opReports Report Descriptions

This document outlines the various report types that opReports offers; the various source selection mechanisms and their precision is documented on this separate page.

Node Report

The Node Report provides a detailed summary of *one* node. Node details such as status, sysName, ip address, type, model, uptime, interfaces, location, contact, description, last update, vendor, object name, group role and net and the interface table are presented.

Interfaces and storage items are details if present.

Graphs are provided which details the following: reachability, availability and health, response time, CPU utilisation, number of routes, ip utilisation, IP fragmentation/reassembly (as a % of packets received), buffer utilisation.

Items of note:

- This report cannot be created for more than one node. If your node selection contains more than one node, then the report is created for the first node in your list.
- This report relies directly on NMIS for inline graphs, and therefore won't work unless the configuration item `nmis_host_base` is correctly set (i.e. has the public web address of your NMIS server).
- Business Hours reporting is not supported for this report.
- This report cannot be generated in formats other than HTML.
- While it can be saved it is *not self-contained* (the NMIS graphs are live and created on viewing!), therefore it's primarily of use as a one-off report for immediate consumption.

More information can be found here: **Node Report**

Node Health Report

The Node Health report display health-related attributes for all selected nodes for a given period. Attributes displayed are: Status, Device, Availability, Interface Availability, %CPU, 95th% CPU, Max %CPU, CPU Exc., %Mem Free, 95th% Mem Used, Max %Mem Used, %Mem Util, %IO/VIR Mem Free, 95th% IO Mem Used, Max %IO Mem Used, %IO/VIR Mem Util.

The report also includes two columns with the detected (abnormal) Conditions and the recommended Actions.

If you pass this report the option `exceptions`=true, then only nodes with exceptional conditions present are shown; the default is to show all nodes.

The formulas used for calculation of the reporting conditions can be tuned and adjusted by the user.

The formulas as well as more information can be found here: **Node Health Report**

Configuration Summary Report

New in version 3.1.0: The Configuration Summary report displays an overview of one or more node's configuration items, grouped into three categories:

- the most essential polling-related options,
- the services that are checked for the given node
- and all monitored elements for said node. Monitored elements in this context means the elements that NMIS collects performance data for **and** for which an alert, custom alert (threshold rising/falling), or threshold do exist.

This report type is optimised for XLSX output, but HTML and CSV output types are available as well.

This report produces a snapshot of the status at report generation time; report start and end periods do not apply and are ignored.

Example reports and information on this report can be found here: **Configuration Summary Report**

WAN Report

The WAN report displays the WAN Link performance for selected nodes. As of version 3.0.4, selection by interface is not supported and all interfaces of selected nodes whose network type is "wan" are processed.

Node details displayed are: status, conditions, actions, device, availability and response time.

For each interface on the node, the following are displayed: interface, speed, average utilisation, maximum utilisation, average inbound errors (in %), average outbound errors (in %), average inbound discards (in %), average outbound discards (in %), average inbound utilisation (in %), average outbound utilisation (in %), maximum inbound utilisation (in %), maximum outbound utilisation (in %).

The WAN report health rules are configurable (section `opreport_rules`) and the report type supports customisable detail levels for the display.

Formulas used for Calculations as well as more information can be found here: **WAN Report**

WAN Utilisation Distribution Report

New in version 3.1.8.

The WAN Utilisation Distribution Report displays the combined, input and output utilisation frequency distributions for configured distribution groups.

More Information, including configuration options, can be found here: **Wan Utilisation Distribution Report**

WAN Utilisation Distribution Summary Report

New in version 3.1.8.

The WAN Utilisation Distribution Summary Report displays only the combined utilisation frequency distribution for configured distribution groups.

More Information, including configuration options, can be found here: **WAN Utilisation Distribution Report**

QoS Report

The QoS report is intended to provide an overview of (Cisco-type) Class-based Quality of Service configuration and utilisation of the selected nodes.

More information can be found here: **QoS Report**

CoS Report

The new Class of Service report covers Quality/Class of Service as implemented by Juniper devices.
More information for this report can be found here: **CoS Report**

Uptime Report

The uptime repors provides an overview of recently restarted devices, as well as very long running ones.

The configuration items `uptime_shortest_days` (default 7) and `uptime_longest_days` (default:365) define which nodes should be selected for display.

More information can be found here: **Uptime Report**

Response Time Report

The Response Time report tabulates the selected nodes in descending order of their average response time. Besides the average and maximum measurements, the report also shows the 95th percentile of the response time. These readings are in milliseconds.

Response Time Exceptions

This column shows the number of times a device's response time has exceeded the exception threshold during the reporting period. This threshold is configurable (property `response_exception_threshold`), and its default value is 10 ms.

More information can be found here: **Response Time Report**

Interface Utilisation Report

The interface utilisation report shows the interface utilisation statistics for one or more interfaces. By default it will display the averages for input, output, combined and higher-of-in-and-output bandwidth utilisation, as well as exception counts and cumulative exception period.

Exceptions are defined as any of the utilisation readings rising above option `util_threshold` (default: 80%). The exception period is defined as all the intervals with over-threshold readings. In addition to those raw readings, the labelling of an interface as in exceptional or normal state is controlled by option `util_threshold_mincount` (default: 1), which defines how many exceptions have to be observed before the interface is labelled "bad".

This report can be further adjusted with these options:

- Option `show_threshold` (default: true)
  If set to false, no thresholds are shown; instead the bandwidth, average traffic and average utilisation are presented (plus a shortened report period column).
- Option `show_only_util` (default: false)
  If `show_treshold` is false, and if `show_only_util` is set to true, then only bandwidth and average utilisation are shown (ie. average traffic is omitted).

More information can be found here: **Interface Utilisation Report**

Interface Unicast Packets Report

New in version 3.1.8.

The Interface Unicast Packets report displays the ifInUcastPkts and ifOutUcastPkts statistics for one or more interfaces.

More Information, including configuration options, can be found here: **Interface Unicast Packets Report**

CPU Report

This report shows the average CPU utilisation for Cisco devices, for both 1-minute and 5-minute averages.

More information can be found here: **CPU Report**

Free Memory Report

This report shows the free memory statistics for Cisco devices.

More information can be found here: **Free Memory Report**

Memory Pool Report

This report shows the memory pool statistics for Cisco devices.

More information can be found here: **Memory Pool Report**

Monitored Services Report

This report provides an overview of monitored services ***availability*** and ***downtime*** both for a given period (which may include business days and/or business hours filtering) and as a percentage of the given period.
For each selected monitored service the report shows the percentage of time the monitored service was up, down, or partially reachable (i.e. up but packet loss was encountered) as well as the ***cumulative response time*** as measured by NMIS while monitoring the service.

More information can be found here: **Monitored Services Report**

Traffic Usage Report

This report displays the cumulative traffic usage figures for one or more interfaces. The measurements that are displayed include the node and the interface, and total traffic inbound, outbound and combined (all in Gigabyptes), plus a shortened report period column.

More information can be found here: Traffic Usage Report

Traffic Summary Report

The traffic summary report provides a specialized report of categorized *and* grouped traffic figures for any number of nodes and interfaces.

This report **requires** a `node_intf_type` input file that provides nodes, interfaces *and* "type" for grouping (see How to select Nodes (and Interfaces) for reporting in opReports 3).

The interfaces are grouped both by their "type" attribute and their average combined utilisation (into categories Low=<45%, Minor=<80%, and Major=>80%).

The report consists of

- A summary table, which displays for each "type" category the number of interfaces in each utilisation category (and a total)
- And a details table for each combination of "type" and utilisation categories.
  The details table shows the node and interface, the input and output interface speeds, the average combined traffic and the average combined utilisation, plus a shortened period column.

For output formats HTML and CSV these tables are shown one after the other. For XLSX, the tables are put on separate worksheets (within a single spreadsheet file).

More information can be found here: **Traffic Summary Report**

Node Availability Report

New in version 3.0.8. Please note that the precise content of this report is subject to change.

This report provides an overview of nodes' reachability and down time for a given period (which may include business days and/or business hours filtering).
For each selected node the report shows the percentage of time the node was up, down, or partially reachable (i.e. up but packet loss was encountered), plus the percentage of time where NMIS couldn't collect any reachability information whatsoever, as well as the cumulative periods for up, down and periods with missing data.

From version 3.0.10 on this report offers optional embedded graphs of each node's availability. The default choice is to include graphs but you can change that using the report option `embedgraphs`. In the GUI this option is named "Include Embedded Graphs". The contents of the graph are not configurable, but the desired size can be set using the configuration option `opreports_embedded_graph_size` (default: 600 pixels wide by 150 pixels high).

More information can be found here: **Node Availability Report**

Grouped Availability Report

New in version 3.1.4.

The Grouped Availability Report computes reachability statistics similar to the Node Availability Report, but devices are then categorised based on their overall availability metric; the report shows these results spread over various summary table sections (for HTML output) or work sheets (for XLSX output). Both business days and business hour filtering are supported. The availability categories can be configured flexibly.

A combined total availability metric for all nodes is computed and presented in a summary section, and similar metrics and categorisation device counts for both grouping by Customer and Group (ie. NMIS configuration properties `customer` and `group`) are computed and presented. Finally the detailed availability stats are shown for all devices, in order of the devices' group memberships.

More information can be found here: **Grouped Availability Report**

Interface Capacity Report

New in version 3.0.8. Please note that the precise content of this report is subject to change.

The interface capacity report displays a comparison between configured interface speeds and observed actual bandwidth figures.

For each selected interface, it shows the configured input and output speeds, the observed maxima of input and output bandwidth for the report period, and the 95th percentile of the interface utilisation.
Before version 3.0.14, the 95th percentile for *combined* interface utilisation was shown (Combined utilisation in this report means the set of averages of each input and output utilisation reading). From 3.0.14 onwards, you can select from three options: the 95th of *combined* utilisation, two separate columns for 95th of inpunt and output utilisation, or three separate columns for 95th of input, output and combined utilisation.

In the HTML output format all interface speed and bandwidth figures are autoscaled and shown with the most appropriate unit, whereas CSV and XLSX outputs contain the unscaled data in bits per second.

From version 3.0.10 on this report offers optional embedded graphs of each interface's capacity. These graphs show the observed input and output bandwidth (input in green, output in blue), and the higher of the configured in and out speeds as a red warning line. If the configured input and output speeds are identical, the 95th percentile of the *combined* interface utilisation is also shown as a dotted line.

The default choice is to include graphs but you can change that using the report option `embedgraphs`. In the GUI this option is named "Include Embedded Graphs". The graph contents are not configurable, but the graph size can be adjusted using the configuration option `opreports_embedded_graph_size` (default: 600 x 150 pixels).

More information can be found here: **Interface Capacity Report**

Grouped Interface Capacity Report

New in version 3.1.8.

The Grouped Interface Capacity Report displays a comparison between configured interface speeds and observed actual bandwidth figures.

Statistics are shown for all devices in order of the devices' Group Membership (ie. NMIS configuration property '`group`').

More information can be found here: **Grouped Interface Capacity Report**

Traffic Snapshot Report

New in version 3.0.14.

The snapshot report type produces a table of interface utilisation versus interface capacity for one or more groups of interfaces, with configurable coloring of the utilisation column. The utilisation data is computed and presented for each *group* of interfaces. Besides that, for each interface a (selectable) NMIS graph is included as well.

The groups of Interfaces are selected exclusively from opCharts Business Service definitions, hence opCharts is required to be installed on the same machine for this report type.

The report type is somewhat geared towards XLSX outputs, and supports multiple pages where each page definition contains its own list of sources, coloring rules, measurement and graph options; each page definition results in a separate XLSX worksheet. For the CSV output type, only the utilisation tables are present. In HTML output, all the logical pages are included on one HTML page, but visually separate in their own sections.

The snapshot report produces tables of interface utilisation versus interface capacity for one or more groups of nodes and interfaces, with configurable coloring rules for each group (based on utilisation ratio). For each interface a (selectable) NMIS graph is embedded as well.

The **Traffic Snapshot Report** page provides an example and describes the detailed configuration options for this report type.

UPS Configured Models Report

New in version 3.1.9

The UPS Configured Models Report displays UPS models configured under 'report_ups_configured_models' in opCommon.nmis configuration file.

The **UPS Configured Models Report** page provides an example and describes the detailed configuration options for this report type.

GPON Port Utilisation Report

New in version 4.3.0.

The GPON port utilisation report shows the port utilisation statistics for one or more ports. By default it will display the averages for input, output, combined and higher-of-in-and-output bandwidth utilisation, as well as exception counts and cumulative exception period.

Exceptions are defined as any of the utilisation readings rising above option `util_threshold` (default: 80%). The exception period is defined as all the intervals with over-threshold readings. In addition to those raw readings, the labelling of an interface as in exceptional or normal state is controlled by option `util_threshold_mincount` (default: 1), which defines how many exceptions have to be observed before the interface is labelled "bad".

This report can be further adjusted with these options:

- Option `show_threshold` (default: true)
  If set to false, no thresholds are shown; instead the bandwidth, average traffic and average utilisation are presented (plus a shortened report period column).
- Option `show_only_util` (default: false)
  If `show_threshold` is false, and if `show_only_util` is set to true, then only bandwidth and average utilisation are shown (ie. average traffic is omitted).

This report is modeled on the **Interface Utilisation Report**

GPON Port Capacity Report

New in version 4.3.0.

The GPON port capacity report displays a comparison between configured port speeds and observed actual bandwidth figures.

For each selected port, it shows the configured input and output speeds, the observed maxima of input and output bandwidth for the report period, and the 95th percentile of the port utilisation.
Before version 3.0.14, the 95th percentile for *combined* port utilisation was shown (Combined utilisation in this report means the set of averages of each input and output utilisation reading). From 3.0.14 onwards, you can select from three options: the 95th of *combined* utilisation, two separate columns for 95th of inpunt and output utilisation, or three separate columns for 95th of input, output and combined utilisation.
In the HTML output format all port speed and bandwidth figures are autoscaled and shown with the most appropriate unit, whereas CSV and XLSX outputs contain the unscaled data in bits per second.

From version 3.0.10 on this report offers optional embedded graphs of each port capacity. These graphs show the observed input and output bandwidth (input in green, output in blue), and the higher of the configured in and out speeds as a red warning line. If the configured input and output speeds are identical, the 95th percentile of the *combined* port utilisation is also shown as a dotted line.

The default choice is to include graphs but you can change that using the report option `embedgraphs`. In the GUI this option is named "Include Embedded Graphs". The graph contents are not configurable, but the graph size can be adjusted using the configuration option `opreports_embedded_graph_size` (default: 600 x 150 pixels).

This report is modeled on the **Interface Capacity Report**

GPON Port User Traffic Report

New in version 4.3.0.

This report displays the cumulative traffic usage figures for one or more ports. The measurements that are displayed include the node and the port, and total traffic inbound, outbound and combined (all in Gigabyptes), plus a shortened report period column.

This report is modeled on the **Traffic Usage Report**

Node Health Disk Metrics Report

The Node Health Disk Metrics report is a Node Health report with three additional columns (Total Disk Size, Total Disk Used and Total Disk Free).

Total Disk Size is the sum of the Disk Size in GiB for all fixed disk type filesystems.

Total Disk Used is the sum of the Disk Used in GiB for all fixed disk type filesystems.

Total Disk Free is the sum of the Disk Free in GiB for all fixed disk type filesystems.