



## Top-N Reports

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## Information About Top-N Reports

### Top-N Reports Overview

Top-N reports allow you to collect and analyze data for each physical port on a switch. When Top-N reports start, they obtain statistics from the appropriate hardware counters and then go into sleep mode for a user-specified interval. When the interval ends, the reports obtain the current statistics from the same hardware counters, compare the current statistics from the earlier statistics, and store the difference. Top-N reports feature is supported only the Cisco Catalyst 9500 High Performance Series Switches. The statistics for each port are sorted by one of the statistic types that are listed below:

- broadcast — Number of input/output broadcast packets
- bytes — Number of input/output bytes
- errors — Number of input errors
- multicast — Number of input/output multicast packets
- overflow — Number of buffer overflows
- packets — Number of input/output packets
- utilization — Utilization



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**Note** When calculating the port utilization, Top-N reports bundles the Tx and Rx lines into the same counter and also looks at the full-duplex bandwidth when calculating the percentage of utilization. For example, a Gigabit Ethernet port would be 2000-Mbps full duplex.

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### Top-N Reports Operation

When you enter the collect top command, processing begins and the system prompt reappears immediately. When processing completes, the reports are not displayed immediately on the screen; the reports are saved for later viewing. The Top-N reports notify you when the reports are complete by sending a syslog message to the screen.

## How to use Top-N Reports

The following sections provide information on how to use Top-N Reports.

### Enabling Top-N Reports

To enable Top-N reports creation, perform this task:

#### SUMMARY STEPS

1. **enable**
2. **collect top** [*number\_of\_ports*] **counters interface** {*type* | **all** | **layer-2** | **layer-3**} [**sort-by** *statistic\_type*] [**interval** *seconds*]

#### DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b> <b>Example:</b> Device> enable	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	<b>collect top</b> [ <i>number_of_ports</i> ] <b>counters interface</b> { <i>type</i>   <b>all</b>   <b>layer-2</b>   <b>layer-3</b> } [ <b>sort-by</b> <i>statistic_type</i> ] [ <b>interval</b> <i>seconds</i> ] <b>Example:</b> Device# collect top 4 counters interface all sort-by utilization interval 76	Enables Top-N reports creation. <ul style="list-style-type: none"> <li>• <i>type</i> — type of interface — FastEthernet, GigabitEthernet, TenGigabitEthernet, FortyGigabitEthernet, TwentyFiveGigabitEthernet, HundredGigabitEthernet, Port-channel</li> </ul> When enabling Top-N reports creation, note the following information: <ul style="list-style-type: none"> <li>• You can specify the number of busiest ports for which to create reports (the default is 20).</li> <li>• You can specify the statistic type by which ports are determined to be the busiest (the default is utilization). The supported values for <i>statistic_type</i> are <b>broadcast</b>, <b>bytes</b>, <b>errors</b>, <b>multicast</b>, <b>overflow</b>, <b>packets</b>, and <b>utilization</b>.</li> <li>• You can specify the interval over which statistics are collected (range: 0 through 999; the default is 30 seconds).</li> </ul>

	Command or Action	Purpose
		<ul style="list-style-type: none"> <li>Except for a utilization report (configured with the <b>sort-by utilization</b> keywords), you can specify an interval of zero to create a report that displays the current counter values instead of a report that displays the difference between the start-of-interval counter values and the end-of-interval counter values.</li> </ul>

## Displaying Top-N Reports

To display Top-N reports, perform this task:

### SUMMARY STEPS

- enable
- show top counters interface report [*report\_num*]

### DETAILED STEPS

	Command or Action	Purpose
Step 1	<b>enable</b> <b>Example:</b> Device> enable	Enables privileged EXEC mode. Enter your password if prompted.
Step 2	<b>show top counters interface report</b> [ <i>report_num</i> ] <b>Example:</b> Device# show top counters interface report 1	Displays Top-N reports. <b>Note</b> To display information about all the reports, do not enter a <i>report_num</i> value.  Top-N reports statistics are not displayed in these situations: <ul style="list-style-type: none"> <li>If a port is not present during the first poll.</li> <li>If a port is not present during the second poll.</li> <li>If a port's speed or duplex changes during the polling interval.</li> <li>If a port's type changes from Layer 2 to Layer 3 during the polling interval.</li> <li>If a port's type changes from Layer 3 to Layer 2 during the polling interval.</li> </ul>

## Clearing Top-N Reports

To clear Top-N reports, perform one of these tasks:

**SUMMARY STEPS**

1. **enable**
2. **clear top counters interface report** [*report\_num*]

**DETAILED STEPS**

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b> <b>Example:</b> Device> enable	Enables privileged EXEC mode. Enter your password if prompted.
<b>Step 2</b>	<b>clear top counters interface report</b> [ <i>report_num</i> ] <b>Example:</b> Device# clear top counters interface report 4	Clears all the Top-N reports that have a status of done. <ul style="list-style-type: none"> <li>• <i>report_num</i> — Specifies the report number that must be cleared regardless of the status</li> </ul>

## Examples : Top-N Reports

### Enabling Top-N Reports

This example shows how to enable Top-N reports creation for an interval of 76 seconds for the four ports with the highest utilization:

```
Device# collect top 4 counters interface all sort-by utilization interval 76
TopN collection started.
```

### Displaying Top-N Reports

This example shows how to display information about all the Top-N reports:



**Note** Reports for which statistics are still being obtained are shown with a status of pending.

```
# show top counters interface report

Id Start Time Int N Sort-By Status Owner
-- -----
-----
1 08:18:25 UTC Tue Nov 23 2004 76 20 util done console
2 08:19:54 UTC Tue Nov 23 2004 76 20 util done console
3 08:21:34 UTC Tue Nov 23 2004 76 20 util done console
4 08:26:50 UTC Tue Nov 23 2004 90 20 util done console
```

This example shows how to display a specific Top-N report:

```
# show top counters interface report 1

Started By : console
```

```
Start Time : 08:18:25 UTC Tue Nov 23 2004
End Time   : 08:19:42 UTC Tue Nov 23 2004
Port Type  : All
Sort By    : util
Interval   : 76 seconds
Port Band  Util Bytes Packets Broadcast Multicast In- Buf-
width (Tx + Rx) (Tx + Rx) (Tx + Rx) (Tx + Rx) err ovflw
```

```
-----
-----
Gi2/5 100 50 726047564 11344488 11344487 1 0 0
Gi2/48 100 35 508018905 7937789 0 43 0 0
Gi2/46 100 25 362860697 5669693 0 43 0 0
Gi2/47 100 22 323852889 4762539 4762495 43 0 0
```

### Clearing Top-N Reports

This example shows how to remove all reports that have a status of done:

```
# clear top counters interface report
```

```
04:00:06: %TOPN_COUNTERS-5-DELETED: TopN report 1 deleted by the console
04:00:06: %TOPN_COUNTERS-5-DELETED: TopN report 2 deleted by the console
04:00:06: %TOPN_COUNTERS-5-DELETED: TopN report 3 deleted by the console
04:00:06: %TOPN_COUNTERS-5-DELETED: TopN report 4 deleted by the console
```

This example shows how to remove a report number 4:

```
# clear top counters interface report 4
```

```
04:52:12: %TOPN_COUNTERS-5-KILLED: TopN report 4 killed by the console
```

