

OpenNMS Meridian Release Notes

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OpenNMS Meridian 2018

System Requirements

- **Java 8:** OpenNMS Meridian 2018 requires Java 8 as the runtime environment. To run Meridian 2018, we recommend the most recent version of Oracle JDK 8 for your platform.
- **PostgreSQL 9:** Meridian 2018 requires PostgreSQL 9.x, version 9.2 or higher.

What's New in Meridian 2018

The biggest addition in Meridian 2018 is official support for [the Minion](#). Minion is an agent-like tool for remote monitoring isolated networks as if OpenNMS could reach them locally.

On top of that, there have been many smaller improvements and enhancements since Meridian 2017.

Meridian 2018 roughly matches the feature set available in Horizon 21 and parts of Horizon 22.

Important Upgrade Notes

- **`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`.

- Event parameters have been moved to their own table, rather than being embedded (preformatted) in the `events` table. If you have a large number of events and/or event parameters in your database, the conversion while running `install` may take as long as an hour or even more. It is recommended that you archive and delete old events you do not need anymore before upgrading.

Breaking Changes

- **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](#).
- **Elasticsearch 1 API**: The old Elasticsearch API has been removed in favor of the Elasticsearch ReST plugin, which should support most Elasticsearch API versions. Instructions on configuring the Elasticsearch ReST plugin are available in [the Administrators Guide](#).
- Property format change of `opennms.alarmTroubleTicketLinkTemplate`: Originally the `opennms.alarmTroubleTicketLinkTemplate` defined in `$OPENNMS_HOME/etc/opennms.properties` requires the full `${id}` link to be configured. This is changed to the ticketer system url, e.g. `https://issues.opennms.org/browse/${id}` instead of `${id}`. If the `opennms.alarmTroubleTicketEnabled` is `true` then the `opennms.alarmTroubleTicketLinkTemplate` must be updated as well in order to not break the link to an external ticketing system on the Alarm Details Page.
- Event parameters: There are a few side-effects of the event parameter changes.
 - When you view or retrieve an alarm it will always have the parameters of the newest event associated with it.
 - Vacuumd no longer honors the `add-all-parms` attribute on an `action-event`.
- Changes to `TCPAddress` and `UDPAddress` format in `eventd-configuration.xml`: When Eventd was converted to use Camel under the covers, the format for listening on all interfaces changed from a wildcard (*) to `0.0.0.0`. Note that despite looking like an IPv4 format, the JVM interprets `0.0.0.0` as listening on *all* interfaces, IPv4 and IPv6.

New Features

- **Minion**: OpenNMS Meridian now supports running Minions.
- **IBM Tivoli Event Integration Facility**: Support has been added to bridge EIF events into OpenNMS Horizon. ([more details](#))
- **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](#)).
- **ReST Updates**: A new experimental ReST API (`/opennms/api/v2`) has been enabled which supports [JEXL](#).
- The topology UI now supports [scriptable vertex status](#).
- **Alarm Northbounders**: There are [new alarm northbounders](#) for running arbitrary BSF scripts

or forwarding to Drools.

- **Web UI:** It is now possible to [customize the date format](#) used in the UI. You can configure it by overriding the `org.opennms.ui.datetimeformat` property in `opennms.properties`.
- **Hawtio:** Hawtio is now included as an optional webapp package (`opennms-webapp-hawtio`) for convenience.
- **IFTTT:** Support has been added for triggering IFTTT events based on alarms.

Events

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

- IBM EIF
- IETF DLSW
- IETF DOCSIS
- Other IETF traps

Other Improvements

- The Karaf OSGi container has been upgraded from 2.x to 4.1.5.
- The IPLIKE C and Pl/pgsql versions have been cleaned up and normalized to work the same between implementations.
- Many ActiveMQ/Camel/Kafka/etc. RPC-related APIs have been cleaned up and improved.
- Much of the data collection infrastructure has been updated and cleaned up as part of adding and improving Minion support.
- Asset addresses are now resolved to coordinates during provisioning, rather than at runtime.
- A number of improvements have been made to RADIUS support.
- It is now possible to reload Drools configuration without restarting OpenNMS.
- Many improvements were made to Enlinkd, especially in the bridge discovery code.
- Drools has been updated to 7.x. It should be backwards compatible with existing 6.x-based Drools configurations.
- Many other small enhancements and fixes for the topology UI.

Release Meridian-2018.1.0

Release 2018.1.0 is the first release in the Meridian 2018 series.

The codename for 2018.1.0 is *Calm*.

Bug

- maxRetCode in HttpDetector does not work (Issue [NMS-3974](#))
- VMWare-Center-Monitoring make for every virtual machine a login/logout (Issue [NMS-8204](#))
- bridge topology is wrong on nodelink.jsp (Issue [NMS-8295](#))

- The ReST API used to return XMLs with namespace, and now it doesn't (Issue [NMS-8524](#))
- Content-Type tag wrong in emailed reports (Issue [NMS-9027](#))
- The upgrade task for magic-users.properties fails because of the read-only attribute (Issue [NMS-9267](#))
- Topology on Map is not properly displayed (Issue [NMS-9288](#))
- Exceptions in Bridge Discovery (Issue [NMS-9557](#))
- Config-tester not validating varbind matching in event files (Issue [NMS-9821](#))
- Wrong initial message displayed on AngularJS based tables. (Issue [NMS-9932](#))
- Home Page Map does not display node details (Issue [NMS-10008](#))
- Asset record is not being updated with user name that performed the update (Issue [NMS-10087](#))
- wrong statement in event description for serviceDeleted (Issue [NMS-10148](#))
- Radius Login Problem (Issue [NMS-10212](#))
- Trapd does not validate config against XSD (Issue [NMS-10242](#))
- Drools correlation engine do not always respond to targeted reloadDaemonConfig events (Issue [NMS-10257](#))
- newSuspect events do not get processed when they reference a missing system id (aka distpoller) (Issue [NMS-10261](#))
- Change in JMS NBI Date Format (Issue [NMS-10282](#))
- NoClassDefFoundError for net/sf/json/JSONSerialize with the JSON collector on Minion (Issue [NMS-10286](#))
- DefaultProvisionService logs noisily for monitored service having state "N" (Issue [NMS-10291](#))
- Doughnut chart shows certain closed outages as "current" (Issue [NMS-10293](#))
- KSC Report Changes Destroys Existing Reports (Issue [NMS-10309](#))
- Minions can't be deleted from minion menu (Issue [NMS-10321](#))

Enhancement

- Remove Telemetryd from the configuration files to avoid confusions (Issue [LTS-223](#))
- Release notes in Help / Support links to 2015 (Issue [LTS-214](#))
- UI stack trace is truncated (Issue [NMS-7555](#))
- Add Ironport AsyncOS Mail Gateway Events (Issue [NMS-9794](#))
- Make hawtio available for OpenNMS as installable RPM/DEB (Issue [NMS-9858](#))
- Upgrade Drools to 7.x (Issue [NMS-9923](#))
- Subsume "Event Configuration How-To" from wiki into admin guide (Issue [NMS-9926](#))
- Can't receive SNMP v3 Trap (Issue [NMS-10009](#))
- Enhance AlarmPersisterImpl to support updating acknowledgment values on reduction (Issue [NMS-10067](#))

- Normalize date formats across the WebUI (Issue [NMS-10072](#))
- Support customizing the default time zone when parsing dates in syslog messages (Issue [NMS-10164](#))
- Consolidate Kafka client library versions (Issue [NMS-10165](#))
- Link to privacy policy from Data Choices UI elements (Issue [NMS-10169](#))
- Karaf shell command to enumerate nodes that match a given filter (Issue [NMS-10172](#))
- Optionally persist the results when calling collectors:collect (Issue [NMS-10173](#))
- Two Port Bridge - Topology mismatch (Issue [NMS-10225](#))
- use user defined time zone for date formatting (Issue [NMS-10228](#))
- render date for Javascript with moment.js (Issue [NMS-10233](#))
- plpgsql IPLIKE does not behave the same as the C version (Issue [NMS-10238](#))
- apply centralized datetime rendering to freemarker template(s) (Issue [NMS-10239](#))
- apply custom tag to ncs-alarms.jsp (Issue [NMS-10243](#))
- Update log4j2.xml with kafka logging (Issue [NMS-10269](#))
- Syslog messages should default to using the time at which they were received (Issue [NMS-10271](#))
- Syslog messages should default to being associated with the hosts from which they were received (Issue [NMS-10272](#))
- implement minion "status" field (Issue [NMS-10295](#))
- expose datetimeformat in InfoService REST Endpoint (Issue [NMS-10301](#))
- Set the default resource graph time range to "Last Day" (Issue [NMS-10324](#))

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 overridden 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/>) 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-2017.1.10

Release 2017.1.10 is a small update to OpenNMS Meridian 2017.1.9. It contains a critical RADIUS fix as well as a number of smaller enhancements.

The codename for 2017.1.10 is *Capital meridian*.

Breaking Change: trapd-configuration.xml

Meridian 2017.1.10 includes a [bug fix that introduces validation of the Trapd config file](#). In the process of testing this fix we found that the `trapd-configuration.xml` that shipped with Meridian 2017 had issues that could prevent proper configuration of the `snmp-trap-address`.

To fix your `trapd-configuration.xml` file, make the following changes:

- If your `trapd-configuration.xml` contains an attribute called `snmpv3-user-count`, delete it.
- If your `trapd-configuration.xml` has `<snmp-trap-address>...</snmp-trap-address>`, delete that element and add an `snmp-trap-address="..."` attribute to the enclosing `<trapd-configuration />` tag instead. (The only thing that should be inside the `<trapd-configuration>` tag is `<snmpv3-user>` elements.)

Before:

```
<trapd-configuration snmpv3-user-count="0" queue-size="10000"
  include-raw-message="false" new-suspect-on-trap="false"
  batch-interval="500" batch-size="1000" snmp-trap-port="162" threads="0">
  <snmp-trap-address>*</snmp-trap-address>
</trapd-configuration>
```

After:

```
<trapd-configuration snmp-trap-address="*" queue-size="10000"
  include-raw-message="false" new-suspect-on-trap="false"
  batch-interval="500" batch-size="1000" snmp-trap-port="162" threads="0">
</trapd-configuration>
```

Breaking Change: RADIUS Authentication Provider

A security issue in the `RadiusAuthenticationProvider` has been fixed (Issue [NMS-10212](#)) This requires changes to the `radius.xml` file located in `${OPENNMS_HOME}/jetty-webapps/opennms/WEB-INF/spring-security.d`. Now instead of providing a bean for the `authTypeClass` property, it is sufficient to just provide the class name:

Before

```
<?xml version="1.0" encoding="UTF-8"?>
<beans:beans xmlns="http://www.springframework.org/schema/security"
  xmlns:beans="http://www.springframework.org/schema/beans"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.springframework.org/schema/beans
http://www.springframework.org/schema/beans/spring-beans-3.0.xsd
  http://www.springframework.org/schema/security
http://www.springframework.org/schema/security/spring-security-3.1.xsd">
  <beans:bean id="externalAuthenticationProvider" class=
"org.opennms.protocols.radius.springsecurity.RadiusAuthenticationProvider">
    <!-- ... -->
    <beans:property name="authTypeClass"><beans:bean class=
"net.jradius.client.auth.PAPAuthenticator"/></beans:property>
    <!-- ... -->
  </beans:bean>
</beans:beans>
```

After

```
<?xml version="1.0" encoding="UTF-8"?>
<beans:beans xmlns="http://www.springframework.org/schema/security"
  xmlns:beans="http://www.springframework.org/schema/beans"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.springframework.org/schema/beans
http://www.springframework.org/schema/beans/spring-beans-3.0.xsd
  http://www.springframework.org/schema/security
http://www.springframework.org/schema/security/spring-security-3.1.xsd">
  <beans:bean id="externalAuthenticationProvider" class=
"org.opennms.protocols.radius.springsecurity.RadiusAuthenticationProvider">
    <!-- ... -->
    <beans:property name="authTypeClass" value="
net.jradius.client.auth.PAPAuthenticator"/>
    <!-- ... -->
  </beans:bean>
</beans:beans>
```

Supported values for `authTypeClass` are:

- `net.jradius.client.auth.TunnelAuthenticator`
- `net.jradius.client.auth.PAPAuthenticator`
- `net.jradius.client.auth.EAPMSCHAPv2Authenticator`
- `net.jradius.client.auth.MSCHAPv2Authenticator`
- `net.jradius.client.auth.EAPMD5Authenticator`
- `net.jradius.client.auth.CHAPAuthenticator`
- `net.jradius.client.auth.MSCHAPv1Authenticator`

- `net.jradius.client.auth.RadiusAuthenticator`
- `net.jradius.client.auth.EAPAuthenticator`

If no value is provided `net.jradius.client.auth.PAPAuthenticator` is used.

Bug

- VMWare-Center-Monitoring make for every virtual machine a login/logout (Issue [NMS-8204](#))
- LDAPMonitor causes Errors in ldap logfiles (Issue [NMS-8891](#))
- The KSC Dashlet for the Ops-Board is not working (Issue [NMS-10191](#))
- Radius Login Problem (Issue [NMS-10212](#))
- Trapd does not validate config against XSD (Issue [NMS-10242](#))
- Drools correlation engine do not always respond to targeted reloadDaemonConfig events (Issue [NMS-10257](#))
- DefaultProvisionService logs noisily for monitored service having state "N" (Issue [NMS-10291](#))

Enhancement

- Failed to run Jasper report local_Serial-Interface-Utilization-Summary: Key receive rate is duplicated in pie dataset (Issue [NMS-9875](#))

Release Meridian-2017.1.9

Release 2017.1.9 is a small update to OpenNMS Meridian 2017.1.8. It contains a few bug fixes and documentation updates.

The codename for 2017.1.9 is *Antwerp meridian*.

Bug

- Entering new destination path in GUI with near identical name overwrites the current one (Issue [NMS-3994](#))
- Just opening a foreign-source in the web UI causes it to be written to disk (Issue [NMS-4720](#))
- Surveillance category membership of deleted nodes "leaks" in filters to interfaces of successor nodes (Issue [NMS-4876](#))
- ConcurrentModificationException in DefaultEventHandlerImpl (Issue [NMS-8413](#))
- The ReST API used to return XMLs with namespace, and now it doesn't (Issue [NMS-8524](#))
- MBean "TasksCompleted" for Collectd and Pollerd returns wrong counters (Issue [NMS-9741](#))
- The auto-acknowledge-alarm tag with no content doesn't work on notifd-configuration.xml (Issue [NMS-10085](#))
- The KSC Dashlet for the Ops-Board is not working (Issue [NMS-10191](#))

Enhancement

- Link to privacy policy from Data Choices UI elements (Issue [NMS-10169](#))

Release Meridian-2017.1.8

Release 2017.1.8 is a small update to OpenNMS Meridian 2017.1.7. It contains a few bug fixes and an update to support Newts cache priming.

The codename for 2017.1.8 is *IERS Reference Meridian*.

Bug

- ONMS starts with broken threshold configuration file (Issue [NMS-9064](#))
- Interface delete from a node does not work (Issue [NMS-9506](#))
- Topology map node icons vanish (IE10, IE11 only) when alarm status unchecked (Issue [NMS-9614](#))
- Access Denied With Surveillance View In Ops Board (Issue [NMS-9678](#))
- Enlinkd startup fails due to NPE in BroadcastDomain class (Issue [NMS-9852](#))
- Value of `nodeLabel` for PSM services apparently not eagerly updated (Issue [NMS-9900](#))
- Wrong initial message displayed on AngularJS based tables. (Issue [NMS-9932](#))
- Alarm favorite link URL does not have `AddRefreshHeader-30` applied (Issue [NMS-9938](#))
- Cannot see StrafePing graphs when using Backshift. (Issue [NMS-9946](#))
- foreign-id with space (%20) at end causes issues with Newts (Issue [NMS-9961](#))
- perfddata-receiver doesn't compile (Issue [NMS-9967](#))
- Home Page Map does not display node details (Issue [NMS-10008](#))
- Backport intermittent SNMPv3 failures to foundation-2016 (Issue [NMS-10153](#))

Enhancement

- Improve performance of newts.indexing to avoid overwhelm Cassandra cluster (Issue [NMS-9959](#))

Release Meridian-2017.1.7

Release 2017.1.7 is a small update to OpenNMS Meridian 2017.1.6. It contains a few bug fixes and minor enhancements.

The codename for 2017.1.7 is *United Kingdom Ordnance Survey Zero Meridian*.

Configuration Update



Some updates to Cisco data collection and graph configuration have been made since 2017.1.6. They add collection from `CISCO-REMOTE-ACCESS-MONITOR-MIB` on a number of ASAxxxx devices, as well as alarm reduction keys for FRU insertion and removal. Additionally, graphs for tunnel sessions have been added. To avoid configuration conflicts, however, the updated files have been written with the extension `.xml-2017.1.7`. If you wish to use these new configurations, rename the `.xml-2017.1.7` files to `.xml`, overwriting the existing files.

Bug

- Node ReST service not handling assets and deleting properly (Issue [NMS-9855](#))
- JasperStudio extension dependency error (Issue [NMS-9915](#))
- `EventUtils.eventsMatch()` fails if `nodeId` is greater than 127 (Issue [NMS-9941](#))
- compilation fails on windows due to checkstyle exceptions (Issue [NMS-9943](#))
- Java not found properly when building from Windows CMD proc (Issue [NMS-9947](#))

Enhancement

- Subsume "Event Configuration How-To" from wiki into admin guide (Issue [NMS-9926](#))
- Update docs section of devel guide with section on migrating info from wiki (Issue [NMS-9934](#))
- Refactor `UserGroupLdapAuthoritiesPopulator` to provide a default role. (Issue [NMS-9937](#))

Release Meridian-2017.1.6

Release 2017.1.6 is a small update to OpenNMS Meridian 2017.1.5. It contains a few bug fixes.

The codename for 2017.1.6 is *Meridianus Posoniensis*.

Bug

- It is not possible to see Statsd results on the WebUI (Issue [NMS-9861](#))
- Inconsistent handling of keyboard navigation on top menu (Issue [NMS-9867](#))

Release Meridian-2017.1.5

Release 2017.1.5 is a small update to OpenNMS Meridian 2017.1.4. It contains a few bug fixes and performance enhancements.

The codename for 2017.1.5 is *Pulkovo meridian*.

Bug

- Change links to docs in help page using https (Issue [NMS-9832](#))
- Copyright dates need a bump for 2018 (Issue [NMS-9871](#))

Enhancement

- ES REST plugin not doing preemptive basic auth (Issue [NMS-9699](#))
- bsmd: avoid processing alarm lifecycle events when no rules are defined (Issue [NMS-9835](#))

Release Meridian-2017.1.4

Release 2017.1.4 is an update to OpenNMS Meridian 2017.1.3. It is primarily a bug fix release.

The codename for 2017.1.4 is *Tenerife meridian*.

Bug

- Notification storm causes JVM crash with: Native memory allocation (mmap) failed (Issue [NMS-9766](#))
- The typeahead widget for KSC Report Search on front page is not working (Issue [NMS-9776](#))
- The geographical maps on large installations is unusable (Issue [NMS-9777](#))
- Cannot create user groups through the WebUI (NPE) (Issue [NMS-9785](#))
- Broken Link in Admin guide to Alarm Introduction (Issue [NMS-9802](#))
- Wrong syntax for automatic rescanning in admin guide (Issue [NMS-9803](#))
- Geocoordinates truncated to 5 decimal places (Issue [HZN-1219](#))

Release Meridian-2017.1.3

Release 2017.1.3 is an update to OpenNMS Meridian 2017.1.2. It is primarily a security and bug fix release.

The codename for 2017.1.3 is *Ferro meridian*.

Bug

- Privilege Escalation Bug with Grafana Plugin (Issue [NMS-8093](#))
- IOActive: Cross-Site Scripting in createFavorite filter Parameter (Issue [NMS-9670](#))
- IOActive: Reflected Cross-site Scripting in userGroupView/roles roleDescr and Other Parameters (Issue [NMS-9673](#))
- IOActive: Reflected Cross-site Scripting in admin/thresholds/index.htm filterField and Other Parameters (Issue [NMS-9674](#))
- HEAD requests to static resources in the UI don't work (Issue [NMS-9689](#))
- The EXE installer of the remote poller on Windows is not working (Issue [NMS-9721](#))
- IllegalStateException in OnmsVaadinContainer (Issue [NMS-9742](#))
- Karaf snmp:show-config command lists value of timeout for retries (Issue [NMS-9745](#))
- The content of the clone foreign source definition dialog is misleading (Issue [NMS-9749](#))
- Relative path reference to version.properties (Issue [NMS-9767](#))

Enhancement

- Authentication proxy support (Issue [NMS-9739](#))

Release Meridian-2017.1.2

Release 2017.1.2 is the third release of OpenNMS Meridian 2017. It is primarily a security and bug fix release.

The codename for 2017.1.2 is *Kraków meridian*.

Bug

- JMX config GUI can't connect to JMX service with JNDI name not "jmxrmi" (Issue [NMS-8596](#))
- Tweak Mattermost notification docs not to specify a channel (Issue [NMS-9362](#))
- INFO-level "unable to locate resource" log messages for interfaces not persisted by policy (Issue [NMS-9388](#))
- rescan-exitsing attribute of requisition-def tag in provisiond-configuration.xml is not passed to scanNode() in CoreImportActivities (Issue [NMS-9492](#))
- Northbounders implementation are not sending feedback events for reloadDaemonConfig (Issue [NMS-9524](#))
- XSS: HTML attribute values with quotes not escaped properly (Issue [NMS-9645](#))
- Incorrect logging of exceptions in Slack and Mattermost notifications (Issue [NMS-9656](#))
- IOActive: Reflected Cross-site Scripting in instrumentationLogReader.jsp searchString Parameter (Issue [NMS-9672](#))
- Typo prevents FIQL query values from being URI-encoded (Issue [NMS-9694](#))
- Typo in regional status geo map: Unacknowledges (for unacknowledged) (Issue [NMS-9700](#))
- Typo: "not eligible" for SNMP primary N enumeration (Issue [NMS-9701](#))
- Duty schedules with embedded newlines break startup (Issue [NMS-9709](#))
- Unexpected errors while generating event definitions from TRAP-TYPE without a DESCRIPTION field (Issue [NMS-9718](#))
- NPE in Enlinkd bridge topology broadcast domain calculation (Issue [NMS-9720](#))
- Null pointer exception in SurveillanceViewConfigurationCategoryWindow.java (Issue [NMS-9722](#))
- ReST v1 does not return errors for unparseable events (Issue [NMS-9724](#))
- Sending bad XML to the Requisitions ReST end point makes the API unusable (Issue [NMS-9725](#))

Enhancement

- ES REST plugin not doing preemptive basic auth (Issue [NMS-9699](#))

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](#))
- notifi-d-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](#))
- Distributed/Geographical Maps do not show images anymore (Issue [NMS-8597](#))

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](#))
- 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 reenabling 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 Northbinder:** The implementation of a JMS northbinder 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-2016.1.15

Release 2016.1.15 is an update to 2016.1.14 that includes a critical fix for RADIUS support and a few other small bug fixes.

The codename for 2016.1.15 is *Peirce Quincuncial*.

Breaking Changes

A security issue in the `RadiusAuthenticatinProvider` has been fixed (Issue [NMS-10212](#)). This requires changes to the `radius.xml` file located in `${OPENNMS_HOME}/jetty-webapps/opennms/WEB-INF/spring-security.d`. Now instead of providing a bean for the `authTypeClass` property, it is sufficient to just provide the class name:

Before

```
<?xml version="1.0" encoding="UTF-8"?>
<beans:beans xmlns="http://www.springframework.org/schema/security"
  xmlns:beans="http://www.springframework.org/schema/beans"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.springframework.org/schema/beans
http://www.springframework.org/schema/beans/spring-beans-3.0.xsd
  http://www.springframework.org/schema/security
http://www.springframework.org/schema/security/spring-security-3.1.xsd">
  <beans:bean id="externalAuthenticationProvider" class=
"org.opennms.protocols.radius.springsecurity.RadiusAuthenticationProvider">
    <!-- ... -->
    <beans:property name="authTypeClass"><beans:bean class=
"net.jradius.client.auth.PAPAuthenticator"/></beans:property>
    <!-- ... -->
  </beans:bean>
</beans:beans>
```

After

```
<?xml version="1.0" encoding="UTF-8"?>
<beans:beans xmlns="http://www.springframework.org/schema/security"
  xmlns:beans="http://www.springframework.org/schema/beans"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.springframework.org/schema/beans
http://www.springframework.org/schema/beans/spring-beans-3.0.xsd
  http://www.springframework.org/schema/security
http://www.springframework.org/schema/security/spring-security-3.1.xsd">
  <beans:bean id="externalAuthenticationProvider" class=
"org.opennms.protocols.radius.springsecurity.RadiusAuthenticationProvider">
    <!-- ... -->
    <beans:property name="authTypeClass" value="
net.jradius.client.auth.PAPAuthenticator"/>
    <!-- ... -->
  </beans:bean>
</beans:beans>
```

Supported values for `authTypeClass` are:

- `net.jradius.client.auth.TunnelAuthenticator`
- `net.jradius.client.auth.PAPAuthenticator`
- `net.jradius.client.auth.EAPMSCHAPv2Authenticator`
- `net.jradius.client.auth.MSCHAPv2Authenticator`
- `net.jradius.client.auth.EAPMD5Authenticator`
- `net.jradius.client.auth.CHAPAuthenticator`
- `net.jradius.client.auth.MSCHAPv1Authenticator`

- `net.jradius.client.auth.RadiusAuthenticator`
- `net.jradius.client.auth.EAPAuthenticator`

If no value is provided `net.jradius.client.auth.PAPAuthenticator` is used.

Bug

- VMWare-Center-Monitoring make for every virtual machine a login/logout (Issue [NMS-8204](#))
- LDAPMonitor causes Errors in ldap logfiles (Issue [NMS-8891](#))
- The KSC Dashlet for the Ops-Board is not working (Issue [NMS-10191](#))
- Radius Login Problem (Issue [NMS-10212](#))
- DefaultProvisionService logs noisily for monitored service having state "N" (Issue [NMS-10291](#))

Release Meridian-2016.1.14

Release 2016.1.14 is an update to 2016.1.13 that makes a few small documentation changes, and a fix to the Top 25 event report.

The codename for 2016.1.14 is *Boggs eumorphic*.

Bug

- The ReST API used to return XMLs with namespace, and now it doesn't (Issue [NMS-8524](#))
- Event-Analysis Report shows incorrect numbers for big values in Top25 Events (Issue [NMS-9202](#))
- The KSC Dashlet for the Ops-Board is not working (Issue [NMS-10191](#))

Enhancement

- Link to privacy policy from Data Choices UI elements (Issue [NMS-10169](#))

Release Meridian-2016.1.13

Release 2016.1.13 is an update to 2016.1.12 that provides a few small bug fixes and an update to support Newts cache priming.

The codename for 2016.1.13 is *HEALPix*.

Bug

- Cannot see StrafePing graphs when using Backshift. (Issue [NMS-9946](#))
- foreign-id with space (%20) at end causes issues with Newts (Issue [NMS-9961](#))
- Backport intermittent SNMPv3 failures to foundation-2016 (Issue [NMS-10153](#))

Enhancement

- Improve performance of newts.indexing to avoid overwhelm Cassandra cluster (Issue [NMS-](#)

9959)

Release Meridian-2016.1.12

Release 2016.1.12 is an update to 2016.1.11 that provides one small bug fix and a Windows build fix.

The codename for 2016.1.12 is *Lambert cylindrical equal-area*.

Bug

- EventUtils.eventsMatch() fails if nodeId is greater than 127 (Issue [NMS-9941](#))
- Java not found properly when building from Windows CMD proc (Issue [NMS-9947](#))

Release Meridian-2016.1.11

Release 2016.1.11 is an update to 2016.1.10 that provides one small bug fix.

The codename for 2016.1.11 is *Gall-Peters*.

Bug

- Inconsistent handling of keyboard navigation on top menu (Issue [NMS-9867](#))
- Copyright dates need a bump for 2018 (Issue [NMS-9871](#))

Release Meridian-2016.1.10

Release 2016.1.10 is an update to 2016.1.9 that provides a few bug fixes.

The codename for 2016.1.10 is *Waterman Butterfly*.

Bug

- host with single quote in the name breaks UI menu items (Issue [NMS-6616](#))
- IOActive: Reflected Cross-site Scripting in userGroupView/roles roleDescr and Other Parameters (Issue [NMS-9673](#))
- IOActive: Reflected Cross-site Scripting in admin/thresholds/index.htm filterField and Other Parameters (Issue [NMS-9674](#))
- The EXE installer of the remote poller on Windows is not working (Issue [NMS-9721](#))

Release Meridian-2016.1.9

Release 2016.1.9 is an update to 2016.1.8 that provides a few bug fixes.

The codename for 2016.1.9 is *Winkel tripel*.

Bug

- Tweak Mattermost notification docs not to specify a channel (Issue [NMS-9362](#))

- INFO-level "unable to locate resource" log messages for interfaces not persisted by policy (Issue [NMS-9388](#))
- Northbounders implementation are not sending feedback events for reloadDaemonConfig (Issue [NMS-9524](#))
- XSS: HTML attribute values with quotes not escaped properly (Issue [NMS-9645](#))
- Incorrect logging of exceptions in Slack and Mattermost notifications (Issue [NMS-9656](#))
- IOActive: Reflected Cross-site Scripting in instrumentationLogReader.jsp searchString Parameter (Issue [NMS-9672](#))
- Typo prevents FIQL query values from being URI-encoded (Issue [NMS-9694](#))
- Typo: "not eligible" for SNMP primary N enumeration (Issue [NMS-9701](#))
- ReST v1 does not return errors for unparseable events (Issue [NMS-9724](#))
- Sending bad XML to the Requisitions ReST end point makes the API unusable (Issue [NMS-9725](#))

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-acknowledge 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-2015.1.10

Release 2015.1.10 is the eleventh release of OpenNMS Meridian 2015. It contains a critical fix for RADIUS support as well as a couple of other smaller fixes. The codename for 2015.1.10 is *TAHT* (it's a magical place).

Breaking Changes

A security issue in the `RadiusAuthenticatinProvider` has been fixed (Issue [NMS-10212](#)) This requires changes to the `radius.xml` file located in `${OPENNMS_HOME}/jetty-webapps/opennms/WEB-INF/spring-security.d`. Now instead of providing a bean for the `authTypeClass` property, it is sufficient to just provide the class name:

Before

```
<?xml version="1.0" encoding="UTF-8"?>
<beans:beans xmlns="http://www.springframework.org/schema/security"
  xmlns:beans="http://www.springframework.org/schema/beans"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.springframework.org/schema/beans
    http://www.springframework.org/schema/beans/spring-beans-3.0.xsd
    http://www.springframework.org/schema/security
    http://www.springframework.org/schema/security/spring-security-3.1.xsd">
  <beans:bean id="externalAuthenticationProvider" class=
    "org.opennms.protocols.radius.springsecurity.RadiusAuthenticationProvider">
    <!-- ... -->
    <beans:property name="authTypeClass"><beans:bean class=
    "net.jradius.client.auth.PAPAuthenticator"/></beans:property>
    <!-- ... -->
  </beans:bean>
</beans:beans>
```

After

```
<?xml version="1.0" encoding="UTF-8"?>
<beans:beans xmlns="http://www.springframework.org/schema/security"
xmlns:beans="http://www.springframework.org/schema/beans"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="http://www.springframework.org/schema/beans
http://www.springframework.org/schema/beans/spring-beans-3.0.xsd
http://www.springframework.org/schema/security
http://www.springframework.org/schema/security/spring-security-3.1.xsd">
<beans:bean id="externalAuthenticationProvider" class=
"org.opennms.protocols.radius.springsecurity.RadiusAuthenticationProvider">
  <!-- ... -->
  <beans:property name="authTypeClass" value="
net.jradius.client.auth.PAPAuthenticator"/>
  <!-- ... -->
</beans:bean>
</beans:beans>
```

Supported values for `authTypeClass` are:

- `net.jradius.client.auth.TunnelAuthenticator`
- `net.jradius.client.auth.PAPAuthenticator`
- `net.jradius.client.auth.EAPMSCHAPv2Authenticator`
- `net.jradius.client.auth.MSCHAPv2Authenticator`
- `net.jradius.client.auth.EAPMD5Authenticator`
- `net.jradius.client.auth.CHAPAuthenticator`
- `net.jradius.client.auth.MSCHAPv1Authenticator`
- `net.jradius.client.auth.RadiusAuthenticator`
- `net.jradius.client.auth.EAPAuthenticator`

If no value is provided `net.jradius.client.auth.PAPAuthenticator` is used.

Bug

- `ConcurrentModificationException` in `DefaultEventHandlerImpl` (Issue [NMS-8413](#))
- Java not found properly when building from Windows CMD proc (Issue [NMS-9947](#))
- Radius Login Problem (Issue [NMS-10212](#))

Release Meridian-2015.1.9

Release 2015.1.9 is the tenth release of OpenNMS Meridian 2015. It contains a keyboard-navigation fix and a few documentation/date updates. The codename for 2015.1.9 is *MIST*.

Bug

- Tweak Mattermost notification docs not to specify a channel (Issue [NMS-9362](#))
- Inconsistent handling of keyboard navigation on top menu (Issue [NMS-9867](#))
- Copyright dates need a bump for 2018 (Issue [NMS-9871](#))

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 environments (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 specific 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*.