# OpenNMS Meridian Release Notes

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# OpenNMS Meridian 2017

## System Requirements

- **Java 8**: OpenNMS Meridian 2017 requires Java 8 as the runtime environment. To run Meridian 2017, we recommend the most recent version of Oracle JDK 8 for your platform.
- **PostgreSQL 9**: Meridian 2017 requires PostgreSQL 9.x, version 9.2 or higher.

## What's New in Meridian 2017

Since Meridian 2016, a huge number of backend changes have occurred, including a large refactor of provisioning, many cleanups in Enlinkd, and a number of new features including the Business Service Monitor.

### Important Upgrade Notes

- **Clean Up Events and Alarms**: Please clean up your event and alarm lists as much as possible before performing an upgrade to Meridian 2017. The upgrade process includes a change to move event parameters to a separate table, rather than being encoded in a column in the event table. If you prune unused data from these tables beforehand, it will make the upgrade process much quicker.
- **Remote Poller API Change**: Due to internal API changes, the Remote Poller API has changed in Meridian 2017. If you upgrade to Meridian 2017, you will also need to upgrade all Remote Pollers attached to the system to 2017 as well.

- **Cassandra JMX Metrics**: The default value for the `friendly-name` attribute on the `JMX-Cassandra` collection service has changed from `cassandra21x` to `cassandra`.

  This changes the path in which the metrics are stored. If you have already been collecting these metrics and wish to preserve them, you can ignore this change when merging your configuration.

- **Jetty 9.4 Upgrade**: Jetty has been upgraded from `8.1` to the latest `9.4`.

  If you have a custom `jetty.xml` in your `etc` folder, you will need to migrate your changes. Use `etc/examples/jetty.xml` as a starting point.

- **Drools 6.5.0 Upgrade**: Drools has been upgraded from `6.0.1.Final` to `6.5.0.Final`.

  If you have custom Drools rules, they may need to be revised. The compiler used in `6.5.0.Final` is stricter than the compiler in previous versions.

- **Separate opennms-webapp-remoting Package**: The webapp that supports the Remote Poller has been separated from the main OpenNMS webapp.

  This will make installations much smaller for users that do not use the Remote Poller. If you use the Remote Poller, you will need to install the `meridian-webapp-remoting` package.

- **User roles moved from magic-users.properties into users.xml**: The `users.xml` file now contains a list of roles for each user alongside the rest of the user attributes.

- **JICMP 2.0 Upgrade**: Our Java ICMP library has been upgraded to version 2.0.

  You will need to upgrade to this version before upgrading to OpenNMS Meridian 2017.

- **org.opennms.newts.nan_on_counter_wrap**: If you are using Newts, returning NaN when a counter-wrap is encountered now defaults to true.

  If you relied on the old behavior, you can change it back by setting `org.opennms.newts.nan_on_counter_wrap=false` in a file in `opennms.properties.d`.

**Breaking Changes**

- **Custom Topology Icon Definitions**: Custom Icon Definitions in the Topology Map are now handled differently.

  You will need to migrate your existing custom icons to the new layout. The Administrators Guide covers this topic in more detail.

- **Event Translator**: The default behavior of the event translator preserving SNMP data when cloning event has been changed to *NOT* preserve that data by default.

  To restore the old behavior, set `preserve-snmp-data="true"` on the event XML. For more information, see issue NMS-8374.

- **ReST API**: The ReST API has been normalized to give better and more consistent responses to queries.

This includes dropping support for redirecting to the model URL on write operations (POST, etc.) If you were relying on this old (broken) behavior, please update your ReST API calls accordingly. Most client code should be unaffected.

- NMS-9303: Deprecated Capsd and Linkd event definitions are removed.

Otherwise unused event definitions are also cleaned up and removed from the code and configurations. For a detailed list of all removed events see NMS-9303. For people maintaining databases prior to OpenNMS 1.8, we provide a maintenance script for Linux and Windows in the *opennms-contrib* package to clean up old events in the database. The script is named `NMS-9303-cleanup-deprecated-events.sh` and executes a SQL script. In case you run PostgreSQL on Windows, you can use `psql.exe -d opennms -U opennms -W -a -f NMS-9303-cleanup-deprecated-events.sql` to run the maintenance script.

**New Features**

- **Business Service Monitor**: Correlation for root cause and business impact analysis.

  The goal of the Business Service Monitor is to provide a high-level correlation of business rules, and to display them in the topology map.

  In the BSM, you define a Business Service that encompasses a set of entities (nodes, interfaces, services, and other Business Services) and the relationships among them. The alarm states of the component entities are rolled up in a map-reduce fashion to drive a state machine. The state of a Business Service is reflected in a new type of event, and can also be visualized (along with the service hierarchy) in the existing OpenNMS topology map.

  For details on using the BSM, see the Administrators Guide.

- **Modular Configuration Updates**: Now most properties set in the `opennms.properties` file can be instead overriden by creating a file in the `${OPENNMS_HOME}/etc/opennms.properties.d` directory.

- **Notifications**: New notification strategies for Slack and Mattermost have been added.

- **OpenNMS Plugin Manager**: An API for adding 3rd-party "plugins" to OpenNMS.

  The core of a tool for adding plugins into OpenNMS has been included in Meridian 2017. This provides a set of tools for finding and adding plugins to be loaded into the OpenNMS OSGi container.

- **Provisioning Requisition UI**: A huge number of improvements have gone into the requisition UI. Also, the old "Quick-Add Node" functionality has been reimplemented using the same backend as the requisition UI.

- **"Scan Report" Remote Poller GUI**: A new front-end for the remote poller that lets you perform a single scan and get a pass/fail report in a GUI has been added. You can enable this alternate UI with the "-s" option on the remote poller CLI.

- **Topology UI Updates**: As part of the BSM work, the topology UI has been vastly improved for both performance and usability.

- **TSRM Ticketing Plugin**: Create incidents in IBM's TSRM.

Information on configuring the TSRM ticketing plugin can be found in the Administrators Guide.

- **Usage Statistics**: Collect anonymous usage statistics.

  To get a better idea of how to estimate hardware requirements and the performance characteristics of OpenNMS, we wrote a tool to occasionally submit anonymous diagnostic information about your OpenNMS install. It will submit information like the number of nodes, alarms, etc. as well as some basic system information to our servers for statistical reasons.

  When a user with the Admin role logs into the system for the first time, they will be prompted as to whether or not they want to opt-in to publish these statistics. Statistics will only be published once an Administrator has opted-in.

  These statistics are visualized on stats.opennms.org.

- **GraphML Topology Provider**: A new Topology Provider is available that reads GraphML formatted graphs and displays them in the the Topology UI.

- **OpenNMS Elasticsearch ReST Forwarder**: This Elasticsearch forwarder can store events, alarms, and alarm state changes in Elasticsearch for archival or searching. It is compatible with all currently supported versions of Elasticsearch.

- **Drools Persistence**: Drools working memory can now be persisted to disk upon shutdown of OpenNMS.

- **Unified JAAS Authentication**: The web UI, the Apache Karaf OSGi console, and the built-in ActiveMQ broker all use a single authentication method.

- **Monitoring Location Events**: Events will be sent when Monitoring Locations are added, updated, or deleted.

- **External JMS broker**: It is possible to configure OpenNMS to use an external JMS broker if desired.

- **New Syslog Parser**: A new syslog parser, the `RadixTreeSyslogParser`, has been added, which supports all major syslog message formats, and uses Grok for more performant parsing.

- **String Persisting over TCP**: The TCP persister can now persist string values.

- **ICMP traffic class and don't-fragment support**: It is possible to configure OpenNMS to set DSCP traffic class and "don't fragment" bits when polling ICMP.

- **Geographical Maps**: Geographical maps are now included by default in the center of the Web UI front page.

- **Web UI improvements**: Location information has been added to many places in the UI, and a number of pages have been enhanced including the BSM editor and topology UI.

- **Asset Topology Provider**: The Asset Topology Provider generates a GraphML topology based on node metadata including asset fields. (more details).

- **Alarm Sounds**: The web UI can now optionally flash and play an alert sound when alarms are created and optionally updated. (more details).

**Events**

New or updated trap definitions have been added for the following classes of devices:

- APC
- Juniper IVE
- NetGear ProSafe Smart Switch
- OpenWRT
- SonicWall

**Data Collection**

- AKCP SensorProbe
- Cisco ASA5515-X and ASA5525-X
- Juniper SRX100h and SRX210he2 Router
- **HTTP**:
  - Elasticsearch
- **JMX**:
  - Apache Kafka
  - VMware vCenter Server 6.0.0

**Other Improvements**

As always, many updates and cleanups have been made to the OpenNMS core, through refactoring, addition of unit tests, and other code modernization.

- **Minion Infrastructure**: Minion is OpenNMS's project to provide full distributed monitoring and collection.

  While the Minion is not supported in Meridian 2017, the work that went towards Minion support (modernizing polling and data collection) is included.

- **ActiveMQ**: An ActiveMQ broker is now embedded in the OpenNMS JVM.
- **Discovery Daemon Rewrite**: The discovery daemon has been replaced with a Camel-based implementation to facilitate future Minion support.
- **Enhanced Linkd**: Enlinkd has had many bugs fixed and should perform orders of magnitude faster in many configurations.
- **JNA**: The JNA ping implementation got cleaned up and received many improvements.
- **Newts**: A number of bugfixes and improvements have been made to the Newts support since Meridian 2017.
- **Syslog Daemon Updates**: The performance of the OpenNMS syslog support has been vastly improved and updated.

- We replaced all of the GWT components in the web UI with AngularJS components.

  This reduces the complexity of the UI code and will make it easier for developers with Javascript experience to maintain and contribute to the UI.

- All Javascript dependencies for the web UI are now managed by Bower and Gulp.

- Jasper reports are now automatically recompiled if changed.

- The JIRA ticketer has been improved.

- The default database connection pool has been switched from c3p0 to HikariCP ([http://brettwooldridge.github.io/HikariCP/](http://brettwooldridge.github.io/HikariCP/)) to increase performance.

- Our ICMP libraries are now capable of being run by non-root users (although OpenNMS is not yet configured to support this).

- The startup order of OpenNMS has been improved to make sure that a number of time-sensitive event-consuming daemons are ready immediately after Eventd, and before traps are consumed.

- Collection APIs have been refactored and cleaned up immensely as part of refactoring for future Minion support.

- JSON datacollection now supports properly handling responses that return an array.

- Path handling for collection resources has been improved.

- Many improvements have been made to the documentation, including documentation for collectors, detectors, and monitors, as well as Karaf shell commands and event sources.

- A number of improvements to geolocation resolution and node maps have been made.

- Internal OpenNMS events have been cleaned up and broken into logical parts in `$OPENNMS_HOME/etc`.

- Graphs that use relative time periods have additional drop-down choices now.

- The topology infrastructure has been vastly improved, with MANY bug fixes and performance improvements.

- Fix a thread leak in SNMP queries that can happen when old connections don't get closed properly.

- Fix a long-standing bug in the `vacuumd-configuration.xml` that referred to the wrong ticket state for "closed".

- Fix calculation of KSC report "Last Week" and "This Week" timespans.

- Fix startup on systems without any IPv6 support.

- Reverse lookups in provisioning now handle IPs without a corresponding A record.

## Release Meridian-2017.1.1

Release 2017.1.1 is the second release of OpenNMS Meridian 2017. It contains a number of security and bug fixes and a few small enhancements.

The codename for 2017.1.1 is *Meridian of Monte Mario*.

**Bug**

- An empty category is not shown when in focus (Issue NMS-9423)

- Multiple XSS vulnerabilities in OpenNMS webapp (Issue NMS-9457)

- The button to add a graph to a KSC report doesn't work (Issue NMS-9498)

- RadixTreeSyslogParser confuses timezone and hostname fields (Issue NMS-9522)

- Stale IP Address Cache (Issue NMS-9613)

- opennms-webapp-remoting JARs are not signed (Issue NMS-9638)

- trapd may silently discard invalid traps (Issue NMS-9660)

- Trap event parenting lacks bias toward SNMP primary interfaces (Issue NMS-9666)

- IOActive: Stored Cross-site Scripting in SNMP Trap Message (Issue NMS-9668)

- IOActive: Reflected Cross-site Scripting in heatmap/outages heatmap Parameter (Issue NMS-9671)

**Enhancement**

- Display AlarmId on Event page (Issue NMS-8445)

- Check/add support for PostgreSQL 10 (Issue NMS-9679)

## Release Meridian-2017.1.0

Release 2017.1.0 is the first release of OpenNMS Meridian 2017. It is based on OpenNMS Horizon 19, plus a number of other bug fixes and changes that went into Horizon 20.

The codename for 2017.1.0 is *Bering Strait*.

**Bug**

- collectd does not unschedule deleted nodes (Issue NMS-5105)

- provisiond hangs  (Issue NMS-5593)

- vmware urls do not support username/passwords that require URL encoding (Issue NMS-6530)

- noSuchInstance causing problems during provision scan (Issue NMS-8046)

- Renaming a root business services does not work anymore (Issue NMS-8370)

- Simulation mode is ended when clicking on "Set as focal point" (Issue NMS-8542)

- Outage ReST service forNode use case calculates dates incorrectly (Issue NMS-8823)

- DB installer tries to class-load every file under OPENNMS_HOME as a JAR (Issue NMS-8860)

- Updating assets/categories through ReST affects Forced Unmanaged services. (Issue NMS-8879)

- Statsd: erroneous reporting; aggregators not reset between worker's runs (Issue NMS-8944)

- Skip /var/lock/subsys actions when running as unprivileged user (Issue NMS-8962)

- Copyright bump 2017 (Issue NMS-9060)

- Collection timing enhancements (Issue NMS-9090)

- "Manually Add an Interface" seems broken (Issue NMS-9108)

- opennms stays running when during a rpm/yum/dnf update (Issue NMS-9127)

- Fix CORS section to include /api/* besides /rest  (Issue NMS-9133)

- Fix the execution of Drools rules when using streaming (CEP, Temporal Reasoning) (Issue NMS-9172)

- NPE in GeolocationProvisioningAdapter (Issue NMS-9187)

- OSPF Router Id not properly updated (Issue NMS-9218)

- DNS Adapter on Delete Node does not delete DNS record (Issue NMS-9219)

- Topology Map ip like search produces duplicates (Issue NMS-9265)

- Make TCP output queue parameters configurable (Issue NMS-9282)

- syslogd logs "No hideMessage configured" though it is really not needed (Issue NMS-9289)

- Logging for TCP output queue (Issue NMS-9291)

- The geolocation provisioning adapter is not updating coordinates correctly (Issue NMS-9316)

- Installation issues with OpenJDK JRE (Issue NMS-9327)

- geo-coder creates invalid latitude/longitude in assets table (Issue NMS-9338)

- XSS vulnerability on quick-add node page (Issue NMS-9353)

- XSS vulnerability on node error page (Issue NMS-9354)

- XSS vulnerability with application names (Issue NMS-9355)

- Thresholding on WSMan datasources appears broken (Issue NMS-9361)

- Business service states are not properly updated when alarms are deleted (Issue NMS-9369)

- Incorrect sysoid for the systemDef Juniper J-Routers (Issue NMS-9372)

- Breadcrumb for requisitions has extra "/app" in path (Issue NMS-9386)

- Increase default connection timeout for HikariCP (Issue NMS-9387)

- TCP persistence strategy should output time in milliseconds, not seconds (Issue NMS-9409)

- NullPointerException during nodeScan on devices with broken IP-MIB::ipAddressIfIndex (Issue NMS-9415)

- Quick search HTTP error (Issue NMS-9419)

- No bounds-checking in processing of DHCP Options (Issue NMS-9420)

- Possible XSS in Alarm Filter Favorites (Issue NMS-9421)

- Event Configuration Screen Requires Alarm Type (Issue NMS-9422)

- Grouped status circle on geomap is not a circle (Issue NMS-9424)

- ClassNotFoundException when running vmwarecimquery/vmwareconfigbuilder (Issue NMS-9456)

- Fix JSP issues related to JAXB update (Issue NMS-9460)

- SQL injection in DefaultSurveillanceViewService (Issue NMS-9476)

- Clone foreign source requisition overwrites config of other requisition without any hint or warning (Issue NMS-9481)

- Using maskelements based on nodeID (and maybe other fields) to match event definition doesn't work (Issue NMS-9496)

- The alarm-type for BSM event definitions is conceptually incorrect (Issue NMS-9497)

- Using varbind to match event definition doesn't work (when using the same UEI in many definitions) (Issue NMS-9507)

- ConcurrentModificationException thrown by Statsd (Issue NMS-9511)

- Update copyright date in docs (Issue NMS-9516)

- Document supported products and versions for Remedy integration (Issue NMS-9538)

- Microsoft IE and Edge doesn't like relative path on Angular apps (Issue NMS-9542)

- initial-delay="null" when adding a new destination path (Issue NMS-9548)

- The reason parameter for a nodeLostService event is limited to 255 characters (Issue NMS-9550)

- Eventd does not respect event configuration order when reloading (Issue NMS-9551)

- reloadDaemonConfig doesn't work for Eventd, only eventsConfigChange works (Issue NMS-9555)

- users.xml being overwritten on installation (Issue NMS-9573)

- Apache CXF is not decoding url parameters correctly. (Issue NMS-9578)

- Custom security roles files is not mentioned on the documentation (Issue NMS-9579)

- ExceptionMapper does not update the entity type accordingly (Issue NMS-9598)

- offset=0 is rendering as offset=null in ReSTv2 collections (Issue NMS-9599)

- Unable to modify poller packages through the Monitoring Locations UI (Issue NMS-9608)

- Remove any mention of using Atomikos as a valid DB Connection Pool to avoid unwanted side effects (Issue NMS-9609)

- vmware importer fails with NPE (Issue NMS-9611)

- Basic syslog messages with Informational severity turn into unknown events (Issue NMS-9615)

- quick add node is broken (Issue NMS-9618)

- Remote poller logs have place holders for their names (Issue NMS-9621)

- Missing visual aid on BSM Admin Page after hitting Reload Daemon (Issue NMS-9624)

- Remote Poller log path incorrect when using the NSIS installer (Issue NMS-9631)

- Pristine installation with an empty content for etc/drools-engine.d/ncs which is invalid  (Issue NMS-9636)

- MomentJS warning after running sample code (Issue NMS-9637)

- yum error when upgrading from Meridian 2016 to Meridian 2017 with XML protocol package (Issue NMS-9640)

- Changed thresholds file in Meridian 2017 (Issue NMS-9641)

- notifd-configuration file wrong in Meridian 2017 (Issue NMS-9642)

- Misordered collections in datacollection-config.xml (Issue NMS-9643)

- Meridian 2017.1.0 needs some packages from yum.opennms.org repo (Issue NMS-9644)

- re-fix BSM alarm types (Issue NMS-9653)

- The Surveillance View and the Dashboard are rendered with Horizon colors (Issue LTS-201)

- "Manage Minions" is not supposed to appear on the Admin Pages. (Issue LTS-204)

- Display the Meridian logo in the Jasper reports (Issue LTS-205)

- Color scheme in "Help improve OpenNMS" is too horizon like (Issue LTS-210)

- The favicon does not comply with the meridian color scheme. (Issue LTS-211)

**Enhancement**

- Simple usability improvement to the provisioning UI (Issue NMS-8601)

- Make an automation to clear pathOutage alarms (Issue NMS-8857)

- Add foreignSource and foreignId parameters when sending events as an alternative to nodeId (Issue NMS-8919)

- Save syslog hostname in an event parameter (Issue NMS-8928)

- Identify time-series strategy in support/about page (Issue NMS-8936)

- VMware collector support for units and value modifier (Issue NMS-9092)

- SNMP data collection definitions for Cisco ASA5585-SSP-60 devices (Issue NMS-9094)

- Migrate remaining XSDs from Castor to JAXB (Issue NMS-9134)

- Cleanup and remove Castor related dependencies (Issue NMS-9135)

- Persist Drools working memory to disk when stopping and starting OpenNMS (Issue NMS-9143)

- Expose task queue size for ExecutorService runners. (Issue NMS-9161)

- Add Checkstyle to the build (Issue NMS-9174)

- Upgrade Spring from 4.0 to 4.1 (Issue NMS-9259)

- Finishing the implementation of the missing endpoints for ReST v2 (Issue NMS-9278)

- Upgrade Drools to 6.5.0 (Issue NMS-9279)

- Redefine the start ordering of the OpenNMS daemons during bootstrap. (Issue NMS-9280)

- Reload Drools configuration without restart OpenNMS (Issue NMS-9290)

- Alarms Page Enhancements - Sound and Flashing (Issue NMS-9375)

- Improved visualization for large trees with the Hierarchy Layout (Issue NMS-9379)

- Add support for retrieving the SNMPv2 agent address from a specific varbind (Issue NMS-9449)

- Improve logging for EventIpcManagerDefaultImpl (Issue NMS-9452)

- Minion requires location-specific definitions in SNMP config (Issue NMS-9462)

- add HTTPS response time datacollection and graph defintions (Issue NMS-9465)

- Add parameterized SQL support to Criteria API (Issue NMS-9480)

- Programmable Northbounder Interfaces (Issue NMS-9513)

**Configuration**

- Distributed/Geographical Maps do not show images anymore (Issue NMS-8597)

- Remove "delete" flag from default downtime model (Issue NMS-9257) === OpenNMS Meridian 2016

## What's New in Meridian 2016

Since Meridian 2015, a number of backend changes have been made, as well as a large amount of refactoring and many new features.

**Java 8**

Meridian 2015 dropped support for Java 6, and now in 2016 we are dropping support for Java 7, which has been EOL'd for some time now. OpenNMS Meridian 2015 requires Java 8 to run, and we strongly recommend the latest version of Oracle JDK 8 for your platform.

**PostgreSQL 9.1 or Higher**

OpenNMS Meridian 2016 now requires PostgreSQL 9.1 or higher. All older versions of PostgreSQL are past their end-of-life support date.

**Retired Features**

- The legacy capability scanner, Capsd, has been removed from OpenNMS. It was deprecated in OpenNMS Horizon 1.12 and disabled by default in Horizon 14 and Meridian 2015 in favor of the provisioning systems of OpenNMS.

- The original link scanning daemon, Linkd, has been superseded by Enhanced Linkd since it was introduced in OpenNMS Horizon 15. Enhanced Linkd is a refactored replacement that is more efficient than the original Linkd code.

- **SVG Maps**: The SVG map feature relied on Linkd's code for drawing links between items on the map so it was also removed in OpenNMS 17.

- **Xmlrpcd**: Xmlrpcd was a daemon that relayed inventory and polling events to an external system over the XML-RPC protocol. Because you can accomplish almost all of its use cases by using the provisioning REST service, it has been removed.

- **MX4J**: The MX4J HTTP interface has been removed in favor of using more modern JMX access methods that have been added in recent versions of the JVM.

**Important Upgrade Notes**

- **Clean Up Events and Alarms**: Please clean up your event and alarm lists as much as possible before performing an upgrade to Meridian 2016. The upgrade process contains a large number of database schema migrations which will cause rewrites of all of the data in some tables. If you prune unused data from these tables beforehand, it will make the upgrade process much quicker.

- **Remote Poller API Change**: Due to internal API changes, the Remote Poller API has changed in Meridian 2016. If you upgrade to Meridian 2016, you will also need to upgrade all Remote Pollers attached to the system to 2016 as well.

- **RMI Security Updates**: The RMI registry has been changed to only listen on localhost by default. It also now requires authentication using an OpenNMS administrator account.

- **JMX Updates**: JMX is no longer enabled by default on port 18980. If you have reason to access your OpenNMS instance remotely over JMX, you can reenable it by adding `-Dcom.sun.management.jmxremote.port=18980` and `-Dcom.sun.management.jmxremote.ssl=false` to `ADDITIONAL_MANAGER_OPTIONS` in `$OPENNMS_HOME/etc/opennms.conf`. Complete documentation on enabling remote access and configuring authentication is available in the admin guide. Note that OpenNMS-JVM monitoring of the local instance (ie, localhost) will still work by using the JMX Access API, without needing to enable the TCP port.

**API Changes**

Several classes changed location in Meridian 2016 and these changes may require you to update configuration files or scripts with the new names.

- The **IndexStorageStrategy** and **PersistAllSelectorStrategy** classes moved into the **org.opennms.netmgt.collection.support** Java package. These classes are heavily referenced in data collection configuration files. There is an upgrade task that should update all data collection files when you run the **install** command after upgrading OpenNMS.

- All **EventUtils** class methods were consolidated inside the **org.opennms.netmgt.model.events.EventUtils** class.

- Monitoring locations for the Remote Poller are now viewed and configured in the UI under `/locations/index.jsp`. Monitoring locations were previously configured in the `etc/monitoring-locations.xml` file but are now stored in `monitoringlocations` database table.

- All data previously in the `location_monitors` table is now in the `monitoringsystems` table.

- The `ifIndex` column has been removed from the `ipInterface` table. To fetch the ifIndex, you need to join to the `snmpInterface` table by `nodeId`.

- The `nodeId` and `ipAddr` columns have been removed from the `ifServices` table. To fetch these columns, you need to join to the `ipInterface` table.

- The `nodeId`, `ipAddr` and `serviceId` columns have been removed from the `outages` table. To fetch these columns, you need to join to the `ifServices` table.

**New Features**

- There is a new REST service that can be used to export performance data. This service can be used to easily export OpenNMS metrics into external graphing engines such as Grafana. See the REST API documentation for details.

- **Newts Storage for Data Collection**: In addition to RRD and JRobin, OpenNMS 17 data collection now supports our [Newts](http://opennms.github.io/newts/) time-series data store that uses the highly-scalable Apache Cassandra database as the storage backend. This storage solution provides higher performance than the file-based RRD and JRobin databases and practically unlimited scalability when using a cluster of Cassandra nodes. You can drastically reduce CPU

and storage load on your OpenNMS system and increase the number of metrics stored per second by using the Newts storage engine.

- **Measurements REST API Filtering**: The measurements REST API now supports the use of arithmetic filters on the returned datasets. This allows you to perform calculations or statistical operations on the data via server-side processing.

- **Grafana Panel**: An optional panel has been added to the UI to allow you to integrate links to Grafana graphs in the UI.

- **Streamlined UI Style**: The style of the UI has been refined to provide a clearer, more modern look-and-feel.

- **Alarm Heatmap**: A heatmap visualization has been added that lets you quickly visualize alarm status and outages within a category or on a node.

- **FreeIPA Kerberos Authentication**: We've added a sample configuration for FreeIPA Kerberos SSO to our `jetty-webapps/opennms/WEB-INF/spring-security.d` directory.

- **JMX Configuration UI and CLI**: The JMX Configuration web UI and CLI have been rewritten to make it easier to generate complex JMX data collection configurations.

- **JMS Alarm Northbounder**: The implementation of a JMS northbounder for sending OpenNMS Alarms to external JMS listeners has been completed. Thanks to David Schlenk (@dschlenk) for this contribution!

- **OTRS 3.1+ Ticketing Integration**: Our OTRS ticketing integration has been updated to work with the API in OTRS 3.1 and higher. Thanks to Jonathan Sartin (@blackpoplar) for this contribution!

- **Easier Remote Poller Configuration**: Monitoring locations can now be associated with multiple polling and collection packages. This can make some Remote Poller scenarios easier to configure.

**Events**

New or updated trap definitions have been added for the following classes of devices:

- A10 AX Load Balancer
- Avocent DSView
- Citrix NetScaler
- Dell Force 10
- Evertz 7800FR Multiframe
- 7880-IP-ASI-IP
- 7881-DEC-MP2
- 7780-ASI-IP2
- Infoblox
- Mikrotik RouterOS
- ~50 new NetApp Events
- OpenSSH syslog events

- Postfix syslog events

- Procmail syslog events

- Raytheon NXU-2A

- Siemens HiPath

- Veeam Backup/Replication

**Data Collection**

- Fortinet Fortigate

- Sonicwall

**Core Updates**

As always, many updates and cleanups have been made to the OpenNMS core, through refactoring, addition of unit tests, and other code modernization.

- A few subsystems have been updated to run properly under OSGi.

- A large number of places where we were still using JDBC calls have been converted to use our DAO infrastructure and Hibernate.

- The OpenNMS ReST APIs now support CORS properly to aid in writing web applications that consume or update OpenNMS data.

- The JMX detector, monitor, and collector were refactored for modularity.

- The Dashboard was rewritten using the Vaadin UI toolkit to improve and modernize its look-and-feel.

- Bean Scripting Framework (BSF) notifications and the BSFMonitor were optimized and are now much more efficient. (Thanks to David Schlenk for this contribution!)

- RTC, which calculates the availability percentages for the category panel on the main page, was rewritten using Spring for initialization and using database calls to perform availability calculations. This will improve its maintainability.

- The web controllers for provisioning, RANCID integration, reports, the node list, and Remote Poller administration were rewritten to modernize their code.

- The REST portion of the OpenNMS webapp was modularized into its own project.

- The REST interface has been refactored to be based on Apache CXF 3.1.4.

- The web UI service layer was separated from the main web UI to improve modularity.

- The Jasper and statsd reports have been changed so that they use a new unified interface for fetching data from either RRD, JRobin, or Newts.

- The Discovery engine has been refactored into its own project.

- The Dashboard has been rewritten using the Vaadin toolkit to modernize its look-and-feel.

- The `opennms-assemblies/jmx-config-generator-onejar` project has been moved to `features/jmx-config-generator`.

**Dependency Updates**

A number of internal libraries have been upgraded for bugfixes and new features. None of these updates should require configuration changes.

- Spring has been upgraded from 3.2.9 to 4.0.5.
- Spring Security has been upgraded from 3.1.7 to 3.2.7.
- Drools has been upgraded from 5.1.1 to 6.0.1.
- Apache Camel has been upgraded from 2.13.2 to 2.14.1.
- Smack (used for XMPP notifications) has been upgraded from 3.0.4 to 4.0.6.
- The webapp schemas have all been updated to the Servlet 3.0 specification.
- Jasper Reports has been upgraded from 5.6.1 to 6.1.1.

## Release Meridian-2016.1.8

Release 2016.1.8 is an update to 2016.1.7 that provides a few security fixes.

The codename for 2016.1.8 is *Hammer retroazimuthal.*

**Bug**

- Multiple XSS vulnerabilities in OpenNMS webapp (Issue NMS-9457)
- opennms-webapp-remoting JARs are not signed (Issue NMS-9638)
- IOActive: Stored Cross-site Scripting in SNMP Trap Message (Issue NMS-9668)
- IOActive: Reflected Cross-site Scripting in heatmap/outages heatmap Parameter (Issue NMS-9671)

## Release Meridian-2016.1.7

Release 2016.1.7 is an update to 2016.1.6 that provides a number of small bug fixes.

The codename for 2016.1.7 is *Tobler hyperelliptical.*

**Bug**

- INFO-severity syslog-derived events end up unmatched (Issue NMS-8106)
- Resource graph forecast page lacks header (Issue NMS-8856)
- Allow provisiond to perform reverse lookups without requiring an A record (foundation-2016) (Issue NMS-9406)
- No bounds-checking in processing of DHCP Options (Issue NMS-9420)
- The reason parameter for a nodeLostService event is limited to 255 characters (Issue NMS-9550)
- The remote-poller.sh script looks for the remote-poller.jar file in the wrong location (Issue NMS-9606)
- vmware importer fails with NPE (Issue NMS-9611)

- Basic syslog messages with Informational severity turn into unknown events (Issue NMS-9615)

- quick add node is broken (Issue NMS-9618)

- Remote poller logs have place holders for their names (Issue NMS-9621)

- Remote Poller log path incorrect when using the NSIS installer (Issue NMS-9631)

## Release Meridian-2016.1.6

Release 2016.1.6 is an update to 2016.1.5 that provides quite a few bug fixes and a few small enhancements.

The codename for 2016.1.6 is *Goode homolosine*.

**Bug**

- collectd does not unschedule deleted nodes (Issue NMS-5105)

- noSuchInstance causing problems during provision scan (Issue NMS-8046)

- Security issue for all admin vaadin applications exposed as OSGI Service (Issue NMS-8431)

- Updating assets/categories through ReST affects Forced Unmanaged services. (Issue NMS-8879)

- Logging for TCP output queue (Issue NMS-9291)

- provision.pl does not create interfaces (Issue NMS-9345)

- XSS vulnerability on quick-add node page (Issue NMS-9353)

- XSS vulnerability on node error page (Issue NMS-9354)

- XSS vulnerability with application names (Issue NMS-9355)

- Thresholding on WSMan datasources appears broken (Issue NMS-9361)

- TCP persistence strategy should output time in milliseconds, not seconds (Issue NMS-9409)

- NullPointerException during nodeScan on devices with broken IP-MIB::ipAddressIfIndex (Issue NMS-9415)

- Event Configuration Screen Requires Alarm Type (Issue NMS-9422)

- SQL injection in DefaultSurveillanceViewService (Issue NMS-9476)

- "query" parameter allows SQL injection (Issue NMS-9478)

- Clone foreign source requisition overwrites config of other requisition without any hint or warning (Issue NMS-9481)

- Fix ownership of users.xml (Issue NMS-9493)

- ConcurrentModificationException thrown by Statsd (Issue NMS-9511)

- Update copyright date in docs (Issue NMS-9516)

- Document supported products and versions for Remedy integration (Issue NMS-9538)

- Eventd does not respect event configuration order when reloading (Issue NMS-9551)

- users.xml being overwritten on installation (Issue NMS-9573)

**Enhancement**

- Document the logic behind the response time value reported by the SnmpMonitor (Issue NMS-9475)

- Add parameterized SQL support to Criteria API (Issue NMS-9480)

## Release Meridian-2016.1.5

Release 2016.1.5 is an update to 2016.1.4 that provides quite a few bug fixes and a few enhancements.

The codename for 2016.1.5 is *Peirce Quincuncial.*

**Bug**

- OpenNMS doesn't correctly support IPv6 addresses for (jasper) reporting (Issue NMS-5450)

- vmware urls do not support username/passwords that require URL encoding (Issue NMS-6530)

- If a target node is rebooted the RRD/JRB files contains spikes because the sysUpTime check is not working (Issue NMS-7106)

- Geo-Maps running on a server without internet connection breaks the UI for valid nodes. (Issue NMS-7148)

- scrollbars displayed for RrdDashlet title box (Issue NMS-7562)

- RWS client always uses plain HTTP, even if rws-config.html has HTTPS URL (Issue NMS-8441)

- Multiple smoke tests flapping inside docker (Issue NMS-8544)

- Restarting OMNS results in numerous SNMP outage alarms and notifications (Issue NMS-8620)

- Null ospfrouterid in NodeDiscoveryOspf (Issue NMS-8667)

- Exception in LatencyStoringServiceMonitorAdaptor: IncorrectResultSizeDataAccessException (Issue NMS-8756)

- Threshold editor help text unclear about comparison operators (Issue NMS-8826)

- NPE in CdpLink.toString() (Issue NMS-8897)

- auto-acknoledge random fails (Issue NMS-8901)

- Near Real-Time Graphing unable to graph Cisco BDI interfaces (Issue NMS-8908)

- WS-Man throws event 4776 and 4625 with domain user on windows side (Issue NMS-8925)

- NPE in IpInterfaceScan when processing IPLike rule with IPv6 address (Issue NMS-8934)

- Statsd: erroneous reporting; aggregators not reset between worker's runs (Issue NMS-8944)

- WS_Man datacollection using WQL fails with 'unsupported element' (Issue NMS-8955)

- Enlinkd fails to discovery Bridge Topology (Issue NMS-8973)

- Typo in linkednode.jsp in panel title (Issue NMS-8981)

- NRT Graphing does not show SNMP counter values correctly (Issue NMS-9005)

- Copyright bump 2017 (Issue NMS-9060)

- opennms.conf can break the snmp-request command (Issue NMS-9068)

- Jsr160ConnectionFactory doesn't work with IPv6 address (Issue NMS-9071)

- WS-Man thresholding reports: No thresholds configured for resource type '*' (Issue NMS-9077)

- Standalone HTTPS with Jetty doesn't work with certificate alias (Issue NMS-9084)

- Correlation engine's cancelTimer method should be public (Issue NMS-9087)

- Collection timing enhancements (Issue NMS-9090)

- Migrate RTC related objects to JAXB instead of Castor (Issue NMS-9100)

- Pollerd continues to monitor deleted nodes (Issue NMS-9112)

- Selection of non-disk RRD strategies (Issue NMS-9120)

- It is possible to perform alarms/notifications actions through the Acks ReST end point without permissions (Issue NMS-9140)

- SNMP client code can get stuck in infinite retry loops (Issue NMS-9164)

- incorrect permissions on opennms.service (Issue NMS-9166)

- Fix the execution of Drools rules when using streaming (CEP, Temporal Reasoning) (Issue NMS-9172)

- Drools examples fails to load with exception (Issue NMS-9186)

- SyslogParser should not assume UTC timestamps (Issue NMS-9201)

- New resource types are not available in the Web UI until it is restarted (Issue NMS-9205)

- OSPF Router Id not properly updated (Issue NMS-9218)

- DNS Adapter on Delete Node does not delete DNS record (Issue NMS-9219)

- Problems associated with SNMP4J affects OpenNMS performance (contention issues) (Issue NMS-9223)

- Pollerd takes too much time scheduling polling when OpenNMS starts (Issue NMS-9247)

- Requisition UI breaks when percentage sign is used inside Foreign ID input field (Issue NMS-9269)

- Make TCP output queue parameters configurable (Issue NMS-9282)

- Calculation of KSC reports timespans "Last Week" and "This Week" broken (Issue NMS-9325)

**Enhancement**

- Upgrade Drools to 6.4.0.Final (from 6.0.1.Final) (Issue NMS-8676)

- Node detail page is hard to use with a lot of surveillance categories (Issue NMS-8989)

- SNMP data collection definitions for Cisco ASA5585-SSP-60 devices (Issue NMS-9094)

- Persist string attributes over the TCP stream (Issue NMS-9126)

- Add JMX instrumentation for the Drools Correlator to understand the the working memory of each rule-set (a.k.a. engine) (Issue NMS-9145)

- Upgrade snmp4j to 2.5.5 (Issue NMS-9162)

- Enhance to MockSnmpAgent to support returning arbitrary SNMP error codes (Issue NMS-9163)
- Set domain level for DNS adapter (Issue NMS-9222)
- Allow for choosing ifDescr over ifName for interface directory name (Issue NMS-9240)
- Improve handling of counter wraps/reset when using Newts (Issue NMS-9252)

## Release Meridian-2016.1.4

Release 2016.1.4 is an update to 2016.1.3 that provides a number of bug fixes and a few enhancements.

The codename for 2016.1.4 is *Dymaxion*.

**NOTE: Configuration Changes**

While we strive to make no changes to `$OPENNMS_HOME/etc` in micro Meridian releases, we have a few changes that we deemed important or low-impact enough for this release:

- An entry was added to `log4j2.xml` for SNMP4J, avoiding large amounts of spurious SNMP logs.
- The Peak Traffic Jasper subreport was modified to report in octets.
- A number of graph definitions in `snmp-graph.properties.d` were fixed.

**Bug**

- If a target node is rebooted the RRD/JRB files contains spikes because the sysUpTime check is not working (Issue NMS-7106)
- Opsboard change title color to something neutral than red (Issue NMS-7911)
- ConstraintViolationException in Enlinkd for OSPF (Issue NMS-8067)
- Enlinkd Topology: Cannot search for nodes without alarms (Issue NMS-8420)
- Replace VDEF with {diffTime} on the resource templates to avoid conflicts with Backshift (Issue NMS-8490)
- Inconsistencies with the Measurements API when using Newts (Issue NMS-8498)
- Restarting OMNS results in numerous SNMP outage alarms and notifications (Issue NMS-8620)
- Measurements API can fail with exception when operating in relaxed mode (Issue NMS-8665)
- Newts: When Cassandra Cluster is unavailable, OpenNMS gives up on trying to contact it again (Issue NMS-8670)
- Any SNMP error-status > 5 treated as unrecognized, aborts AggregateTracker (Issue NMS-8671)
- Event advanced search does not work because of encoded &s (Issue NMS-8768)
- The Alarms Details widget on the OpsBoard shows the text on green instead of black (Issue NMS-8771)
- Installer script doesn't work with PostgreSQL 9.6 (Issue NMS-8779)
- SNMP web configurator does not allow zero retries (Issue NMS-8789)
- The search page for events is not working as expected (Issue NMS-8790)

- InterruptedExceptions thrown when using SNMP (Issue NMS-8813)

- Outage ReST service forNode use case calculates dates incorrectly (Issue NMS-8823)

- Discovery duplicates nodes when foreign-source is set (Issue NMS-8835)

- Several ICMPv6 tests fail with NoRouteToHostException (Issue NMS-8840)

- user detection in `install` is busted on some Linux systems (Issue NMS-8843)

- Backshift shows the name of the string variables when the value is not available (Issue NMS-8847)

- Wallboard / Ops board renders product logo strangely (Issue NMS-8855)

- NonUniqueResultException when retrieving CDP links (Issue NMS-8863)

- The ipinterface.iphostname field is not updated after changing the FQDN associated with a given IP address (Issue NMS-8874)

- The label of unreachable auto-discovered nodes is set to the IP after a rescan. (Issue NMS-8880)

- Memory Leak in enlinkd? (Issue NMS-8896)

- Spurious Trapd error logs: unknown SNMP protocol version 'v2' (Issue NMS-8900)

- Can't save cached requisition associated with HTTP when scheduling the import through provisiond-configuration.xml (Issue NMS-8912)

- ArrayIndexOutOfBoundsException while processing some trap varbinds (Issue NMS-8915)

- WS-Man collection fail with unknown reason code 2 (Issue NMS-8923)

- WS-Man collection with resource-type only store last resource (Issue NMS-8924)

- Backshift failing with legend errors for NRTG + Forecasts (Issue NMS-8939)

- wsdl2java in features/ticketing/remedy is causing build failures (Issue NMS-8940)

- WS_Man datacollection using WQL fails with 'unsupported element' (Issue NMS-8955)

**Enhancement**

- Replace the X with back button in the Angular provisioning WebUI  (Issue NMS-7908)

- Missing image in provisioning doc (Issue NMS-8121)

- Add ReST Elastic Search Alarms to Foundation2016 (Issue NMS-8693)

- Create a more useful example content for opennms.conf (Issue NMS-8721)

- Add documentation for Mattermost/Slack notifications (Issue NMS-8742)

- Allow filtering by severity in alarm list (Issue NMS-8851)

- Expose alarm-list "limit" parameter as a UI control (Issue NMS-8852)

- Make the ILR put the node label alongside the package/IPADDR/Service tuple (Issue NMS-8858)

- Better logging for SNMP traps with processing problems (Issue NMS-8903)

- Make the RRAs tunable for the metrics:stress command when using for RRDtool. (Issue NMS-8972)

# Release Meridian-2016.1.3

Release 2016.1.3 is an update to 2016.1.2 that provides a few bug fixes, including a fix to a XSS vulnerability in the web UI.

The codename for 2016.1.3 is *Hobo-Dyer*.

**Bug**

- Syslogd may not associate messages with new nodes without a restart (Issue NMS-7236)

- No event for Informational syslog (Issue NMS-7934)

- IE11 and Firefox Browsers Display Double Scroll Bars for the RTC: Service Monitoring Table in the Ops Panel (Issue NMS-8035)

- Null Pointer Exception in bridge discovery (Issue NMS-8390)

- upgrade error: too many open files (Issue NMS-8507)

- Documentation for the Requisition ReST API is confusing (Issue NMS-8521)

- Missing documentation for ifservices ReST end point. (Issue NMS-8604)

- Lost Bridge Forwarding Table Links (Issue NMS-8619)

- Missing documentation for categories ReST end point. (Issue NMS-8629)

- The categories ReST end point returns HTTP 500 when querying it with a browser. (Issue NMS-8637)

- Database Reports Are Emailed When "Email report" is Unchecked (Issue NMS-8654)

- Custom Resource graphs draw magenta lines if "Blue" is selected (Issue NMS-8655)

- The ReST end point /foreignSourcesConfig/assets contains invalid fields (Issue NMS-8690)

- Site status view gives a 400 error for aggregate view for node downs (Issue NMS-8700)

- View current Site outages does not filter for "building" (Issue NMS-8702)

- The Vaddin version of the dashboard shows negative availability sometimes (Issue NMS-8705)

- Scriptd is not working at all for events that have nodes associated. (Issue NMS-8716)

- vmwarecimquery and vmwareconfigbuilder tools is not working (Issue NMS-8718)

- XSS vulnerability in display of SNMP sysName and trap varbind values (Issue NMS-8722)

- IllegalStateException when using the RrdSummaryController (Issue NMS-8743)

- Trapd JMX trap counters don't count traps (Issue NMS-8744)

- Blank content when clicking on "View Node Link Detailed Info" (Issue NMS-8808)

- Search Events Error (Issue NMS-8970)

**Enhancement**

- Add Mattermost and Slack notification strategies (Issue NMS-8346)

- Outage REST service cannot filter on event fields (Issue NMS-8724)

# Release Meridian-2016.1.2

Release 2016.1.2 is an update to 2016.1.1 that provides a number of bug fixes, including a fix for geographical maps that were using the (end-of-life'd) MapQuest OpenStreetMap tile server.

The codename for 2016.1.2 is *Loximuthal.*

**Bug**

- observations related to "ping".option in topology page (Issue NMS-6849)
- Using ping in topology view cause strange behavior (Issue NMS-7204)
- New Monitoring Locations Editor only allows integers in the latitude and longitude fields (Issue NMS-7869)
- output.log fills up with GLib-GObject-CRITICAL messages (Issue NMS-8016)
- Ping from topology view does not work (results in 404 Page not found) (Issue NMS-8043)
- VMware-ManagedEntity does not work with VMware 6 (Issue NMS-8187)
- Install -dis on "SocketException:Too many open files" on centos:latest docker  (Issue NMS-8200)
- JdbcCollector does not close database connections correctly (Issue NMS-8488)
- HW ENTITY_MIB plugin is not showing all information for certain devices (Issue NMS-8506)
- OEM graph for Storage Utilization fails due to '::' (Issue NMS-8519)
- Topology Map is very very slow (Issue NMS-8589)
- Requisitioned IP interfaces never have ipHostName set (Issue NMS-8593)
- Compiler warnings about MaxPermSize support is removed in 8.0 (Issue NMS-8594)

**Configuration**

- Distributed/Geographical Maps do not show images anymore (Issue NMS-8597)

**Enhancement**

- Improve built-in Newts graphs for easier diagnostics (Issue NMS-8495)
- Alphabetize nodes in surveillance category listing (Issue NMS-8535)
- Make custom event parameters expandable (Issue NMS-8590)

## Release Meridian-2016.1.1

Release 2016.1.1 is an update to 2016.1.0 that provides a fix for upgrades.

The codename for 2016.1.1 is *Cassini.*

## Release Meridian-2016.1.0

Release 2016.1.0 is the first release of OpenNMS Meridian 2016.  It is based on OpenNMS Horizon 17.1.1, plus a number of smaller bug fixes.

The codename for 2016.1.0 is *Mercator*.

# OpenNMS Meridian 2015

### Release Meridian-2015.1.8

Release 2015.1.8 is the ninth release of OpenNMS Meridian 2015.  It contains a cross-site-scripting security fix. The codename for 2015.1.8 is *CHOST*.

**Bug**

- Multiple XSS vulnerabilities in OpenNMS webapp (Issue NMS-9457)
- opennms-webapp-remoting JARs are not signed (Issue NMS-9638)

### Release Meridian-2015.1.7

Release 2015.1.7 is the eighth release of OpenNMS Meridian 2015.  It contains a few small bug fixes. The codename for 2015.1.7 is *ROTT*.

**Bug**

- The reason parameter for a nodeLostService event is limited to 255 characters (Issue NMS-9550)
- Remote Poller log path incorrect when using the NSIS installer (Issue NMS-9631)

### Release Meridian-2015.1.6

Release 2015.1.6 is the seventh release of OpenNMS Meridian 2015.  It contains a few bug fixes. The codename for 2015.1.6 is *MVT*.

**Bug**

- collectd does not unschedule deleted nodes (Issue NMS-5105)
- Security issue for all admin vaadin applications exposed as OSGI Service (Issue NMS-8431)
- XSS vulnerability on node error page (Issue NMS-9354)
- XSS vulnerability with application names (Issue NMS-9355)
- NullPointerException during nodeScan on devices with broken IP-MIB::ipAddressIfIndex (Issue NMS-9415)
- "query" parameter allows SQL injection (Issue NMS-9478)
- Fix ownership of users.xml (Issue NMS-9493)
- Update copyright date in docs (Issue NMS-9516)
- users.xml being overwritten on installation (Issue NMS-9573)

### Release Meridian-2015.1.5

Release 2015.1.5 is the sixth release of OpenNMS Meridian 2015.  It contains a few bug fixes and

minor enhancements. The codename for 2015.1.5 is *NT*.

**Bug**

- OpenNMS doesn't correctly support IPv6 addresses for (jasper) reporting (Issue NMS-5450)
- Restarting OMNS results in numerous SNMP outage alarms and notifications (Issue NMS-8620)
- Poller Node Down without outages (Issue NMS-8751)
- Threshold editor help text unclear about comparison operators (Issue NMS-8826)
- Invalid graph templates (Issue NMS-8907)
- Near Real-Time Graphing unable to graph Cisco BDI interfaces (Issue NMS-8908)
- Copyright bump 2017 (Issue NMS-9060)
- opennms.conf can break the snmp-request command (Issue NMS-9068)
- Jsr160ConnectionFactory doesn't work with IPv6 address (Issue NMS-9071)
- Migrate RTC related objects to JAXB instead of Castor (Issue NMS-9100)
- Pollerd continues to monitor deleted nodes (Issue NMS-9112)
- SNMP client code can get stuck in infinite retry loops (Issue NMS-9164)
- SyslogParser should not assume UTC timestamps (Issue NMS-9201)

**Enhancement**

- SNMP data collection definitions for Cisco ASA5585-SSP-60 devices (Issue NMS-9094)
- Enhance to MockSnmpAgent to support returning arbitrary SNMP error codes (Issue NMS-9163)

## Release Meridian-2015.1.4

Release 2015.1.4 is the fifth release of OpenNMS Meridian 2015. It contains a few bug fixes and minor enhancements. The codename for 2015.1.4 is *ULAST*.

**Bug**

- If a target node is rebooted the RRD/JRB files contains spikes because the sysUpTime check is not working (Issue NMS-7106)
- SVG maps shows minimum alarm severity color instead of maximum (Issue NMS-8658)
- Any SNMP error-status > 5 treated as unrecognized, aborts AggregateTracker (Issue NMS-8671)
- RRDtool 1.6 doesn't like vames called ds (Issue NMS-8775)
- Elasticsearch Test Cluster is started even if tests are skipped (Issue NMS-8783)
- The search page for events is not working as expected (Issue NMS-8790)
- The "Recent Events" in the node page, shows HTML tags on the message (Issue NMS-8794)
- Several ICMPv6 tests fail with NoRouteToHostException (Issue NMS-8840)
- user detection in `install` is busted on some Linux systems (Issue NMS-8843)

- Updating assets/categories through ReST affects Forced Unmanaged services. (Issue NMS-8879)
- wsdl2java in features/ticketing/remedy is causing build failures (Issue NMS-8940)

**Enhancement**

- Allow filtering by severity in alarm list (Issue NMS-8851)
- Expose alarm-list "limit" parameter as a UI control (Issue NMS-8852)

## Release Meridian-2015.1.3

Release 2015.1.3 is the fourth release of OpenNMS Meridian 2015. It contains a few bug fixes, including a fix to a XSS vulnerability in the web UI. The codename for 2015.1.3 is *LHST*.

**Bug**

- Syslogd may not associate messages with new nodes without a restart (Issue NMS-7236)
- No event for Informational syslog (Issue NMS-7934)
- The categories ReST end point returns HTTP 500 when querying it with a browser. (Issue NMS-8637)
- Database Reports Are Emailed When "Email report" is Unchecked (Issue NMS-8654)
- Custom Resource graphs draw magenta lines if "Blue" is selected (Issue NMS-8655)
- SVG maps shows minimum alarm severity color instead of maximum (Issue NMS-8658)
- Site status view gives a 400 error for aggregate view for node downs (Issue NMS-8700)
- XSS vulnerability in display of SNMP sysName and trap varbind values (Issue NMS-8722)
- Trapd JMX trap counters don't count traps (Issue NMS-8744)

## Release Meridian-2015.1.2

Release 2015.1.2 is the third release of OpenNMS Meridian 2015. It contains a number of bug fixes and new device support since 2015.1.1. The codename for 2015.1.2 is *EASST*.

**Breaking Changes**

- Graph definition errors AERA (Issue LTS-199)
- OEM graph for Storage Utilization fails due to '::' (Issue NMS-8519)

**Bug**

- Topology-UI shows LLDP links not correct (Issue NMS-8003)
- JNA ping code reuses buffer causing inconsistent reads of packet contents (Issue NMS-8126)
- Install -dis on "SocketException:Too many open files" on centos:latest docker (Issue NMS-8200)
- All the defined Statsd's reports are being executed even if they are disabled. (Issue NMS-8274)
- An error on threshd-configuration.xml breaks Collectd when reloading thresholds configuration (Issue NMS-8304)

- JdbcCollector does not close database connections correctly (Issue NMS-8488)

- HW ENTITY_MIB plugin is not showing all information for certain devices (Issue NMS-8506)

- Requisitioned IP interfaces never have ipHostName set (Issue NMS-8593)

**Configuration**

- Distributed/Geographical Maps do not show images anymore (Issue NMS-8597)

**Enhancement**

- Create a command line tool for compiling all the report template files. (Issue LTS-198)

- Backport Configuration from Meridian 2016 to Meridian 2015 (Issue LTS-202)

- Copyright bump on asciidoc docs (Issue NMS-8219)

- Alphabetize nodes in surveillance category listing (Issue NMS-8535)

## Release Meridian-2015.1.1

Release 2015.1.1 is the second release of OpenNMS Meridian 2015. It contains a number of bug fixes as well as a few security fixes over 2015.1.0. The codename for 2015.1.1 is *UTC*.

**Bug**

- Database reports fail with 500 error (Issue LTS-184)

- Forecasting reports fail to render when datasource includes "inf" (Issue LTS-185)

- Default JMX Config Generator Throw Error (Issue LTS-187)

- JMX Config Generator Does Not Run in PoweredBy Branch (Issue LTS-191)

- When removing nodes from a provisioning group, the removed nodes may still be referenced in KSC reports; thus resulting in errors accessing those reports until the nodes are manually removed. (Issue NMS-4399)

- JMX Config Tool CLI is not packaged correctly (Issue NMS-5946)

- NRTG is throwing ConcurrentModificationException (Issue NMS-6536)

- IfIndex not updated in ipinterface table on change (Issue NMS-6567)

- Event Translator cant translate events with update-field data present (Issue NMS-7024)

- Remove the logging directories from the DEB package (Issue NMS-7192)

- IllegalArgumentException on ipnettomediatable (Issue NMS-7358)

- 1.12.9-2 rpm install broken (Issue NMS-7398)

- KSC Reports with non-existing resources generate exceptions on the WebUI  (Issue NMS-7400)

- Double footer in resource graph page (Issue NMS-7412)

- queued creates its own category for loggings (Issue NMS-7485)

- Queued daemon seems to ignore loglevel (Issue NMS-7510)

- XML Collector is not working as expected for node-level resources (Issue NMS-7516)

- Some parameters logged out of order since slf4j conversion (Issue NMS-7603)

- Compass can't make a POST request from FILE URLs in some cases (Issue NMS-7616)

- The PSM doesn't work with IPv6 addresses if the ${ipaddr} placeholder is used on host or virtual-host (Issue NMS-7626)

- Timeline image links are not working with services containing spaces (Issue NMS-7629)

- Match event params for auto-ack of Notification (Issue NMS-7631)

- include-url doesn't work on poller packages (Issue NMS-7633)

- Node resources are deleted when provisiond aborts a scan (Issue NMS-7636)

- Default date width in Database Reports is too small (Issue NMS-7637)

- The global variable org.opennms.rrd.queuing.category is set to OpenNMS.Queued and should be queued (Issue NMS-7642)

- Fixing Logging Prefix/Category on several classes (Issue NMS-7644)

- XML data collection with HTTP POST requests is not working (Issue NMS-7650)

- Improving exception handling on the XML Collector (Issue NMS-7651)

- Logging not initialized but used on Drools Rule files. (Issue NMS-7695)

- NumberFormatException in LldpUtils (Issue NMS-7697)

- Hibernate exception in AlarmDetailsDashlet (Issue NMS-7698)

- 'More...' event link on /opennms/element/service.jsp encodes URL incorrectly (Issue NMS-7714)

- Log messages for the Correlation Engine appear in manager.log (Issue NMS-7729)

- SeleniumMonitor with PhantomJS driver needs gson JAR (Issue NMS-7748)

- Cannot edit some Asset Info fields (Issue NMS-7750)

- The command /opt/opennms/bin/ilr doesn't work (Issue NMS-7760)

- nodeCategoryChanged event on already-down node makes extra nodeDown events (Issue NMS-7761)

- Incorrect unit divisor in LM-SENSORS-MIB graph definitions (Issue NMS-7766)

- OpenNMS won't start anymore with 512MB of Heap Size (Issue NMS-7783)

- Some weak cipher suites allowed in example jetty.xml HTTPS config (Issue NMS-7812)

- The reload config for Collectd might throws a ConcurrentModificationException (Issue NMS-7824)

- NPE on "manage and unmanage services and interfaces" (Issue NMS-7828)

- "No session" error during startup in EnhancedLinkdTopologyProvider (Issue NMS-7835)

- Fix for NMS-6567 prevents interfaces from acquiring SNMP interface records on rescan (Issue NMS-7838)

- Counter variables reported as strings (like Net-SNMP extent) are not stored properly when using RRDtool (Issue NMS-7839)

- Slow LinkdTopologyProvider/EnhancedLinkdTopologyProvider in bigger enviroments (Issue NMS-7846)

- distributed details page broken (Issue NMS-7855)

- Cisco Packets In/Out legend label wrong (Issue NMS-7857)

- Enlinkd CDP code fails to parse hex-encoded IP address string (Issue NMS-7858)

- IpNetToMedia Hibernate exception in enlinkd.log (Issue NMS-7861)

- HttpClient ignores socket timeout (Issue NMS-7877)

- RTC Ops Board category links are broken (Issue NMS-7884)

- Remedy Integration: the custom code added to the Alarm Detail Page is gone. (Issue NMS-7890)

- Statsd PDF export gives class not found exception (Issue NMS-7897)

- JMX Configgenerator Web UI throws NPE when navigating to 2nd page. (Issue NMS-7900)

- Alarm detail filters get mixed up on the ops board (Issue NMS-7917)

- Exception Decoding LLDP ChassisId When type is NetworkAddress (Issue NMS-7931)

- Bouncycastle JARs break large-key crypto operations (Issue NMS-7959)

- JSoup doesn't properly parse encoded HTML character which confuses the XML Collector (Issue NMS-7963)

- MBean attribute names are restricted to a specifix max length (Issue NMS-7964)

- RMI should only bind to localhost by default. (Issue NMS-7971)

- The ICMP monitor can fail, even if valid responses are received before the timeout (Issue NMS-7974)

- JMX Configuration Generation misbehavior on validation error (Issue NMS-7977)

- JMX configuration generator throws NoClassDefFoundError exception (Issue HZN-432)

- Migrate the JMX Configuration Generator (webUI) to Vaadin 7 (Issue HZN-417)

**Enhancement**

- Interactive JMX data collection configuration UI (Issue NMS-4364)

- Improve links for SLA categories on start page (Issue NMS-7713)

## Release Meridian-2015.1.0

Release 2015.1.0 is the first release of OpenNMS Meridian 2015. It is based on OpenNMS Horizon 14.0.3, the Bootstrap GUI shipped in OpenNMS Horizon 15, and many smaller bug fixes.

The codename for 2015.1.0 is *Greenwich*.