SL1 Operational Insights – Self Monitoring v104

This PowerPack provides Operational Insights into Platform Operations for the SL1 platform.

The PowerPack contains

- **1 x Dynamic Application**
- **5 x Dashboards**
- **27 x Widgets**
- **2 x Actions**
- **2 x Automations**

PowerPack Installation

Following step by step instructions will ensure that you install the PowerPack successfully.

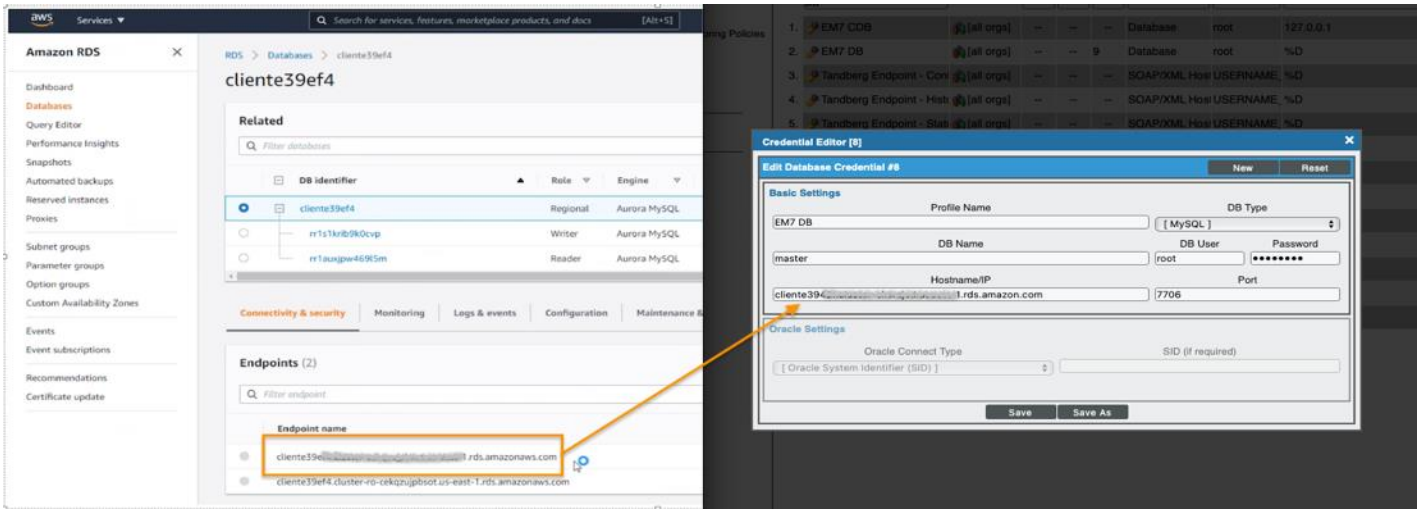
1. Navigate to System > Manage > PowerPacks
2. Select Actions > Import Powerpack
3. Select the PowerPack file and Import
4. Once imported click on the Install button

The PowerPack should now be installed on the system.

SL1 Implementation with RDS

There are some configurations needed to make this PowerPack work for SL1 systems with Data Engines and RDS architecture deployed in the AWS cloud.

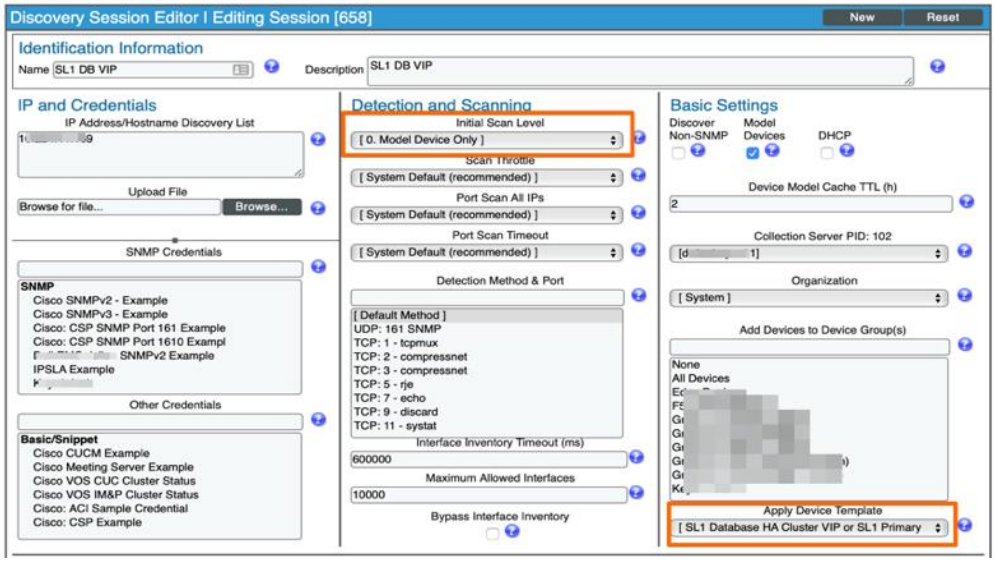
Since the Data Engines do not have MariaDB instance all DB related data collection has to be done by connecting to the RDS instance directly. In order to do that the SL1 DB or EM7 DB credential should be edited or a new credential should be created with the RDS information. Enter the RDS endpoint name in the Hostname/IP field of the credential as shown in the image below. Your AWS administrator will be able to provide you the RDS endpoint name. eg: **`cliente39ef4.cluster.us-east-1.rds.amazon.com`**



The remaining pre-requisites remain the same for this type of deployment, all apps that should be aligned to the EM7 DB, must be aligned to the Data Engine deivces which, when discovered, are classified as SL1 DB.

Pre-requisites:

- This Powerpack requires that all ScienceLogic Appliances to be discovered as monitored devices. It is also required that the discovered hostname for all Data and Message Collector devices match with the Data and Message Collector Appliance names from the Appliances page (System > Settings > Appliances)
- For HA or HA+DR systems the HA VIP should be discovered as a separate device.
    - Discover the VIP with the **Initial Scan Level** set to "Model Device Only" and **Apply Device Template** set to "SL1 Database HA Cluster VIP or SL1 Primary"



Once the HA Cluster VIP has been discovered:

- Rename the device to "SL1 Database HA Cluster VIP"

The following table shows which apps should be aligned to which SL1 DB

							Classic Architecture Type			
	App Type	App Name	Power Pack	Min PowerPack Version	Credential Needed	Mini Version Needed	Stand-Alone DB	HA or HA+DR	DR	AWS RDS
1	Configuration	Dall Pull Configuration	Data Pull Support	8.5.0	SNMP	8.12	DB	All DBs (Not VIP)	All DBs	All DEs
2	Configuration	Host Resource: Configuration	Host Resource Core Pack	106	SNMP	8.12	DB	All DBs (Not VIP)	All DBs	All DEs
3	Configuration	Host Resource: Software	Host Resource Core Pack	106	SNMP	8.12	DB	All DBs (Not VIP)	All DBs	All DEs
4	Configuration	SL1: Asset Information	SL1 Default Dynamic Applications	7.7.0	SNMP	8.12	DB	All DBs (Not VIP)	All DBs	All DEs

							Classic Architecture Type			
	App Type	App Name	Power Pack	Min PowerPack Version	Credential Needed	Mini Version Needed	Stand-Alone DB	HA or HA+DR	DR	AWS RDS
5	Configuration	SL1: DRBD Status Config	ScienceLogic DRBD Monitoring	102	SNMP	8.12	N/A	All DBs (Not VIP)	All DBs	N/A
6	Configuration	Support: Database Configuration	ScienceLogic Support Pack	101	SNMP* extended	8.14 w/ ScienceLogic Support Pack v101	DB	VIP	All DBs	All DEs
7	Configuration	SL1: Operational Insights - DNS/Timeservers Auditing	SL1: Operational Insights - Platform Operations	104	SSH	8.14	DB	All DBs (Not VIP)	All DBs	All DEs
8	Configuration	Support: DB Space Estimator	ScienceLogic Support Pack	101	Database	8.14 w/ ScienceLogic Support Pack v101	DB	VIP	All DBs	N/A
9	Configuration	Support: File System	ScienceLogic Support Pack	100	SNMP	8.12	DB	All DBs (Not VIP)	All DBs	All DEs
10	Configuration	Support: MariaDB Configuration	ScienceLogic Support Pack	101	Database	8.14 w/ ScienceLogic Support Pack v101	DB	All DBs (Not VIP)	All DBs	All DEs
11	Configuration	Support: SL1 Configuration	ScienceLogic Support Pack	101	SNMP* extended	8.14 w/ ScienceLogic Support Pack v101	DB	All DBs (Not VIP)	All DBs	All DEs
1	Performance	HF Data Pull: Storage Tasks	Data Pull Support	8.5.0	SNMP	8.12	DB	VIP	All DBs	All DEs
2	Performance	HF Data Pull: Statistics	Data Pull Support	8.5.0	SNMP	8.12	DB	VIP	All DBs	All DEs
3	Performance	LF Data Pull: Storage Tasks	Data Pull Support	8.5.0	SNMP	8.12	DB	VIP	All DBs	All DEs
4	Performance	LF Data Pull: Statistics	Data Pull Support	8.5.0	SNMP	8.12	DB	VIP	All DBs	All DEs
5	Performance	MF Data Pull: Storage Tasks	Data Pull Support	8.5.0	SNMP	8.12	DB	VIP	All DBs	All DEs
6	Performance	MF Data Pull: Statistics	Data Pull Support	8.5.0	SNMP	8.12	DB	VIP	All DBs	All DEs
7	Performance	Net-SNMP: CPU	Net-SNMP Base Pack	101	SNMP	8.12	DB	All DBs (Not VIP)	All DBs	All DEs
8	Performance	Net-SNMP: Physical Memory	Net-SNMP Base Pack	101	SNMP	8.12	DB	All DBs (Not VIP)	All DBs	All DEs
9	Performance	Net-SNMP: Swap	Net-SNMP Base Pack	101	SNMP	8.12	DB	All DBs (Not VIP)	All DBs	All DEs

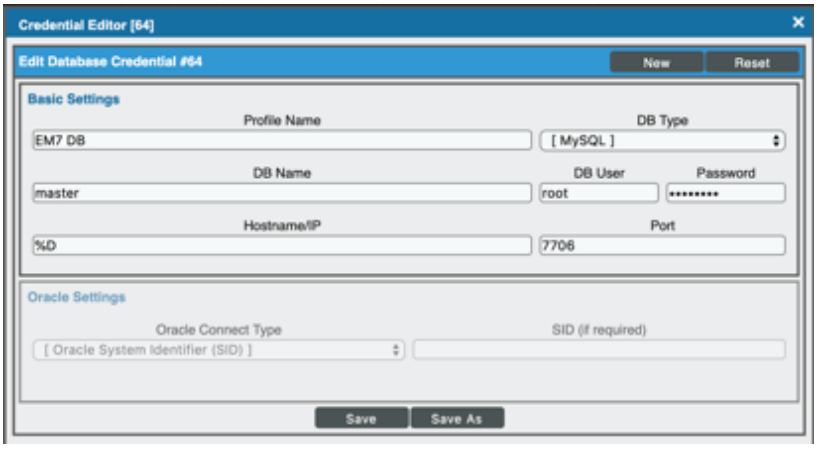
							Classic Architecture Type			
	App Type	App Name	Power Pack	Min PowerPack Version	Credential Needed	Mini Version Needed	Stand-Alone DB	HA or HA+DR	DR	AWS RDS
10	Performance	SL1: DRBD Status Performance	ScienceLogic DRBD Monitoring	102	SNMP	8.12	N/A	All DBs (Not VIP)	All DBs	N/A
11	Performance	SL1: Event Count	SL1 Default Dynamic Applications	7.7.0	Database	8.12	DB	VIP	All DBs	All DEs
12	Performance	SL1: Event Statistics	SL1 Default Dynamic Applications	7.7.0	SNMP	8.12	DB	VIP	All DBs	All DEs
14	Performance	SL1: Operational Insights - Event Counts By Severity	SL1 Operational Insights - Platform Operations	104	Database	8.12	DB	VIP	All DBs	All DEs
15	Performance	SL1: Operational Insights - System Log Counts	SL1 Operational Insights - Self Monitoring	104	Database	8.12	DB	VIP	All DBs	All DEs
16	Performance	Subscription License Usage Totals	ScienceLogic Subscription Audit Pack	101	Database	8.12	DB	VIP	All DBs	All DEs
17	Performance	Support: Async Message Backlog Performance	ScienceLogic Support Pack	101	Database	8.14 w/ ScienceLogic Support Pack v101	DB	VIP	All DBs	All DEs
18	Performance	Support: Config Push	ScienceLogic Support Pack	100	Database	8.12	DB	VIP	All DBs	All DEs
19	Performance	Support: DRBD Proxy Stats	ScienceLogic Support Pack	100	SNMP	8.12	N/A	All DBs (Not VIP)	All DBs	All DEs
20	Performance	Support: InnoDB Size	ScienceLogic Support Pack	100	SNMP	8.12	DB	VIP	All DBs	N/A
21	Performance	Support: Maintenance Tracking	ScienceLogic Support Pack	100	Database	8.12	DB	VIP	All DBs	All DEs
22	Performance	Support: MariaDB Performance	ScienceLogic Support Pack	101	Database	8.14 w/ ScienceLogic Support Pack v101	DB	VIP	All DBs	All DEs
23	Performance	Support: Platform Statistics	ScienceLogic Support Pack	100	Database	8.12	DB	VIP	All DBs	All DEs
24	Performance	Support: PT-DiskStats	ScienceLogic Support Pack	100	SNMP	8.12	DB	VIP	All DBs	All DEs

							Classic Architecture Type			
	App Type	App Name	Power Pack	Min PowerPack Version	Credential Needed	Mini Version Needed	Stand-Alone DB	HA or HA+DR	DR	AWS RDS
25	Performance	Support: Rows Behind	ScienceLogic Support Pack	100	SNMP	8.12	DB	VIP	All DBs	All DEs
26	Performance	Support: SL1 Performance	ScienceLogic Support Pack	101	SNMP	8.14 w/ ScienceLogic Support Pack v101	DB	All DBs (Not VIP)	All DBs	All DEs

Dynamic App Installation

The installation of the PowerPack also requires a manual alignment of the Dynamic Application to the Primary DB.

1. Navigate to the Device Manager under Registry > Devices > Device Manager
2. Search for the Primary SL1 DB or HA Cluster VIP
3. Click on the wrench for the Primary DB
4. Navigate to the Collections Tab on the Primary DB
5. Select Actions > Add Dynamic Application
6. Search for SL1 Operational Insights - System Log Counts under Dynamic Applications
7. Select a Database Credential (EM7 DB) – if no DB credential is available create a new DB credential with the following options:
    a. DB Name: master
    b. DB User: root
    c. Password: MariaDB Password
    d. Hostname/IP: %D
    e. Port: 7706



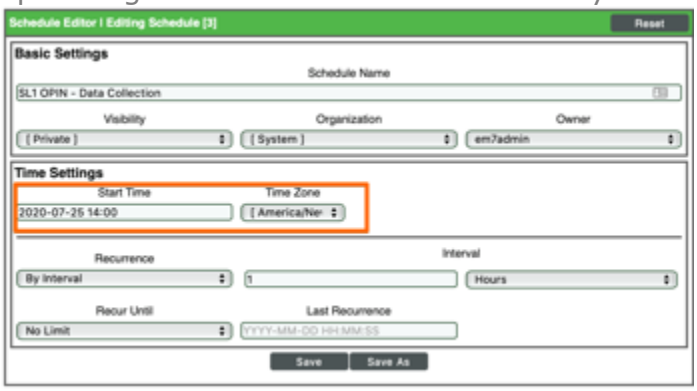
8. Click Save

Data Collection Automations configuration

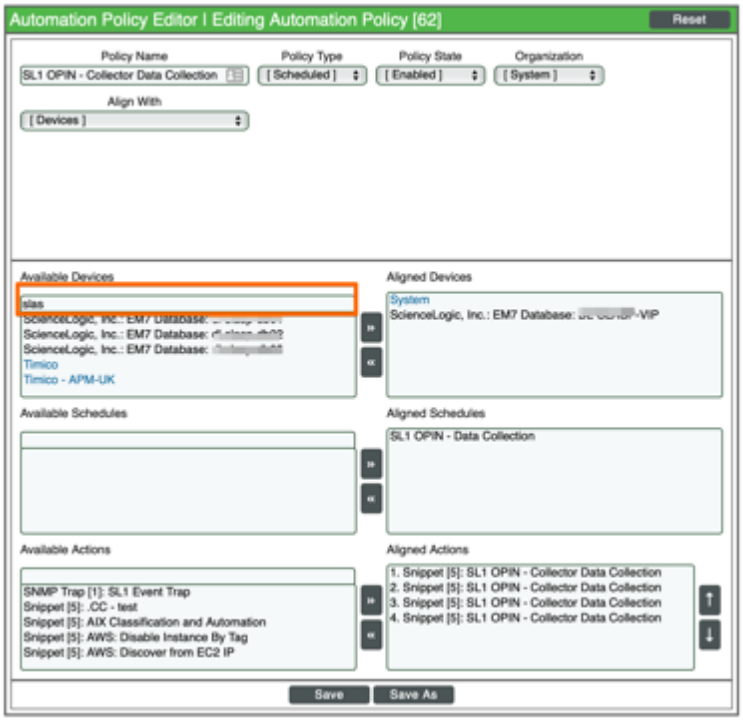
Two automations (provided with the PowerPack) are required to be configured in order to see data on the Collector Performance and System Logs Dashboards

1. Navigate to Registry > Run Book > Schedules

2. Edit Schedule "SL1 OPIN - Data Collection" and set the Start Time value to the next upcoming hour and Time Zone value to your local Time Zone.



3. Navigate to Registry > Run Book > Automation and search for "OPIN" for the Automation Name, you should see two policies:
    a. SL1 OPIN - Collector Data Collection
    b. SL1 OPIN - System Log Data Collection
4. Edit each of the above two policies and perform the following tasks:
    a. Search for the Active DB/HA VIP for the Available Devices and move the correct device to the Aligned Devices Section:



    b. Click Save and close the policy editor.

Dashboard Configuration

There are Dashboards that need minor configurations. The following steps will provide the details to configure the dashboards.

Landing Page Configuration

1. Navigate to Dashboards and to the Operational Insights Landing Page
2. Once at the landing page edit the landing page widget and click on configure

3. From the widget configuration window unselect any dashboard that you do not want to see on the landing page, by default all dashboards are selected and will show on the landing page.

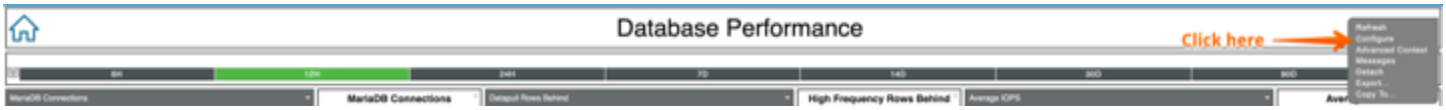
4. Un Check the following two options from the "Admin Tools" if your system is less than v8.14:
    a. SL1 DB Configuration Check
    b. SL1 System Status Result

5. NOTE: If your environment has over 500 Organizations then unselect the Device Health Dashboard. Keeping it enabled on systems with large number of organizations can have a negative impact.

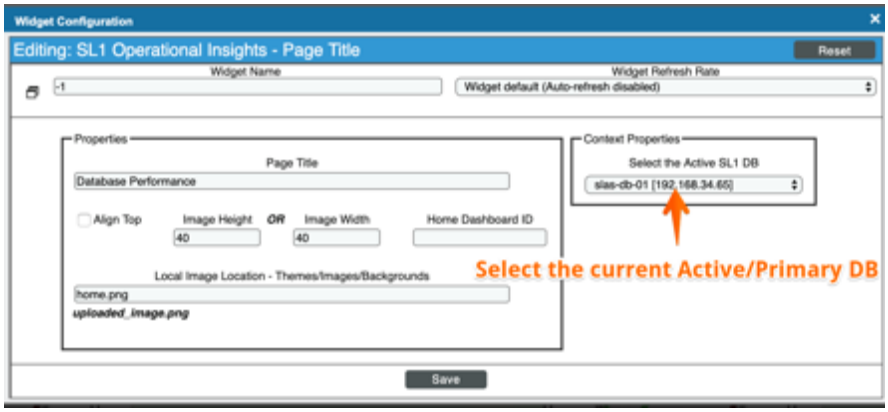
6. Click save to save you changes.

Active DB Context configuration

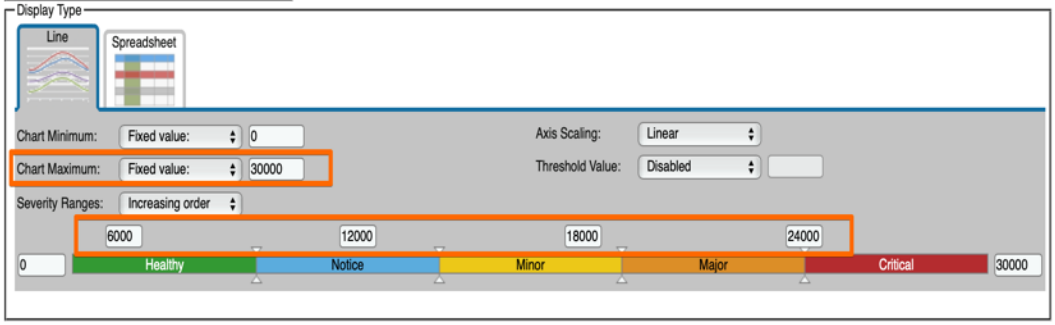
1. Navigate to the Operational Insights Landing page and open Database Performance
2. Edit the Top widget with the Dashboard Name and click configure:



3. Select the current Active/Primary DB/HA VIP Device from the dropdown

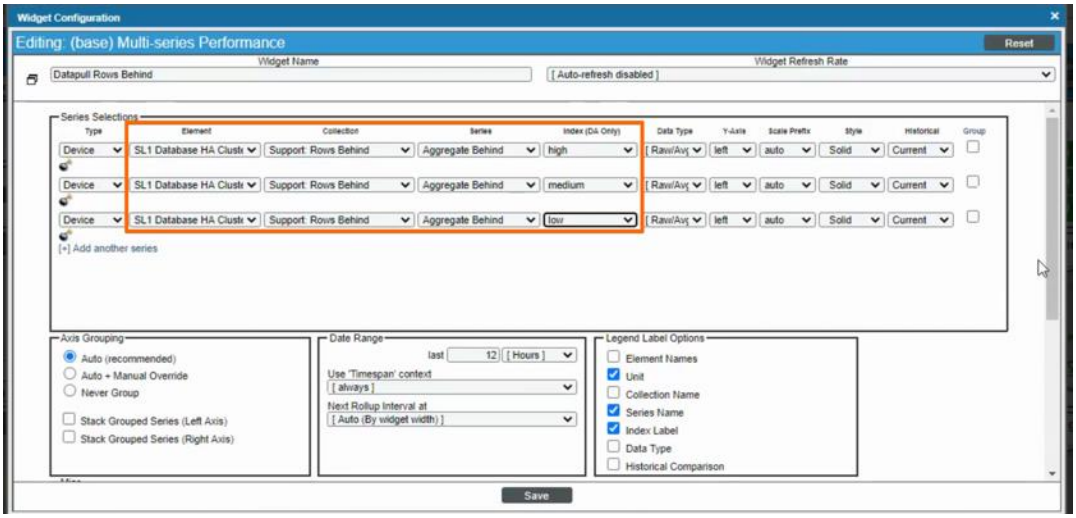


4. Click save to save your changes and exit.
5. Repeat Steps 1-4 for the following Dashboards:
    a. System Logs Summary
    b. Collector Performance
    c. Device Health
6. On the Database Performance Dashboard edit the **Total Active Devices** Graph and Gauge Widget
7. Set the **Chart Maximum** value to the License Capacity of the system and set the different severity thresholds with 1/5th increments.

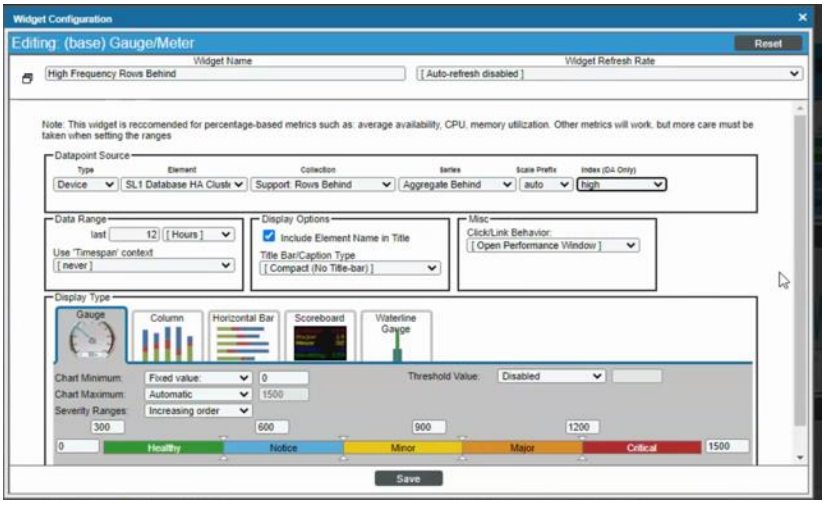


8. Save and exit.
9. On the Database Performance Dashboard edit the **Total Interfaces** graph and Gauge Widget
10. Set the **Chart Maximum** value to Number of Data Collectors * 15000 and set the different severity thresholds with 1/5th increments.
11. Save and exit.

12. Edit **Datapull Rows Behind** Graph widget and select the following:
    a. For **Element** select HA Cluster VIP (Active DB for Single DB and pure DR systems)
    b. For **Collection** select "Support: Rows Behind"
    c. For **Index** select high/medium/low for the three rows as shown below



13. Save and exit.
14. Edit **High Frequency Rows Behind** Gauge widget and select the following:
    a. For **Element** select HA Cluster VIP (Active DB for Single DB and pure DR systems)
    b. For **Collection** select "Support: Rows Behind"
    c. For **Index** select "high" as shown below:



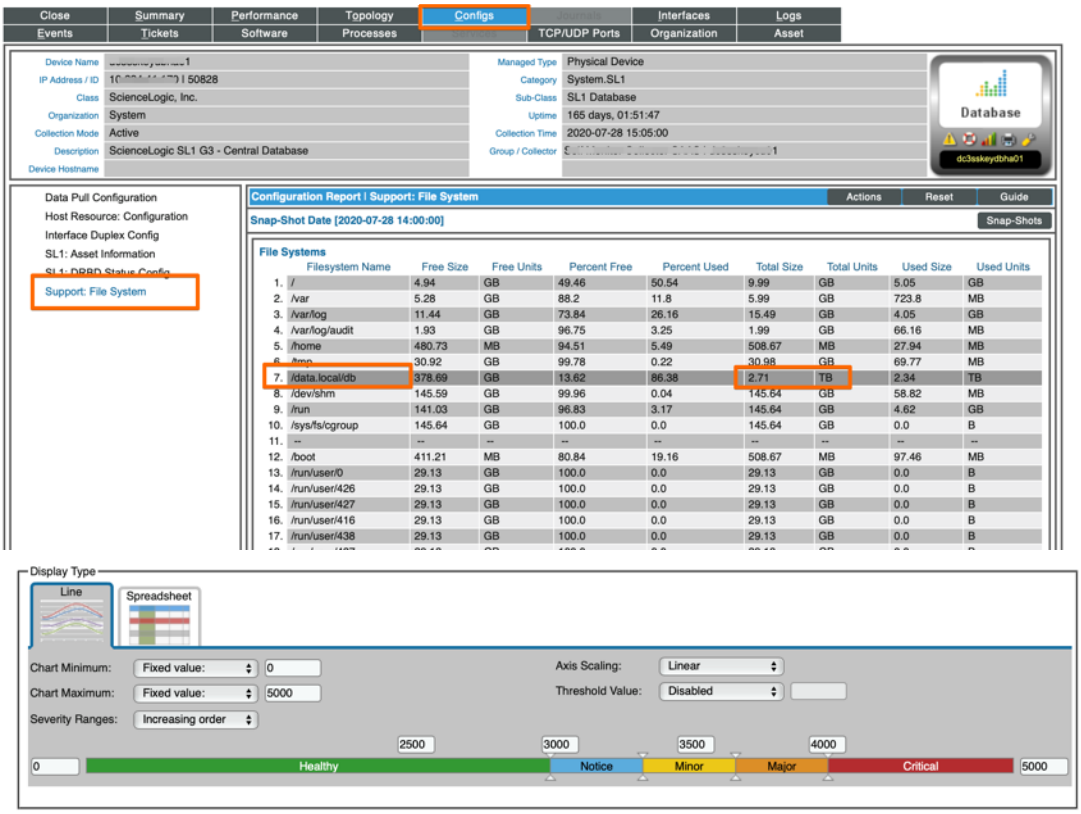
15. Save and exit.
16. Edit **InnoDB Size - Used Space** Graph widget and update the **Chart Maximum** value to the /data.local/db rounded up value. You can find this value from the primary DB device:
    a. Find the primary DB in the Registry > Devices > Device Manager

b. Click the graph icon for the primary DB

c. Navigate to the Configs tab

d. Click on the **Support File System** app link on the left column

e. Locate Total Size value for /data.local/db: e.g. for 3TB use 4000 or 5000 as Chart Maximum



17. Edit **Database Partition Util** Gauge widget and use the same value from previous step 16.e to populate the Severity ranges.

18. Save and exit.

19. Edit **Average IOPS** Graph and Gauge widget and select the following:

    a. For **Element** select HA Cluster VIP (Active DB for Single DB and pure DR systems)

    b. For **Collection** select "Support: PT-DiskStats"

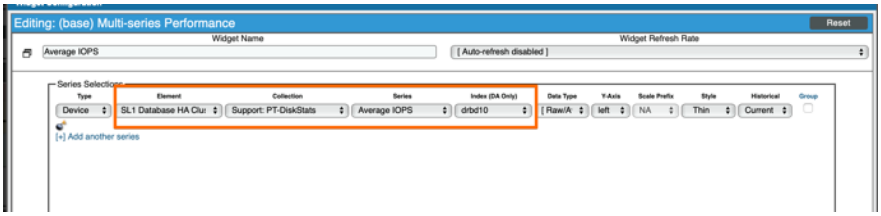
    c. For **Series** select "Average IOPS"

    d. For Index

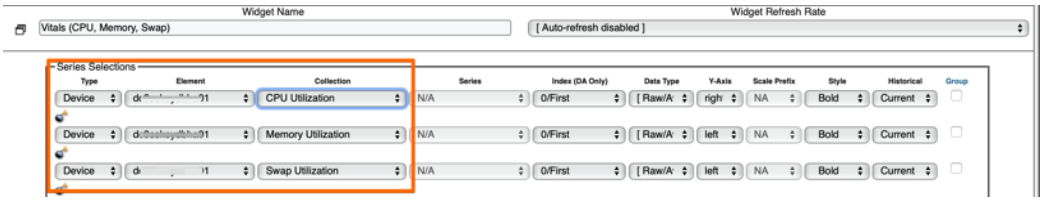
        i. Select "drbd1" if your system is HA or DR ONLY

        ii. Select "drbd10" if your system is HA+DR

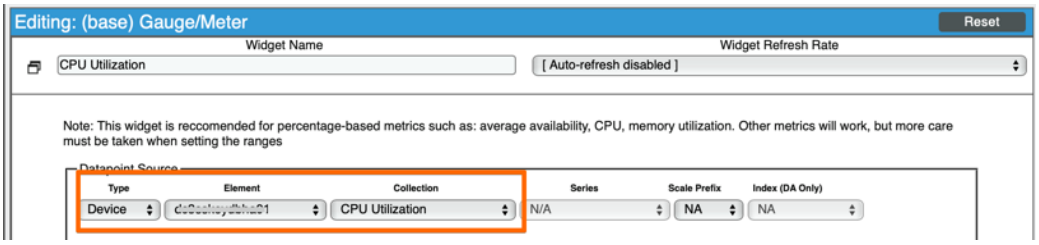
        iii. Select "sda" or "sda1" if your system has only ONE DB



20. Save and exit.
21. Edit **Vitals (CPU, Memory, Swap)** Graph widget and select the following:
    a. For **Element** select Active DB
    b. **Collection** select "CPU Utilization/Memory Utilization/Swap Utilization" for each one of the three series.



22. Save and exit.
23. Edit **CPU Utilization** Gauge widget and select the following:
    a. For **Element** select Active DB
    b. **Collection** select "CPU Utilization" for each one of the three series.

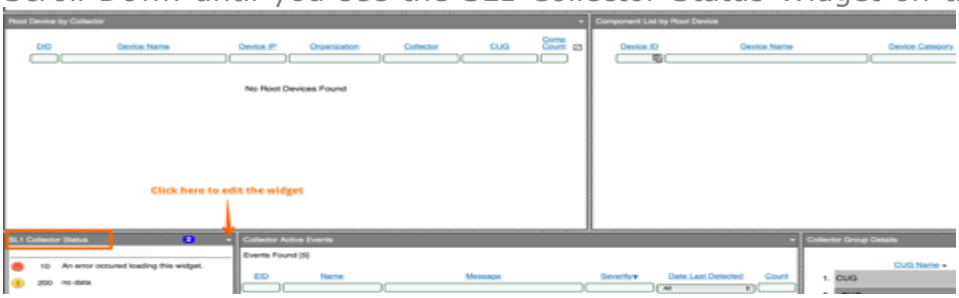


24. Save and exit.

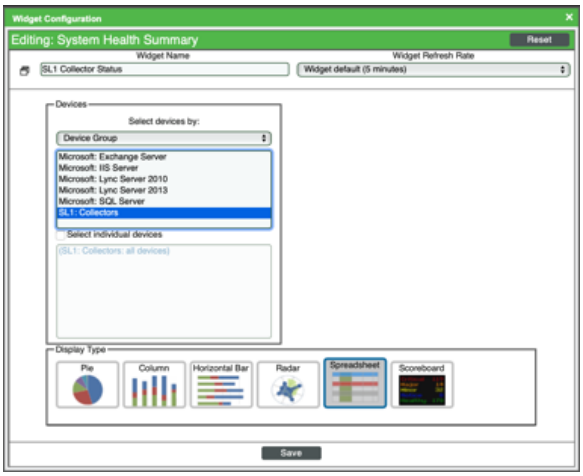
SL1 Collector Status Widget configuration

The SL1 Collector Status Widget in the Collector Performance Dashboard requires selection of the "SL1: Collectors" Device Group that is a part of the PowerPack.

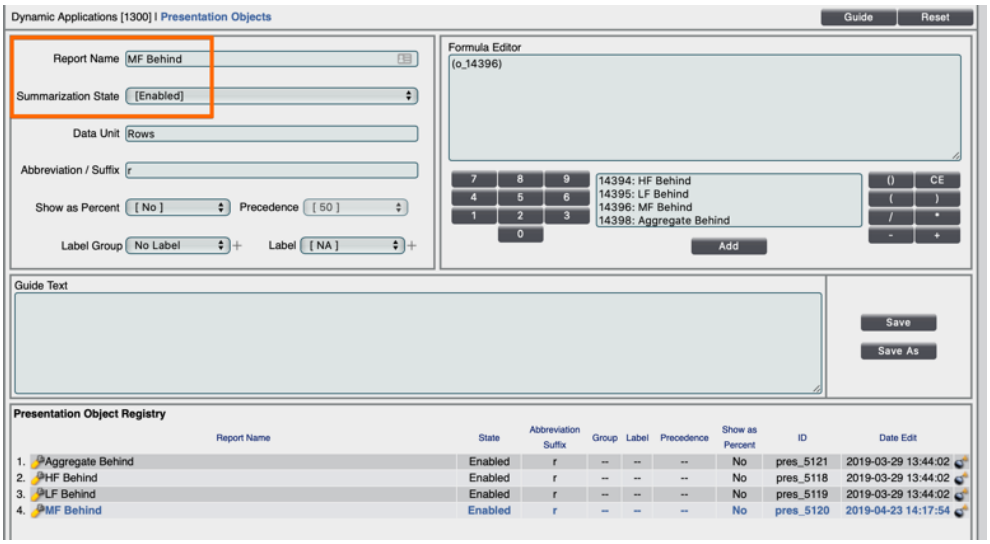
1. Navigate to the Collector Performance Dashboard from the Landing Page.
2. Scroll Down until you see the SL1 Collector Status Widget on the left side of the screen:



3. In the widget configuration window select the "SL1: Collectors" from the Device Groups list.



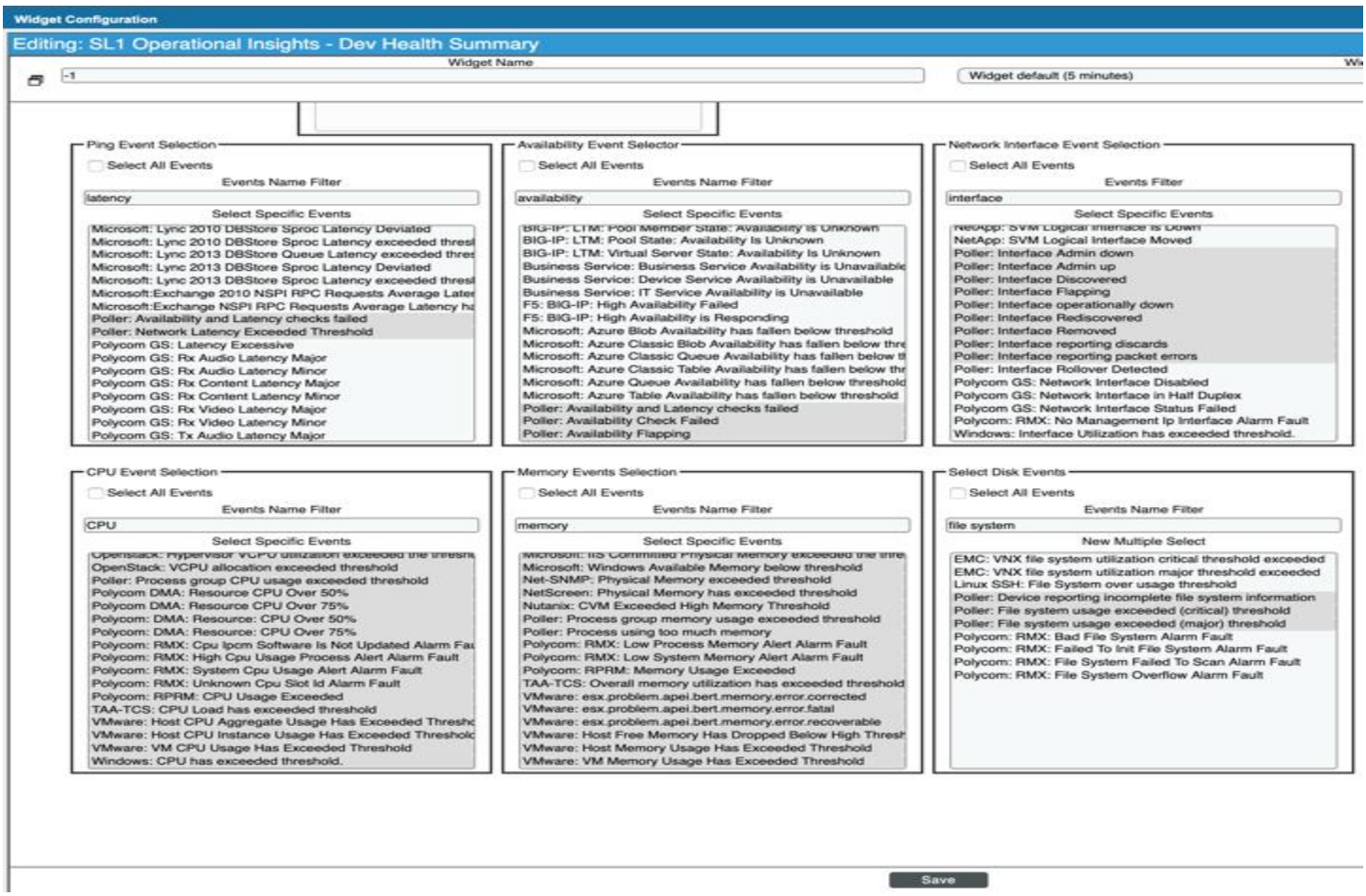
4. Click Save and exit.
5. If the **Top 5: MF Behind** widget doesn't show data check if the presentation object is enabled:
    a. Navigate to System > Manage > Applications
    b. Search for "Support: Rows Behind" for Dynamic Application Name
    c. Edit the application and navigate to the Presentations tab
    d. Edit **MF Behind** Presentation Object
    e. Ensure that the **Summarization State** is "Enabled"
    f. Save and exit.



Device Health Dashboard Configuration (Only applicable if Dashboard is enabled from Landing Page configuration)

1. Navigate to the Operational Insights Landing page
2. Once the Landing Page dashboard has been configured, click on Device Health Summary and open the Device Health Summary Dashboard.
3. Edit the widget:

4. Select the appropriate events for all 6 checks from the event list per check as shown below:



5. The custom Check section can be ignored, as it is for future use.
6. Click Save.

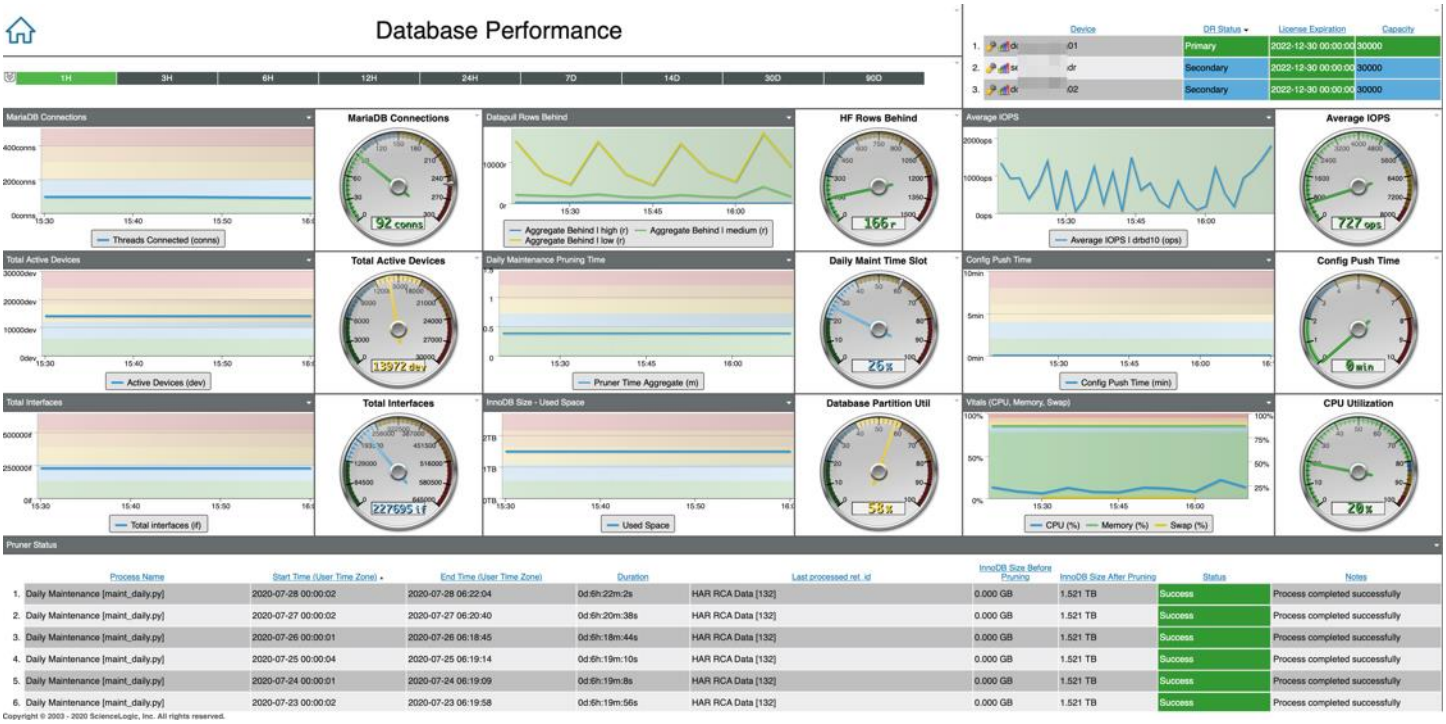
Dashboard Details

There are 5 Dashboards that are a part of the Self Monitoring PowerPack.

SL1 Operational Insights – Landing Page

This dashboard provides a convenient links to all other dashboards including the ones part of Platform Operations and Capacity Management PowerPacks. If any of the linked dashboards are deleted or the PowerPacks are not installed correctly then the links will direct you to the same Landing Page.

SL1 Operational Insights – Database Performance



This dashboard provides details about the system health wrt to the DB. The dashboard gives an overview of the following metrics:

- MariaDB Connection Counts
- Datapull Rows Behind Aggregates
- Average IOPS for the active DB
- Number of Active Devices being monitored
- Daily Maintenance Pruning Time
- Config Push Time
- Number of Active Interfaces being monitored
- InnoDB Size – Used Space
- Active DB Vitals (CPU, Memory, SWAP)

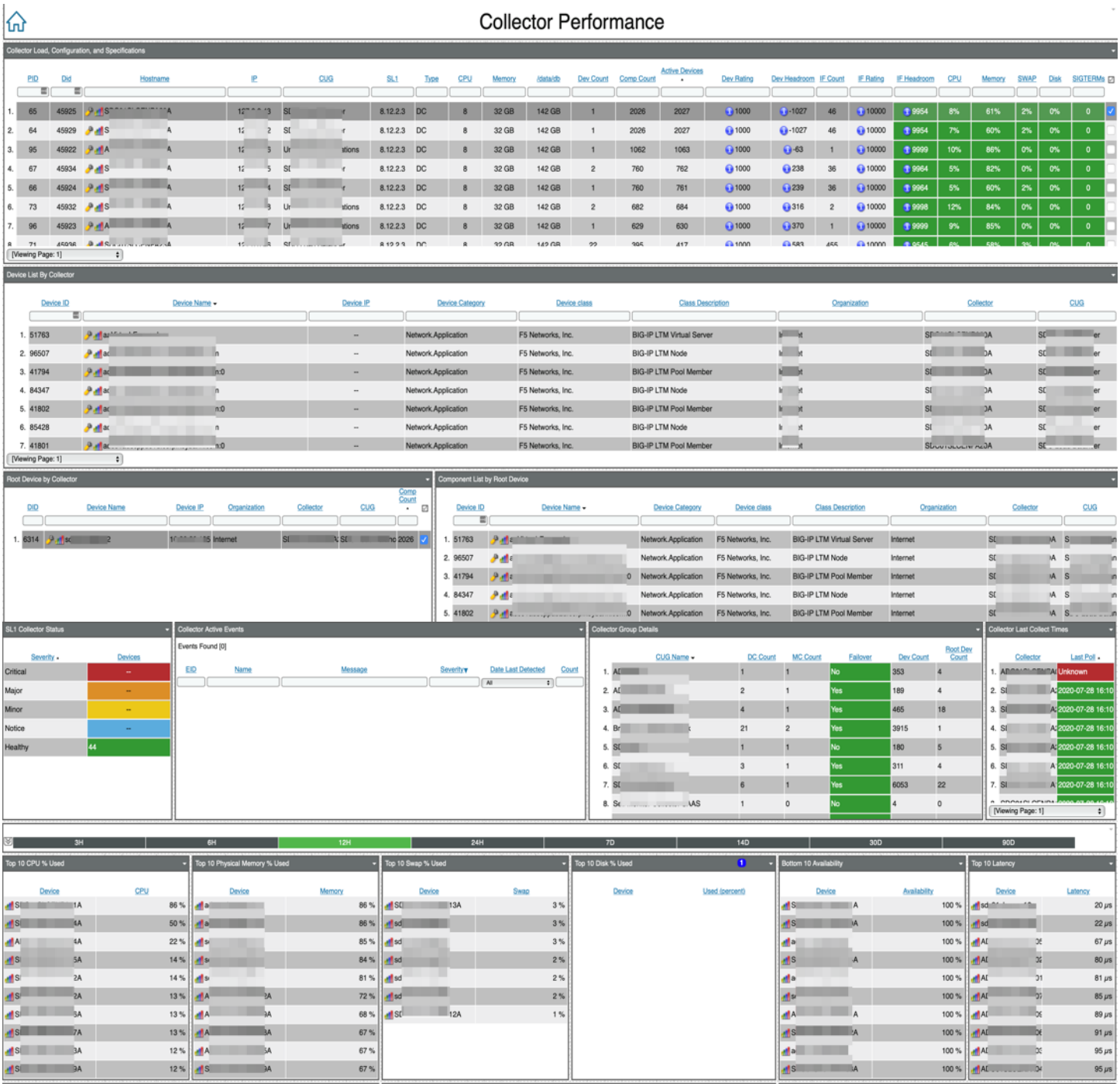
This dashboard also provides a widget that gives details about the last 7 days of Daily Maintenance stats. This includes the start and end times, process run duration, DB size before and after data pruning, Overall status of the process along with any failure message.

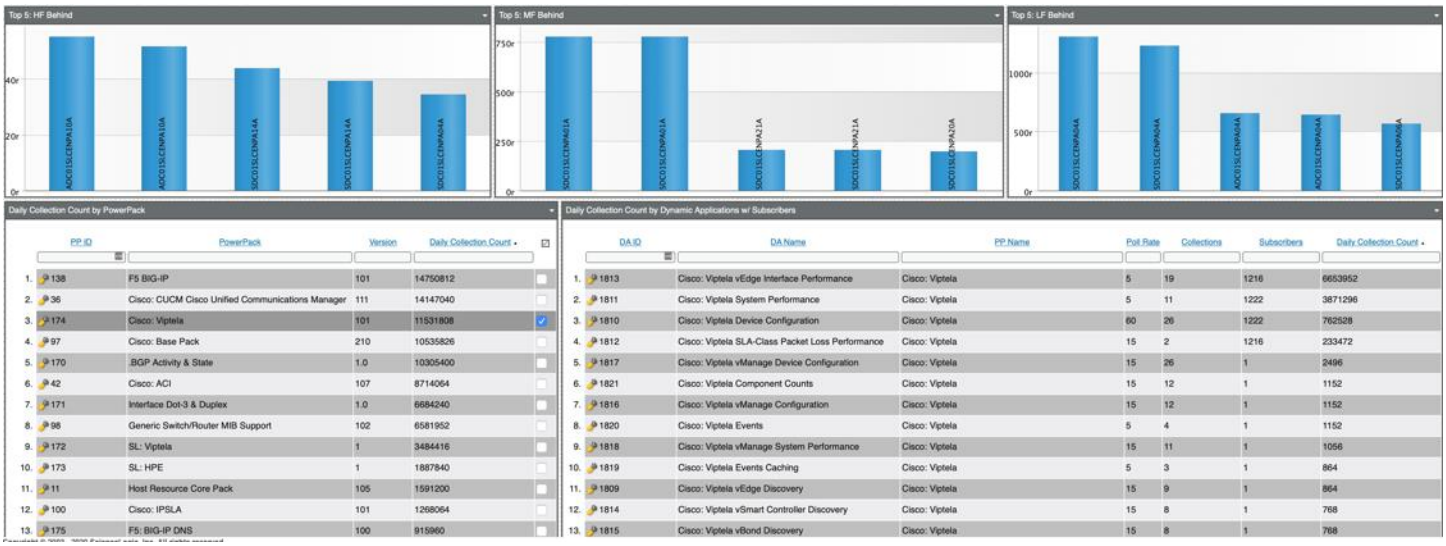
For a multi database environments, the dashboard shows which DB is Primary and which is Secondary along with the License Capacity and DB License Key Expiration Dates for all DBs.

SL1 Operational Insights – Collector Performance

This dashboard gives detailed information about the Data and Message Collector Health. New in this version is the ability to see the collector ratings by number of devices and number of interfaces. The dashboard also provides other collector health stats like CPU, Memory and SWAP.

NOTE: You can select columns to display by configuring the collector Load widget. The MySQL version is only available for systems on v8.14 and higher.





The following table shows how Device Rating is calculated for the Collectors:

RAM (GB)	Cores	Disk (GB)	Device Rating (# of devices)
4	2	60	100
12	3	90	500
24	4	120	1000

Along with collector health metrics, you can now see the number of collections that the system is doing per day. These numbers are broken up by PowerPacks and Dynamic Applications in the PowerPacks.

In this release you can now select a collector and see all the devices aligned to the selected collector. The dashboard further breaks down the device details into DCM devices under the collector.

The **SL1 Collector Status** Widget shows the counts of SL1 Collectors by the current Severity. The severity is for the SL1 Collector device which can be found in the Device Registry.

Collector Group Details widget provides an overview of all Collector Groups in the system. If the Collector Group has more than TWO Data Collectors in it and the Failover is turned off, then the Failover column is highlighted in Orange, if the Failover is turned ON then the column is highlighted Green.

The **Collector Last Collect Time** widget shows the timestamp of the last collected SNMP data for the collectors. If the last collected data is over 16 mins old, then the value is highlighted in RED. This typically indicates that the DB has not been able to collect and store the data from the collector. A value of Unknown indicates either there are no devices on the collector, or the timestamp value is not available.

There are three bar graph widgets that show the top 5 collectors for High Frequency, Medium Frequency and Low Frequency rows behind.

The **Daily Collection Count by PowerPack** and **Daily Collection Count by Dynamic Applications w/ Subscribers** show the number of daily collection counts by PowerPack and Dynamic Applications. By Selecting a PowerPack you can see the list of Dynamic Applications in that PowerPack along with the Daily Collection Count.

SL1 Operational Insights – System Logs Summary

This dashboard provides a summarized version of the System Logs. This includes log counts broken down by the Severity and by messages. Primarily 4 types of messages are being summarized as these are the most common and most important messages:

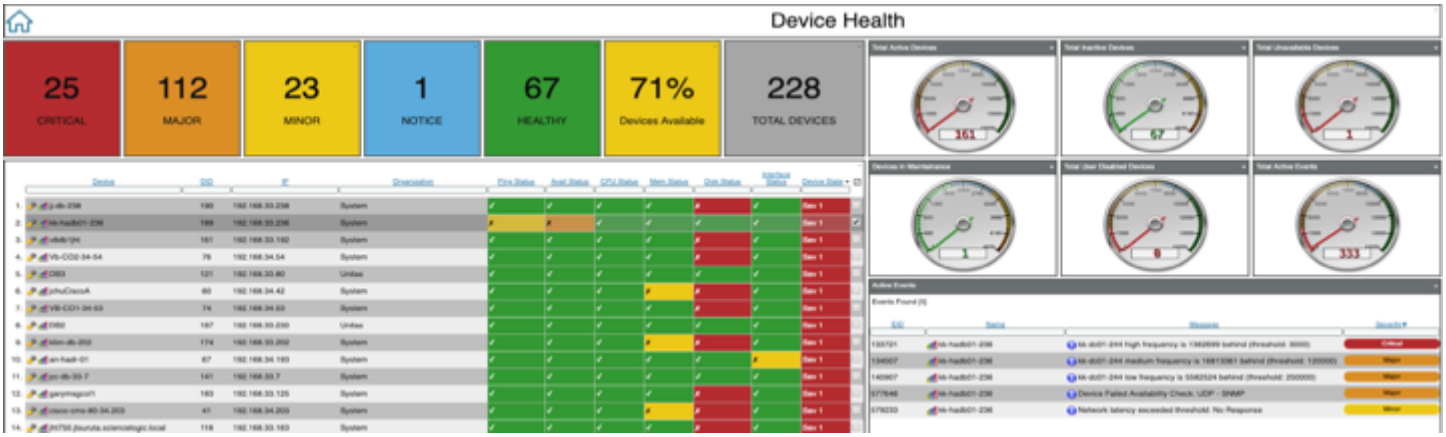
- PoolWorker Logs – These are typically Notice level error messages that can be a result of simple configurations, e.g. Incorrect formula in the Dynamic App Alert. These are the noisiest logs and can be resolved rather quickly.
- SIGTERM Logs – These are results of a backend process dying or being killed, there could be many reasons for a process to die, one of the most common ones is process running

longer than its allocated time which results in the process being killed to prevent the process from running forever.
- Unhandled Exception Logs – These logs go hand in hand with the SIGTERM Logs, when a process fails it typically generates an Unhandled Exception.
- Connection Error Logs – These are logs that are generated when the primary DB is unable to communicate with a collector.

This dashboard allows users to see how the system is behaving by providing a concise count of these logs. This dashboard is very useful for the administrator of the system who can look at this dashboard and identify what types of errors might be spamming the system, potentially causing performance issues. If there are unhandled exceptions or SIGTERMs around processes responsible for data collection, they can result in missed polls and data gaps. In that case ScienceLogic Support can help identify the Root cause of the issue.

The dashboard, by default shows data for 1 day, you can change the duration to 7 days by selecting 7 days in the widget configuration.

SL1 Operational Insights – Device Health



This Dashboard can be used as a customer facing Dashboard. The dashboard provides a summary of all device health for the users Organization.

The users can see a breakdown of the number of devices by their severity. There are also gauges showing the counts for number of active devices, disabled devices, inactive and unavailable devices.

The dashboard also gives a tabular view of the status of the six main checks that are configured for the devices. These checks include

- Availability
- Latency
- CPU
- Memory
- Disk
- Interface

The table also shows overall state of the device which is determined by the highest severity active event on the device.

Admin Tools

This version of the PowerPack comes with six new Dashboards categorized under **Admin Tools**.

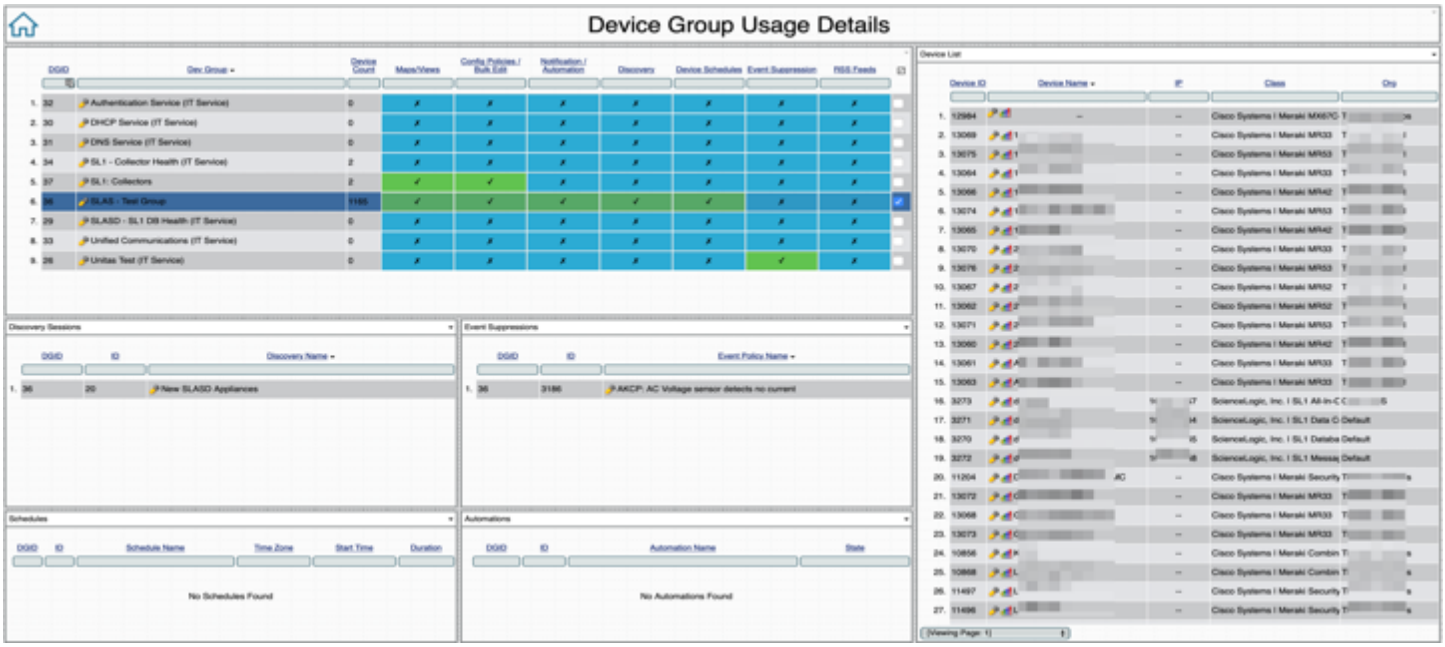
Device Group Usage Details

This Dashboard gives a summary of how and where a Device Group is being used. This is useful in identifying if a Device Groups can be removed from the system. The dashboard shows the Device Group Visibility which indicates where the device groups can be used based on their configuration.

You can select one or more Device Groups to see where in the product are they being used. The possible areas that can use the Device Groups are:

- Discovery Sessions
- Event Suppressions
- Schedules
- Automations

Along with the above data the dashboard also shows a list of the devices that are a part of the selected device group.

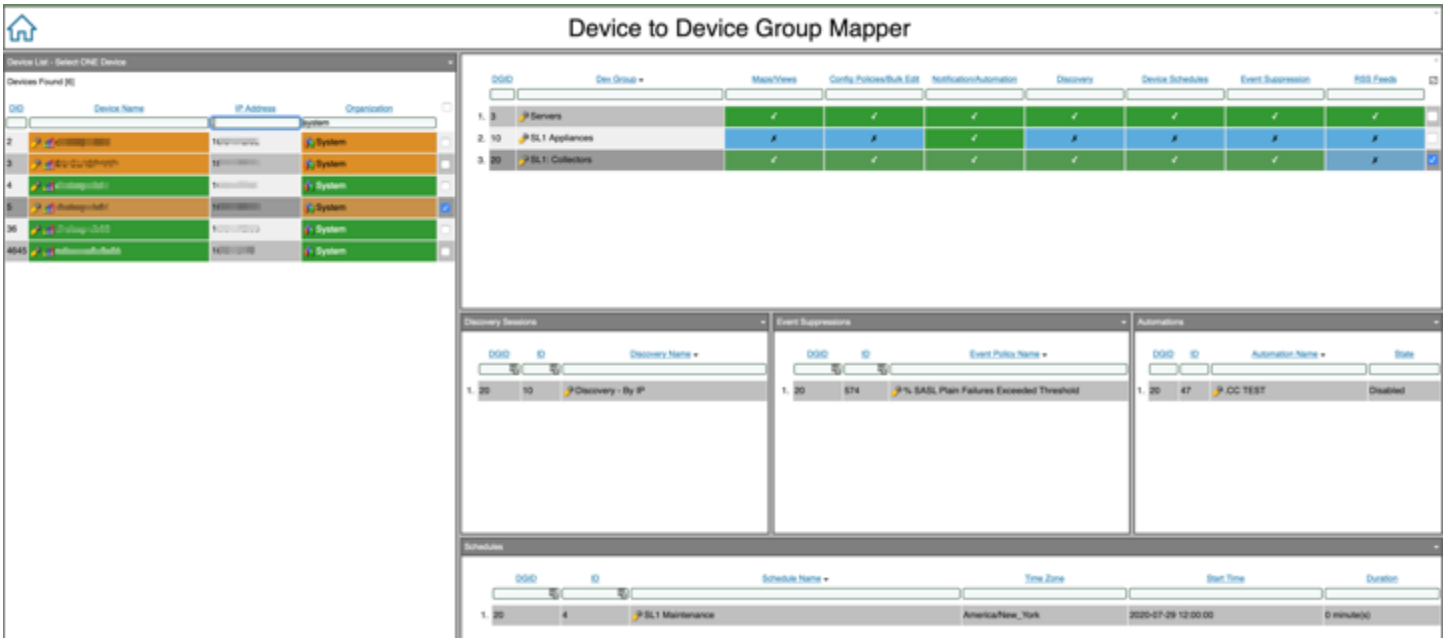


Device to Device Group Mapper

This Dashboard lets you see all the Device Groups for a selected Device. It is helpful to know what all device groups does a device belong without going into every device group to see if the device

is a static member or dynamic, this dashboard provides you a list of all the device groups which the device belongs to regardless of static or dynamic alignment.

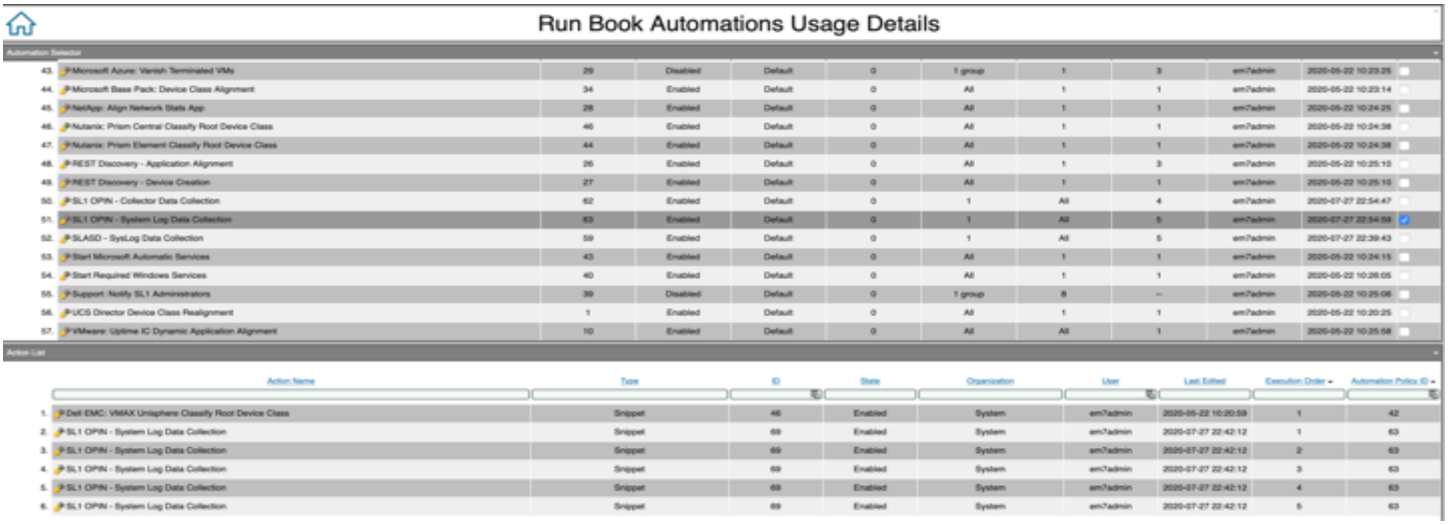
The dashboard also provides information about Device Group like the **Device Group Usage Details** Dashboard.



Automation Usage Details

This dashboard allows you to see all the RunBook Actions that are aligned to the selected RunBook Automations. It is very useful to know if any automations are executing any Actions when they shouldn't and also the number of times the actions are being executed, this can be used for cleaning up old unused Automations.

Along with listing out the Actions, the dashboard provides details like the Execution Order, Current State and the ability to edit the Actions and Automations.



Action Usage Details

Just like the **Automation Usage Details** dashboard, this dashboard shows detailed list of all the Automations that are using the selected Action. This is useful when you need to see if any actions are being used by any automations and the number of times they are being executed.

The following two Dashboards are available on SL1 version 8.14 and above.

SL1 DB Configuration Check

This is a very helpful dashboard that lets you check various configuration files without having to login to the DB console. You can see the output of the following configuration files:

- SILO config
- MySQL config
- DRBD config
- HA config

You can select all SL1 DBs from your system to see the configuration side-by-side, this allows you to check if there are any differences in the files that need to be rectified.

SL1 System Status Script Output

This dashboard allows you to see the output of the System Status Script for all SL1 Appliances. You can select one appliance at a time to see the last collected System Status Script output.

The output from this dashboard can be used to check the current status of the SL1 appliance and a good way to troubleshoot any performance issues with the SL1 appliances.