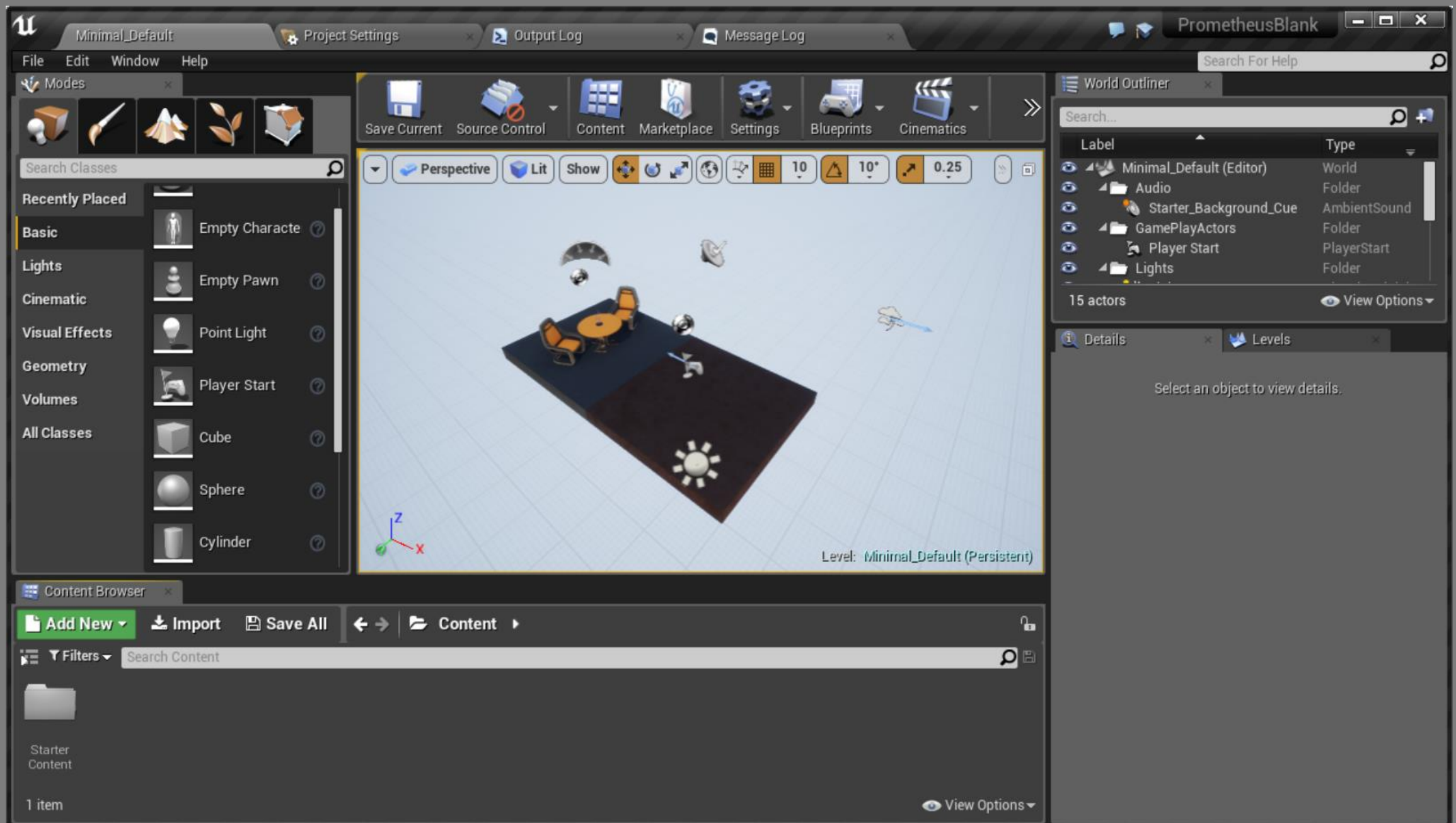
- Paste the whole folder in there



OPEN YOUR PROJECT

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- I'm using a blank C++ project called "PrometheusBlank"
- My engine version for these instructions was 4.16.3



VERIFY THE PLUGIN WAS RECOGNIZED

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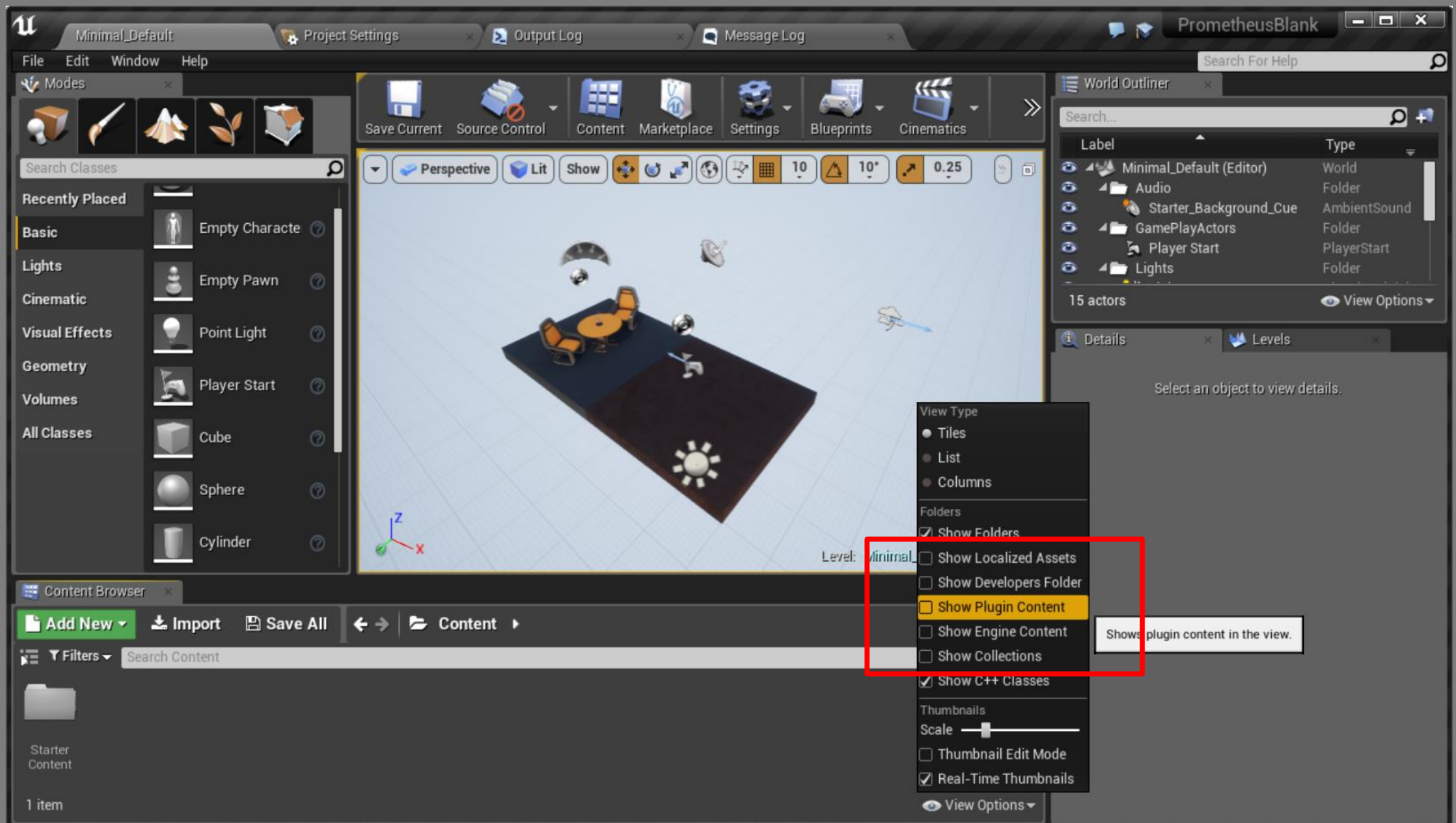
- Edit > Plugins
- Scrolling to the bottom should reveal Prometheus in the list



SHOW PLUGIN CONTENT

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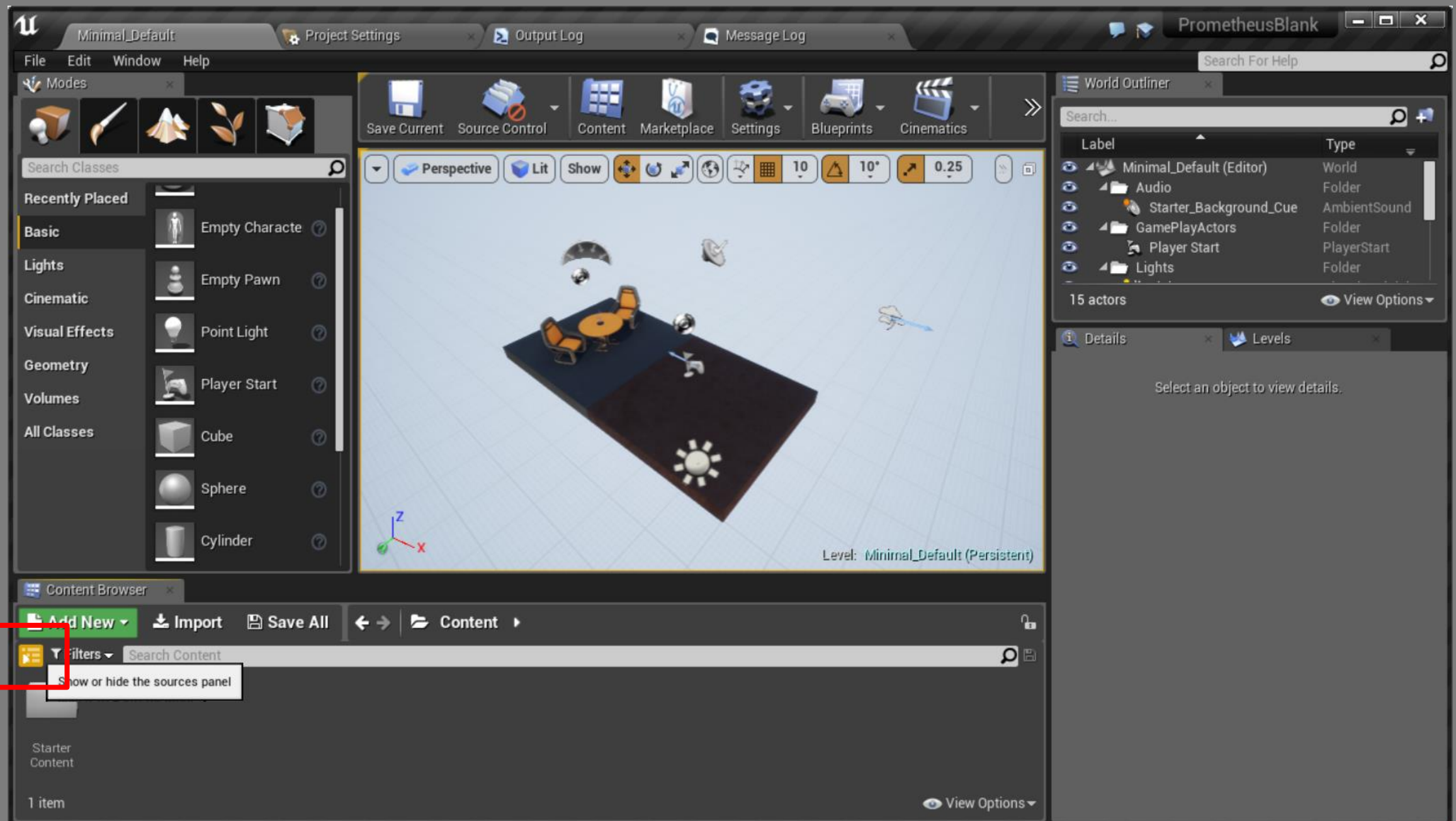
- Click “View Options” at the bottom right of content browser
- Make sure “Show Plugin Content” is checked



SHOW SOURCES PANEL

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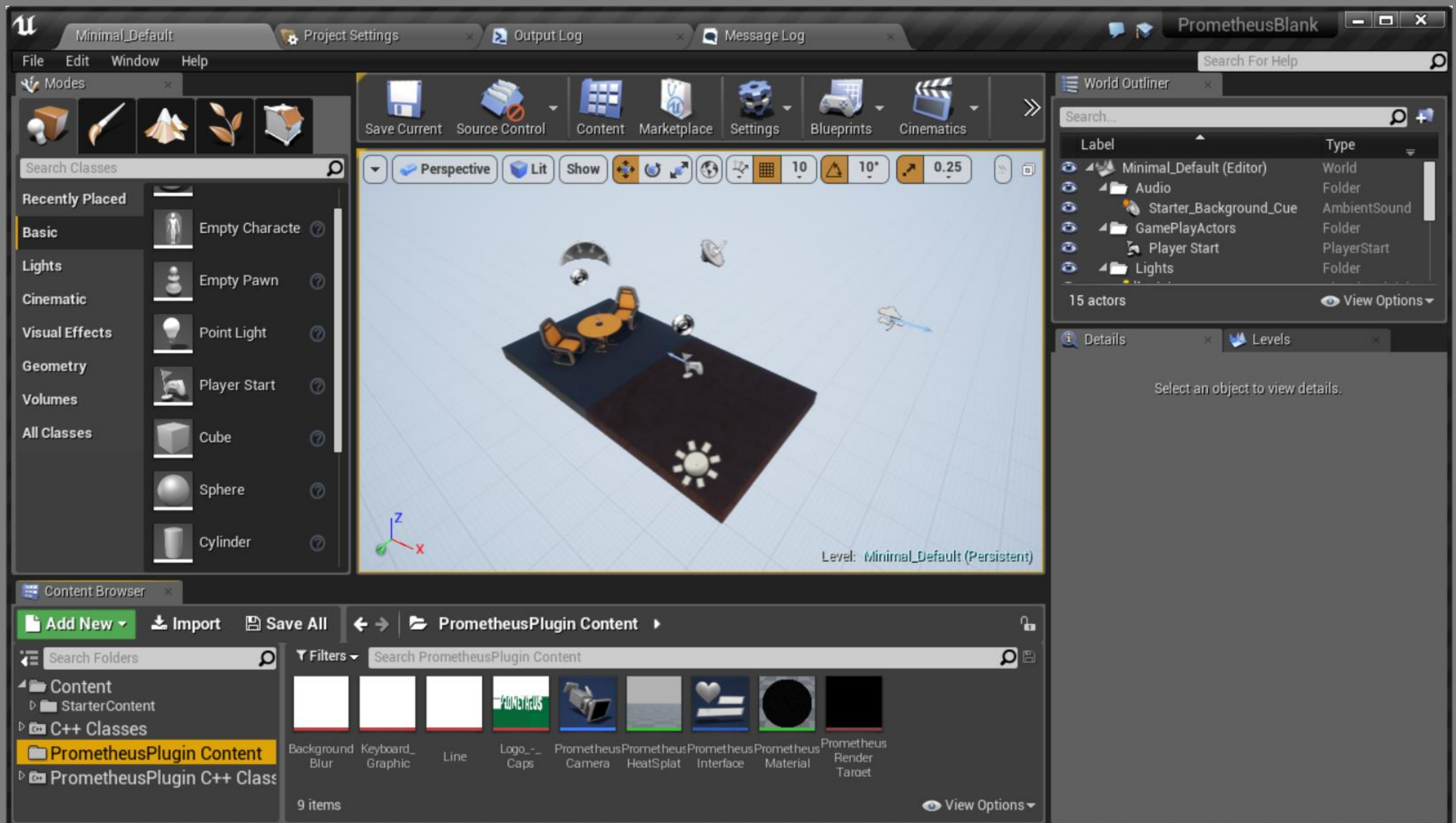
- Click the button at the top left of the content browser to reveal the sources panel



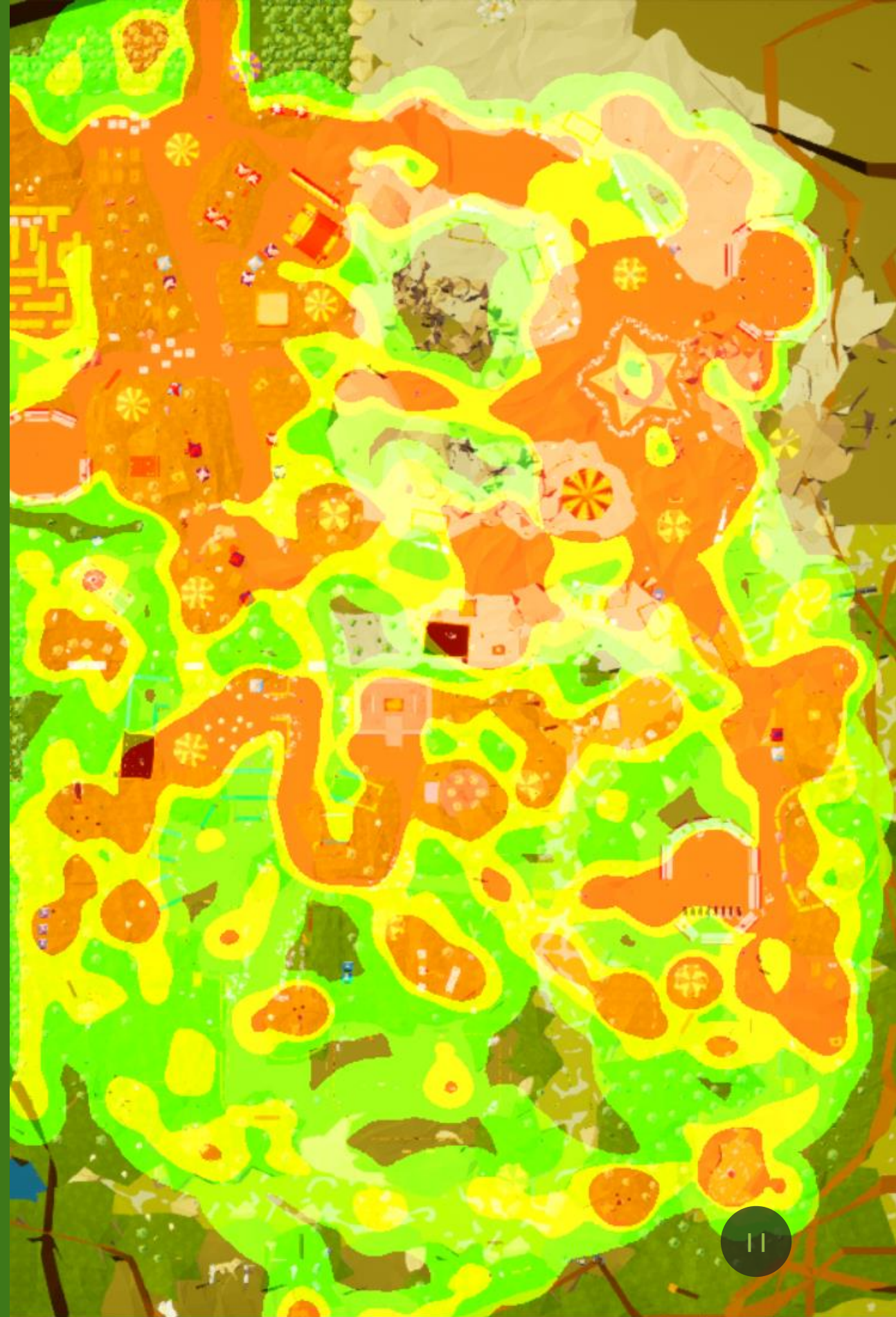
VIEW PROMETHEUS CONTENT

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- There should be a folder available that displays the Prometheus content



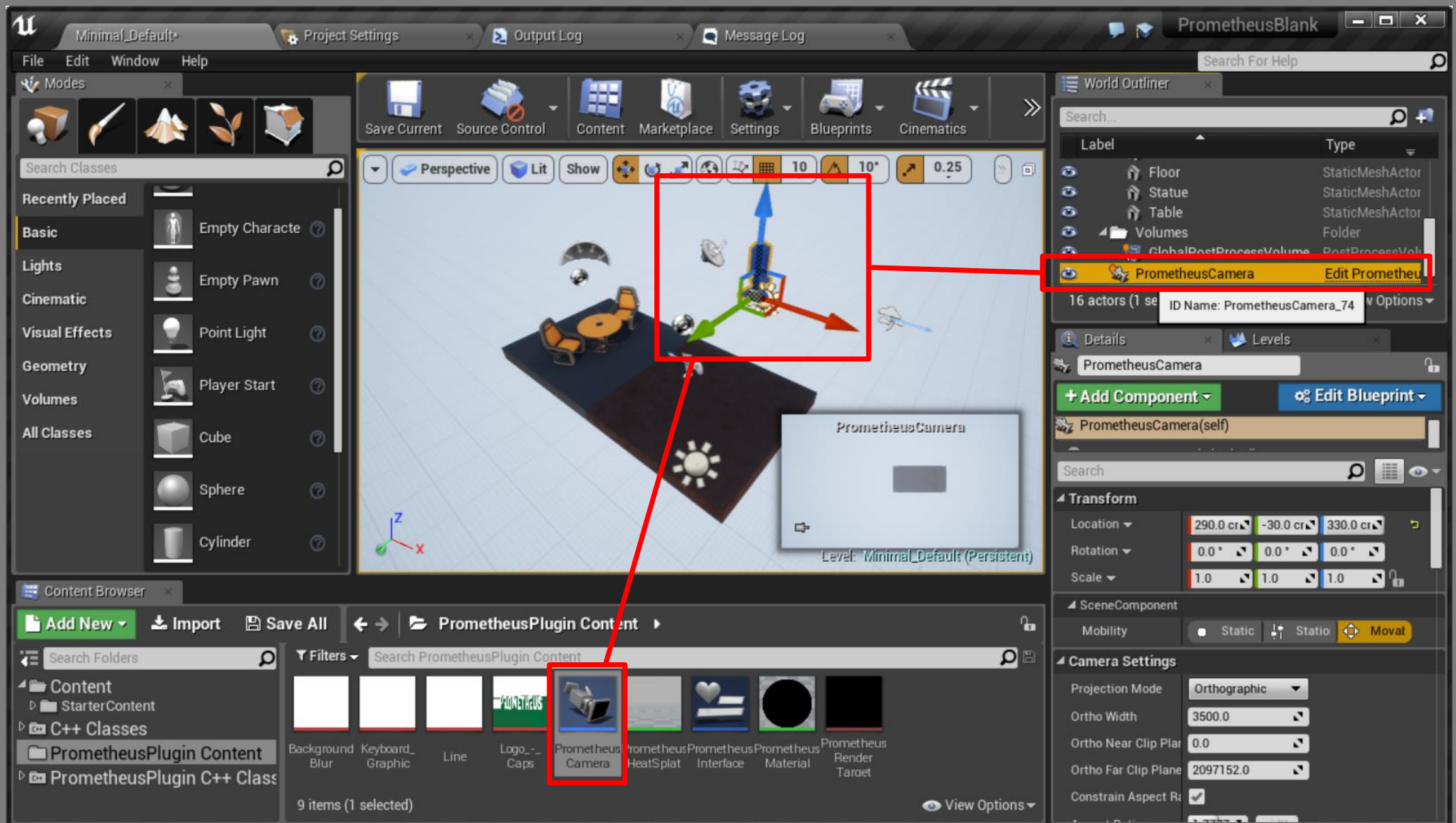
INTEGRATING PROMETHEUS



DRAG PROMETHEUS CAMERA INTO EACH SCENE

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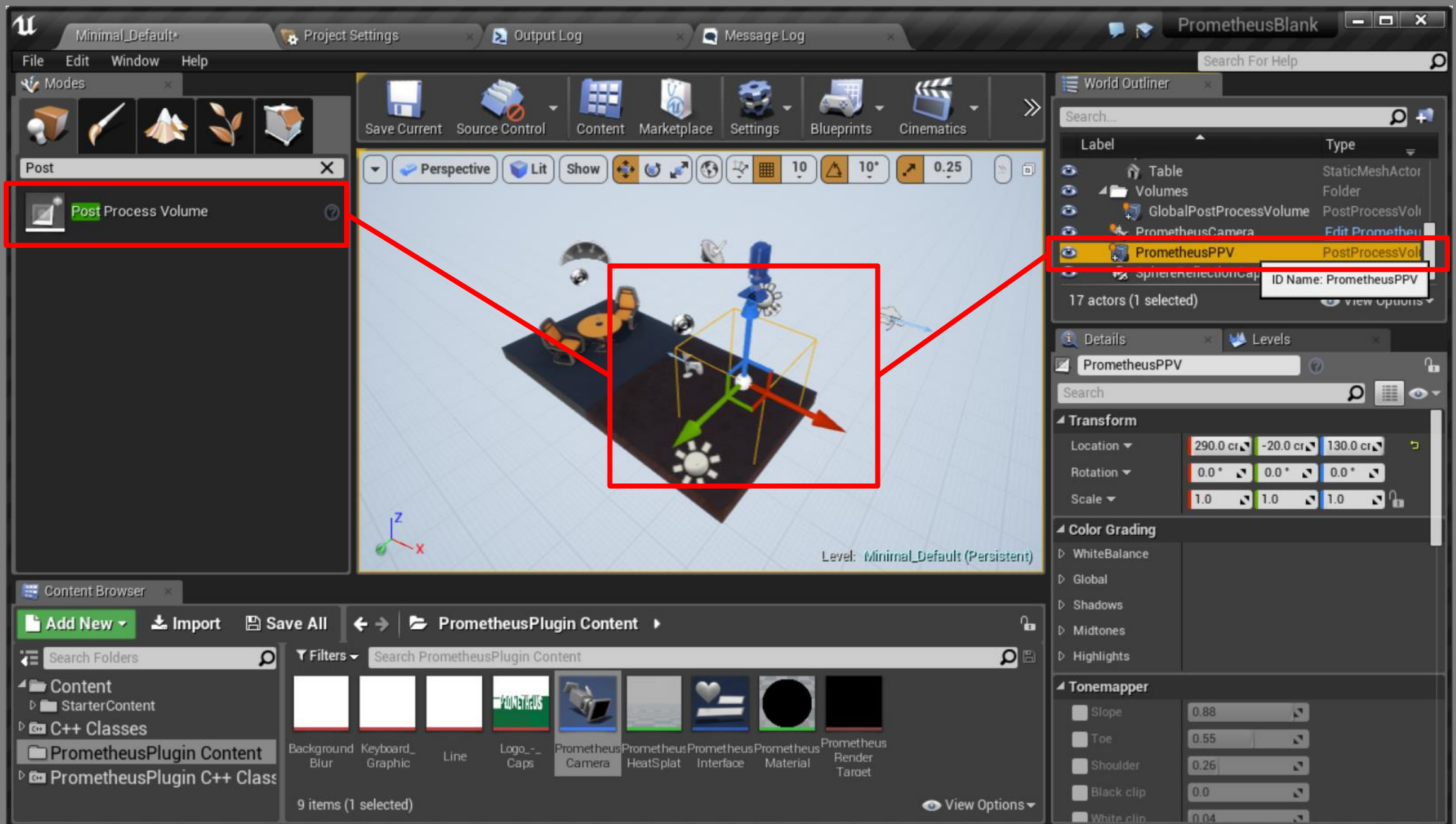
- Every scene needs a Prometheus camera if there is data being collected in it



DRAG A POST PROCESSING VOLUME INTO EACH SCENE

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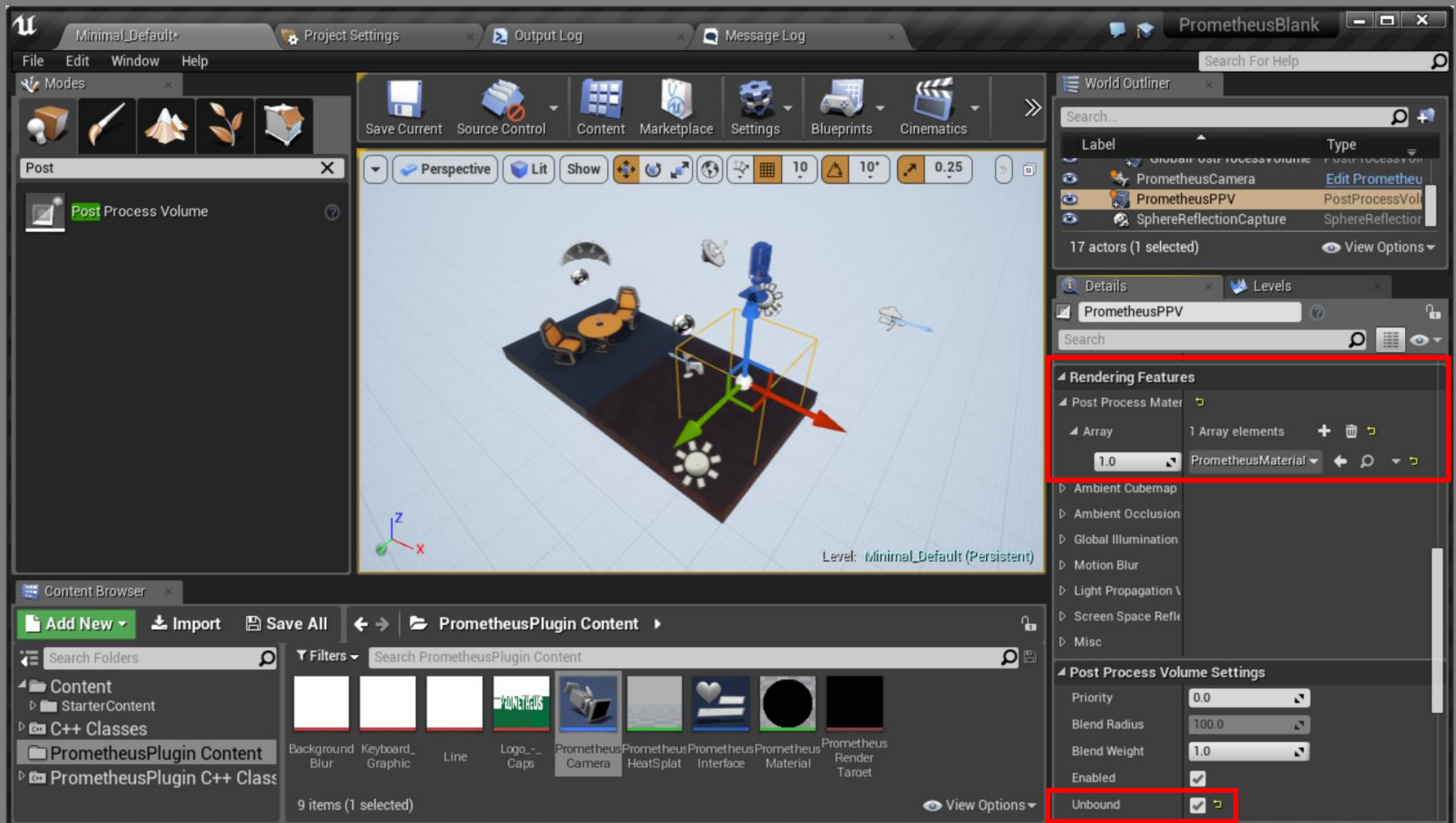
- Name them “PrometheusPPV” so the cameras can find them
- Every scene that has a camera needs a PPV



MODIFY SETTINGS ON THE PPV

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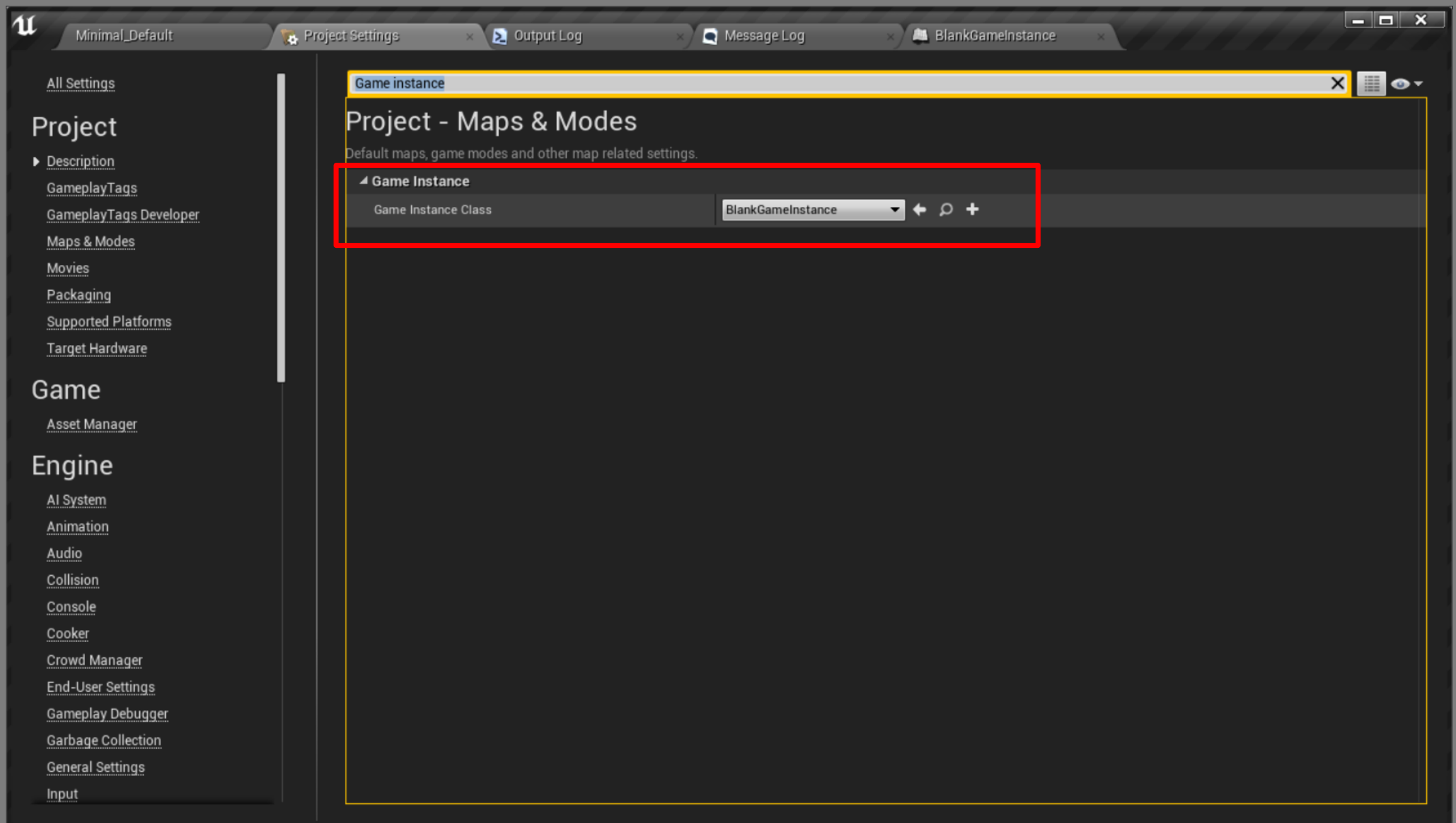
- “Post Process Materials” needs a reference to PrometheusMaterial
- Check the “Unbound” box so the camera gets the effect anywhere



SET THE GAME INSTANCE TO MYGAMEINSTANCE

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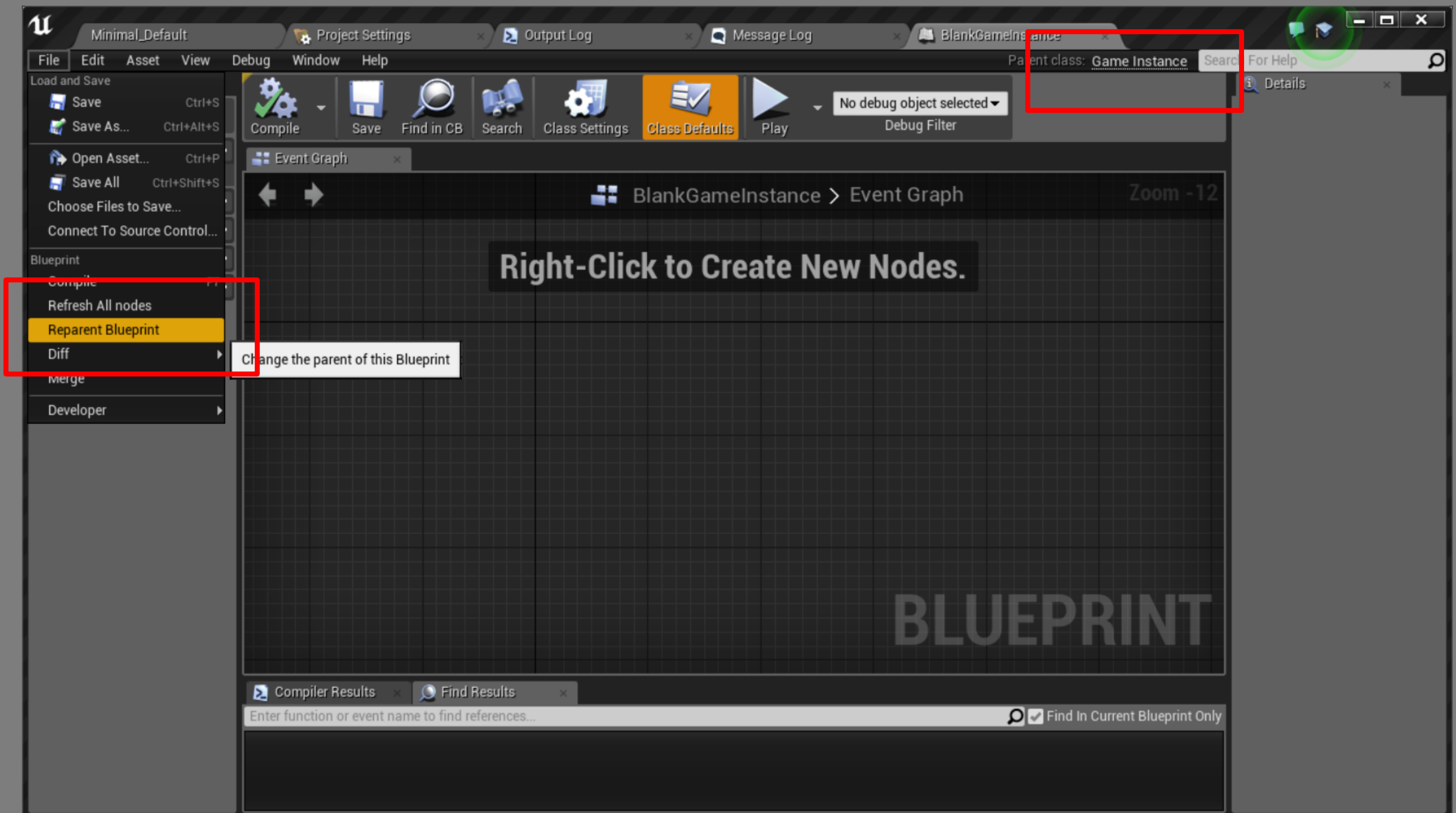
- Edit > Project Settings
- If your game uses a custom game instance it needs to be reparented



IF NECESSARY REPARENT GAME INSTANCE BLUEPRINT

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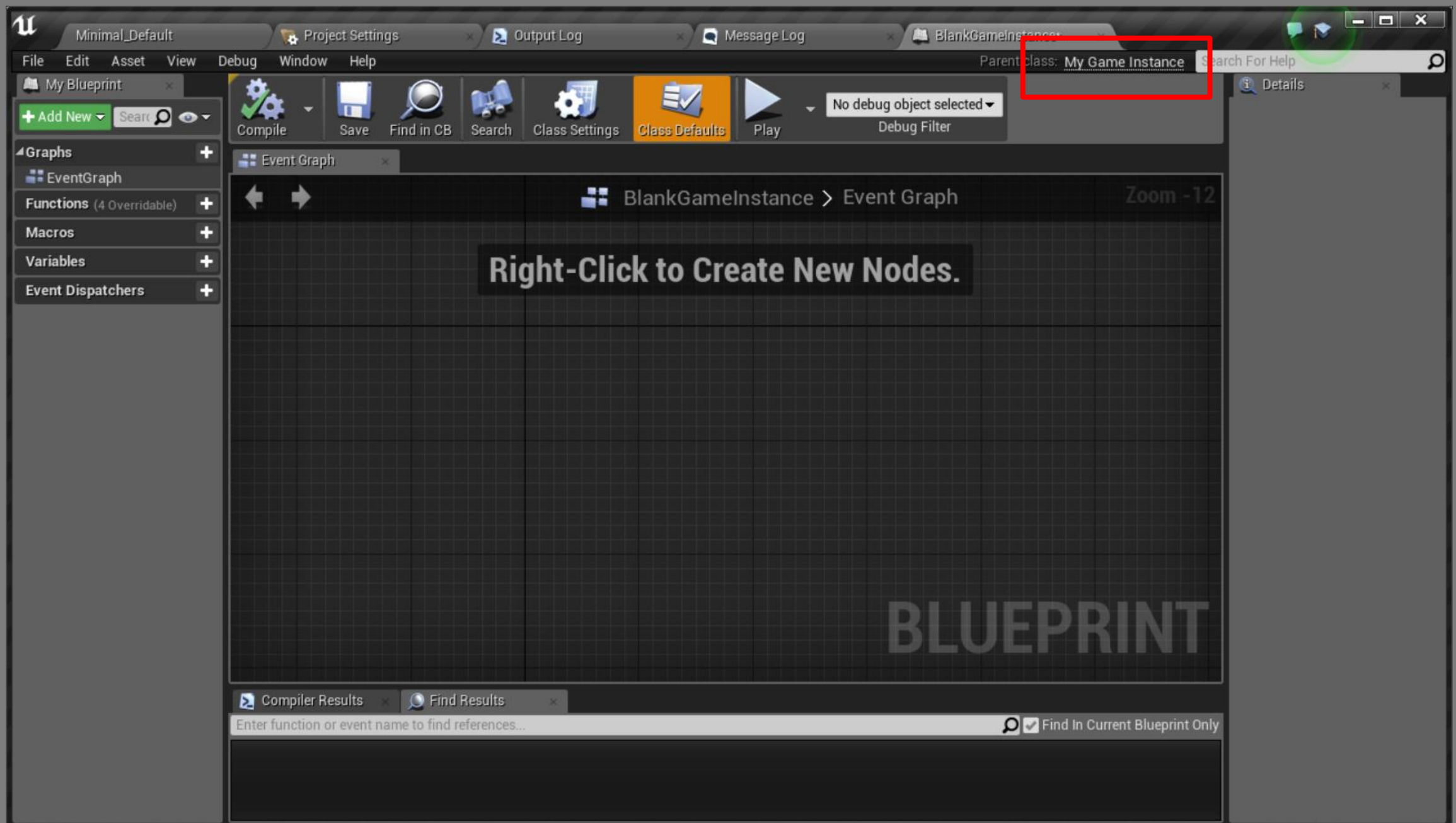
- Only needs to be done if you use a custom game instance
- Click “Reparent Blueprint” and select “MyGameInstance”



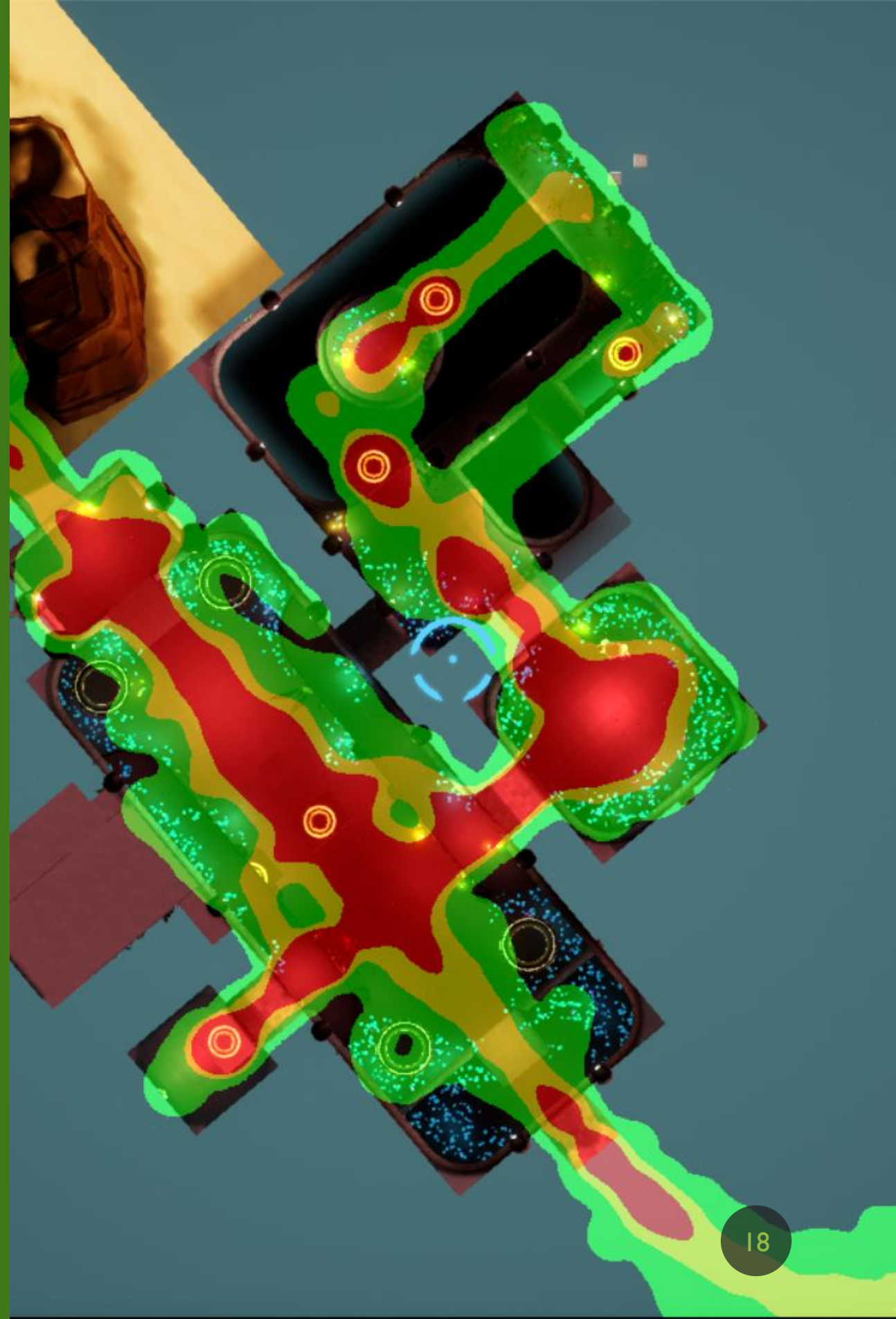
RESULT OF REPARENTING BLUEPRINT

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- The parent class is visible in the top right
- This “BlankGameInstance” can now be set in the project settings



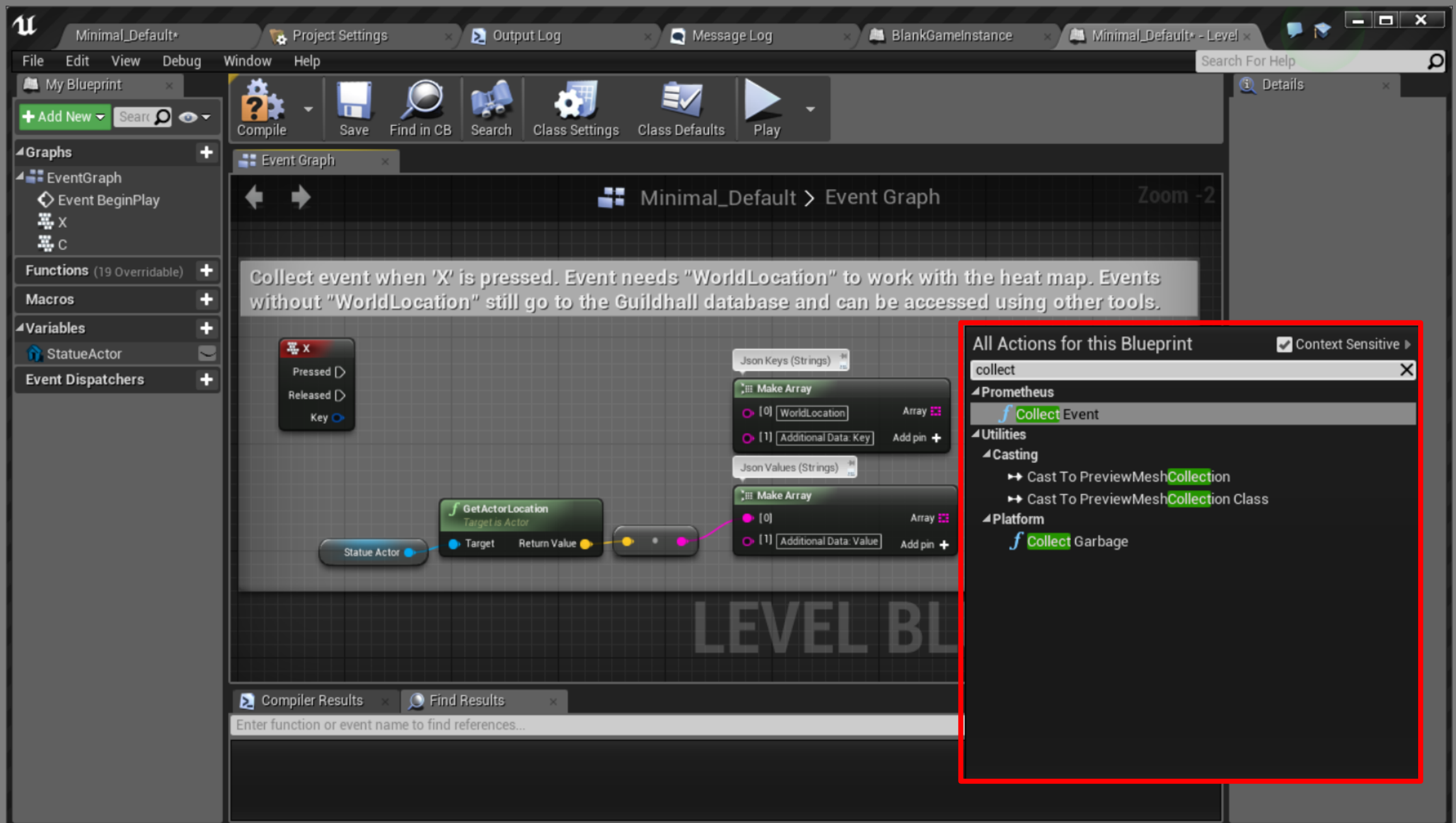
COLLECTING DATA WITH PROMETHEUS



ADD A “COLLECT EVENT” NODE

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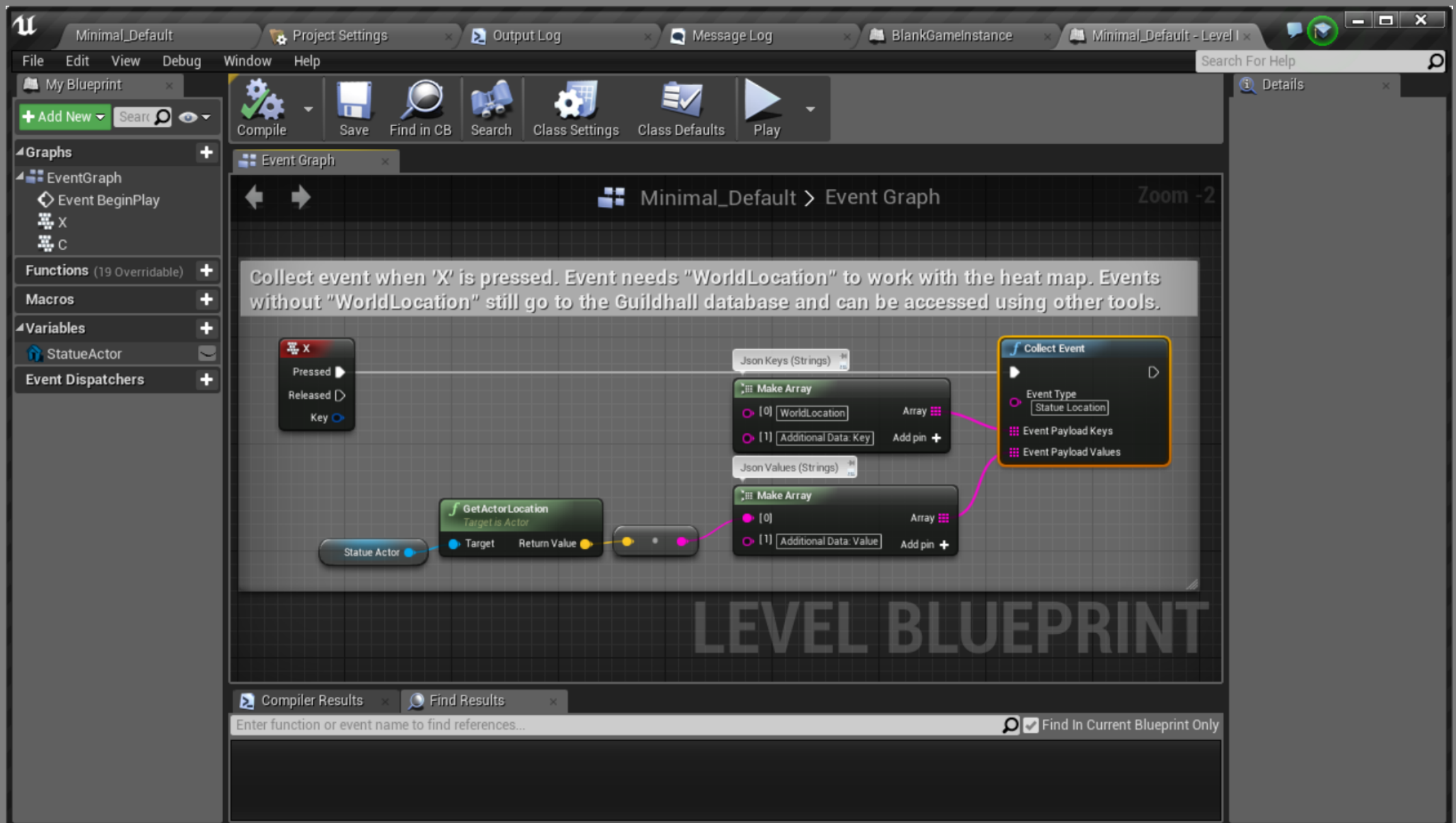
- Right click and type collect event to place the node where you want to collect data



ATTACH THE “COLLECT EVENT” NODE

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- The Keys and Values arrays can be anything you want them to be, but you need “WorldLocation” if you want to view the event with the heat map



LOG ANY COLLECTED DATA

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- Follow the same process to get to the nodes
- Log Data is preferred, but only works when running in an executable

The screenshot displays the Unreal Engine 4 interface, specifically the Level Blueprint editor. The main workspace shows an Event Graph for 'Minimal_Default'. A text box within the graph reads: "Logging data that has been collected. LogData is used for actual playtests, contacts the server, and only prints files when running in an executable. The second method, PrintFileAnytime, does just what it sounds like. It should be used just to make sure code is executing properly, then removed."

The graph contains the following nodes and connections:

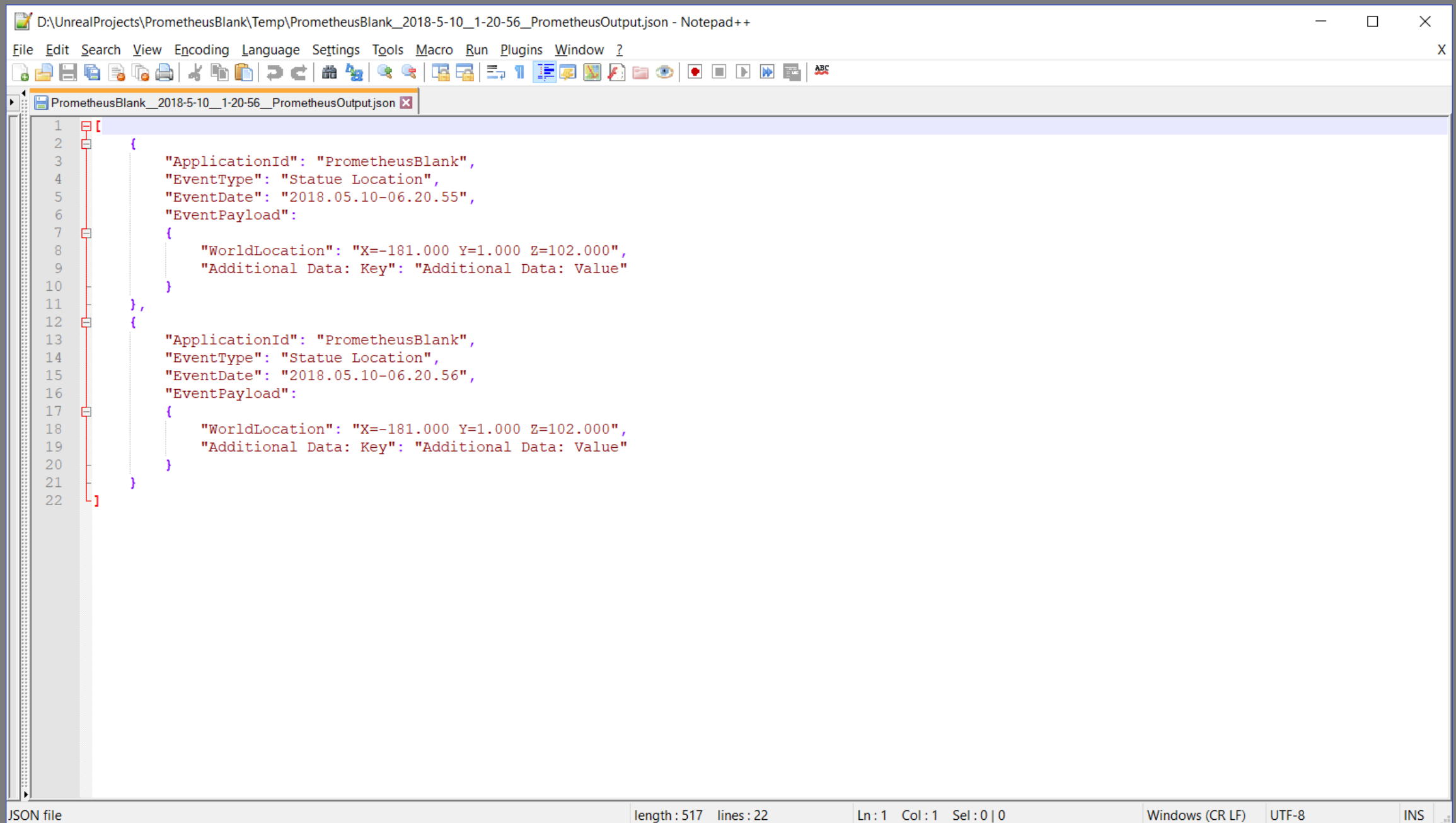
- Event Dispatcher:** A 'C' node with 'Pressed', 'Released', and 'Key' events. The 'Pressed' event is connected to the 'Log Data' node.
- Function Node:** A 'Log Data' node labeled 'Preferred Method'.
- Function Node:** A 'Get Game Instance' node labeled 'Return Value'.
- Function Node:** A 'Cast To MyGameInstance' node with 'Object' and 'As My Game Instance' inputs. The 'Return Value' from 'Get Game Instance' is connected to the 'Object' input.
- Function Node:** A 'Print File Anytime' node labeled 'Just for verification' with 'Target is My Game Instance' and 'Target' inputs. The 'As My Game Instance' output from the cast node is connected to the 'Target' input.

The interface includes a top menu bar (File, Edit, View, Debug, Window, Help), a toolbar with icons for Compile, Save, Find in CB, Search, Class Settings, Class Defaults, and Play. The left sidebar shows a 'My Blueprint' panel with 'Add New', 'Search', and 'Event Graph' sections. The right sidebar shows a 'Details' panel with 'Graph Node' and 'Comment' sections. The bottom status bar includes 'Compiler Results', 'Find Results', and a search input field.

OUTPUT JSON STRUCTURE

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- This is the output json from the events on the previous slides
- This represents the structure a file must have for Prometheus to read it

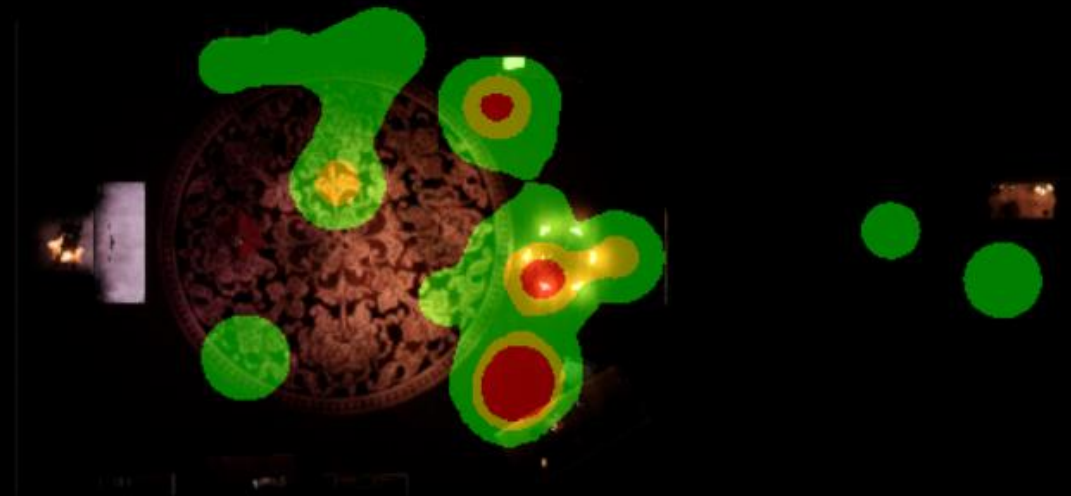


The screenshot shows a Notepad++ window titled "D:\UnrealProjects\PrometheusBlank\Temp\PrometheusBlank_2018-5-10_1-20-56_PrometheusOutput.json - Notepad++". The window contains a JSON file with two event objects. The JSON is as follows:

```
[
  {
    "ApplicationId": "PrometheusBlank",
    "EventType": "Statue Location",
    "EventDate": "2018.05.10-06.20.55",
    "EventPayload": {
      "WorldLocation": "X=-181.000 Y=1.000 Z=102.000",
      "Additional Data: Key": "Additional Data: Value"
    }
  },
  {
    "ApplicationId": "PrometheusBlank",
    "EventType": "Statue Location",
    "EventDate": "2018.05.10-06.20.56",
    "EventPayload": {
      "WorldLocation": "X=-181.000 Y=1.000 Z=102.000",
      "Additional Data: Key": "Additional Data: Value"
    }
  }
]
```

The status bar at the bottom indicates "JSON file", "length : 517", "lines : 22", "Ln : 1", "Col : 1", "Sel : 0 | 0", "Windows (CR LF)", "UTF-8", and "INS".

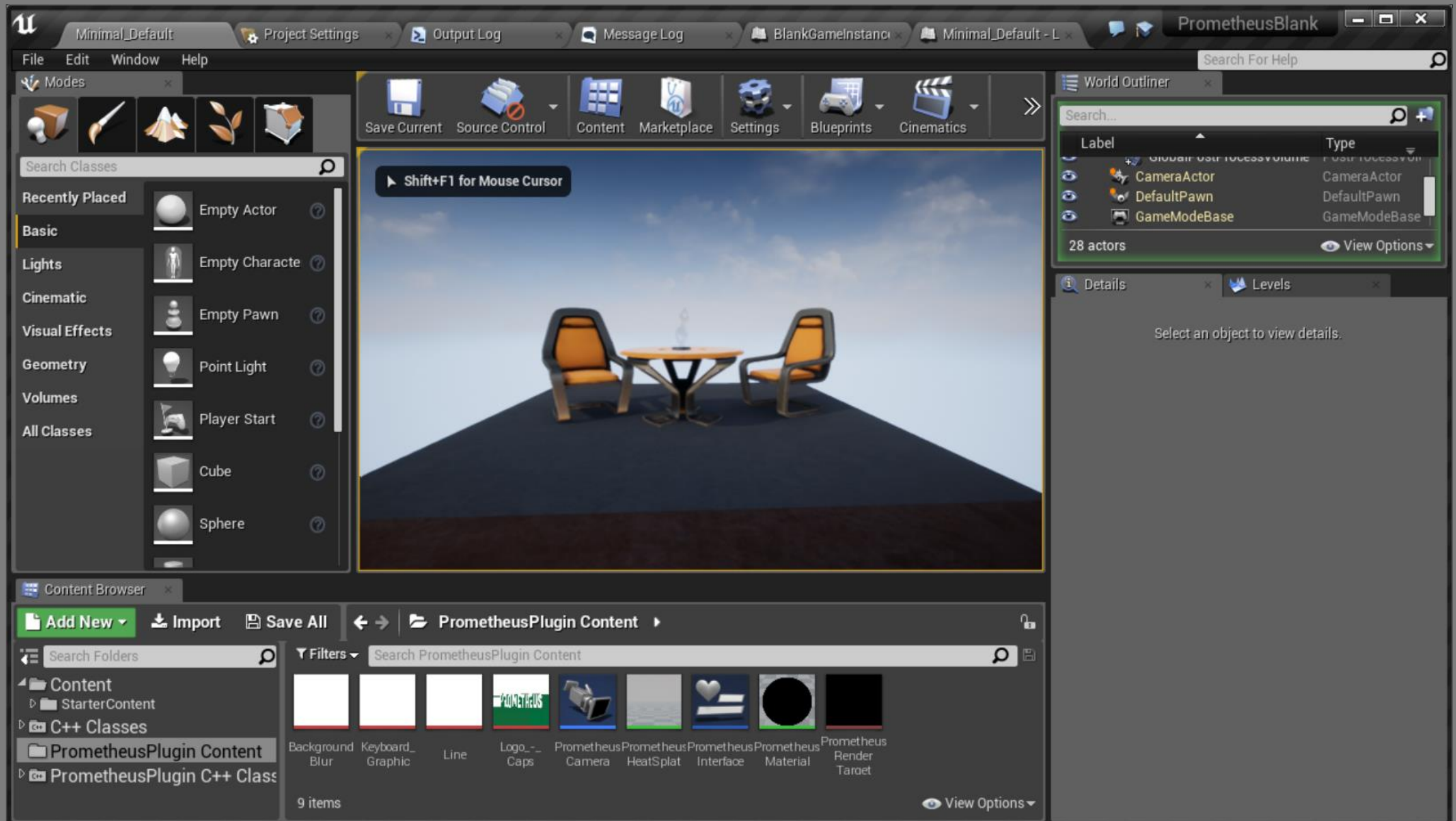
VIEWING DATA WITH PROMETHEUS



PRESS PLAY

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- Run your game to access the heat map visualizer



PRESS 'F10' WHILE RUNNING THE GAME TO OPEN PROMETHEUS

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- Prometheus's user interface
- Follow the steps to visualize data

PROMETHEUS

Step 1: Attempt to connect to the Guildhall database

Database Status

CONNECTED

Press button to attempt to connect again

Connect

Step 2: If not connected, select file to read from Temp folder

None

Load this file

Step 3: Select start and end date (inclusive) to query database

Start Date - MM - DD - YYYY

End Date - MM - DD - YYYY

1

1

2018

1

1

2018

Step 4: Select event type and press button to load events

All

Show these events

Step 5: Change camera settings to aid data visualization

Camera Width

3500.0

Camera Speed

15.0

Events Displayed:

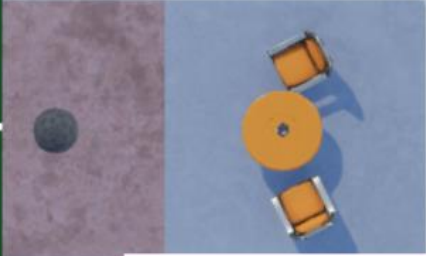
330.0

Hide UI

Camera Height:

330.0

Current Event Type:



Step 6: Adjust event frequency threshold settings

Yellow / Red Threshold

10.0

Green / Yellow Threshold

5.0

Bottom Threshold

1.0

Pretty Mode (Different Visual)

☐

View Controls

Reset Values To Defaults

VIEW CONTROLS BY CLICKING THE “VIEW CONTROLS” BUTTON

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PROMETHEUS

Step 1: Attempt to connect to the Guildhall database

Database Status

Press button to attempt to connect

Step 2: If not connected, select from the dropdown

None

Step 3: Select start and end date

Start Date - MM - DD - YY

1 1 2018

Step 4: Select event type and press button to load events

All

Show these events

Step 5: Change camera settings to aid data visualization

Camera Width 3500.0

Camera Speed 15.0

Events Displayed: 4

Camera Height: 330.0

Current Event Type: All

Hide UI

Controls

Q

W

E

A

S

D

MOVE CAMERA

F

SHOW/HIDE UI

Hide Controls

old settings

Green / Yellow Threshold 10.0

Bottom Threshold 5.0

Pretty Mode (Different Visual) 1.0

View Controls

Reset Values To Defaults

IF NOT CONNECTED: SELECT A FILE FROM THE DROP-DOWN

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- We made this file earlier by using the “PrintFileAnywhere” node
- Click the “Load this file” button to populate the event types in Step 4

PROMETHEUS

Step 1: Attempt to connect to the Guildhall database

Database Status **NOT CONNECTED**

Press button to attempt to connect again Connect

Step 2: If not connected, select file to read from Temp folder

None

None

PrometheusBlank_2018-5-10_1-20-56_PrometheusOutput.json

Load this file

Step 3: Select start and end date (inclusive) to query database

Start Date - MM - DD - YYYY

End Date - MM - DD - YYYY

1

1

2018

1

1

2018

Step 4: Select event type and press button to load events

None

Show these events

Step 5: Change camera settings to aid data visualization

Camera Width

3500.0

Camera Speed

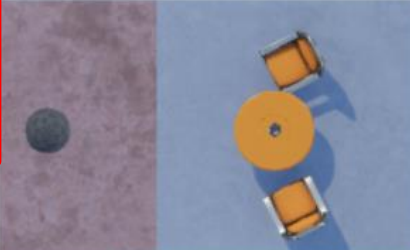
15.0

Events Displayed: 4

Camera Height: 330.0

Current Event Type: All

Hide UI



Step 6: Adjust event frequency threshold settings

Yellow / Red Threshold

10.0

Green / Yellow Threshold

5.0

Bottom Threshold

1.0

Pretty Mode (Different Visual)

☐

View Controls

Reset Values To Defaults

IF NOT CONNECTED: SELECT AN EVENT TO DISPLAY

28

- Here is our “Statue Location” event that displays the location of a statue
- Click the “Show these events” to display the events

PROMETHEUS

Step 1: Attempt to connect to the Guildhall database

Database Status **NOT CONNECTED**

Press button to attempt to connect again Connect

Step 2: If not connected, select file to read from Temp folder

PrometheusBlank_2018-5-10_1-20-56_Promet- Load this file

Step 3: Select start and end date (inclusive) to query database

Start Date - MM - DD - YYYY End Date - MM - DD - YYYY

1 - 1 - 2018 1 - 1 - 2018

Step 4: Select event type and press button to load events

All Show these events

All

Statue Location

Step 5: Change camera settings to aid data visualization

Camera Width 3500.0

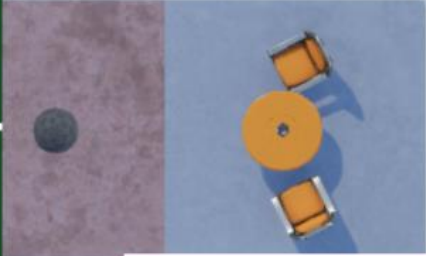
Camera Speed 15.0

Events Displayed: 4

Camera Height: 330.0

Current Event Type: All

Hide UI



Step 6: Adjust event frequency threshold settings

Yellow / Red Threshold 10.0

Green / Yellow Threshold 5.0

Bottom Threshold 1.0

Pretty Mode (Different Visual) ☐

View Controls Reset Values To Defaults

IF NOT CONNECTED:VIEW HEAT MAP DISPLAY

29

- Here we can see the fruits of our labors as the heat map is displaying over the table, which is where the statue is located

PROMETHEUS

Step 1: Attempt to connect to the Guildhall database

Database Status **NOT CONNECTED**

Press button to attempt to connect again Connect

Step 2: If not connected, select file to read from Temp folder

PrometheusBlank_2018-5-10_1-20-56_Promet- Load this file

Step 3: Select start and end date (inclusive) to query database

Start Date - MM - DD - YYYY End Date - MM - DD - YYYY

1 - 1 - 2018 1 - 1 - 2018

Step 4: Select event type and press button to load events

Statue Location Show these events

Step 5: Change camera settings to aid data visualization

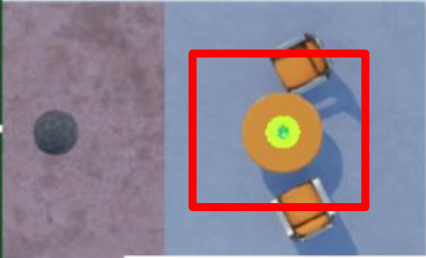
Camera Width

Camera Speed

Events Displayed: 2 Hide UI

Camera Height: 330.0

Current Event Type: Statue Location



Step 6: Adjust event frequency threshold settings

Yellow / Red Threshold

Green / Yellow Threshold

Bottom Threshold

Pretty Mode (Different Visual) ☐

View Controls Reset Values To Defaults

IF CONNECTED: GO STRAIGHT TO SELECT AN EVENT TYPE

30

- If Prometheus is connected to the database it auto populates Step 4
- The database needs dates and an event type, so don't forget the dates

PROMETHEUS

Step 1: Attempt to connect to the Guildhall database

Database Status **CONNECTED**

Press button to attempt to connect again

Connect

Step 2: If not connected, select file to read from Temp folder

PrometheusBlank_2018-5-10_1-20-56_Promet*

Load this file

Step 3: Select start and end date (inclusive) to query database

Start Date - MM - DD - YYYY

End Date - MM - DD - YYYY

1 1 2018 1 1 2018

Step 4: Select event type and press button to load events

Event1

Show these events

Step 5: Change camera settings to aid data visualization

Camera Width 3500.0

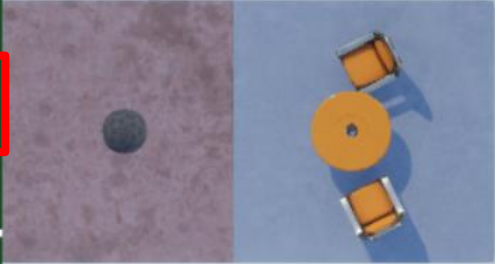
Camera Speed 15.0

Events Displayed: 4

Camera Height: 330.0

Current Event Type: Event1

Hide UI



Step 6: Adjust event frequency threshold settings

Yellow / Red Threshold 10.0

Green / Yellow Threshold 5.0

Bottom Threshold 1.0

Pretty Mode (Different Visual) ☐

View Controls

Reset Values To Defaults

PRESS 'F' FOR A BETTER VIEW

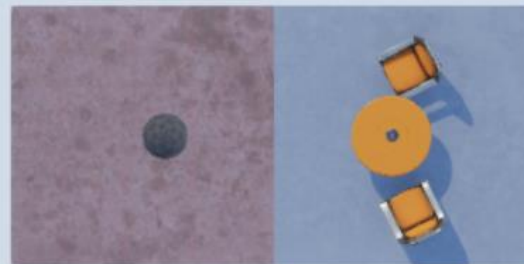
31

- Using 'F' or the "Hide UI" button gives you a better view of your level
- You can move the camera around with WASD to view specific areas

PROMETHEUS

# Events Displayed:	4
Camera Height:	330.0
Current Event Type:	Event1

Hide UI



NOTES

- Prometheus was designed to be a part of a specific process, see additional resources for details
- Large datasets can cause long load times as Prometheus needs to loop through all the data
- The Camera can only point downwards, other angles are not supported
- Prometheus is designed to work with the Guildhall database to eliminate users having to edit json files
- If you do end up with a bunch of json files, you may need to combine them into one file yourself to make viewing easier
- There may be bugs that come up when moving to a new engine version

UPGRADING PROMETHEUS TO YOUR ENGINE VERSION

- To upgrade Prometheus to a new engine version, it simply needs to be put into the new Unreal project, and then compiled from Visual Studio
- Some Guildhall projects are not C++ projects (like middle TGP) so I solved this by creating a blank UE4 C++ project in the same engine version and compiling it there
- After compilation, the plugin can be moved to any project with the same engine version

ADDITIONAL RESOURCES

- Justin's thesis presentation on Prometheus and the process:

<https://www.twitch.tv/videos/257685488>