# Table of Contents

What's New in OpenNMS Horizon 23 ................................................................. 2  
System Requirements .................................................................................. 2  
Breaking Changes ....................................................................................... 2  
   Vacuumd Alarm Handling ....................................................................... 2  
New Features ............................................................................................... 2  
   OpenNMS Correlation Engine ("Sextant") Proof of Concept ................... 2  
   Alarmd Improvements .......................................................................... 2  
   Kafka Data Collection Sync .................................................................. 3  
   Sentinel ............................................................................................... 3  
Other Improvements ................................................................................... 3  
Changelog .................................................................................................... 4  
   Release 23.0.2 .................................................................................... 4  
   Release 23.0.1 .................................................................................... 5  
   Release 23.0.0 .................................................................................... 6
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What’s New in OpenNMS Horizon 23

System Requirements

- **Java 8**: OpenNMS Horizon 23 requires Java 8 as the runtime environment. To run Horizon 23, we recommend the most recent version of Oracle JDK 8 for your platform.

- **PostgreSQL 9 or higher**: Horizon 23 requires Any supported version PostgreSQL 9 or higher. As of this writing, PostgreSQL 9.3 is the earliest version under active support, but OpenNMS is known to work with at least PostgreSQL 9.1 and up.

Breaking Changes

Vacuumd Alarm Handling

In previous OpenNMS releases, a large portion of the alarm workflow was handled by Vacuumd automations, triggers, and actions. As part of the work to implement alarm correlation, this logic has been moved to Drools, running inside Alarmd.

If you made any changes to `vacuumd-configuration.xml` related to alarms, it is strongly recommended you port them to the new Alarmd Drools context. The Drools rules are in the `$OPENNMS_HOME/etc/alarmd/drools-rules.d/` directory.

Also, we no longer generate `alarmCreated`, `alarmEscalated`, `alarmCleared`, `alarmUncleared`, `alarmUpdatedWithReducedEvent`, and `alarmDeleted` events. Instead, it is recommended that you add Drools rules to react to alarm changes. For more complicated integrations, we also have a new API — `AlarmLifecycleListener` — for reacting to alarm changes.

New Features

OpenNMS Correlation Engine ("Sextant") Proof of Concept

Horizon 23 introduces the groundwork for supporting correlation of alarms into meta-alarms called "situations" using an external engine called the OpenNMS Correlation Engine. Situations are OpenNMS alarms that contain one or more triggering alarms, which allows them to be browsed, acknowledged, and unacknowledged just like any other alarm. A high-level overview of the goal and implementation of correlation can be seen on the Sextant wiki page.

Please note that implementing OCE is an advanced topic and there is still work to do before it is ready for general use. While the OpenNMS core supports situations, the logic of creating them is part of the OCE, which is designed to run in a separate Karaf container. Full support for OCE and correlation is due to be released in Horizon 24.

Alarmd Improvements

In addition to the Alarmd Drools updates mentioned previously, there have been some other enhancements made to Alarmd.
Traditionally, OpenNMS has created and resolved alarms in pairs, with one alarm representing the triggering event (or events), and then a second alarm representing the resolution. Horizon 23 changes this default behavior to use a single alarm to track the problem state, incrementing the alarm count when it occurs while in a problem state, or when moving from resolved back into a problem state. Additionally, you can configure OpenNMS to create a new alarm if a problem happens again.

These behaviors are controlled by the introduction of 2 new settings in the opennms.properties file:

org.opennms.alarmd.legacyAlarmState
This setting reverts to the old (pre-23) behavior of creating separate alarms for a problem and its resolution.

org.opennms.alarmd.newIfClearedAlarmExists
This setting forces Alarmd to create a new alarm if a problem reoccurs, rather than incrementing an existing alarm. (Note: this is ignored if legacyAlarmState is set to true.)

These improvements are covered in a lunch and learn video we published recently, if you would like to learn more.

Kafka Data Collection Sync

In addition to publishing events, alarms, and node inventory to Kafka, we can now publish collected time-series data to the Kafka bus as well.

Sentinel

In addition to the Minion, we have added a new container-based subsystem called "Sentinel." The Sentinel is a standalone container that can be configured to run a subset of OpenNMS daemons as a standalone tool, to aid in horizontal scaling and/or high availability.

This initial release of Sentinel is designed to run our Karaf/Camel/SQS-based messaging bus, syslog listener, Netflow receiver, and Newts and Elasticsearch persistence.

Other Improvements

- A number of monitors now support using placeholders in parameter values to allow runtime substitution of IP address, node ID, and so on. (See: NMS-10200)
- A new WSMan monitor has been added which can use WQL filters against an endpoint to detect arbitrary services.
- The web UI now fully supports configuring date formats and user time zone in opennms.properties which was partially introduced in Horizon 22.
- Daemon reloading can now be done from the Karaf shell. Also, Syslogd and Trapd can now respond to daemon reload events.
- The RadixTreeSyslogParser now handles Cisco Syslog Message formats.
- RPC to Minions is now fully supported when using Kafka rather than JMS.
- A bunch of tools for checking the health of OpenNMS, Minions, and Sentinel containers have
been added to the Karaf command-line. (Run health:check --help for more details.)

- Many other improvements were made to the flow support introduced in Horizon 22.
- Support for HTTP proxies has been added to a number of places where OpenNMS makes outgoing HTTP connections. (NMS-10312, NMS-10313)
- A number of VMware improvements have been made including configurable timeouts and handling of unacknowledged vSphere alarms.
- Many subsystems have been improved as part of the refactoring to make them capable of running in the Sentinel container.
- The OSGi Plugin Manager has been updated to version 1.1.0.
- A policy (ScriptPolicy) has been added to Provisiond that allows you to run arbitrary Groovy scripts before persistence. An example policy can be found in $OPENNMS_HOME/etc/examples/script-policies/.

## Changelog

### Release 23.0.2

OpenNMS Horizon 23.0.2 is an update to Horizon 23.0.2. It contains a number of bug fixes and enhancements, including performance improvements to topology maps, many fixes and improvements to Kafka support, and a bunch of correlation and alarm updates.

For a high-level overview of what's changed in OpenNMS 23, see What's New in OpenNMS 23.

The codename for 23.0.2 is *Sabrina*.

### Bug

- Cannot clear alarms (Issue HZN-1437)
- No stack-traces for exceptions thrown by REST services in OSGi (Issue HZN-1458)
- BestMatchPingerFactory returns NullPinger when better options are available (Issue NMS-9659)
- Sentinel does not start using init scripts on RHEL 6.6 (Issue NMS-10434)
- Support large buffer sizes in Kafka RPC (Issue NMS-10446)
- Noisy logs by the kafka-offset-producer (Issue NMS-10464)
- Fix offheap doc to be included in docs (Issue NMS-10468)
- Duplicate key exceptions in alarmd (Issue NMS-10473)
- Kafka Producer: Sync timing issues cause erroneous deletes (Issue NMS-10474)
- When using the events:stress command, the node-id or interface passed as parameters are ignored when using jexl (Issue NMS-10475)
- Alarm Dashlet CriteriaBuilder In-Restriction not working (Issue NMS-10479)
- Standard output get wasted with "Unknown record type: 0 / 2209" messages (Issue NMS-10480)
- Broken links in Newts install documentation (Issue NMS-10481)
• Drools alarm may update alarms unnecessarily on snapshot (Issue NMS-10494)
• Harden Drools engine in alarmd (Issue NMS-10509)
• Syslog test failures due to year offset in eventConverter (Issue NMS-10523)
• Flow query fails with NPE if it returns no data (Issue NMS-10530)

Enhancement
• Topologies REST Service (Issue HZN-1377)
• Add an "ssh" action to bin/opennms (Issue HZN-1391)
• Update telemetryd documentation to reflect single port support (Issue HZN-1408)
• Add example on how to use Drools with alarms for nagging events (Issue HZN-1450)
• Replaced jdhcp with dhcp4java (Issue NMS-10337)
• Performance problems with the Topology Map on large networks (Issue NMS-10369)
• APCs rpdu’s total energy/power metric is missing (Issue NMS-10383)
• Apply initial loading improvements to IsIs, lldp, ospf protocols (Issue NMS-10439)
• Allow PostgreSQL 11.x (Issue NMS-10450)
• Support Additional EIF Protocol Version (Issue NMS-10454)
• Make favicons in the web application great again (Issue NMS-10483)
• Measure and improve performance of Interface loading and mapping (Issue NMS-10459)
• Measure and improve performance of Cdp/Lldp/IsIsElement loading (Issue NMS-10487)
• Add select/deselect all packages when creating a scheduled outage (Issue NMS-10227)

Release 23.0.1
OpenNMS Horizon 23.0.1 is an update to Horizon 23.0.0. It contains a number of bug fixes and enhancements, including additional HTTP proxy support, reliability updates, UI performance improvements, and a number of Kafka-related fixes.

For a high-level overview of what’s changed in OpenNMS 23, see What’s New in OpenNMS 23.

The codename for 23.0.1 is *Endora*.

Bug
• Cannot use SASL Authentication for Kafka on Minions (might impact Sentinel) (Issue HZN-1387)
• Sink API drops messages when there is no connectivity with Kafka (Issue NMS-10395)
• Discovery UI should not allow selection of Minions as Foreign Source (Issue NMS-10400)
• Reloading of Script in telemetry collection is broken (Issue NMS-10403)
• Kafka Producer: Sync pushes all alarms when suppressIncrementalAlarms=false (Issue NMS-10423)
• Typo in BSFMonitor Documentation (Issue NMS-10428)
• Cannot use SASL Authentication for kafka-producer module. (Issue NMS-10436)
• Default Metaspace configuration is insufficient (Issue NMS-10437)

Enhancement

• Change eventconf for newSuspect to include location name in logmsg (Issue HZN-814)
• Be able to use Proxy for any Monitor or Collector that uses HttpClient (Issue NMS-9710)
• Detect and Attempt to Restart Failed Drools Engines (Issue NMS-10363)
• Other classes that use Http (Issue NMS-10379)

Release 23.0.0

OpenNMS Horizon 23.0.0 is the first release of the stable 23 series. It contains a number of bug fixes and enhancements, including support for alarm correlation, running OpenNMS components in an external container, and many other improvements.

For a high-level overview of what’s changed in OpenNMS 23, see What's New in OpenNMS 23.

The codename for 23.0.0 is Granny Weatherwax.

Bug

• VMWare-Center-Monitoring make for every virtual machine a login/logout (Issue NMS-8204)
• The ReST API used to return XMLs with namespace, and now it doesn’t (Issue NMS-8524)
• Config-tester not validating varbind matching in event files (Issue NMS-9821)
• enlinkd prints bridge forwarding table debug messages in output.log (Issue NMS-10258)
• Document notifd’s match-all parameter (Issue NMS-10275)
• DefaultProvisionService logs noisily for monitored service having state "N" (Issue NMS-10291)
• LSB init script does not start Minion on Ubuntu/Debian (Issue NMS-10294)
• SNMP monitor doesn’t take service down (Issue NMS-10308)
• Kafka consumers on Sentinel are not shown on kafka-manager (Issue NMS-10310)
• Sentinel init scripts fail to start the Karaf instance (Issue NMS-10330)
• navbar.ftl not rendering (Issue NMS-10342)
• Wrong data type for certain Cassandra JMX counters (Issue NMS-10352)
• Cannot override TTL when running the Karaf Command collections:collect through Minions (Issue NMS-10367)
• Trendbox on start page is empty (Issue NMS-10368)
• Erroneous INFO-level log messages during every forced node rescan (Issue NMS-10370)
• Wrong JMX MBeans for minions (Issue NMS-10372)
• Alarm processing is very slow when Kafka producer is enabled and Kafka is unavailable (Issue NMS-10378)
• webpack build runs even if source files are unchanged (Issue NMS-10381)
• Problems with featuresRepositories and featuresBoot in features.cfg on Sentinel (Issue NMS-10388)
• find-java.sh doesn’t understand newer JDK output (Issue NMS-10401)
• int overflow in InstallerDb causes bamboo failures (Issue NMS-10402)
• The configuration example for Elasticsearch on the admin-docs is incorrect (Issue NMS-10407)

**Enhancement**

• Merge User and Admin Guide (Issue NMS-10182)
• Allow use of placeholders in parameter values of monitors (Issue NMS-10200)
• Add support for persisting Data Collection to Kafka (Issue NMS-10215)
• apply centralized datetime rendering to freemarker template(s) (Issue NMS-10239)
• Update Syslogd to respond to reload configuration events (Issue NMS-10252)
• Bump asciidoctor from 1.5.6 to 1.5.7 (Issue NMS-10255)
• The Contribution file in our repository duplicates community guide (Issue NMS-10260)
• Only increment the alarm count if the alarm type is not a resolving event. (Issue NMS-10264)
• Remove non used core/doc module (Issue NMS-10266)
• Add support for Cisco Syslog Message formats to the RadixTreeSyslogParser (Issue NMS-10273)
• Update health:check command to check Kafka connectivity when no JMS involved (Issue NMS-10300)
• ServiceLookup and TelemetryAdapterRegistry don’t wait properly (Issue NMS-10303)
• Refactor timeseries applicationContext xml files with 'timeseries' prefix (Issue NMS-10304)
• Support reload daemon for Trapd (Issue NMS-10305)
• Create karaf shell commands for reload daemon (Issue NMS-10306)
• Be able to use Proxy for any Monitor or Collector that uses HttpClientWrapper directly (Issue NMS-10312)
• Be able to use Proxy for any Monitor or Collector that uses HttpClient via UrlFactory (Issue NMS-10313)
• Optionally create new alarms when a problem reoccurs (Issue NMS-10331)
• Implement a OSGi-aware CollectionAgentFactory (Issue NMS-10340)
• VmwareMonitor should go down for an entity with unacknowledged vSphere-Alarms (Issue NMS-10345)
• Link Node Page to Node Requisition (Issue NMS-10364)
• Improve concurrency in Vmware Connection Pool (Issue NMS-10373)
• Add Configurable Timeouts to VMware vCenter Discovery (Issue NMS-10377)
• Set JVM flag to start Attach listener by default (Issue NMS-10384)
• Class paths for collectd selector strategy in documentation is not correct (Issue NMS-10387)