Contents

Lab: Module 7 - Monitoring and Troubleshooting Containers

Duration: 30 minutes

Exercise 1: Monitor an Azure Managed Kubernetes Service (AKS) cluster with Microsoft Operations Management Suite (OMS)

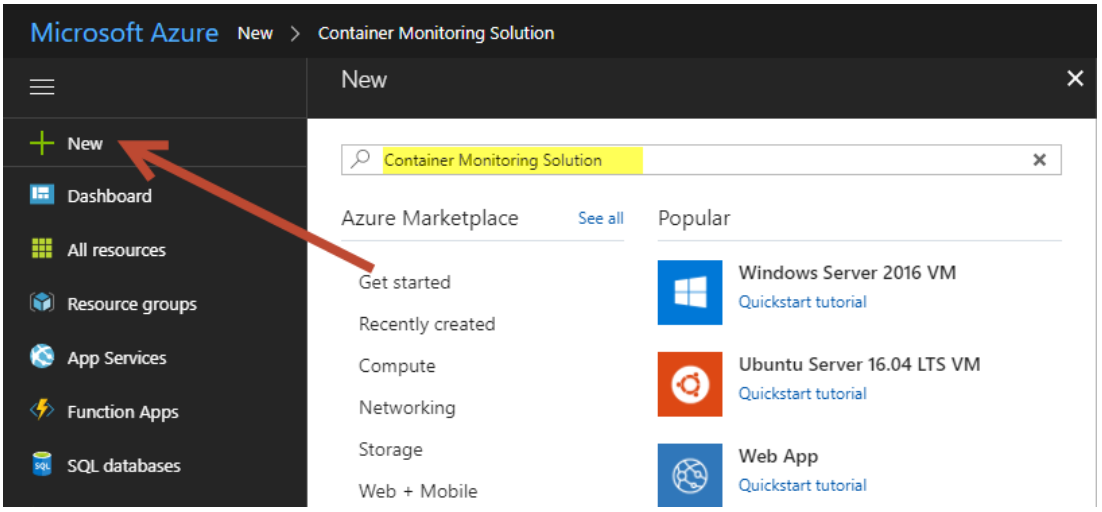
In this exercise, you will deploy Microsoft Operations Management (OMS) agents to centrally monitor the performance of your containers in your Linux Kubernetes cluster.

OMS is Microsoft's cloud-based IT management solution that helps you manage and protect your on-premises and cloud infrastructure. Container Solution is a solution in OMS Log Analytics, which helps you view the container inventory, performance, and logs in a single location. You can audit, troubleshoot containers by viewing the logs in centralized location, and find noisy consuming excess container on a host.

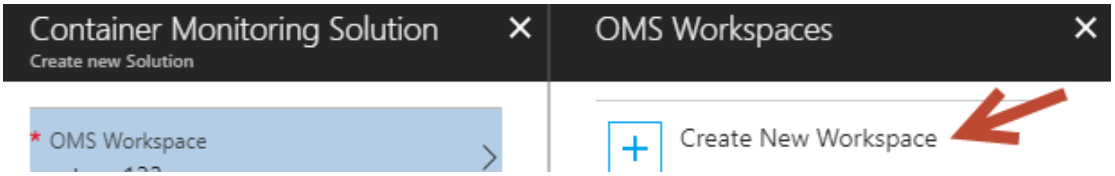
Tasks

1. **Create OMS Workspace in the Azure Portal**

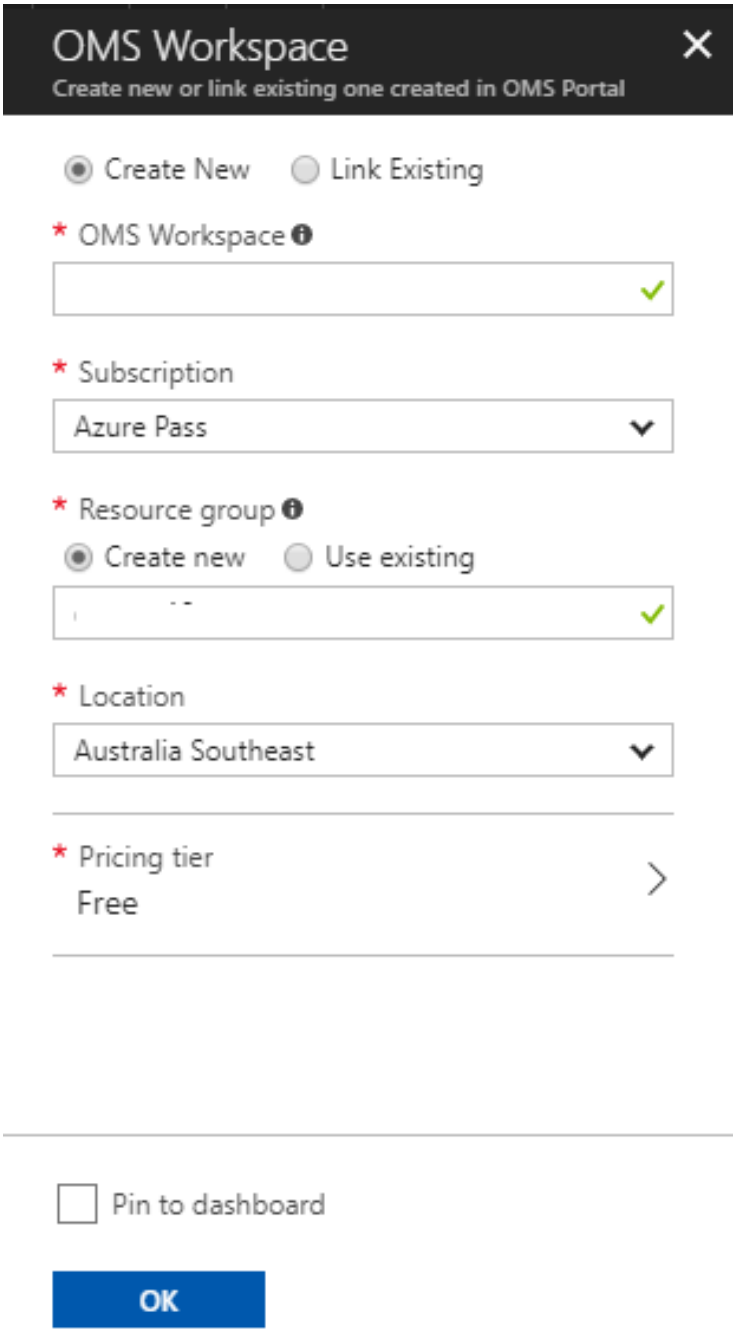
    1. Click + New. Search for Container Monitoring Solution



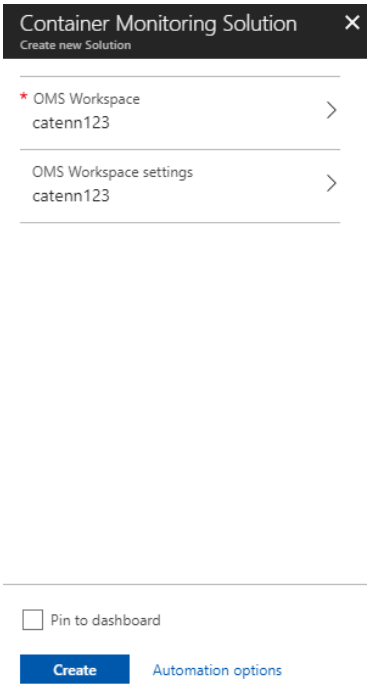
    2. Select **Container Monitoring Solution**
    3. Click Create
    4. Select Log Analytics Workspace > Create a New Workspace



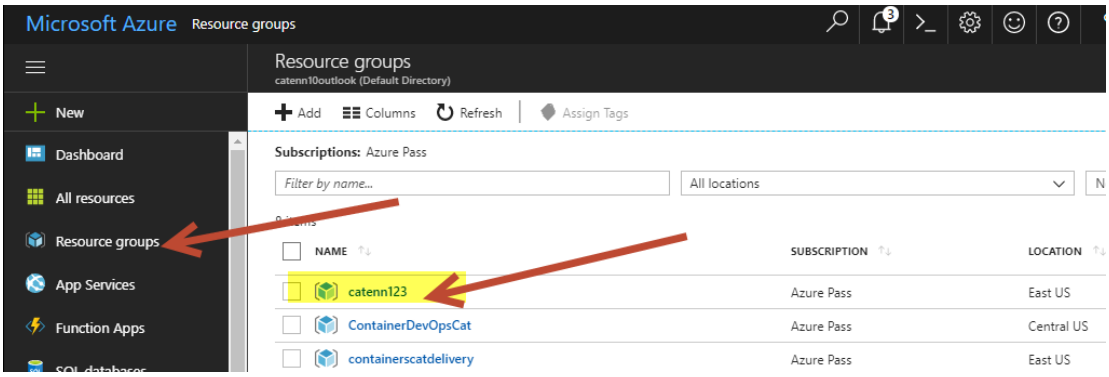
5. Fill in the boxes with any unique name for the OMS workspace and resource group you would like. Keep the pricing tier unchanged. Depending on your subscription, you might or might not see the free pricing tier.



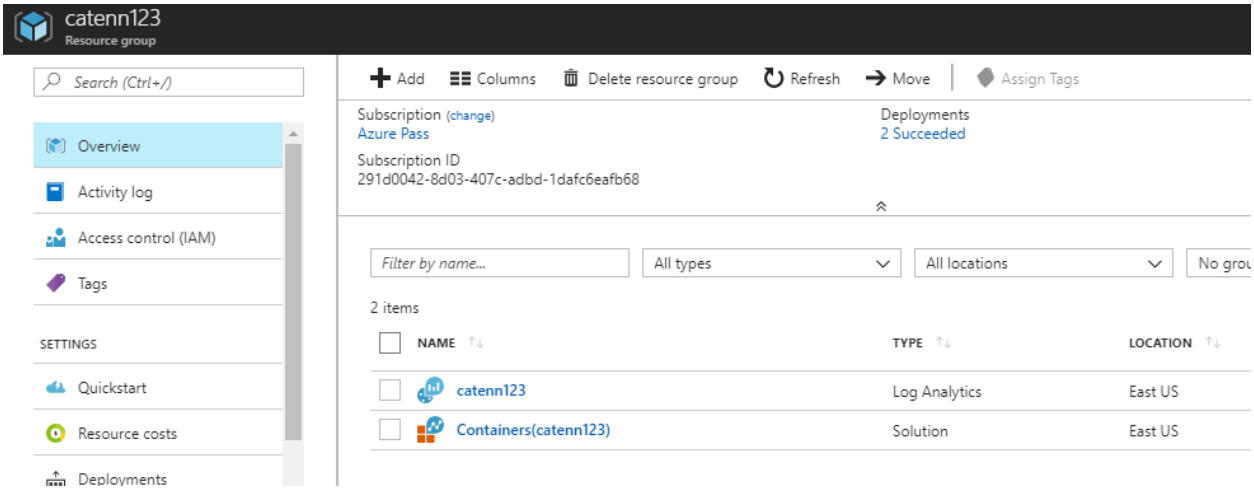
6. Hit OK.
7. Once you've chosen a workspace and the workspace settings, hit Create.



8. Wait a minute for it to deploy.
9. Click Resource Groups and click on your new OMS resource group.

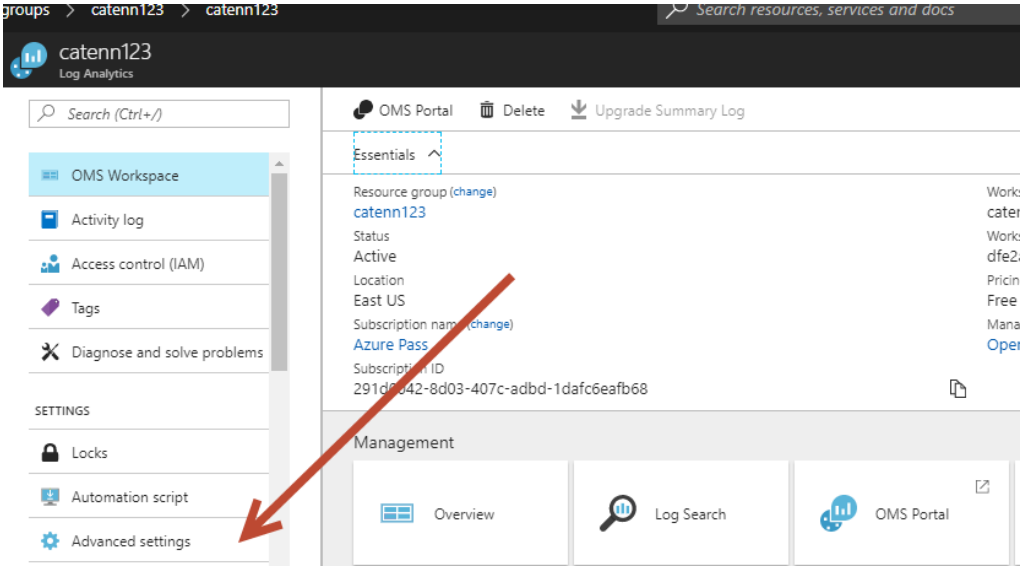


10. You should see two resources: Solution and Log Analytics:

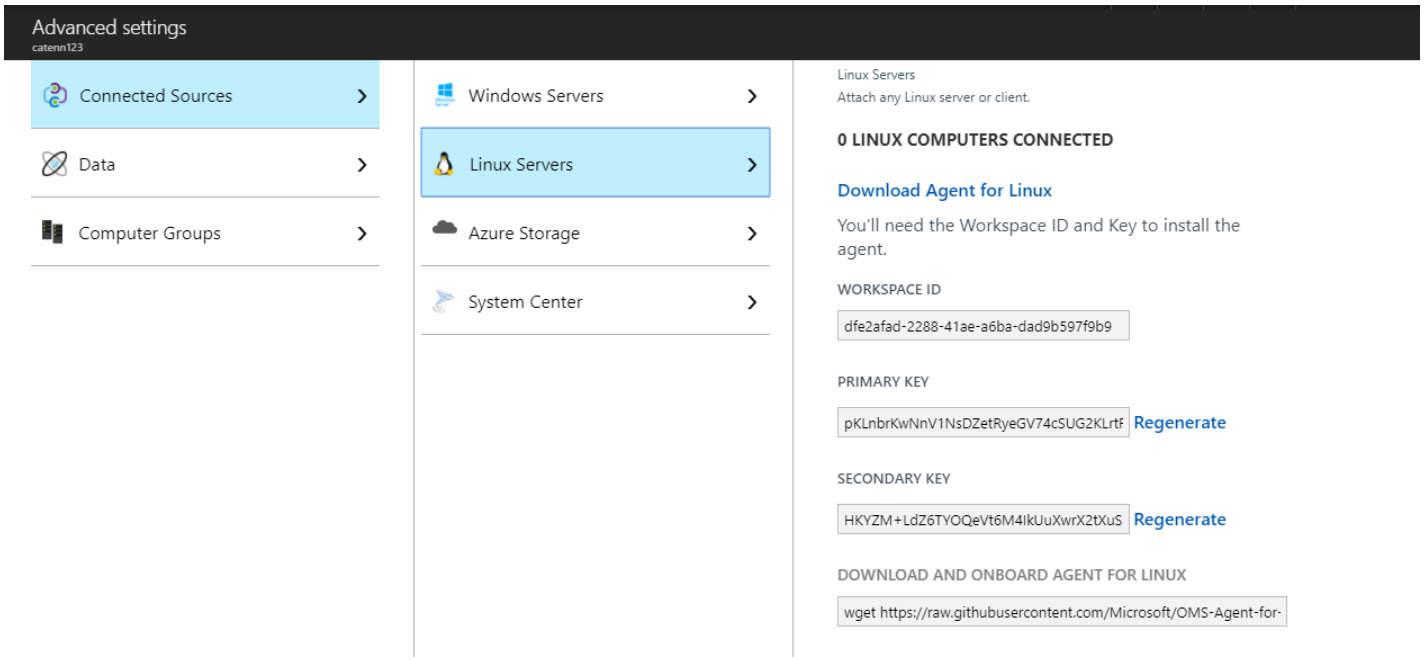


11. Click on the Log Analytics resource.

12. Click Advanced Settings:



13. Choose Connected Sources > Linux Servers > then you should see a Workspace ID and Primary key. Copy both of these into Notepad.



14. Open the **omsagent.yaml** file in **Assets** folder and replace **<WSID>** and **<KEY>** parameters with WORKSPACE ID and PRIMARY KEY values you have copied in the previous step, do not add quotes to these, just copy and paste directly as shown below:

```
containers:
  - name: omsagent
    image: "microsoft/oms"
    imagePullPolicy: Always
    env:
    - name: WSID
      value: 315db342-45fd-4ef3-8716-cf3a5a9d0c35
    - name: KEY
      value: s50irOXfWAz1ma+c1QtpWWzv+TQ/VRnSZyeroPStdmfx2KrLjadf
    securityContext:
      privileged: true
    ports:
```

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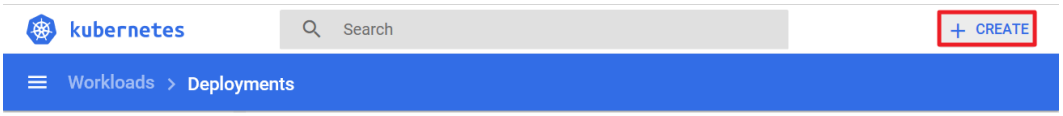
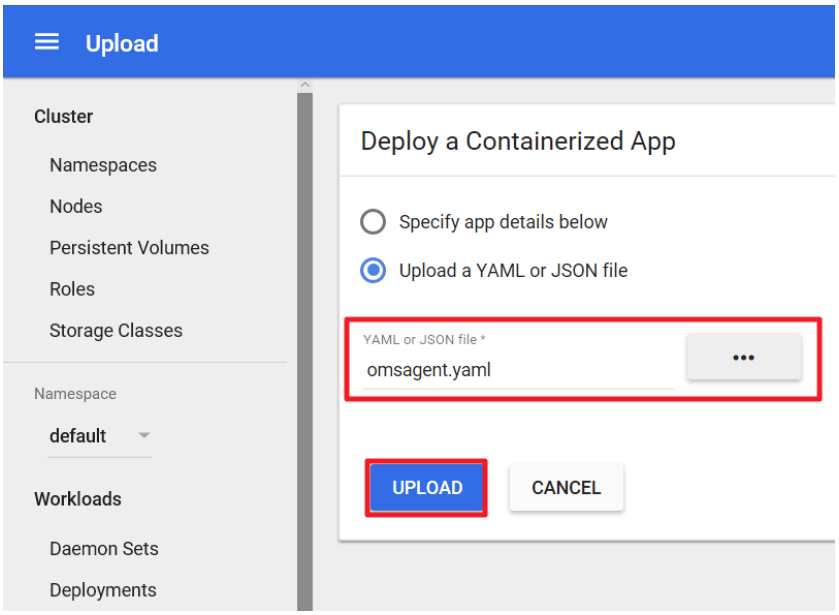
15. Now run the following command in PowerShell console to open your Linux Kubernetes cluster dashboard.

```
az aks browse -n=AKS-CLUSTER-NAME -g=RESOURCE-GROUP
```

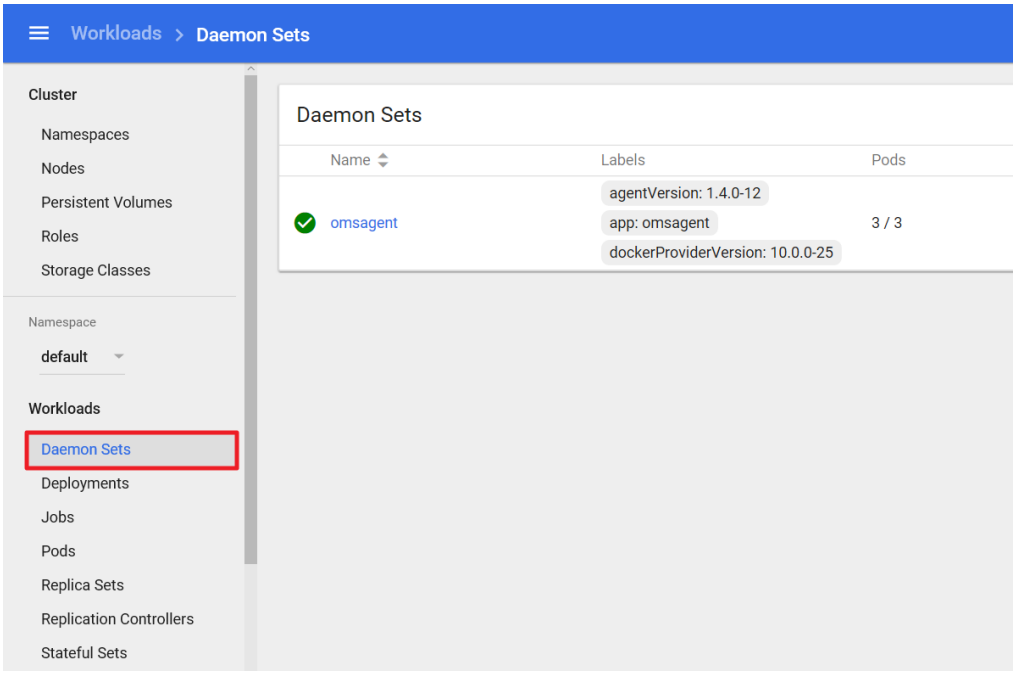
16. Go to the **Deployment** page and click **Create**.



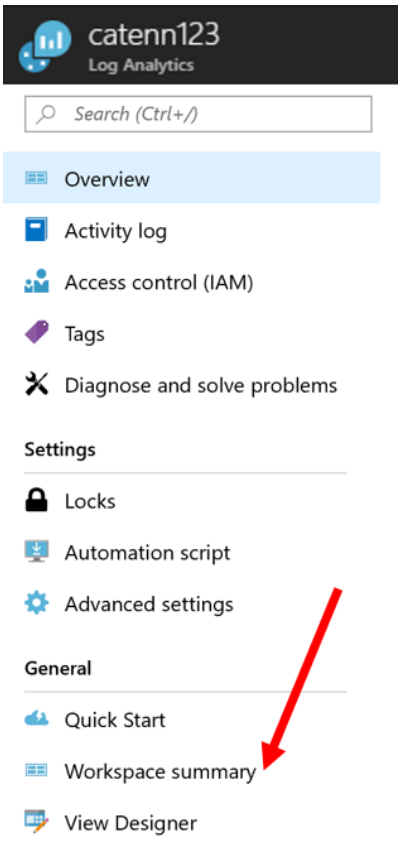
17. Now upload the **omsagent.yaml** file to deploy OMS agents into your cluster as DaemonSets. DaemonSets are used by Kubernetes to run a single instance of a container on each host in the cluster. They're perfect for running monitoring agents.



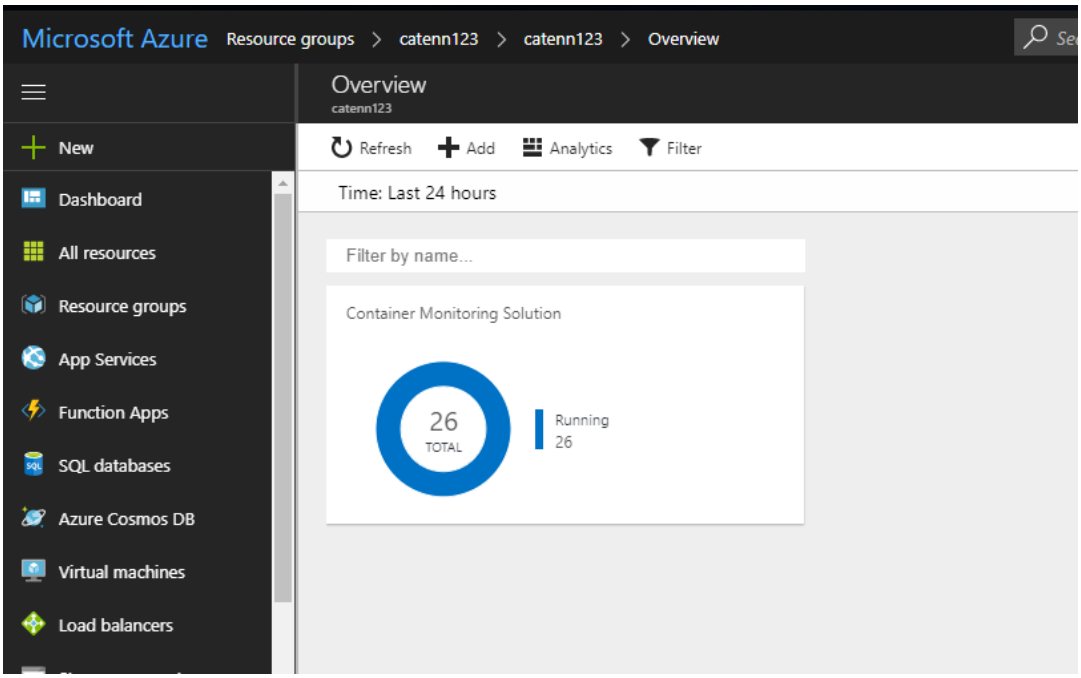
Check the progress of the deployment on **DaemonSets** page.



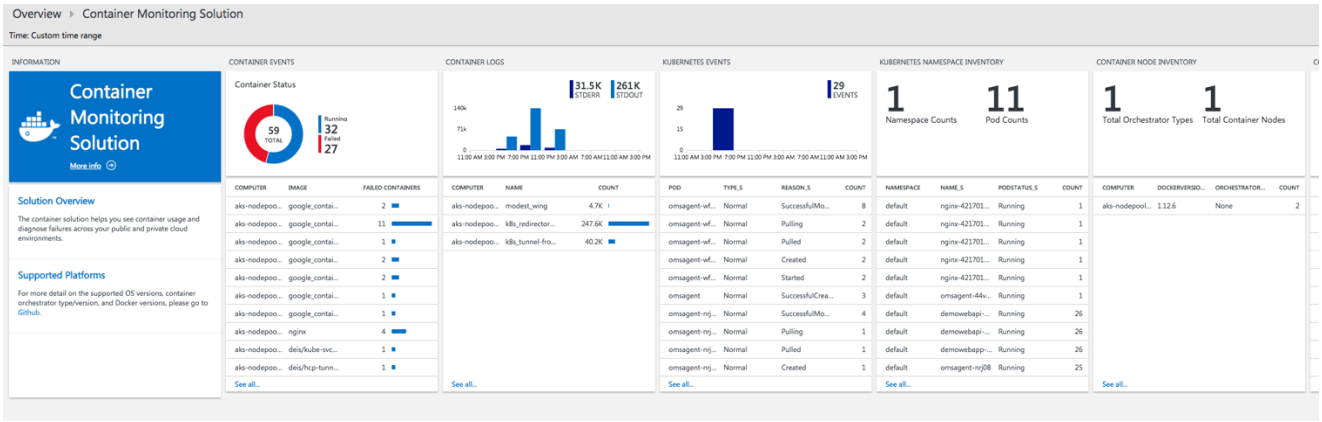
18. Go back to your Log Analytics resource and hit **Workspace summary**.



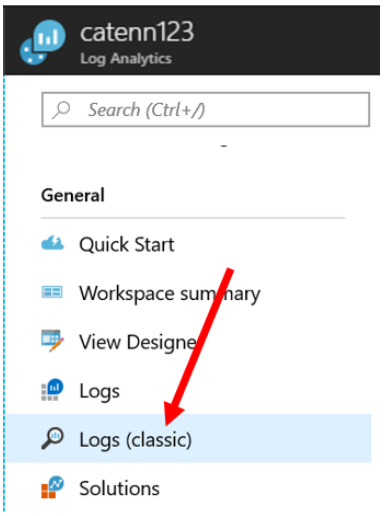
19. Although the OMS agent is up and running in your Kubernetes Dashboard it may take several minutes before the OMS dashboard will start displaying the metrics collected from the Kubernetes cluster. Wait ~10 minutes for this to show up and display something other than 0.



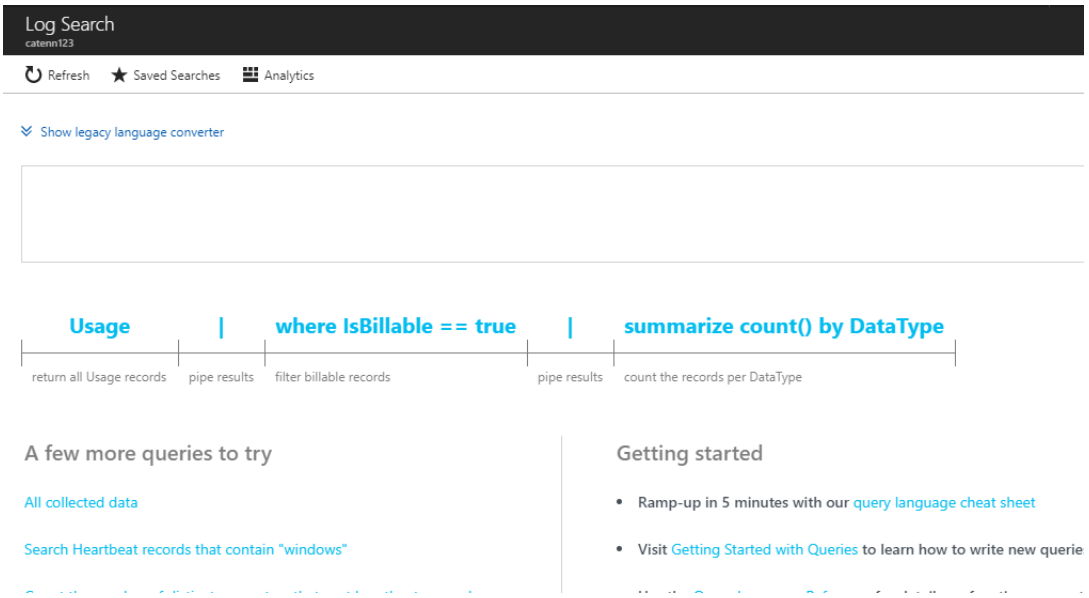
20. Click on the chart title **Container Monitoring Solution** and it will take you to the detail dashboard view. You will see charts about metrics like total running containers, total images, image type count, CPU and memory usage of the containers, and so on. *If you do not see the Container Monitoring Solution widget, you can skip this step and move on to the next step.



21. You can also perform Log search by querying the logs. Go back to your Log Analytics resource. Click **Log (Classic)**.



22. You will see a page like this:

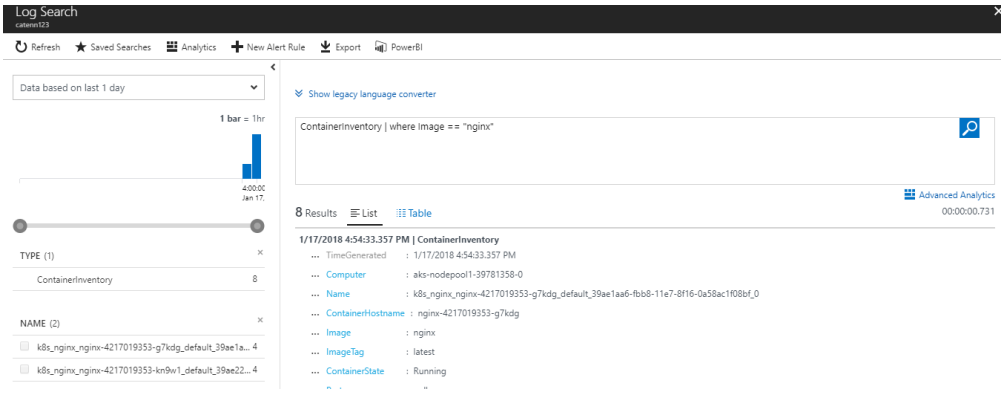


23. Log Search uses specific query language format. You will write a simple query for now but more details about the query language and its format are available at: https://docs.loganalytics.io/docs/Language-Reference

    Also, more details about type of records collected related to containers is available at: https://docs.microsoft.com/en-us/azure/log-analytics/log-analytics-containers

24. Let's search the logs for the containers based on "nginx" container image (you can replace nginx with any other container image that you have used during deployment). In the search box type the following command and press the search button.

```
ContainerInventory | where Image == "nginx"
```



You can also filter based on other pieces of information available. For example: to find all the containers based on nginx that have failed you can use the query:

```
ContainerInventory | where Image == "nginx" and
ContainerState == "Failed"
```

25. You can also view the performance any related logs. For example, to look at memory consumption on all nodes you can run following query:

```
Perf | where CounterName == "Memory Usage MB"
```