

# OpenNMS Release Notes

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# What's New in OpenNMS Horizon 27

## System Requirements

- **Java 8 through 11:** OpenNMS Horizon 27 runs on JDK 8 through 11. We recommend the most recent version of OpenJDK 11.
- **PostgreSQL 10 or higher:** Horizon 27 requires any supported version of PostgreSQL from 10 up to (and including) 13.

# Breaking Changes

## Remote Poller Removed

The remote poller has been removed from Horizon 27. It has been replaced with new infrastructure for [perspective-based monitoring](#) that runs on Minions.

## VMware Assets

VMware-related data is not longer stored in node assets. The `install` command will move any existing VMware asset data to the node's metadata when you upgrade.

# New Features and Improvements

## Karaf Shell

A number of useful commands have been added or updated in the Karaf shell.

- `alarm-list`: list current alarms (optionally filtered by UEI)
- `event-list`: list events (optionally filtered by UEI)
- `ip-addr-range`: generate a list of IP addresses to use in other commands
- `reload-daemon`: now accepts an optional configuration file to target for reload
- `send-event`: additional options supported to match the CLI version of `send-event` more closely
- `snmp-fit`: can now optionally send a `newSuspect` event on success
- `snmp-get`: like `snmp-walk`, but fetches a single MIB object and prints the result

## Minion and Sentinel

- The Minion `confd` configuration support now handles a bunch more options, including setting Jetty, RMI, and ssh host and port, Secure Credentials Vault configuration, and environment variables and options for the JVM. For details, see [the CONFD\\_README file](#).
- It's now possible to override entries in a Sentinel's `system.properties` with a file called `custom.system.properties`

## Application Perspective Monitoring

Application Perspective Monitoring replaces the old Remote Poller.

It uses the Minion infrastructure to monitor a service's availability from these different perspectives. When a service is not responsive an outage will be generated with the corresponding perspective.

A number of provisioning, polling, and web UI changes have been made to accommodate this new infrastructure.

## Provisioning

- Node scan has been updated to limit the number of concurrent RPC requests so as not to overload communication with Minions.
- New policies have been added for creating node and interface metadata during provisioning.

## Polling and Monitoring

- WMI/SMB support has been updated to use a wider set of encryption types.
- Data collection configuration has been added for Netscaler vServer.

## Thresholding

- It is now possible to use metadata in threshold evaluation.

## RPC, Telemetry, Flows, and BMP

- Improvements have been made for supporting aggregate flow metrics.
- Flow DNS enrichment has been enhanced to improve performance.
- Aggregate flow queries now support resolving hostnames if available.
- Sink RPC APIs have been enhanced to expose metrics to Karaf for tracing and performance tuning.
- The OpenConfig integration now supports gNMI, in addition to JTI.

## Notifications

- It is now possible to use node-, interface-, and service-level metadata in notifications.

## ReST API

- Events for `applicationCreated/applicationDeleted` are now sent when applications are added or removed through the ReST API.
- A new v2 API for retrieving application status has been added.

## Web UI Improvements

- A new universal search bar has been added which allows for searching alarms, nodes, and more from the top of any page in the UI.

## Documentation Updates

Documentation improvements and additions have been made in a number of areas:

- Application Perspective Monitoring
- Data Collection Configuration
- Metadata
- Mail Transport Monitor
- Minion/Kafka RPC Tuning
- Thresholding
- Users Configuration, Duty Schedules, and Security Roles

...plus TONS of smaller readability improvements.

# Important Internal Changes

- Sink internals have been updated to use Protobuf 3.

## Changelog

### Release 27.1.0

Release 27.1.0 contains a bunch of bug fixes, as well as a number of enhancements including a refactor of our BGP Monitoring Protocol integration.

The codename for 27.1.0 is *Ravenous Bugblatter Beast of Traal*.

### Bug

- Notification link in Admin menu goes to start page (Issue [NMS-8184](#))
- Change password does not go to Change password page (Issue [NMS-8770](#))
- Wrong label in event search menu (Issue [NMS-8977](#))
- Footer in Alarm view is broken (Issue [NMS-9139](#))
- Clarify clone detectors and policies (Issue [NMS-9308](#))
- REST API allows to import a requisition from XML with same services (Issue [NMS-12739](#))
- Broken provisiond policy does not appear in the logs (Issue [NMS-12834](#))
- Vacuumd throws NullPointerException on startup (Issue [NMS-12884](#))
- Change installation guide to run as non-root user (Issue [NMS-12989](#))
- Cortex plugin shows only data for counters in a window > 3 hours (Issue [NMS-13014](#))
- Timezone and Grafana Dashboard fields not preserved when editing a scheduled report (Issue [NMS-13064](#))
- Flow Rest API: Name lookup is happening per bucket and not per interval (Aggregation Only) (Issue [NMS-13065](#))
- Make OpenNMS compile on Apple Silicon (Issue [NMS-13079](#))
- Fix NPE in Vacuumd (Issue [NMS-13098](#))
- Make sequence number trackin thread-save and patient about out-of-order (Issue [NMS-13106](#))
- Vmware-importer requisition meta-data lost at import (Issue [NMS-13109](#))
- XSS in user management (Issue [NMS-13125](#))
- No option provided to change the number of records per page in Events ILP and Events/Alarms ILP under Topology (Issue [NMS-13137](#))
- The OpenNMS Web User Interface Has Experienced an Error observed when searching for a Event under Event notifications (Issue [NMS-13148](#))
- Node's sub-option 'Availability' exceeds table alignment and overlaps next table of 'Notifications' under Topology section (Issue [NMS-13153](#))



- Newts Cache priming flag is inverted (Issue [NMS-13156](#))
- Dependabot: Upgrade Apache POI to 3.17 (CVE-2017-12626) (Issue [NMS-13161](#))

## Enhancement

- Cloning of Foreign Source Definition (Issue [NMS-8854](#))
- Depend on haveged (and supply it in our repo) (Issue [NMS-8959](#))
- Rename button on Threshold Groups screen (Issue [NMS-12606](#))
- Upgrade Kafka components to 2.7.0 (Issue [NMS-12704](#))
- Handle all possible values of ifOperStatus in the SNMP Interface Poller (Issue [NMS-12980](#))
- Remote poller: review all documentation to update RP references (Issue [NMS-12879](#))
- Persist basic BMP messages in OpenNMS (Issue [NMS-12949](#))
- Handle stats for BMP (Issue [NMS-12952](#))
- Get dashboards from OpenBMP working (Issue [NMS-12953](#))
- Enhance Routes with ASN info (Issue [NMS-12963](#))
- Enhance Routes with WhoIs info (Issue [NMS-12964](#))
- Enhance Routes with RPKI info (Issue [NMS-12965](#))
- Create confd templates to handle Slack properties (Issue [NMS-12982](#))
- Create confd templates to handle Mattermost properties (Issue [NMS-13004](#))
- Updating UI to clarify rescan process (Issue [NMS-13040](#))
- Update PostgreSQL JDBC drivers (Issue [NMS-13049](#))
- Move Stats handling to TimeScaleDB (Issue [NMS-13061](#))
- Upgrade Container base images (Issue [NMS-13071](#))
- Add SNMP Data Collection example to Horizon Docs (Issue [NMS-13107](#))
- Nephron: Replace JacksonJsonCoder for FlowSummaries (Issue [NMS-13115](#))
- Nephron: fix rounding errors in flow sampling (Issue [NMS-13116](#))
- Create smoke test that verifies all Reload daemon are successful (Issue [NMS-13117](#))
- Searching node link informations (Issue [NMS-13129](#))
- add service status to rest `/info` API (Issue [NMS-13135](#))
- Update Kafka settings for multiple instances documentation (Issue [NMS-13136](#))
- Move some model objects from opennms-webapp to opennms-web-api (Issue [NMS-13168](#))
- create a table to show related events in the alarm detail view (Issue [NMS-13170](#))

## Release 27.0.5

Release 27.0.5 contains just a couple of bug fixes, most importantly a fix to provisioning that could break update to existing nodes when scanning.

The codename for 27.0.5 is *Vogon*.

## Bug

- Flow Rest API: Name lookup is happening per bucket and not per interval (Aggregation Only) (Issue [NMS-13065](#))
- Provisioning stopped working after upgrade to 27.0.4 (Issue [NMS-13128](#))

## Release 27.0.4

Release 27.0.4 contains a number of bug fixes relating to WMI, the Minion, flows, reports, JEXL processing, and more, as well as a few small enhancements.

The codename for 27.0.4 is *Towel*.

## Bug

- Searching for event context that contains single quotes is not possible (Issue [NMS-12517](#))
- WmiCollector does not work on Minion (Issue [NMS-12944](#))
- Discrepancy between Flows "top N" and SNMP for same interface (Issue [NMS-12967](#))
- Increase length of snmpinterfaces.snmpifdescr (Issue [NMS-12976](#))
- requisition meta data are deleted if node meta data defined with "db only" synchronize (Issue [NMS-12990](#))
- Timezone and date range inconsistencies when scheduling database reports associated with Grafana dashboards. (Issue [NMS-13070](#))
- Exception messages during node import (log noise) (Issue [NMS-13082](#))
- Fix vmwareconfigbuilder script to run with JDK9+ (Issue [NMS-13084](#))
- Keep and adjust flows with negative duration (Issue [NMS-13088](#))
- SFlow enhancement is not functional (Issue [NMS-13093](#))
- Karaf Poller commands won't work if Telemetryd is disabled (Issue [NMS-13094](#))
- JEXL expression handling updates (Issue [NMS-13103](#))
- Telemetryd: Reload daemon always fails and stops Temetryd (Issue [NMS-13112](#))

## Enhancement

- Optionally silence file not found warnings for JICMP, JRRD when properties are not set (Issue [NMS-13081](#))
- Update opennms.spec to take advantage of maven smart builder plugin (Issue [NMS-13083](#))

## Release 27.0.3

Release 27.0.3 is the fourth release in the Horizon 27 series.

It contains a number of mostly esoteric bug fixes, and a few small enhancements.

The codename for 27.0.3 is *Dolphins*.

## Bug

- Prometheus Collector attempting to persist non-integer values to counters (Issue [NMS-13007](#))
- OpenNMS fails to start, when more than one active listener is referencing the same parser (Issue [NMS-13034](#))
- ArrayIndexOutOfBoundsException thrown by the SNMP Interface Poller (Issue [NMS-13042](#))
- Karaf command 'snmp-fit' not functional (Issue [NMS-13055](#))
- Long datasource names are truncated and are not accessible on read (Issue [NMS-13060](#))
- The makerpm.sh script requires the mingw32-nsis package (Issue [NMS-13069](#))

## Enhancement

- Depend on haveged (and supply it in our repo) (Issue [NMS-8959](#))
- Import OBMP Grafana dashboards to OpenNMS (Issue [NMS-12954](#))
- Inconsistent breadcrumbs on Locations/Minions (Issue [NMS-13067](#))

## Release 27.0.2

Release 27.0.2 is the third release in the Horizon 27 series.

It contains a few bug fixes including a critical fix to a regression in 27.0.1 that would keep OpenNMS from starting if you had existing reports in the database.

**BREAKING:** If you created any reports with 27.0.1, they will need to be recreated.

The codename for 27.0.2 is *Deep Thought*.

## Bug

- Bouncycastle JAR version 1.67 breaks CIFS Monitor (Issue [NMS-13035](#))
- report timezone changes break reading pre-existing reports from Quartz (Issue [NMS-13037](#))

## Enhancement

- Add "geohash" support to the meta-data DSL (Issue [NMS-13036](#))

## Release 27.0.1

Release 27.0.1 is the second release in the Horizon 27 series.

It contains a number of bugfixes including a critical CVE fix for Jetty, as well as a number of other smaller changes and improvements.

The codename for 27.0.1 is *Pan-Galactic Gargle Blaster*.

## Bug

- No support for TLS v1.3 in MailTransportMonitor (Issue [NMS-12733](#))
- Timezone inconsistency when generating PDF reports from Grafana dashboards (Issue [NMS-12930](#))
- RRD files for SNMP data are not created until a Service Restart (Issue [NMS-12974](#))
- Nephron Stability Issues at Scale (Issue [NMS-12975](#))
- typo in BMP sample (Issue [NMS-12984](#))
- Upgrade script does not migrate VMware metadata (Issue [NMS-12985](#))
- VMware datacollection failed (Issue [NMS-12986](#))
- Monitoring VMware VMs and hosts stopped working in 27.0.0 (Issue [NMS-12988](#))
- Unable to enable Jaeger tracing in Sentinel (Issue [NMS-12998](#))
- Update typo in BMP docs (Issue [NMS-13002](#))
- CVE-2020-27216: Jetty webserver vulnerability (Issue [NMS-13009](#))
- JCifs leaks memory after upgrade (Issue [NMS-13011](#))
- When using a custom prefix, the Elasticsearch Forwarder for events and situation-feedback creates a wrong template. (Issue [NMS-13017](#))
- Check flow sequence numbers to detect missing packets (Issue [NMS-13024](#))

## Enhancement

- Add gNMI support for OpenConfig (Issue [NMS-12915](#))
- TSS: Cortex Plugin: Use REST API for reading timeseries (Issue [NMS-12938](#))
- sFlow Ingress / Egress (Issue [NMS-12955](#))
- Provisioning introduction (Issue [NMS-12994](#))
- Document Configure Discovery process (Issue [NMS-12995](#))
- Document requisition process (Issue [NMS-12996](#))
- backport Minion certificate management to Horizon 27 (Issue [NMS-13000](#))
- flowStartMilliseconds/flowEndMilliseconds for NetFlow v9 (Issue [NMS-13006](#))
- Add clock skew correction mechanism (Issue [NMS-13023](#))

## Release 27.0.0

Release 27.0.0 is the first release in the Horizon 27 series.

It is a major enhancement release with many bug fixes and a ton of new features, most notably the removal of the Remote Poller in favor of a new Minion-based workflow called Application Perspective Monitoring.

The codename for 27.0.0 is *Zaphod*.

## Bug

- Investigate if the InstallerDB could be replaced with something simpler (Issue [NMS-12079](#))
- Limit RPC threads on Minion using bulkhead pattern (Issue [NMS-12391](#))
- RRD-to-Newts converter only handles AVERAGE RRAs (Issue [NMS-12722](#))
- Fix docs warnings for resource-types, time series config and thresholding (Issue [NMS-12770](#))
- Traps Not Associated With Node (Issue [NMS-12797](#))
- Netflow timestamps incorrectly calculated on interfaces with MPLS (Issue [NMS-12800](#))
- SNMPv3 Traps Cause Errors From Single Node to Minion (Issue [NMS-12802](#))
- Hardcoded path to bash (Issue [NMS-12840](#))
- Remote Poller: add remote outages to UI (Issue [NMS-12842](#))
- Remote Poller: add remote polling details to service page (Issue [NMS-12843](#))
- Remove polling package selection from application (Issue [NMS-12844](#))
- Remote Poller: remove not longer used role ROLE\_REMOTING (Issue [NMS-12849](#))
- Remote Poller: remove references to old remote poller from documentation (Issue [NMS-12850](#))
- Remote Poller: remove scanreports UI and ReST endpoint (Issue [NMS-12851](#))
- Remote Poller: remove old Distributed Status Summary UI (Issue [NMS-12852](#))
- Incorrect TSS settings (Issue [NMS-12862](#))
- Remote Poller: Fix event definition for remote poller nodeLostService events (Issue [NMS-12871](#))
- Remote Poller: NPE while attempting to start RemotePollerNG (Issue [NMS-12877](#))
- Unable to install feature 'dominion-grpc-client' (Issue [NMS-12880](#))
- Remote Poller: Clear outages after removing from application (Issue [NMS-12881](#))
- Perspective Poller shows in tracing as RemotePollerNG (Issue [NMS-12882](#))
- Application Perspective Monitoring: NPE when starting OpenNMS (Issue [NMS-12887](#))
- Application Perspective Monitoring: OpenNMS refuses to start if service is referenced by two applications (Issue [NMS-12889](#))
- Telemetryd: a lot of InstanceAlreadyExistsExceptions when starting OpenNMS with default configuration (Issue [NMS-12896](#))
- Update link to In Memory TS DB (Issue [NMS-12912](#))
- Unable to poll Vcenter CIM - Calling something in OpenJDK11 that has been removed. (Issue [NMS-12919](#))
- Application link on start page redirects to start page (Issue [NMS-12921](#))
- Event Translator debug logging is incorrect (Issue [NMS-12959](#))
- service starts / restarts work but spit out an error if configured to wait for startup (Issue [NMS-12966](#))
- Display the alarm status correctly in topology map for applications (Issue [NMS-12968](#))
- Topology Application Map: Outage Table: Clicking on a service should show the outages of the

service (Issue [NMS-12970](#))

- Alarm (v1 & v2) ReST Service PUT Can't PUT Multiple Things (Issue [NMS-12979](#))

## Enhancement

- Add custom string attributes based on indirect and complex SNMP Indices (Issue [NMS-8484](#))
- Trailing ", \" in report definitions throws not helpful error message (Issue [NMS-10526](#))
- nodeDeleted event should contain more information (Issue [NMS-10554](#))
- Netscaler vServer SNMP collection and graph definitions (Issue [NMS-12269](#))
- Upgrade Sink API to Proto3 (Issue [NMS-12602](#))
- Add selenium test for password change (Issue [NMS-12645](#))
- Re-enable Central Search functionality (Issue [NMS-12646](#))
- Remove remote-poller runtimes from the build (Issue [NMS-12653](#))
- Update remote-poller model to link service to locations instead of individual RPs (Issue [NMS-12654](#))
- Rewrite the remote poller backend to use Minion (Issue [NMS-12655](#))
- Dynamic service scheduling: Service lifetime (Issue [NMS-12676](#))
- Dynamic service scheduling: Polling package association (Issue [NMS-12677](#))
- Dynamic service scheduling: Poller-Configuration change (Issue [NMS-12678](#))
- Update database and send events only on status changes (Issue [NMS-12679](#))
- Get new remote poller running as daemon (Issue [NMS-12683](#))
- Add upgrade task to enable RemotePollerNG (Issue [NMS-12684](#))
- Confd templates for Minion configuration (Karaf) (Issue [NMS-12687](#))
- Support hostnames resolution when using aggregated flows (Issue [NMS-12692](#))
- Use CollectionSetBuilder to persist response times (Issue [NMS-12698](#))
- Create SQL index for optimizing poll result lookups (Issue [NMS-12710](#))
- Apply thresholding for remote poller response times (Issue [NMS-12721](#))
- Meta-data tag enhancements to Time Series Storage API (Issue [NMS-12730](#))
- remove the java ("windows") installer (Issue [NMS-12742](#))
- Add ReST interface for Remote Poller (Issue [NMS-12760](#))
- Anomaly Detection Experiment (Issue [NMS-12773](#))
- Anomaly Detection - Get the consumer working (Issue [NMS-12774](#))
- Migrated VMware asset data to metadata entries (Issue [NMS-12781](#))
- RemotePoller: only schedule services that are part of an application (Issue [NMS-12785](#))
- Use newer protocol versions for remote DCOM WMI (Issue [NMS-12788](#))
- Add support for OpenConfig Service in Detector/Poller (Issue [NMS-12789](#))

- Remote Poller: Add outages for remote poller status changes (Issue [NMS-12792](#))
- Add support for meta-data on single-DS threshold definitions (Issue [NMS-12794](#))
- Update Users chapter (Issue [NMS-12809](#))
- Remote Poller: Modify model to new structure (Issue [NMS-12820](#))
- Remote Poller: Change monitoring locations UI to reflect model changes (Issue [NMS-12821](#))
- Remote Poller: Change Admin UI to reflect Application model changes (Issue [NMS-12822](#))
- Application Topology Provider Status (Issue [NMS-12823](#))
- Allow meta-data in notifications (Issue [NMS-12827](#))
- Add events for new Application Model (Issue [NMS-12838](#))
- Remote Poller: camel case in new column definitions causing problems (Issue [NMS-12841](#))
- Remote Poller: Remove LocationSpecificStatus (Issue [NMS-12859](#))
- Remote Poller: Documentation (Issue [NMS-12860](#))
- Remote Poller: Fix the remote flag (Issue [NMS-12861](#))
- Remote Poller: Cleanup (Issue [NMS-12864](#))
- Remote Poller: Clarify perspective labeling (Issue [NMS-12865](#))
- Remote Poller: Details pages show remote outages in recent outages list (Issue [NMS-12866](#))
- Remote Poller: Add graph definitions for response times (Issue [NMS-12868](#))
- Remote Poller: Add distributed tracing (Issue [NMS-12869](#))
- Remote Poller: Rename to Perspective Poller (Issue [NMS-12874](#))
- Remote Poller: Make backend more resilient (Issue [NMS-12878](#))
- Application Perspective Monitoring: create Application status page (Issue [NMS-12886](#))
- Document the MailTransportMonitor (Issue [NMS-12892](#))
- Additions to Application Perspective Monitoring docs (Issue [NMS-12893](#))
- Filter outages table in Application Topology View (Issue [NMS-12897](#))
- Add logging configuration for Perspective Poller (Issue [NMS-12910](#))
- Allow to navigate to monitored items in application status view (Issue [NMS-12913](#))
- Allow setting meta data in a requisition (Issue [NMS-12918](#))
- Create a report that matches Horizon 27.0.0 Jira issues with merged pull requests in GitHub (Issue [NMS-12922](#))
- Update Copyright notice for 2020 (Issue [NMS-12933](#))
- SSLCertMonitor should include more details about the expir(ing|ed) certificate in reason codes (Issue [NMS-12948](#))
- Update Maximum PostgreSQL to allow PostgreSQL 13 (Issue [NMS-12958](#))
- Create Horizon 27 Release Notes (Issue [NMS-12961](#))
- Identify message broker strategies in web "about" page (Issue [NMS-12971](#))