Optimize polling engines

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1. Optimize the health of your monitoring system.
   a. Find out the number of monitored entities
   b. Distribute the load among polling engines
   c. Adjust how often the entities are polled
2. Adjust the amount of data on a page.
3. Adjust polling for special metrics, such as hardware health and metrics specific for your Orion Platform product.

Optimize the health of your monitoring system

To verify the health of your polling, review the polling completion and rate.

Click Settings > All Settings > Polling Engines, and review the values for polling completion and rate.

![Polling Completion Table]

Polling completion is the rate of polls across all polling engines completed without the need to delay polls. This value should be around 100. If you experience significant declines, verify that your Orion Server meets the memory and CPU requirements.
Polling rate indicates the percentage of maximum polling rate for your server. If the polling rate reaches 85%, you will be notified. Consider adding an additional polling engine or return to default polling intervals if you have increased the default settings.

Are you polling hardware health, routing information, VIM, universal device pollers, F5 load balancers? Do you have any other Orion Platform products installed? Review the polling rates for product-specific metrics. If the rate is close to 85%, adjust polling intervals and retention settings for the metric.

How many elements are polled by a polling engine?

1. Click Settings > All Settings > Polling Engines.
2. For each polling engine, review the number of polled elements.

Distribute the load

• If the number of monitored elements per polling engine is close to 10,000, consider adding another polling engine before you reach the polling limit of 12,000 monitored network elements.

  Unmanaged nodes are also counted as monitored elements.

• If only one polling engine is getting overloaded, redistribute the polling jobs and divide polled nodes among your additional polling engines.

• If the total of monitored elements by your NPM deployment is close to 400,000 elements, deploy the Enterprise Operations Console in a distributed deployment.
Adjust how often metrics are polled

Make sure polling intervals for monitored elements are set to default:

1. Click Settings > All Settings > Polling Settings.
2. Make sure you are using default polling intervals:
   - 10 minutes for nodes
   - 9 minutes for interfaces
   - 15 minutes for volumes
3. Review the polling statistics intervals, and set them to default values.

To decrease the load on a polling engine:
- Increase the polling intervals and poll data less frequently than by default.
- Stop collecting data for some nodes.

Adjust the amount of data displayed on a page

If an Orion Web Console view takes long to load, scan the view for charts and review display settings for the chart.

Adjust settings for individual metrics and polling methods

Make sure your deployment meets the monitoring limits.

Agents

An agent is a software that provides a communication channel between the Orion server and a Windows or Linux /Unix computer. Deploy agents to collect data from Windows or Linux computers by deploying agents.

When you use agents as the polling method, be aware that a single polling engine can support up to 1,000 agents.

Where to check

1. Click Settings > All Settings > Manage Agents.
2. Review the Manage Agents table.

To optimize

- Reduce the number of agents per polling engine to below 1,000.
- Distribute agents among polling engines:
  a. Click Settings > Manage Nodes.
  b. Select the agent node and click More actions > Change polling engine.
  c. Select another polling engine.
If you don't have additional polling engines deployed, the Change polling engine item is not available.

- **Add additional polling engines.**

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## Hardware health

Check the health of hardware health polling, and increase the poll interval for hardware health details if necessary:

1. Click Settings > All Settings > Polling Engines, and review the hardware health polling rate. If it is higher than 85%, review and adjust the poll interval.
2. Click Settings > All Settings > Polling Settings, and review the Hardware health polling settings.
3. Make sure the Default statistics poll interval set to 10 or more minutes.

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## Topology data

Topology is an intensive polling job. Topology data does not change often on devices, so you don't need to poll this information very often.

> Changing the topology settings affects how often your maps are updated.

By default, Orion Platform polls topology data even if you are not using topology widgets. Make sure you are using the default polling settings:

- Default polling is 120 minutes (Orion Platform 2017.3 or later)
- Default polling is 30 minutes (Orion Platform 2017.1 or earlier)

### Optimize topology polling

1. Click Settings > All Settings > Polling Engines.
2. Edit the Default node topology poll interval to a few times a day. This setting determines how often the topology data is polled.
3. Go to Advanced Configuration options. Paste the following into your browser search field, right after the hostname or IP address:
   `/Orion/Admin/AdvancedConfiguration/Global.aspx`
4. Set the frequency for topology calculation to 20 hours:
   On the Global tab, search for Topology, and enter 20:00:00 as the `TopologyCalculationFrequency`. This
setting determines how often Orion Platform takes the polled data, performs calculations and places results in the Topology connections. Default node topology and topology calculation frequency should match.

5. Save your settings and click Restart All to restart the SolarWinds Orion Module Service.

Syslogs

Orion Platform products can handle approximately 2-4 million syslog messages per hour, which is 555 - 1111 messages/second.

If you have additional polling engines, you can share the load between syslog services on each polling engine.

Most syslog messages are non-critical, consider using transparent forwarding and sending all syslogs to a load-balancing system with rules to drop the non-critical messages, and send only the critical syslogs to your Orion server.

Find devices sending syslogs

1. Click Reports > All reports.
2. Search for the report called Devices sending Syslog or SNMP-Traps to Orion.
3. Run the report. It lists all devices sending syslogs and traps to Orion, including their hostname and IP address.

Reduce how long syslog messages are kept in the database

To save space in the database, reduce the number of days syslog and trap data are retained in the database.

1. Click Settings > All Settings > Polling Settings.
2. Scroll down to Syslog messages retention and decrease the number of days to retain syslogs in the database. Default: 7 days

Resetting the default retention from a high value, such as from 90 days to 7, causes overhead on the Database Maintenance because it will summarize 83 days of data instead of the one day it normally performs. Consider backing up the database, and truncating the Syslog table.

3. Run the Database Maintenance to immediately apply your settings.

**Create an SQL Syslog Top Talker report**

Use the following SQL query to see 24 hours of data by host, MessageType, and count. You can use this SQL to create an SQL report.

1. Click Reports > All Reports > Manage Reports, and click Create New Report.
2. On Add Content, select Custom Table in Resource.
3. Select Advanced Database Query (SQL, SWQL) as the Selection Method, and SQL as the query type.
4. In the query field, paste the following code, and complete the new report:

   ```sql
   select nodeid, hostname, SysLogFacility, SysLogSeverity, COUNT(Msgid) as total from Syslog where DateTime>DATEADD(day, -1, GETDATE())
   group by nodeid, hostname, SysLogFacility,SysLogSeverity
   order by total, hostname, SysLogFacility,SysLogSeverity desc
   ```
Delete all syslogs

Truncating the Syslog table does not put much strain on the SQL server when executing the statement. If you truncate tables, Database Maintenance runs much faster because it does not need to summarize the deleted unnecessary data.

⚠️ This query deletes all syslog messages in your database. Always back up the database before you start truncating.

1. Back up your SolarWinds Orion database.
2. Run the following query:

   ```sql
   Truncate Table Syslog
   ```

💡 Consider discarding Syslog rules if you are not using them.

SNMP Traps

Orion Platform products can handle approximately 1-2 million SNMP trap messages per hour, which is 280 -555 traps per second.

Most trap messages are non-critical, consider using transparent forwarding and sending all traps to a load-balancing system with rules to drop the non-critical messages, and send only the critical traps to your Orion server.

Find devices sending SNMP traps

1. Click Reports > All reports.
2. Search for Devices sending syslog or SNMP traps to Orion report.
3. Run the report. It lists all devices sending syslogs and traps to Orion, including their hostname and IP address.

Find out which device is sending the most traps

Run the following query to see 24 hours of traps data by host, trapttype, and count.

```sql
select hostname, Trapttype, COUNT(trapid) as total from Traps
where DateTime>DATEADD(day, -1, GETDATE() )
group by hostname, trapttype
order by total desc, hostname, trapttype
```

ℹ️ You can use this query to create a report. Follow the steps in Create a report for syslogs, and replace the syslog query with the traps query.

Disable traps

If you are not using SNMP traps, disable them.

- Disable traps on the Orion Platform products
  a. Open Services, right-click the SolarWinds Trap Service, and stop it.
b. Right-click the service, select Properties, and select the Startup type Disabled.

- Disable traps on devices

**Reduce time to keep traps in the database**

To save space in the database, reduce the number of days syslog and trap data are retained in the database.

1. Click Settings > All Settings > Polling Settings.
2. Scroll down to trap messages retention and decrease the number of days to retain traps in the database. Default: 7 days

**Set up Alert/Filter rules to discard traps**

1. On your Orion server, start the Trap Viewer in the SolarWinds Orion > Syslog and SNMP Traps program folder.
2. Add a rule specifying what traps to discard.
   To discard traps from a device, right-click a trap in the Current Traps view, and click Add Rule.
   a. On the General tab, enter * into the Source IP Addresses section.
   b. On the DNS Hostname tab, enter * into the DNS Hostname Pattern field.
   c. On the Alert Actions tab, click Add Action and add Discard Traps and Stop processing traps.
   d. Complete the Add New Trap Rule Wizard.

Specified traps are discarded.

**Delete all traps**

Truncating the tables with traps data (Traps, TrapVarbinds) does not put much strain on the SQL server when executing the statement.

⚠️ This query deletes all SNMP trap messages in your database. Always back up the database before you start truncating.

1. Back up your SolarWinds Orion database.
2. Run the following queries:

   ```sql
   Truncate Table Traps
   Truncate Table TrapVarbinds
   ```

All trap messages are deleted from the database.

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**Module-specific statistics**

In addition, individual Orion Platform products provide additional monitoring options, such as:

- Custom SNMP-based monitors: In NPM, Universal device pollers can collect statistics based on OIDs.
- NetPath™
Universal Device Pollers

With NPM, you can create custom monitors, so-called Universal Device Pollers (UnDP) that return values for specific metrics.

NPM supports up to 10,000 UnDPs per polling engine.

Where to check

1. Click Settings > All Settings > Database Details.
2. Scroll down, click Total elements per poller, and review the number of custom node and custom interface pollers for each polling engine.

To optimize:

When you reach the supported number of UnDPs per polling engine, consider the following recommendations:

• Add additional polling engines.
• Increase polling intervals. UnDPs use the default Node polling intervals:
  a. Click Settings > All Settings > Polling Settings.
  b. Adjust the statistics retention to the default settings or shorter.

NetPath™

You can add up to 100 paths per polling engine.

You can add 10-20 paths per probe.

Where to check

1. Click Settings > All Settings > Database Details.
2. Scroll down, click Total elements per poller, and review the number of probes for polling engines.

To optimize:

• Verify that your deployment meets NetPath requirements.
• Distribute NetPath probes among polling engines.
• Add additional polling engines.