😊 Log Analytics Workspace

A Log Analytics Workspace in Azure is a central repository where you can collect, analyze, and visualize log and telemetry data from various sources such as Azure resources, applications, and on-premises environments. It provides powerful querying capabilities, advanced analytics, and integration with other Azure services for monitoring, troubleshooting, and gaining insights into your environment.

The primary functions and benefits of a Log Analytics Workspace include:

1. **Data Collection:** Log Analytics Workspace collects log and telemetry data from a wide range of sources, including Azure services, virtual machines, containers, and custom applications. It supports structured and unstructured data, making it versatile for different types of logs and metrics.
2. **Advanced Querying:** It offers a powerful query language, Kusto Query Language (KQL), which allows users to perform complex queries and analysis on log data. With KQL, users can filter, aggregate, and visualize data to gain insights into system behavior, troubleshoot issues, and identify trends.
3. **Visualization and Dashboards:** Log Analytics Workspace enables users to create custom dashboards and visualizations to monitor and analyze their data effectively. Users can create charts, graphs, and tables to visualize key metrics and trends, providing a centralized view of their environment's health and performance.
4. **Alerting and Automation:** Users can set up alerts based on predefined conditions or custom queries to notify them of critical events or anomalies in their environment. Alerts can be configured to trigger actions such as sending notifications, executing Azure Automation runbooks, or integrating with third-party services for automated remediation.
5. **Integration with Azure Monitor:** Log Analytics Workspace is tightly integrated with Azure Monitor, providing seamless access to monitoring data and insights. It enhances Azure Monitor's capabilities by offering advanced log analytics and correlation, enabling comprehensive monitoring and management of Azure resources and applications.
6. **Compliance and Security:** Log Analytics Workspace helps organizations meet compliance requirements by providing centralized logging and auditing capabilities. It enables users to track and analyze security events, detect suspicious activities, and ensure adherence to regulatory standards such as GDPR, HIPAA, and PCI DSS.

😄 Use cases of Log Analytics Workspace:

Log Analytics Workspace in Azure can be applied across various use cases to collect, analyze, and act on log and telemetry data from diverse sources. Here are some common use cases:

1. **Operational Insights:** Organizations can use Log Analytics Workspace to gain operational insights into their Azure environment and on-premises infrastructure. By collecting and analyzing logs from servers, virtual machines, and applications, they can

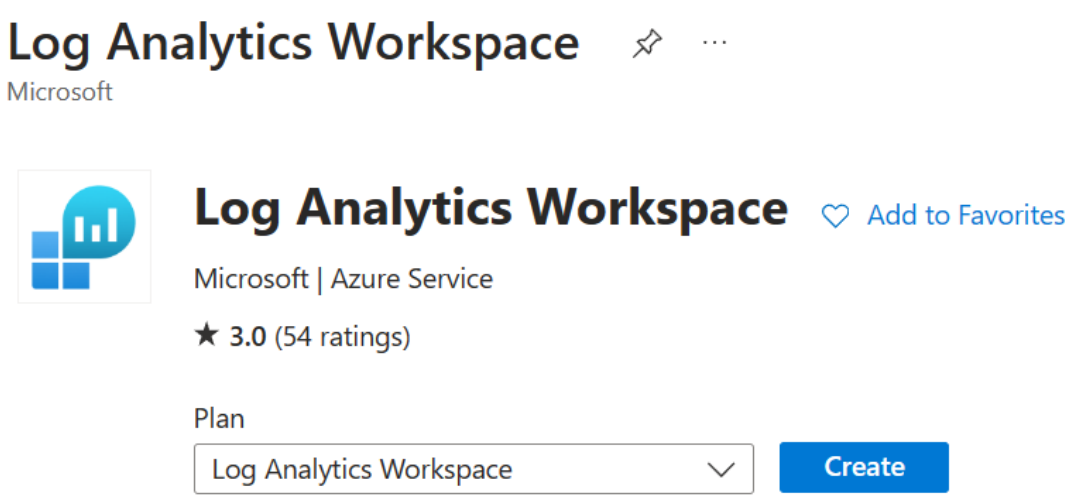
identify performance bottlenecks, troubleshoot issues, and optimize resource utilization.

2. **Security Monitoring and Threat Detection:** Log Analytics Workspace helps enhance security posture by collecting and analyzing security logs from Azure resources, network appliances, and security solutions. Organizations can detect and investigate security incidents, identify malicious activities, and respond to threats in real-time.
3. **Compliance and Audit:** Log Analytics Workspace supports compliance efforts by centralizing log data and providing auditing capabilities. Organizations can track user activities, monitor access to sensitive data, and generate audit reports to demonstrate compliance with regulatory requirements such as GDPR, HIPAA, and PCI DSS.
4. **Application Monitoring and Troubleshooting:** Developers can leverage Log Analytics Workspace to monitor the performance and availability of their applications. By collecting application logs, traces, and performance metrics, they can diagnose issues, optimize application performance, and improve the user experience.
5. **Infrastructure Optimization:** Log Analytics Workspace helps optimize infrastructure resources by analyzing operational data and identifying opportunities for optimization. Organizations can track resource utilization, identify underutilized resources, and right-size their infrastructure to improve cost efficiency.
6. **DevOps and Continuous Monitoring:** Log Analytics Workspace integrates seamlessly with DevOps processes, enabling continuous monitoring and feedback loops. Teams can use log data to monitor application deployments, track performance trends, and automate remediation actions to ensure continuous delivery and deployment.
7. **Predictive Analytics and Anomaly Detection:** By leveraging machine learning capabilities, Log Analytics Workspace can perform predictive analytics and anomaly detection on log data. Organizations can identify abnormal behavior, predict future trends, and proactively address potential issues before they impact operations.
8. **Business Intelligence and Decision Making:** Log Analytics Workspace provides insights into business operations by analyzing log data from various sources, including customer interactions, transactions, and user behavior. Organizations can gain actionable insights, make data-driven decisions, and drive business growth.

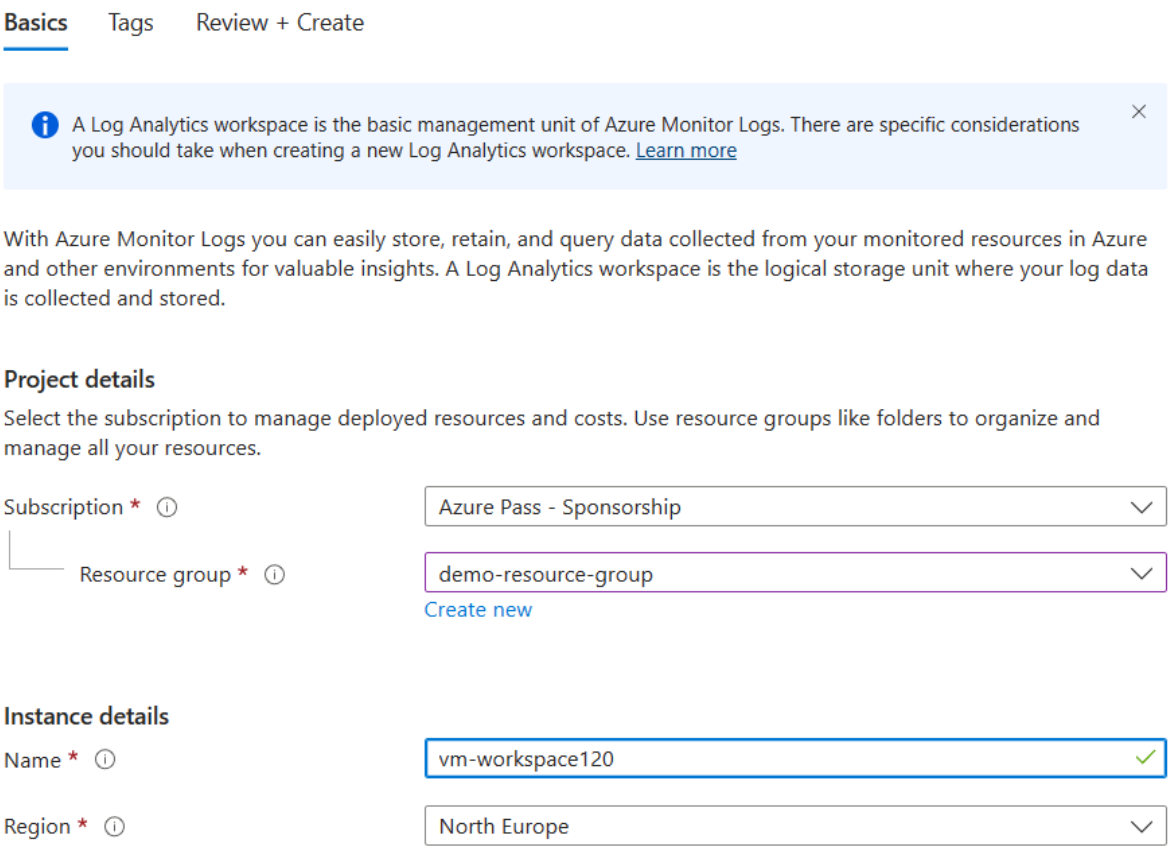
In this lab, we're setting up a Log Analytics Workspace in Azure and configuring data collection rules to gather log and telemetry data from various sources, such as virtual machines. The end goal is to centralize log data for analysis and monitoring, enabling users to gain operational insights, troubleshoot issues, ensure compliance, and enhance security across their Azure environment.

😄 To begin with the Lab:

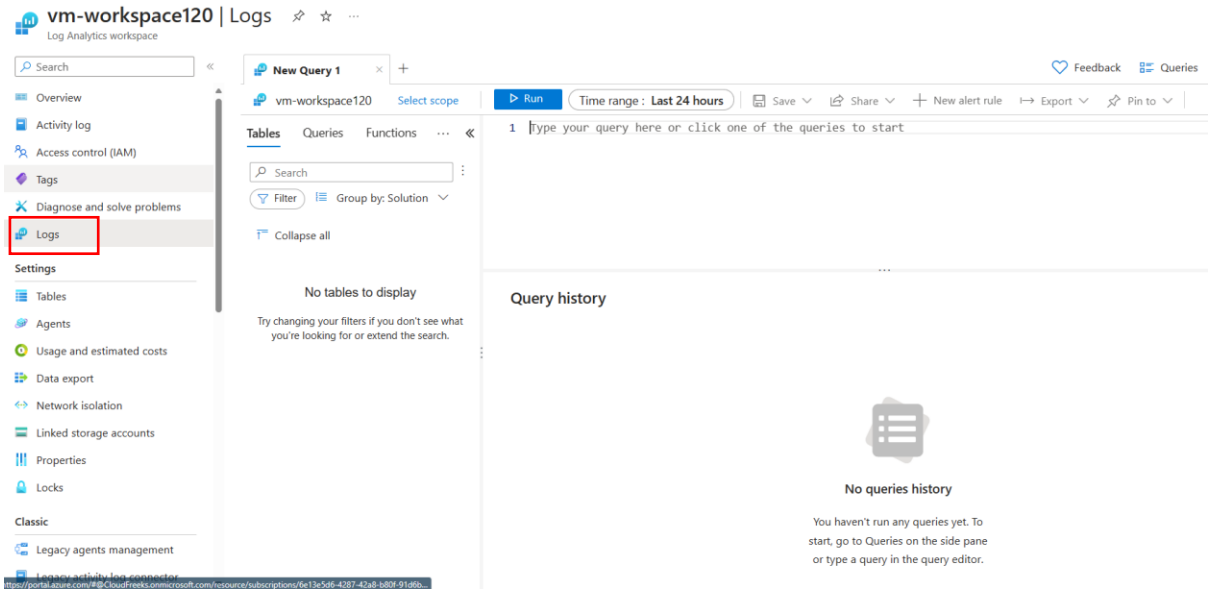
1. In your Azure Portal search for log analytics workspace and choose the service accordingly.



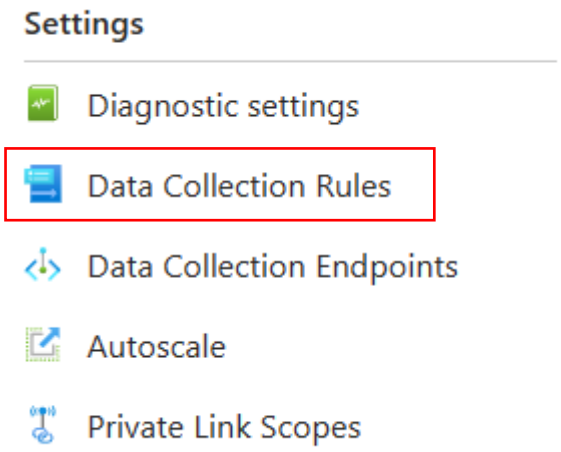
2. Now you just need to choose your resource group and give it a name. You should also choose the same region as your resources or you might have to pay more.



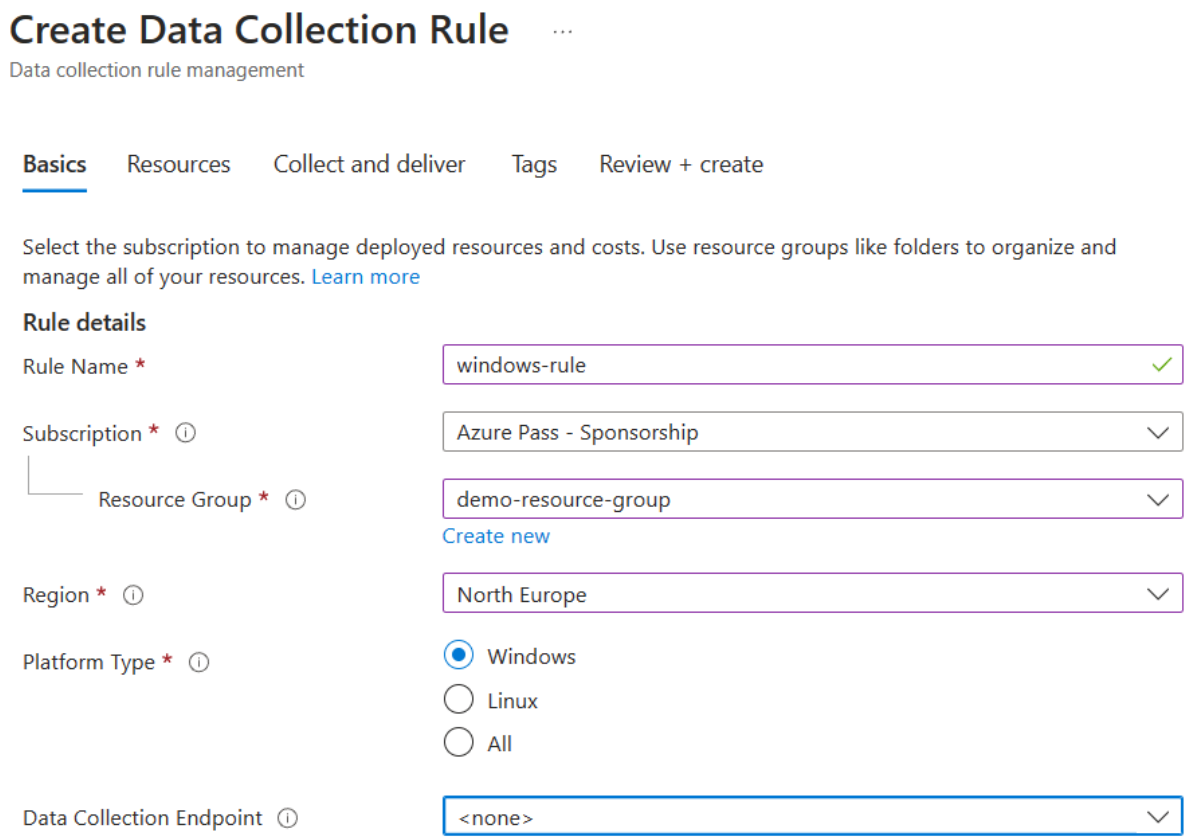
3. Then just move to the review page and create your log analytics workspace.
4. Once your deployment is completed go to resources.
5. Now in your workspace you need to go to logs. You will see that currently your logs are empty.



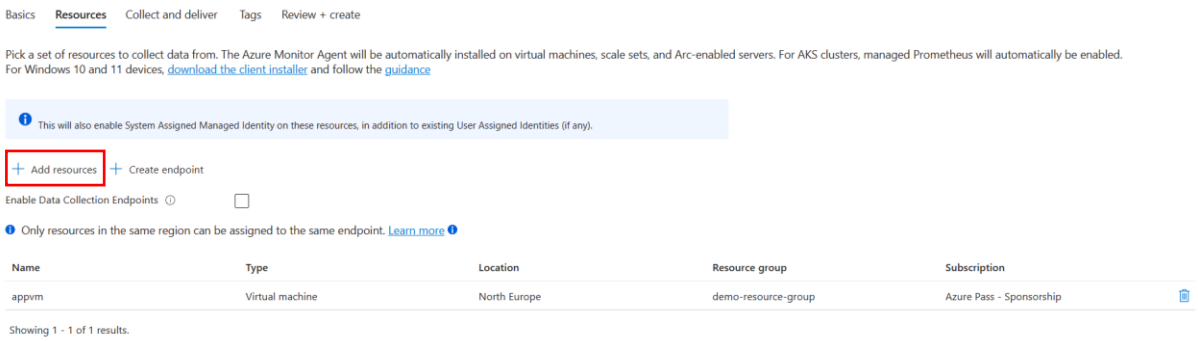
6. Now we are going to define data collection rules. Navigate to Monitor service and then from the left pane scroll down to settings and choose data collection rules from here.



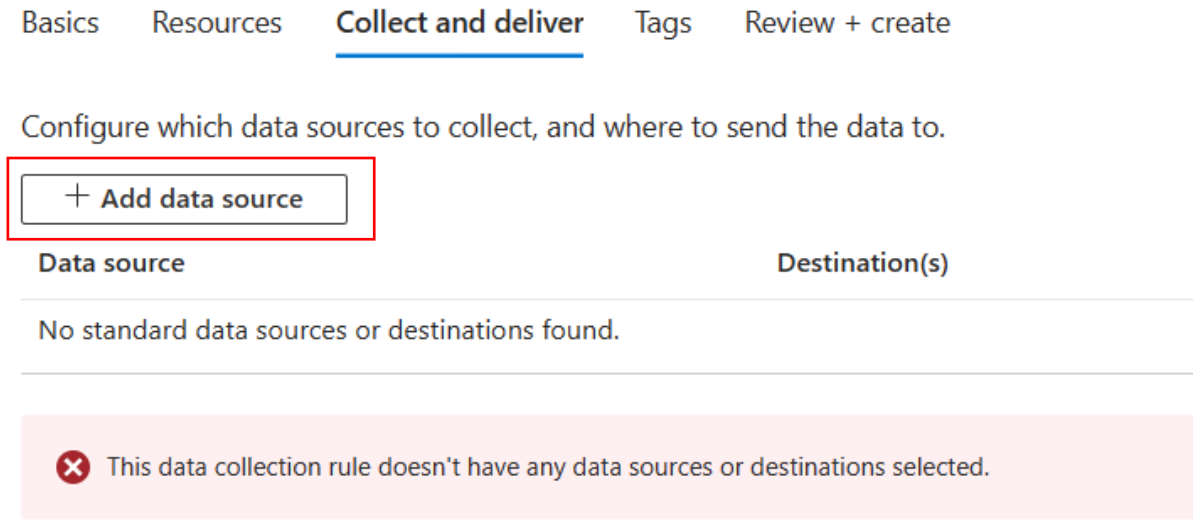
7. Now first we need to choose our resource group then choose the region, after that our platform is Windows as of now and move to next option.



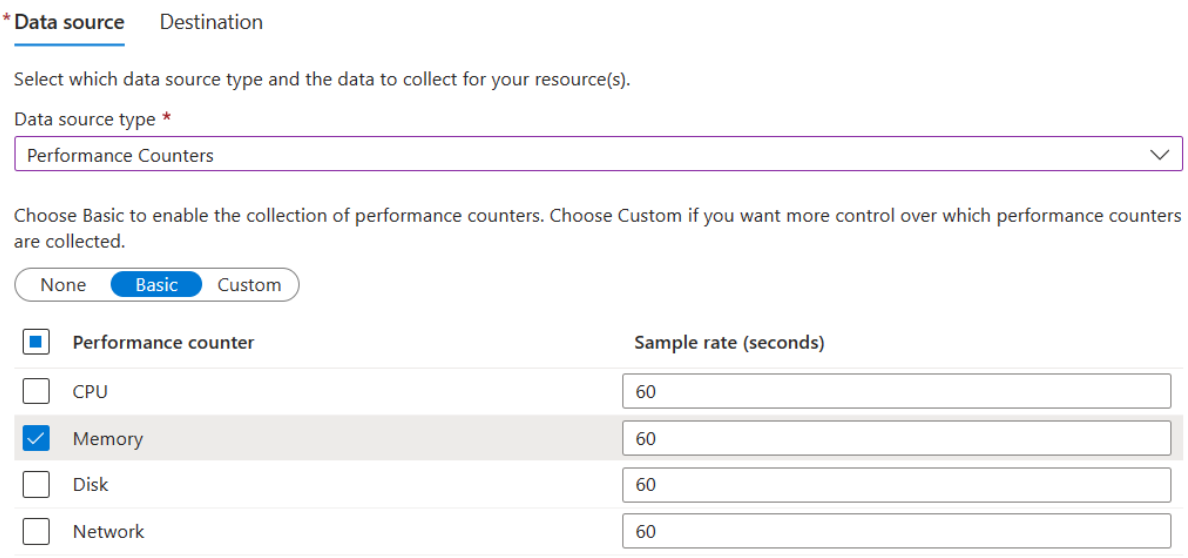
8. Now you need to click on add resources and choose your virtual machine.

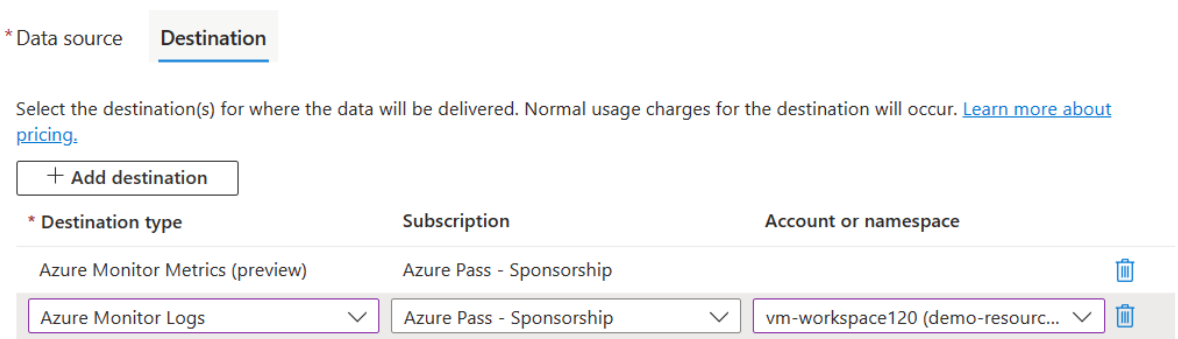


9. Then in collect and deliver you need to click on Add data source.

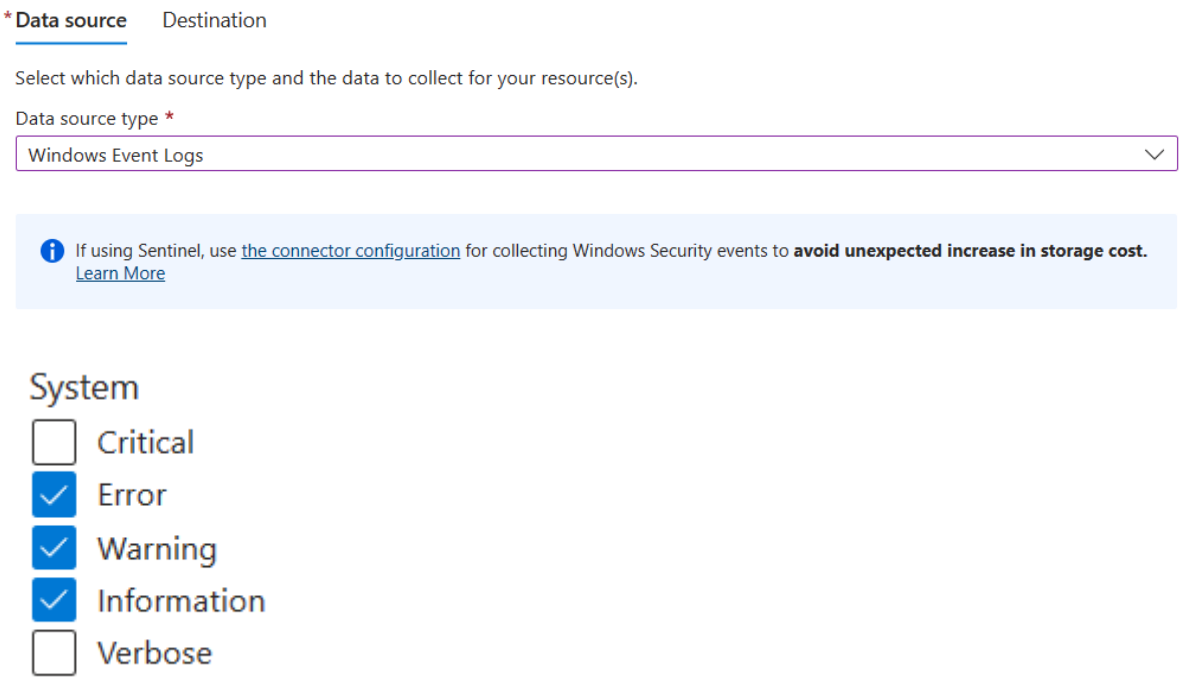


10. After that you need to choose performance counters in data source type and choose memory as your performance counter.
11. Then in the destination choose azure monitor metrics and azure monitor logs then click on add data source.

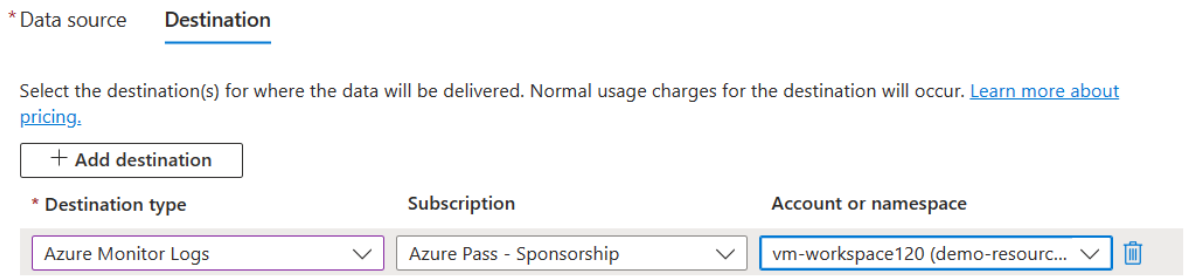




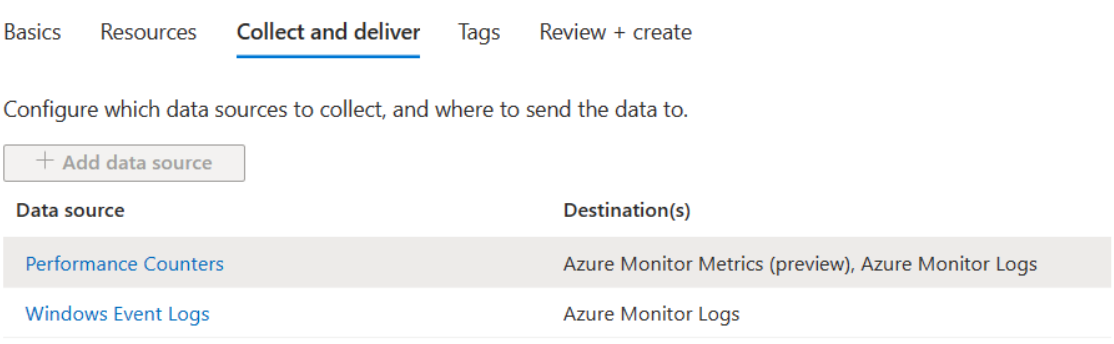
12. Once your data source is added then you are going to add another data source, this time you have to choose Windows event logs. Then choose the error, warning and information for the logs.



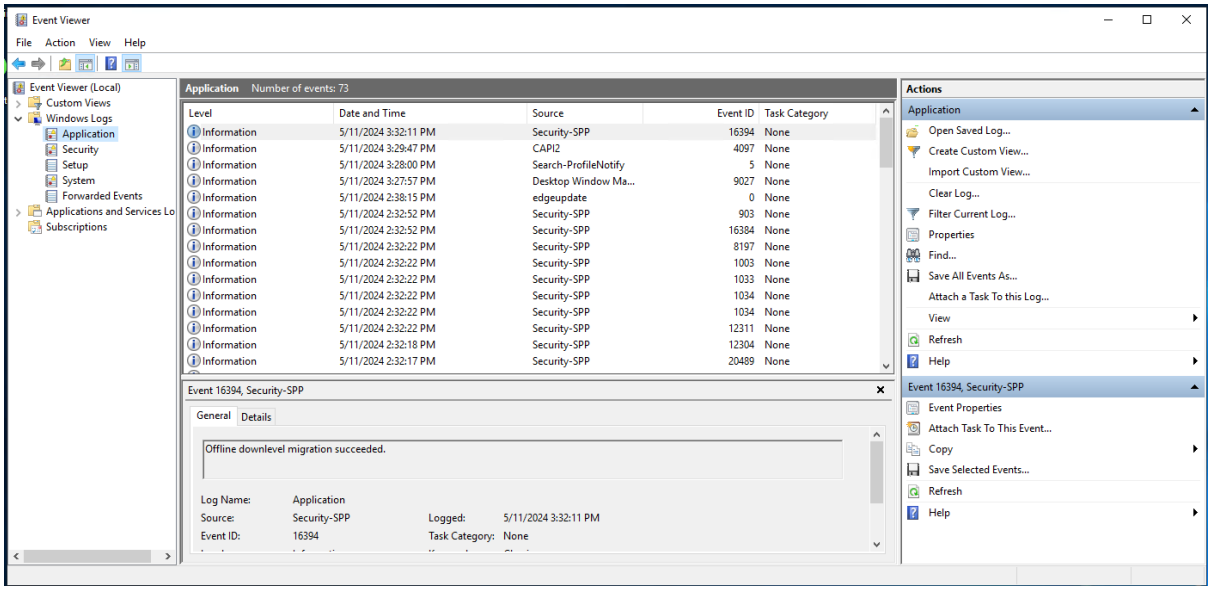
13. Then choose the destination respectively.



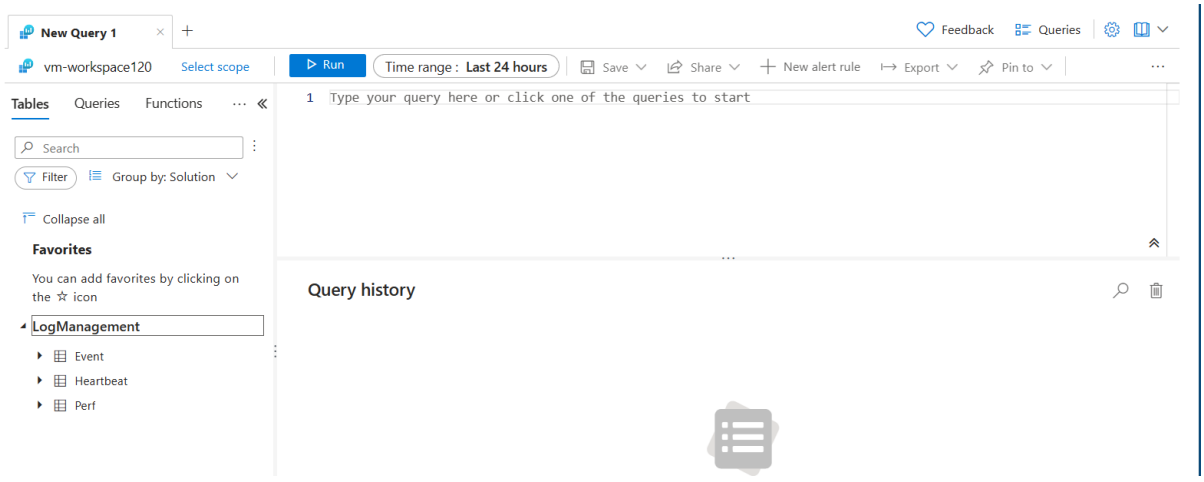
14. Now you have created your collection and delivery. Then just move to the review page and create it.



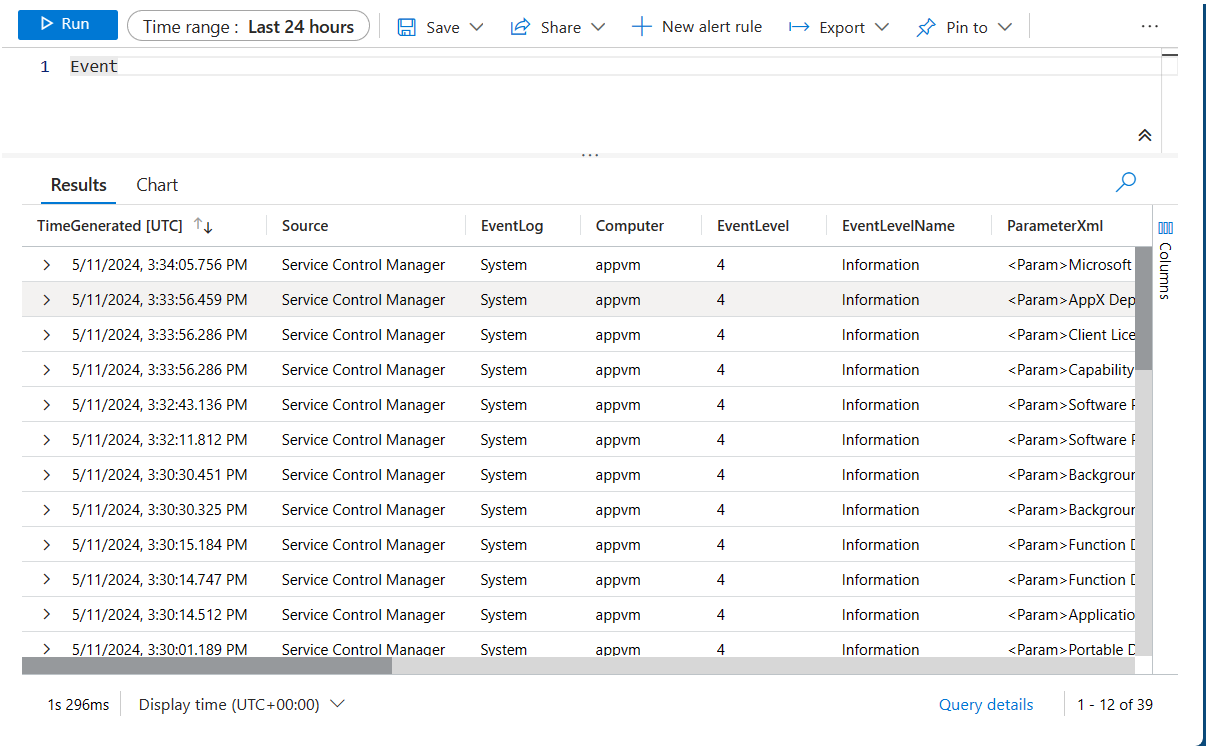
15. Now what you can do is connect to your machine. For that download he RDP file and use it to get connected with your Windows Virtual machine.
16. Now inside your VM you need to search for **Event Viewer**.
17. Here if you will expand Windows Logs you can see the application level logs, the security logs and the setup logs, etc.



18. What the data collection rule can do is it can take all of this information from the system, the security, and the application and send it all to the log analytics workspace. This is very important and onto the Windows OS ecosystem. The Windows OS collects these logs, and you can view them via the event viewer.
19. Now after 10 mins come back to your Log Analytics workspace and go to logs.
20. This time you can see that we have the logs here.



21. Now if you want to see that logs you just need to write the name of the log and click on run then you'll able to see the logs.



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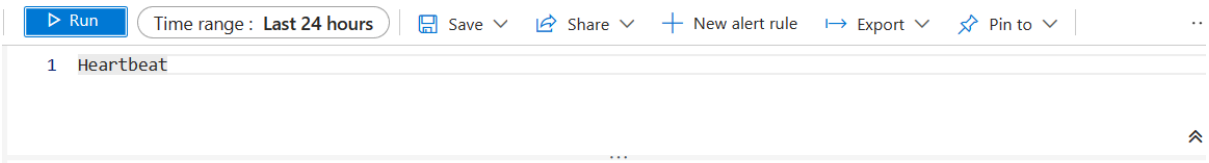
5/11/2024, 3:33:56.459 PM	Service Control Manager	System	appvm	4	Information	<Param>AppX Dep
5/11/2024, 3:33:56.286 PM	Service Control Manager	System	appvm	4	Information	<Param>Client Lice
5/11/2024, 3:33:56.286 PM	Service Control Manager	System	appvm	4	Information	<Param>Capability
5/11/2024, 3:32:43.136 PM	Service Control Manager	System	appvm	4	Information	<Param>Software F
5/11/2024, 3:32:11.812 PM	Service Control Manager	System	appvm	4	Information	<Param>Software F
5/11/2024, 3:30:30.451 PM	Service Control Manager	System	appvm	4	Information	<Param>Backgrour
5/11/2024, 3:30:30.325 PM	Service Control Manager	System	appvm	4	Information	<Param>Backgrour
5/11/2024, 3:30:15.184 PM	Service Control Manager	System	appvm	4	Information	<Param>Function D
5/11/2024, 3:30:14.747 PM	Service Control Manager	System	appvm	4	Information	<Param>Function D
5/11/2024, 3:30:14.512 PM	Service Control Manager	System	appvm	4	Information	<Param>Applicatio
5/11/2024, 3:30:01.189 PM	Service Control Manager	System	appvm	4	Information	<Param>Portable D

1s 296ms | Display time (UTC+00:00) | Query details | 1 - 12 of 39



TimeGenerated [UTC]	SourceComputerId	ComputerIP	Computer	Category
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5/11/2024, 3:36:47.939 PM	c4f0e9e0-ada0-49a4-84c9-aa3...	40.69.34.28	appvm	Azure Monitor Ag
5/11/2024, 3:35:47.920 PM	c4f0e9e0-ada0-49a4-84c9-aa3...	40.69.34.28	appvm	Azure Monitor Ag
5/11/2024, 3:34:47.907 PM	c4f0e9e0-ada0-49a4-84c9-aa3...	40.69.34.28	appvm	Azure Monitor Ag
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5/11/2024, 3:32:47.877 PM	c4f0e9e0-ada0-49a4-84c9-aa3...	40.69.34.28	appvm	Azure Monitor Ag
5/11/2024, 3:31:47.866 PM	c4f0e9e0-ada0-49a4-84c9-aa3...	40.69.34.28	appvm	Azure Monitor Ag
5/11/2024, 3:30:47.852 PM	c4f0e9e0-ada0-49a4-84c9-aa3...	40.69.34.28	appvm	Azure Monitor Ag
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