

# OpenNMS Meridian Release Notes

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OpenNMS Meridian v2020.1.25, Last updated 2022-07-12 14:54:18 UTC

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# OpenNMS Meridian 2020

## System Requirements

- **Java 8 through 11:** OpenNMS Meridian 2020 runs on JDK 8 through 11. We recommend the most recent version of OpenJDK 11.
- **Default Heap Size:** The default heap size is 2GB.
- **PostgreSQL 10 or higher:** Meridian 2020 requires any supported version of PostgreSQL 10 or higher.

## What's New in Meridian 2020

Since Meridian 2019, we have refined a number of the features introduced relating to telemetry, correlation, and other underlying APIs.

Meridian 2020 roughly matches the feature set available in Horizon 26.1.

## Documentation Updates

Documentation improvements have been made in a number of areas:

- Docker
- Grafana PDF Reports
- Graph Service API
- Minion
- Telemetry/flows
- Thresholding
- Timeseries Integration

## Graph API

A new API has been added for querying graph data, inspired by [GraphML](#). This API consolidates a number of internal APIs for accessing topology, application, BSM, link, and other data.

## Kafka and RPC

The RPC APIs for communicating between the OpenNMS core, Minion, and Sentinel have been improved, including adding support for gRPC communication.

It is now possible to configure Kafka to use a single topic for communication rather than one per module.

You can now configure flow data to be enriched with node metadata before being forwarded to Kafka.

## Minion and Sentinel

- The Minion can now be configured using `confd` by creating a `minion-config.yaml` file. For details, see [the README in the Minion source](#).
- The Minion Docker container has a number of enhancements:
  - Minion container sizes have been halved.
  - Native ICMP support has been added to improve performance.
  - Dockerized Minion now supports ARM.
- The Jolokia HTTP-JMX bridge has been added to the Minion and Sentinel.

## Polling and Monitoring

- The HTTP POST monitor has been updated to support injecting headers into the request.
- The poller now does a better job of validating configs on startup/reload.

## Provisioning

- Provisiond has been enhanced to improve performance of scans.
- Nodes provisioned through new suspect events now get assigned a foreign source.

## Telemetry and BMP

- The flow classification editor now supports CIDR notation for IP address expressions.
- Support has been added for the BGP Monitoring Protocol (BMP).

## Time-Series API

A new experimental internal API has been added for supporting persisting time-series data in a way that doesn't carry the baggage of the existing persistence APIs which are still heavily influenced by RRDTool.

## Web UI Improvements

- The navbar notification alert now shows everywhere, not just the front page.
- The "user" menu has been reorganized and cleaned up.
- The requisitions UI now supports deleting a node from its node page in the editor.

## Breaking Changes

### Flow Classification

In Meridian 2019, the Flow Classification UI accepted invalid IP address values, e.g., `10,192.1,168.1,5.1-160`. When upgrading OpenNMS Meridian, existing Flow Classification Rules may be considered invalid. In this case they are silently ignored by the Flow Classification Engine.

In order to assure no invalid Flow Classification Rules exist, please run the OSGi shell command `opennms-classification:list-invalid-rules` to list all invalid rules. If there are any invalid rules, you must manually fix them using the Flow Classification UI. For more details, refer to issue [NMS-12422](#).

## Events and Kafka

Events forwarded to Kafka are now keyed by `id` rather than `uei`.

## Karaf Shell Command Changes

All of the custom Karaf shell commands have now been updated to use a common scope of `opennms`. This makes it easier to find and enumerate the commands.

Mapping from previous to new commands is as follows:

Previous Command	New Command
<code>opennms-provision:detect</code>	<code>opennms:detect</code>
<code>opennms-provision:list-detectors</code>	<code>opennms:list-detectors</code>
<code>opennms-provision:show-import</code>	<code>opennms:show-import</code>
<code>opennms-provision:import-requisition</code>	<code>opennms:import-requisition</code>
<code>opennms-dns:lookup</code>	<code>opennms:dns-lookup</code>
<code>opennms-dns:reverse-lookup</code>	<code>opennms:dns-reverse-lookup</code>
<code>opennms-ping:sweep</code>	<code>opennms:ping-sweep</code>
<code>opennms-ping:ping</code>	<code>opennms:ping</code>
<code>opennms-jira:list-projects</code>	<code>opennms:jira-list-projects</code>
<code>opennms-jira:verify</code>	<code>opennms:jira-verify</code>
<code>opennms-jira:show-config</code>	<code>opennms:jira-show-config</code>
<code>opennms-jira:list-priorities</code>	<code>opennms:jira-list-priorities</code>
<code>opennms-jira:list-fields</code>	<code>opennms:jira-list-fields</code>
<code>opennms-jira:list-versions</code>	<code>opennms:jira-list-versions</code>
<code>opennms-jira:list-issue-types</code>	<code>opennms:jira-list-issue-types</code>
<code>opennms-jira:list-components</code>	<code>opennms:jira-list-components</code>
<code>opennms-scv:set</code>	<code>opennms:scv-set</code>
<code>opennms-scv:get</code>	<code>opennms:scv-get</code>
<code>opennms-datachoices:reset-system-id</code>	<code>opennms:datachoices-reset-system-id</code>
<code>opennms-datachoices:display-usage-report</code>	<code>opennms:datachoices-display-usage-report</code>
<code>opennms-datachoices:send-usage-report</code>	<code>opennms:datachoices-send-usage-report</code>
<code>opennms-poller:test</code>	<code>opennms:poll-test</code>

Previous Command	New Command
<code>opennms-poller:list-monitors</code>	<code>opennms:list-monitors</code>
<code>opennms-poller:poll</code>	<code>opennms:poll</code>
<code>opennms-filters:filter</code>	<code>opennms:filter</code>
<code>opennms-measurements:show-newts-samples</code>	<code>opennms:show-newts-samples</code>
<code>opennms-measurements:delete-resource</code>	<code>opennms:delete-measurement-resources</code>
<code>opennms-measurements:show-measurements</code>	<code>opennms:show-measurements</code>
<code>opennms-measurements:show-resources</code>	<code>opennms:show-measurement-resources</code>
<code>opennms-enlinkd:delete-topology</code>	<code>opennms:delete-topology</code>
<code>opennms-enlinkd:generate-topology</code>	<code>opennms:generate-topology</code>
<code>opennms-provision:list-detectors</code>	<code>opennms:list-detectors</code>
<code>opennms-collection:list-collectors</code>	<code>opennms:list-collectors</code>
<code>opennms-minion:id</code>	<code>opennms:minion-id</code>
<code>opennms-minion:ping</code>	<b>*Removed in favor of <code>opennms:health-check</code></b>
<code>opennms-dns:stress</code>	<code>opennms:stress-dns</code>
<code>opennms-kafka-producer:sync-alarms</code>	<code>opennms:kafka-sync-alarms</code>
<code>opennms-kafka-producer:push-topology-edges</code>	<code>opennms:kafka-push-topology-edges</code>
<code>opennms-kafka-producer:evaluate-filter</code>	<code>opennms:kafka-evaluate-filter</code>
<code>opennms-kafka-producer:list-alarms</code>	<code>opennms:kafka-list-alarms</code>
<code>opennms-nodocache:sync</code>	<code>opennms:sync-node-cache</code>
<code>opennms-coordination:join-election-domain</code>	<code>opennms:join-election-domain</code>
<code>opennms-kv-blob:put</code>	<code>opennms:kv-put-blob</code>
<code>opennms-kv-blob:get</code>	<code>opennms:kv-get-blob</code>
<code>opennms-kv-blob:benchmark</code>	<code>opennms:kv-benchmark-blob</code>
<code>opennms-kv-json:get</code>	<code>opennms:kv-get-json</code>
<code>opennms-kv-json:put</code>	<code>opennms:kv-put-json</code>
<code>opennms-classification:list-rules</code>	<code>opennms:list-classification-rules</code>
<code>opennms-classification:reload-engine</code>	<code>opennms:reload-classification-engine</code>
<code>opennms-classification:list-groups</code>	<code>opennms:list-classification-groups</code>
<code>opennms-classification:list-invalid-rules</code>	<code>opennms:list-classification-invalid-rules</code>
<code>opennms-classification:classify</code>	<code>opennms:classify-flow</code>
<code>opennms-elasticsearch:send-historic-events</code>	<code>opennms:send-events-to-elasticsearch</code>
<code>opennms-events:show-event-config</code>	<code>opennms:show-event-config</code>
<code>opennms-reload:daemon</code>	<code>opennms:reload-daemon</code>



<b>Previous Command</b>	<b>New Command</b>
<code>opennms-events:stress</code>	<code>opennms:stress-events</code>
<code>opennms-events:send</code>	<code>opennms:send-event</code>
<code>opennms-bsm:generate-hierarchies</code>	<code>opennms:bsm-generate-hierarchies</code>
<code>opennms-bsm:delete-generated-hierarchies</code>	<code>opennms:bsm-delete-generated-hierarchies</code>
<code>opennms-bsm:render-graph</code>	<code>opennms:bsm-render-graph</code>
<code>opennms-asset-topology:regenerate</code>	<code>opennms:asset-topo-regenerate</code>
<code>opennms-asset-topology:remove</code>	<code>opennms:asset-topo-remove</code>
<code>opennms-asset-topology:list</code>	<code>opennms:asset-topo-list</code>
<code>opennms-asset-topology:create</code>	<code>opennms:asset-topo-create</code>
<code>opennms-asset-topology:regenerateall</code>	<code>opennms:asset-topo-regenerate-all</code>
<code>opennms-topo:show-history</code>	<code>opennms:topo-show-history</code>
<code>opennms-topo:delete-history</code>	<code>opennms:topo-delete-history</code>
<code>opennms-onms:listnamespaces</code>	<code>opennms:list-namespaces</code>
<code>opennms-topo:listoperations</code>	<code>opennms:topo-list-operations</code>
<code>opennms-activemq:stats</code>	<code>opennms:activemq-stats</code>
<code>opennms-activemq:purge-queue</code>	<code>opennms:activemq-purge-queue</code>
<code>opennms-sentinel:id</code>	<code>opennms:id</code>
<code>opennms-collection:list-collectors</code>	<code>opennms:list-collectors</code>
<code>opennms-collection:collect</code>	<code>opennms:collect</code>
<code>opennms-metrics:stress</code>	<code>opennms:stress-metrics</code>
<code>opennms-threshold-states:details</code>	<code>opennms:threshold-details</code>
<code>opennms-threshold-states:enumerate</code>	<code>opennms:threshold-enumerate</code>
<code>opennms-threshold-states:clear-all</code>	<code>opennms:threshold-clear-all</code>
<code>opennms-threshold-states:clear</code>	<code>opennms:threshold-clear</code>
<code>opennms-meta:test</code>	<code>opennms:metadata-test</code>
<code>opennms-rpc:stress</code>	<code>opennms:stress-rpc</code>
<code>opennms-kafka-sink:topics</code>	<code>opennms:kafka-sink-topics</code>
<code>opennms-kafka-rpc:topics</code>	<code>opennms:kafka-rpc-topics</code>
<code>opennms-snmp:fit</code>	<code>opennms:snmp-fit</code>
<code>opennms-snmp:show-config</code>	<code>opennms:snmp-show-config</code>
<code>opennms-snmp:remove-from-definition</code>	<code>opennms:snmp-remove-from-definition</code>
<code>opennms-snmp:walk</code>	<code>opennms:snmp-walk</code>
<code>snmp:local-engine-id</code>	<code>opennms:snmp-local-engine-id</code>

Previous Command	New Command
<code>opennms-health:metrics-list</code>	<code>opennms:metrics-list</code>
<code>opennms-health:metrics-display</code>	<code>opennms:metrics-display</code>
<code>opennms-health:check</code>	<code>opennms:health-check</code>
<code>opennms-graph:get</code>	<code>opennms:graph-get</code>
<code>opennms-graph:list</code>	<code>opennms:graph-list</code>
<code>opennms-graph:force-reload</code>	<code>opennms:graph-force-reload</code>
<code>opennms-graph:search</code>	<code>opennms:graph-search</code>

## Kafka Producer Metrics

- For Interface Resources, a String attribute named `__ifIndex` is added to represent missing Interface `ifIndex` in String form.

## Notable Internal Changes

- Kafka has been updated to version 2.4.0.
- Protobuf has been updated to version 3.11.4.
- The OpenNMS Integration API is now version 0.4.
- Internally, events are, in most cases, immutable. For the most part, you should see no changes in the external and code places that events are interacted with. They are converted to mutable versions in places where they are often manipulated (like Drools).

## Other Improvements

Since Meridian 2020 is based on Horizon 26.1, it contains all the fixes and updates that have occurred since Meridian 2019 was created from the Horizon 25 codebase.

For a more complete list of major changes included in this release, see the ["What's New" documentation](#) for Horizon 26.1.3.

## Changelog

### Release Meridian-2020.1.25

Release 2020.1.25 contains a few small bug fixes and few enhancements.

The codename for Meridian 2020.1.25 is *Cove*.

### Bug

- Correct Grammar in Notices Box (Issue [NMS-12355](#))
- Link in ERROR log doesn't exist (Issue [NMS-13956](#))

- RRD file parsing failed with newts-repository-converter (Issue [NMS-14079](#))
- Heatmap drill down does not show any alarms/outages (Issue [NMS-14243](#))
- Notification with Destination Path and Group, Interval Delay doesnt show (Issue [NMS-14403](#))

## Enhancement

- event nodeCategoryMembershipChanged should be more verbose (Issue [NMS-10634](#))
- Add support for pre-authorization via HTTP header (to be used with pre-authentication) (Issue [NMS-14059](#))
- upgrade JNA to 5 (Issue [NMS-14417](#))

## Release Meridian-2020.1.24

Release 2020.1.24 contains a few small bug fixes.

The codename for Meridian 2020.1.24 is *Coral Reef*.

## Bug

- [Web] - WebServer Fingerprinting (Issue [NMS-13987](#))
- Telemetryd does not shut down gracefully (Issue [NMS-14003](#))
- Exception when searching assets (Issue [NMS-14240](#))
- Remove "Commercial Support" ticket lookup from web ui support section (Issue [NMS-14280](#))
- Circle ci caching OIA issue (Issue [NMS-14291](#))
- Kafka-Producer Alarm Resync Failing Post Entire Kafka Cluster Outage (Issue [NMS-14321](#))

## Release Meridian-2020.1.23

Release 2020.1.23 contains a number of security dependency updates.



While the dependency changes *should* not affect how the OpenNMS runtime works, this release contains a larger than usual number of changes to "plumbing" to facilitate these dependency updates. It is strongly recommended that you do more than the usual amount of testing before deploying this update to a production environment.

The codename for Meridian 2020.1.23 is *Submarine Canyon*.

## Bug

- CVE-2022-22965: Spring RCE in Data Bindings (Issue [NMS-14134](#))
- Upgrade groovy-all dependency (Issue [NMS-14208](#))
- make sure license-maven-plugin is re-enabled in foundation and release branches (Issue [NMS-14217](#))
- Upgrade jackson-mapper-asl dependency (Issue [NMS-14252](#))

## Release Meridian-2020.1.22

Release 2020.1.22 contains a few small fixes and enhancements.

The codename for Meridian 2020.1.22 is *Estuary*.

### Bug

- Resolve SonarCloud High priority Security Hotspots (Issue [NMS-14002](#))
- Scriptd helpers ignore community setting (Issue [NMS-14045](#))
- Wrong wiki URL in debian installer (Issue [NMS-14053](#))

### Enhancement

- Switch to using a java e-mail library instead of system mail (Issue [NMS-14015](#))
- Misspelling in SystemExecuteMonitor error text (Issue [NMS-14091](#))
- relicense rancid-api to LGPL, change dependency to match (Issue [NMS-14093](#))

## Release Meridian-2020.1.21

Release 2020.1.21 contains a fix for a regression in graph viewing.

The codename for Meridian 2020.1.21 is *Cliff*.

### Bug

- OpenNMS points to the wrong URL when trying to generate graphs (Issue [NMS-14057](#))

## Release Meridian-2020.1.20

Release 2020.1.20 contains mostly bug fixes, including some small security-related changes.

The codename for Meridian 2020.1.20 is *Headland*.

### Bug

- opennms user credentials wrongly exposed (Issue [NMS-12146](#))
- Support → System Report exposes credentials in plain text (Issue [NMS-13831](#))
- Cross site scripting - Reflected (Issue [NMS-13835](#))
- Password field with autocomplete enabled (Issue [NMS-13847](#))
- Web UI copyright year needs updating (Issue [NMS-14037](#))

### Enhancement

- Releases should document third party libraries and their licenses (Issue [NMS-14004](#))

## Release Meridian-2020.1.19

Release 2020.1.19 is a small release with a number of bug fixes, including a few security fixes related to Grafana PDF reports and Protobuf.

Thanks to Sahil Tikoo from Etisalat for reporting the Grafana endpoint issue.

A note about security issues: we have traditionally created CVEs in a pretty ad-hoc manner. We are in the process of formalizing how we'll be doing so going into the future.

The codename for Meridian 2020.1.19 is *Mid-Ocean Ridge*.

### Bug

- config-tester doesn't find malformed resourceTypes (Issue [NMS-13723](#))
- Event configuration UI fails to persist logmsg dest changes (Issue [NMS-13729](#))
- Outdated javascript library (Issue [NMS-13848](#))
- grafana endpoint can be used to port-scan internal resources (Issue [NMS-13917](#))
- Minion fails to marshall requisition with JAXB error: Class [org.opennms.netmgmt.model.PrimaryTypeAdapter] not found (Issue [NMS-13927](#))
- Unsynchronized access to service factories in TelemetryServiceRegistryImpl (Issue [NMS-13961](#))

### Enhancement

- Upgrade protobuf-java version (Issue [NMS-13889](#))

## Release Meridian-2020.1.18

Release 2020.1.18 is a small release with another upgrade for Log4j2 as well as an NPE fix in the topology UI.

It is not believed that we are vulnerable to the Log4j issues fixed in these newer releases, but are updating anyway [just to be sure](#).

The codename for 2020.1.18 is *Cuspate Foreland*.

### Bug

- Customer is not able to view Topology (Issue [NMS-13851](#))
- CVE-2021-45105: Update to Log4j 2.17.0 (Issue [NMS-13868](#))
- upgrade to log4j2 2.17.1 and pax-logging 1.11.13/2.0.14 (Issue [NMS-13878](#))

## Release Meridian-2020.1.17

Release 2020.1.17 is a re-release of 2020.1.16 with additional fixes relating to Log4j2 vulnerabilities.

The codename for 2020.1.17 is *Blowhole*.

## Bug

- CVE-2021-45046: incomplete Log4j2 vulnerability mitigation (Issue [NMS-13858](#))

## Release Meridian-2020.1.16

Release 2020.1.16 is an out-of-band release with a fix for the Log4j2 security issue.

The codename for 2020.1.16 is *Stack*.

## Bug

- Log4j2 0-day: CVE-2021-44228 (Issue [NMS-13850](#))

## Release Meridian-2020.1.15

Release 2020.1.15 contains a fix for a Jetty CVE, plus an update to fix a bug in user auth changes, and an enhancement to SNMPv3 user authentication.

The codename for 2020.1.15 is *Lagoon*.

## Bug

- Authorization changes not taking immediate effect (Issue [NMS-13761](#))
- CVE-2021-28164: access to WEB-INF (Issue [NMS-13832](#))

## Enhancement

- Support multiple auth params for same SNMPV3 username (Issue [NMS-13490](#))

## Release Meridian-2020.1.14

Release 2020.1.14 contains a few small features updates and a number of bug fixes, including an XSS security issue in the notifications wizard.

The codename for 2020.1.14 is *Tessellated Pavement*.

## Bug

- The node and interface counters of the Evaluation Layer are incorrect (Issue [NMS-13283](#))
- EvaluationMetrics.log is contaminated with non-related metrics. (Issue [NMS-13284](#))
- Reflected XSS in webapp notice wizard (Issue [NMS-13496](#))
- macOS Monterey: older OpenNMS branches do not start anymore (Issue [NMS-13703](#))
- related events box in alarm detail shows all events when alarm has no node / interface / service / ifindex (Issue [NMS-13705](#))

## Enhancement

- Incorporate node related information to events and alarms topic in opennms-kafka-producer

feature (Issue [NMS-12778](#))

- Support multiple auth params for same SNMPV3 username (Issue [NMS-13490](#))
- Show Link State when viewing links on the Enlinkd topology maps (Issue [NMS-13619](#))

## Release Meridian-2020.1.13

Release 2020.1.13 contains a couple of small bug fixes.

The codename for 2020.1.13 is *Strait*.

### Bug

- Signed Minion container bleeding image shows revision as meridian-foundation-2021.1.4-1-487 (Issue [NMS-13587](#))
- missing fields in search autocomplete (Issue [NMS-13518](#))

## Release Meridian-2020.1.12

Release 2020.1.12 contains a few small bug fixes, including a CVE dependency update.

The codename for 2020.1.12 is *Atoll*.

### Bug

- Syslog messages missing nodelabel, location, and interface (Issue [NMS-13485](#))
- Bump Apache Ant version to 1.10.11 (CVE-2021-36373, CVE-2021-36374) (Issue [NMS-13509](#))

## Release Meridian-2020.1.11

Release 2020.1.11 contains an update for a Jetty CVE plus a couple of XSS fixes and a Minion OOM bug.

The codename for 2020.1.11 is *Ayre*.

### Bug

- OutOfMemory issue on Minion (corner case related to Offheap) (Issue [NMS-13405](#))
- Jetty 9.4.38 security issues CVE-2021-28164, CVE-2021-34428 and CVE-2021-28169 (Issue [NMS-13449](#))
- Reflected XSS in webapp notice wizard (Issue [NMS-13496](#))
- Reflected XSS in scheduled outage editor (Issue [NMS-13498](#))

## Release Meridian-2020.1.10

Release 2020.1.10 contains a few dependency security updates and an enhancement to the Kafka producer.

The codename for 2020.1.10 is *Calanque*.

### Enhancement

- Incorporate node related information to events and alarms topic in opennms-kafka-producer feature (Issue [NMS-12778](#))

### Bug

- CVE-2020-13956: Update commons-httpclient to 4.5.13 (Issue [NMS-13360](#))
- CVE-2017-5929: bump logback-classic version to latest (Issue [NMS-13361](#))

## Release Meridian-2020.1.9

Release 2020.1.9 contains a few bug fixes and enhancements.

The codename for 2020.1.9 is *Wave-Cut Platform*.

### Bug

- IP interface link in Response Time graph page is broken (Issue [NMS-13158](#))
- Got Access Denied when viewing On-Call Role schedule (Issue [NMS-13287](#))
- Validate query parameters in snmpInterfaces.jsp (Issue [NMS-13308](#))
- Validate name parameter in DestinationWizardServlet (Issue [NMS-13309](#))

### Enhancement

- Incorrect reference to org.opennms.netmgt.syslog.cfg (Issue [NMS-13223](#))
- Location aware Requisitions from DNS (Issue [NMS-13278](#))

## Release Meridian-2020.1.8

Release 2020.1.8 contains a number of security fixes, as well as fixes for a few other bugs.

The codename for 2020.1.8 is *Isthmus*.

### Bug

- Not possible to define notification parameters via "Configure notifications" UI (Issue [NMS-8581](#))
- Race condition on ALEC's config bundle after installation (Issue [NMS-12766](#))
- Reflected XSS reported 2021-03-31 (update summary after disclosure) (Issue [NMS-13229](#))
- vmware integration connection pool not expiring connections (Issue [NMS-13234](#))
- Cleared alarms with closed ticket state not removed when using a hybrid approach (Issue [NMS-13237](#))
- Sidebar navigation on the graph results page is not working (Issue [NMS-13259](#))
- Time zone is handled different on Minion container image based on Ubuntu (Issue [NMS-13276](#))



- Apache Commons IO Security Update: CVE-2021-29425 (Issue [NMS-13279](#))

## Release Meridian-2020.1.7

Release 2020.1.7 contains an enhancement to event forwarding performance in the Kafka producer, plus a number of bug fixes including a Jetty DoS CVE.

The codename for 2020.1.7 is *Firth*.

### Bug

- Change Jetty default settings to eliminate TLS 1.0 and TLS 1.1 support (Issue [NMS-10256](#))
- Wrong UEI is picked when threshold alarms are generated (Issue [NMS-13120](#))
- XSS in notification wizard (Issue [NMS-13123](#))
- Generate Data collection throws error message "There is a group with same name, please pick another one" under MIB browser (Issue [NMS-13143](#))
- 'Links on interface' table was missing for interface under node list (Issue [NMS-13145](#))
- Regular Expression field textbox greyed out for other Events except 'REGEX\_FIELD' under Event notifications (Issue [NMS-13149](#))
- Query Regarding saving a filter URL with more than 255 characters in events ILP (Issue [NMS-13152](#))
- Kafka producer uses resource name instead of ifIndex as the instance for InterfaceLevelResource (Issue [NMS-13185](#))
- The behavior of the Ticketing API differs from older versions. (Issue [NMS-13189](#))
- CVE-2020-27223: Jetty DoS vulnerability (Issue [NMS-13201](#))
- Minion: Kafka related WARN log messages (AdminClientConfig The configuration X isn't a known config) (Issue [NMS-13208](#))
- Minion SNMPv3 trap configuration query is done every 60 seconds (Issue [NMS-13217](#))

### Enhancement

- Improve Event forwarding performance for Kafka producer (Issue [NMS-13211](#))

## Release Meridian-2020.1.6

Release 2020.1.6 contains a number of small bug fixes and enhancements, including some UI cleanups, Newts fixes, and a security update to Apache POI.

The codename for 2020.1.6 is *Bight*.

### Bug

- Timezone and Grafana Dashboard fields not preserved when editing a scheduled report (Issue [NMS-13064](#))
- 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

- add service status to rest `/info` API (Issue [NMS-13135](#))
- create a table to show related events in the alarm detail view (Issue [NMS-13170](#))

## Release Meridian-2020.1.5

Release 2020.1.5 contains a few bugfixes and a log verbosity enhancement.

The codename for 2020.1.5 is *Strandflat*.

### Bug

- 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](#))
- SFlow enhancement is not functional (Issue [NMS-13093](#))
- JEXL expression handling updates (Issue [NMS-13103](#))

### Enhancement

- Optionally silence file not found warnings for JICMP, JRRD when properties are not set (Issue [NMS-13081](#))

## Release Meridian-2020.1.4

Release 2020.1.4 contains an SNMP poller fix and a small enhancement to package dependencies.

The codename for 2020.1.4 is *Machair*.

### Bug

- When using a custom prefix, the Elasticsearch Forwarder for events and situation-feedback creates a wrong template. (Issue [NMS-13030](#))

### Enhancement

- Depend on haveged (and supply it in our repo) (Issue [NMS-8959](#))

The codename for 2020.1.4 is [Ria](#).

## Release Meridian-2020.1.3

Release 2020.1.3 is the fourth release in the Meridian 2020 series.

It contains a critical fix to a reporting API bug that could cause OpenNMS to fail to start.

BREAKING: If you created reports in 2020.1.2, they will need to be recreated in 2020.1.3.

The codename for 2020.1.3 is [Fjord](#).

### Bug

- report timezone changes break reading pre-existing reports from Quartz (Issue [NMS-13037](#))

## Release Meridian-2020.1.2

Release 2020.1.2 is the third release in the Meridian 2020 series.

It contains a number of bug fixes including a fix for a critical Jetty CVE.

The codename for 2020.1.2 is [Skerry](#).

### Bug

- 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](#))
- 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](#))
- Null pointer exception whe minion receives traps (Issue [NMS-13015](#))

## Release Meridian-2020.1.1

Release 2020.1.1 is the second release in the Meridian 2020 series.

It contains a number of bug fixes and enhancements.

The codename for 2020.1.1 is [Tombolo](#).

### Bug

- Unable to poll Vcenter CIM - Calling something in OpenJDK11 that has been removed. (Issue [NMS-12919](#))
- service starts / restarts work but spit out an error if configured to wait for startup (Issue [NMS-12966](#))

- 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](#))
- Identify message broker strategies in web "about" page (Issue [NMS-12971](#))

## Release Meridian-2020.1.0

Release 2020.1.0 is the first release in the Meridian 2020 series, based on Horizon 26.1.x.

The codename for 2020.1.0 is *Archipelago*.

## Bug

- HTTP Detector does not accept a response without a reason as valid (Issue [NMS-10351](#))
- Slack-compatible notification strategies expect "url" for switch name, should be "-url" (Issue [NMS-10552](#))
- opennms.pid missing when started by Systemd (Issue [NMS-12769](#))
- Interfaces incorrectly marked as having flows resulting in no data via Helm (Issue [NMS-12814](#))
- Response Time Summary database report missing latency calculation (Issue [NMS-12837](#))
- SslContextFactory needs to be changed to SslContextFactory.Server in jetty.xml (Issue [NMS-12847](#))
- Wrong startup command for Minion running with Docker and health check issues (Issue [NMS-12872](#))
- Install guide RHEL instructions are invalid on RHEL 7 (Issue [NMS-12891](#))

## Enhancement

- Update collectors chapter (Issue [NMS-12682](#))
- Include XML schema for wsman-datacollection-config.xml in assemblies (Issue [NMS-12813](#))
- Fix CollectdTest mock'ing errors (Issue [NMS-12828](#))
- Fix JMX datacollection config generator test (Issue [NMS-12829](#))
- Remove unused import in BsonUtils (Issue [NMS-12830](#))
- Update mockito/powermock dependencies (Issue [NMS-12831](#))
- Update Minion installation documentation (Issue [NMS-12917](#))
- sort custom reports (Issue [NMS-12931](#))
- Update Copyright notice for 2020 (Issue [NMS-12933](#))