SQL Insights Troubleshooting in Azure Support Center

Last updated by | Vitor Tomaz | Apr 8, 2022 at 1:47 PM PDT

Contents

Links to Documentation

Internal Documentation

- TSG for the Azure Monitor POD

- TSG for the Azure Monitor POD
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- Technical documentation from product group

Public Documentation

- Overview - SQL insights
- FAQ - SQL insights
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- Create alerts with SQL insights
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Scope of the ASC troubleshooter

ASC will provide an overview of the monitoring profiles and monitoring VMs the customer has created. ASC will not yet provide any insights.

How to find the troubleshooter

The troubleshooter for SQL insights can be found in **Resource Explorer** (not under Tools -> SQL Troubleshooter).

For SQL DB

Under resource Microsoft.Sql -> servers -> databases, under tabs Metrics -> SQL insights

For SQL MI

- For Instances: Under resource Microsoft.Sql -> managedInstances, under tab Metrics
- For Databases: Under resource Microsoft.Sql -> managedInstances -> databases, under tab Metrics

For SQL VM

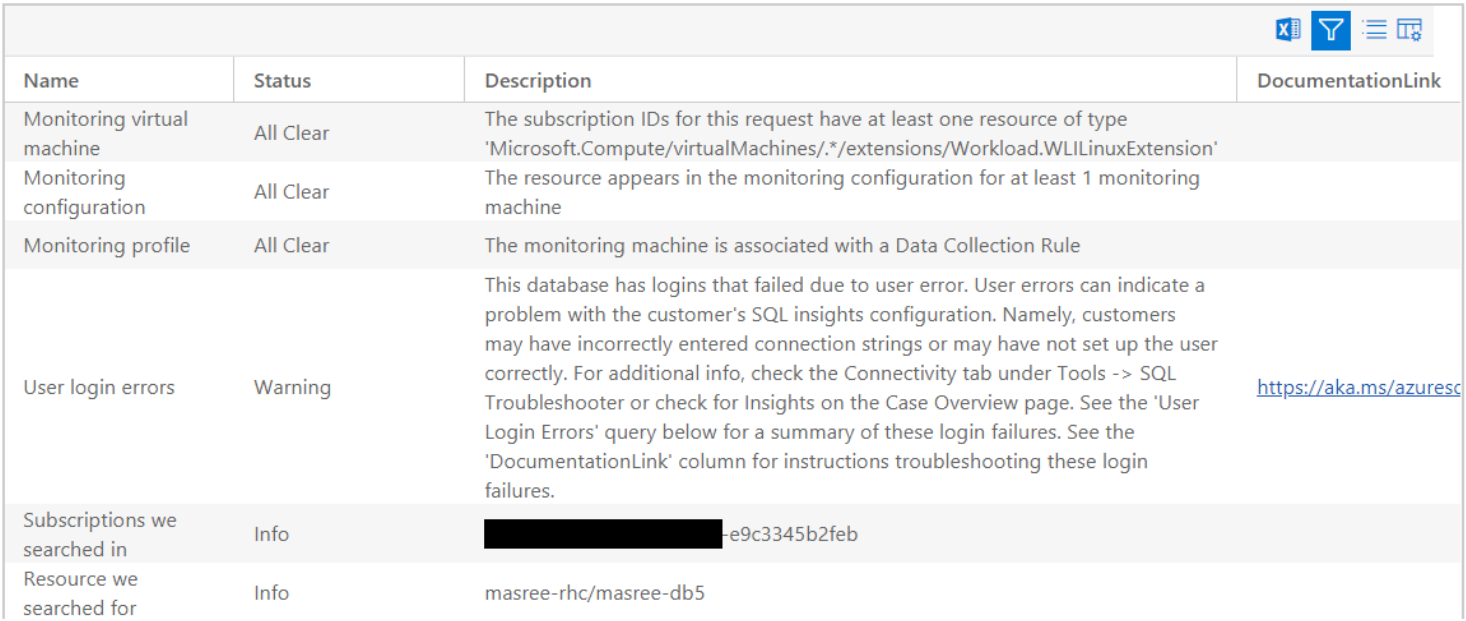
There is no dedicated page for SQL VM. Instead, look in the customer subscription for a SQL DB or SQL MI resource and enter custom parameters (see How to enter custom parameters for instructions). If you cannot find a SQL DB or SQL MI to use, use the placeholder subscription `020384ff-0d57-4a7f-bb45-e9c3345b2feb` or placeholder SRID `120121621001054`. This subscription and SRID are both Microsoft-internal.

View high-level suggestions

The Diagnostic Conclusions table shows a summary of the troubleshooter's results.

Diagnostic Conclusions

This table shows a summary of the results of the troubleshooter.



Name	Status	Description	DocumentationLink
Monitoring virtual machine	All Clear	The subscription IDs for this request have at least one resource of type 'Microsoft.Compute/virtualMachines/.*/extensions/Workload.WLILinuxExtension'	
Monitoring configuration	All Clear	The resource appears in the monitoring configuration for at least 1 monitoring machine	
Monitoring profile	All Clear	The monitoring machine is associated with a Data Collection Rule	
User login errors	Warning	This database has logins that failed due to user error. User errors can indicate a problem with the customer's SQL insights configuration. Namely, customers may have incorrectly entered connection strings or may have not set up the user correctly. For additional info, check the Connectivity tab under Tools -> SQL Troubleshooter or check for Insights on the Case Overview page. See the 'User Login Errors' query below for a summary of these login failures. See the 'DocumentationLink' column for instructions troubleshooting these login failures.	https://aka.ms/azuresc
Subscriptions we searched in	Info	[redacted]-e9c3345b2feb	
Resource we searched for	Info	masree-rhc/masree-db5	

View the customer's monitoring setup

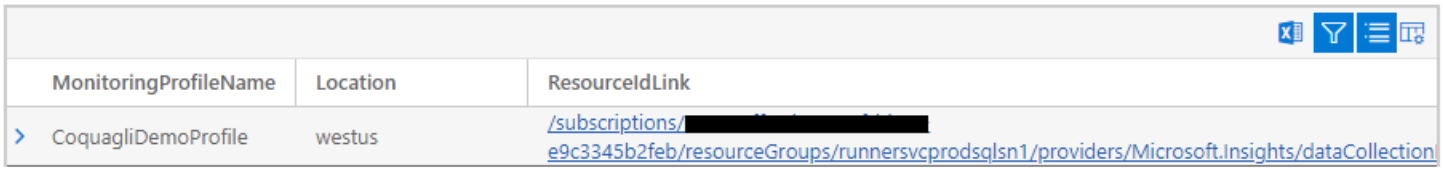
The tables shown below provide a summary of the customer's monitoring setup. Some of the tables will not be present if the customer's monitoring setup is incomplete.

For help understanding the monitoring configuration file, see the telegraf README file.

Note: Currently, ASC does not provide a way to see the configuration for a customer's monitoring VM. This capability will be added soon. The configuration currently shown on ASC is the monitoring *profile* configuration, not the monitoring *VM* configuration.

Monitoring Profiles

This table shows all monitoring profiles configured to monitor the target server/database. Each monitoring profile is stored as a resource of type 'Microsoft.Insights/dataCollectionRules'. Click the link in the the 'ResourceIdLink' column to see the more details about each monitoring profile.



MonitoringProfileName	Location	ResourceIdLink
CoquagliDemoProfile	westus	/subscriptions/[redacted] e9c3345b2feb/resourceGroups/runnersvcprodsqlsn1/providers/Microsoft.Insights/dataCollection

Monitoring Configurations

This table shows the telegraf monitoring configs for the monitoring profiles listed in the 'Monitoring Profiles' table above. Telegraf configs are in TOML format. These configs specify the data sets to collect and the frequency of collection. For help understanding the monitoring configuration file, see the telegraf README file.

MonitoringProfileName	TomlConfigValue
CoquagliDemoProfile	{{"{{"}} $connections := .Parameters.connections }} [[inputs.sqlserver]] servers = [{{- range $ind, $cs := $connections }} {{- if $ind}}, {{end}} "{{ $cs }}" {{- end}}] query_version = 2 exclude_query = ['Schedulers', 'SqlRequests'] [[inputs.cpu]] percpu = true totalcpu = true collect_cpu_time = false report_active = false [[inputs.mem]]

Log Analytics Workspaces

This table shows the Log Analytics workspaces connected to the monitoring profiles listed in the 'Monitoring Profiles' table above. These workspaces store metrics and error logs for SQL insights. **With permission from the customer, you can directly query these workspaces to verify metrics or look for errors**. To do this, click on a link in the 'WorkspaceIdLink' column, then select the 'Query Customer Data' tab. The 'InsightsMetrics' table contains all metrics. The 'Operation' table contains all error logs. See View collection error logs below for more instructions on how to query and interpret these logs.

MonitoringProfileName	WorkspaceName	WorkspaceIdLink
CoquagliDemoProfile	DefaultWorkspace-020384ff-0d57-4a7f-bb45-e9c3345b2feb-WUS	/subscriptions/[redacted]e9c3345b2feb/resourceGroups/DefaultResourceGroup-WUS/providers/Microsoft.OperationalInsights/workspaces/DefaultWorkspace-020384ff-0d57-4a7f-bb45-e9c3345b2feb-WUS

Monitoring Virtual Machine

This table shows the monitoring virtual machines that are configured to monitor the server/database of interest. That means that all machines in this list have monitoring configurations that specify connection strings for the server/database of interest. All monitoring machines have an extension of type 'Microsoft.Compute/virtualMachines/.*/extensions/Workload.WLILinuxExtension'.

VmName	ResourceGroup	ResourceUriLink
coquagli-telegraf-linux	coquagli-telegraf-linux_group	/subscriptions/[redacted]-e9c3345b2feb/resourceGroups/coquagli-telegraf-linux_group/providers/Microsoft.Compute/virtualMachines/coquagli-telegraf-linux/extensions/Workload.WLILinuxExtension

All Monitoring Virtual Machines

This table shows the monitoring virtual machines found in the queried subscriptions. A monitoring virtual machine is any virtual machine that has been added to a SQL insights monitoring profile. This table will include ALL monitoring machines on the queried subscriptions, not just monitoring machines related to the server/database of interest. All monitoring machines will have an extension of type 'Microsoft.Compute/virtualMachines/.*/extensions/Workload.WLILinuxExtension'.

	VmName	ResourceGroup	ResourceUriLink
>	3pm-demo-ubuntu-vm	3pm-demo	/subscriptions/[redacted]-e9c3345b2feb/resourceGroups/3pm-demo/providers/Microsoft.Compute/virtualMachines/3pm-demo-ubuntu-vm/extensions/Workload.WLILinuxExtension
>	coquagli-telegraf-feb-4-2021	coquagli-telegraf-feb-4-2021_group	/subscriptions/[redacted]-e9c3345b2feb/resourceGroups/coquagli-telegraf-feb-4-2021_group/providers/Microsoft.Compute/virtualMachines/coquagli-telegraf-feb-4-2021/extensions/Workload.WLILinuxExtension
>	bhsu-ubuntu-telegraf-vm	bhsu_test	/subscriptions/[redacted]-e9c3345b2feb/resourceGroups/bhsu_test/providers/Microsoft.Compute/virtualMachines/bhsu-ubuntu-telegraf-vm/extensions/Workload.WLILinuxExtension
>	coquagli-telegraf-linux	coquagli-telegraf-linux_group	/subscriptions/[redacted]-e9c3345b2feb/resourceGroups/coquagli-telegraf-linux_group/providers/Microsoft.Compute/virtualMachines/coquagli-telegraf-linux/extensions/Workload.WLILinuxExtension

View login errors

The table below shows the recent user-caused login failures to the given database. See our internal documentation for Connectivity: Configuration and How To Questions and Error 18456: Login failed to assist with these errors.

User Login Errors

This table shows recent user-caused login errors for this server and database. If the query returns 0 rows, then there are no user-caused login errors. User errors can indicate a problem with the customer's SQL insights configuration. Namely, customers may have incorrectly entered connection strings or may have not set up the user correctly. For additional info, check the Connectivity tab under Tools -> SQL Troubleshooter or check for Insights on the Case Overview page. The following common examples will surface as error 18456: username not found (state 5), incorrect username or password (state 8, 58, or 65), database not found on server (state 38 or 126), empty username (state 122), empty password (state 123 or 124).

	error	state	is_success	is_user_error	min_TIMESTAMP	max_TIMESTAMP	count_
>	18456	8	0	1	2021-03-16 02:42:17	2021-03-16 02:42:17	3

View collection error logs

The customer's Log Analytics workspace may contain error logs that can help debug any issues with SQL insights. With permission from the customer, you can directly query these logs to look for error messages. To do this, navigate to the Log Analytics workspace of interest in Resource Explorer, then select the 'Query Customer Data' tab. You can run the queries below for diagnosis. See Collecting with errors state for more instructions.

If the customer does not provide permission for you to query these logs, you can ask the customer to do this themselves. From the Azure Portal, navigate to the workspace of interest, then select Logs.

Understanding the table schema

Operation table

Shows info and error logs from each monitoring VM.

- `TimeGenerated` (UTC generation time of the log)
- `OperationStatus` (Debug, Information, Warning, Error, etc)
- `Computer` (name of the monitoring VM that emitted the log)
- `Detail` (contents of the log)
- `OperationKey` (wli, telegraf - what plugin the log comes from)
- `_ResourceId` (full ARM ID of the monitoring VM that emitted the log)

InsightsMetrics table

Shows the raw metrics gathered by SQL insights. Each row is a separate metric data point.

- `TimeGenerated` (UTC generation time of the metric)
- `Tags` (set of tags describing the SQL database or server being monitored. `database_name` is the database name, `sql_instance` is the server or instance name)
- `SqlInstance` (name of the server or instance that emitted the metric)
- `Computer` (name of the monitoring VM that emitted the log)
- `Namespace` (namespace of the metric. Different metrics have different namespaces - see Data collected by SQL insights
- `Name` (name of the metric - see Data collected by SQL insights
- `Val` (value of the metric)
- `_ResourceId` (full ARM ID of the monitoring VM that emitted the log)

Sample debugging queries

Show all SQL insights metrics in this workspace for the past 3 hours

```
InsightsMetrics
| where TimeGenerated > ago(3h)
| extend Tags = todynamic(Tags)
| extend SqlInstance = tostring(Tags.sql_instance)
| where isnotempty(SqlInstance) and Namespace == 'sqlserver_server_properties' and Name == 'uptime'
```

Show all SQL insights error logs in this workspace for the past 3 hours

This query returns only the error logs.

```
Operation
| where TimeGenerated > ago(3h)
| where OperationCategory == "WorkloadInsights"
| where OperationStatus == 'Error'
```

Show all SQL insights logs in this workspace for the past 3 hours

This query returns both the error and info logs.

For healthy setups, you should see a message like `[outputs.socket_writer] Wrote batch of 781 metrics in 51.401701ms` repeating over and over. This should repeat at approximately the same cadence of the query frequency the customer has chosen (the default is every 60 seconds - the screenshot below illustrates this).

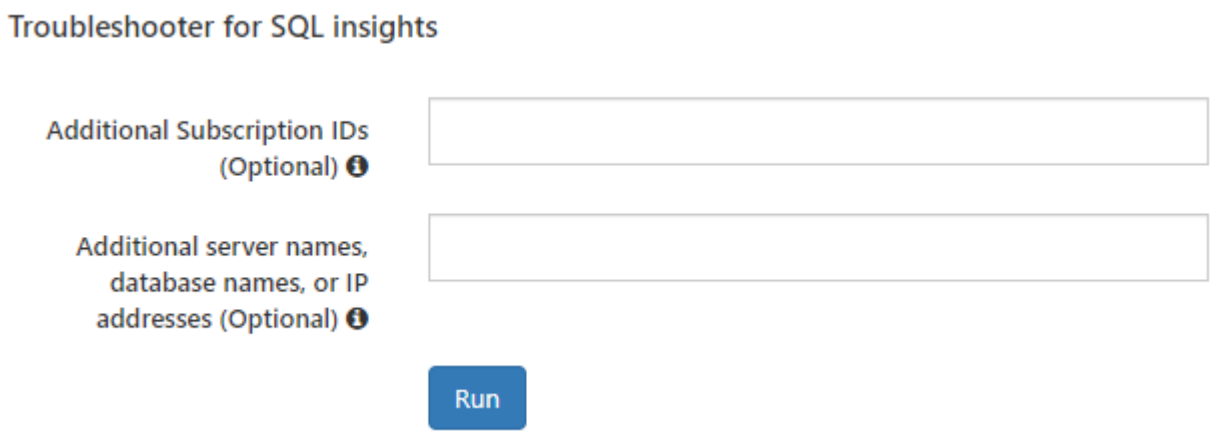
TimeGenerated [UTC]	OperationStatus	Computer	Detail
3/16/2021, 12:31:13.010 AM	Debug	3pm-demo-ubuntu-vm	[outputs.socket_writer] Wrote batch of 780 metrics in 42.039586ms
3/16/2021, 12:32:13.000 AM	Debug	3pm-demo-ubuntu-vm	[outputs.socket_writer] Wrote batch of 780 metrics in 46.863051ms
3/16/2021, 12:33:13.017 AM	Debug	3pm-demo-ubuntu-vm	[outputs.socket_writer] Wrote batch of 780 metrics in 48.614984ms
3/16/2021, 12:34:12.997 AM	Debug	3pm-demo-ubuntu-vm	[outputs.socket_writer] Wrote batch of 781 metrics in 43.227076ms
3/16/2021, 12:35:10.710 AM	Information	bhsu-ubuntu-telegraf-vm	Found existing configuration files: [SqlInsights_dcr-f5b5071923754d5f9615e86c6e1fa38a]
3/16/2021, 12:35:13.013 AM	Debug	3pm-demo-ubuntu-vm	[outputs.socket_writer] Wrote batch of 780 metrics in 47.757419ms
3/16/2021, 12:35:13.013 AM	Information	3pm-demo-ubuntu-vm	Found existing configuration files: [SqlInsights_dcr-f5b5071923754d5f9615e86c6e1fa38a]
3/16/2021, 12:36:13.027 AM	Debug	3pm-demo-ubuntu-vm	[outputs.socket_writer] Wrote batch of 780 metrics in 48.376766ms
3/16/2021, 12:37:13.043 AM	Debug	3pm-demo-ubuntu-vm	[outputs.socket_writer] Wrote batch of 780 metrics in 54.561735ms
3/16/2021, 12:38:13.017 AM	Debug	3pm-demo-ubuntu-vm	[outputs.socket_writer] Wrote batch of 781 metrics in 52.249559ms
3/16/2021, 12:39:12.997 AM	Debug	3pm-demo-ubuntu-vm	[outputs.socket_writer] Wrote batch of 780 metrics in 45.031812ms

```
Operation
| where TimeGenerated > ago(3h)
| where OperationCategory == "WorkloadInsights"
| where Detail !contains "Buffer fullness"
```

How to enter custom parameters

Note: Most scenarios will not require use of these custom parameters.

When you open the page, the troubleshooter will automatically start running. The "*Additional Subscription IDs*" and "*Additional server names, database names, or IP addresses*" will be empty. You can enter additional parameters here, then click Run to *re-run* the troubleshooter.



- *Additional Subscription IDs*: Databases in one subscription can be monitored by data collection rules and VMs in other subscriptions. You can use this field to specify additional subscription IDs where other monitoring resources may reside. If entering multiple values, separate by comma.
- *Additional server names, database names, or IP addresses*: This field is intended to be used for SQL VM. Enter the SQL VM's IP address and/or database name in this field to troubleshoot for SQL VM. If this field is

populated, we'll ignore the server/database name from Resource Explorer. If entering multiple values, Separate by comma.

How good have you found this content?