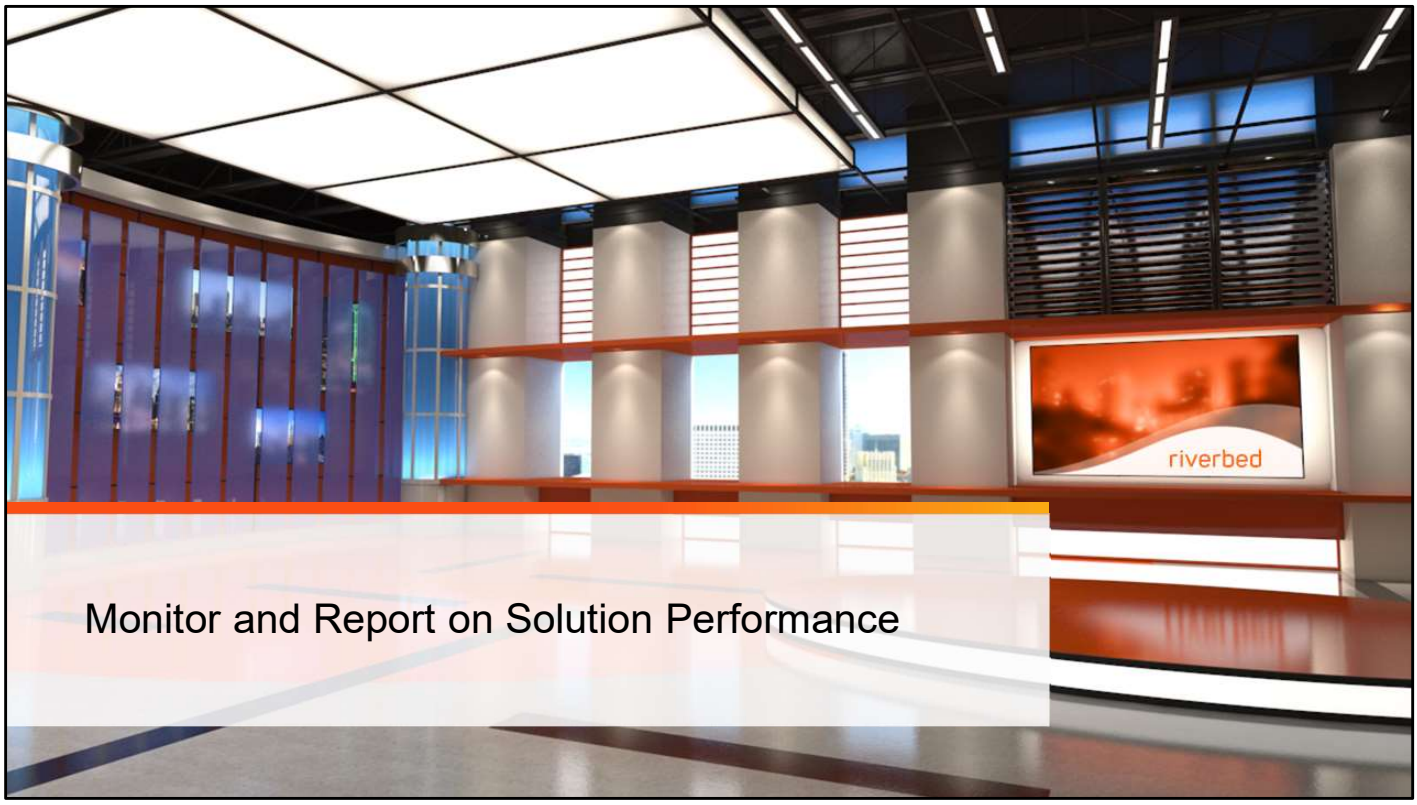
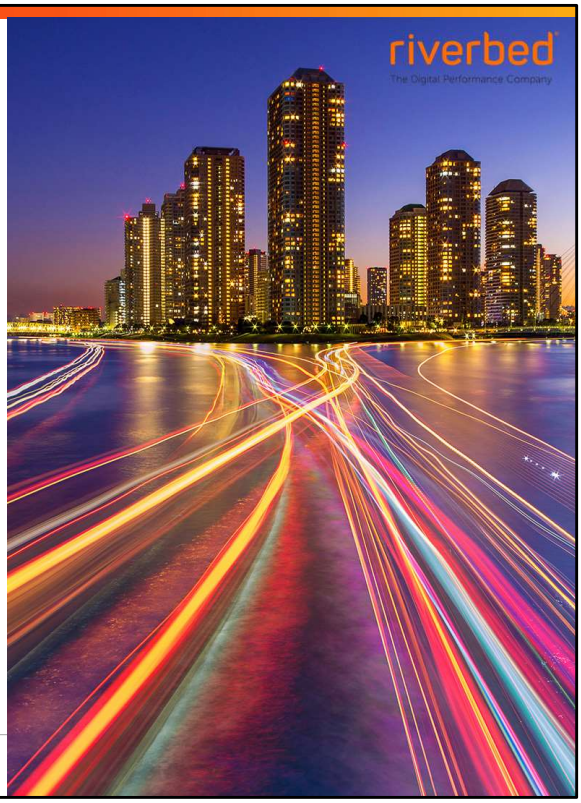


# Learning Objectives

## After completing this module, you will be able to:

- Describe SteelHead reporting.
- Describe the different report types.
- Generate reports using the SCCM.
- Run system reports.
- Work with Riverbed Support.

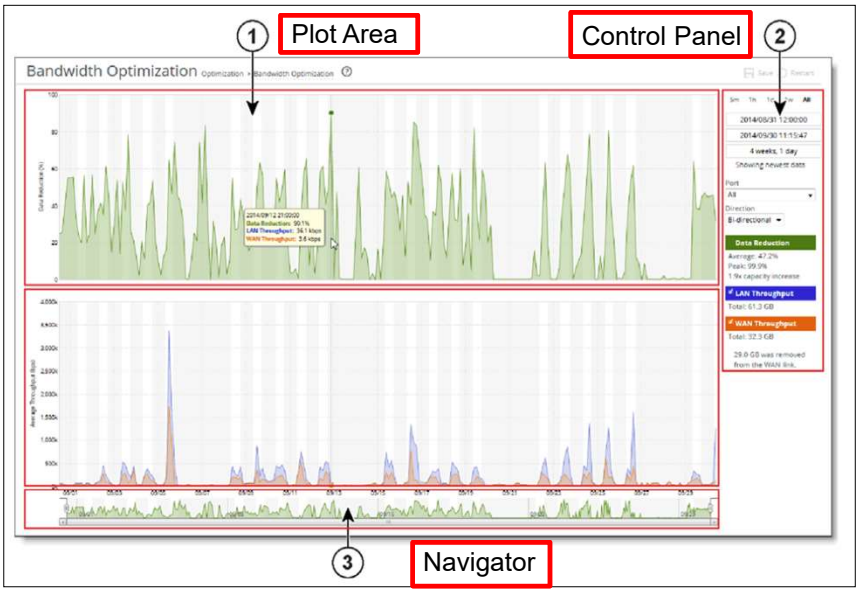


# Key Points

- There are numerous reports available which can be modified and customized to show the data of interest.
- Different categories of reports existing, some reporting on optimization and traffic, others on system performance.
- The SteelHead can be configured to export NetFlow information, either to a 3rd party device or a SteelCentral FlowGateway.

# Describe SteelHead Reporting

# SteelHead Reporting: Reports Layout





riverbed 5

The report sections are:

**Plot Area** - The plot area is where the data visualization occurs. Reports can display either a single-pane or dual-pane layout. In a dual-pane layout, both panes remain synchronized with respect to the x-axis. Each pane is capable of having two y-axes (a primary one on the left and a secondary one on the right). The reports present the majority of data series as simple line series graphs, but some reports display area series graphs where appropriate. The types of area series graphs are:

- *Layered series*, which appear on top of each other in the z direction. These are identified by transparent colors.
- *Stacked area series,* which appear on top of each other in the y direction. RiOS uses stacked area graphs to depict an aggregate broken down by its constituent parts. RiOS defines work hours as 8:00 AM to 5:00 PM on weekdays. You cannot configure the work hours.

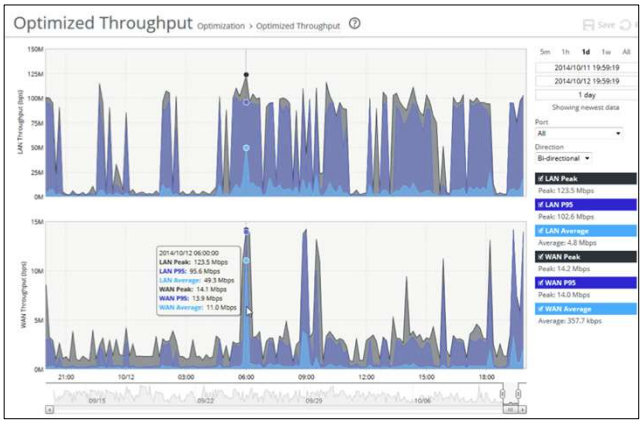
**Control Panel** - Use the control panel to control how much data the chart displays and chart properties, and to view or hide the summary statistics.

**Navigator** - Directly above the scroll bar is the navigator, which shows a much smaller and simpler display of the data in the plot area. The navigator displays only one data series. Use the navigator to navigate the entire range of chart data.

To resize the current chart window - Move the handles on either side of the chart window in the navigator. The charts have a minimum chart window size of five minutes, so if you try to resize the chart window to something smaller, the chart window springs back to the minimum size.

## Reporting: Mining Performance Data

- Quick access
- Filter report date
- Global stats for SSL and HTTP optimization
- Select trending interval (hour, day, week, month, year)





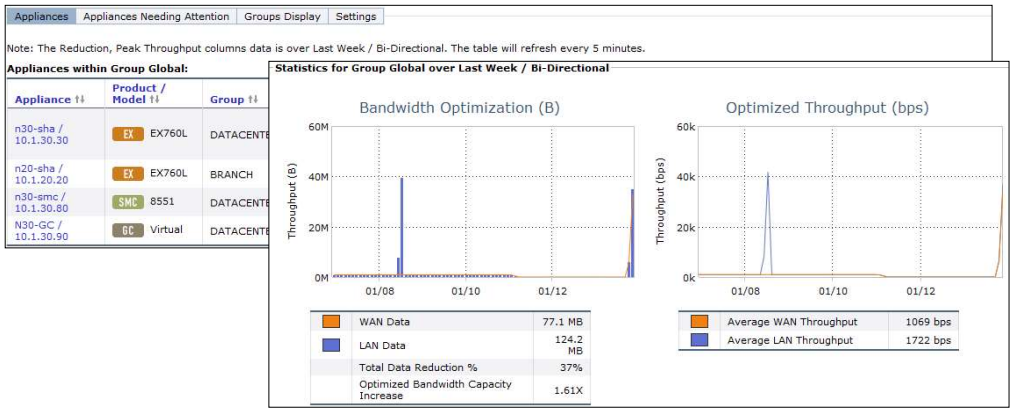


The Optimized Throughput report summarizes the throughput or total data transmitted for the application and time period specified.

- Peak LAN Throughput At <time> on<date> - Displays the date and time of the peak data activity.
- 95th Percentile LAN Throughput Displays - The 95th percentile for data activity. The 95th percentile is calculated by taking the peak of the lower 95 percent of inbound and outbound throughput samples. **Note:** Peak and the 95th percentile statistics are not reported if more than one appliance or a group is selected.
- Average LAN Throughput - Displays the average amount of data transmitted.
- Peak WAN Throughput - Displays the date and time of the peak data activity.
- 95th Percentile WAN Throughput At <time> on <value> - Displays the 95th percentile for data activity. The 95th percentile is calculated by taking the peak of the lower 95 percent of inbound and outbound throughput samples. **Note:** Peak and the 95th percentile statistics are not reported if more than one appliance or a group is selected.
- Average WAN Throughput - Displays the average amount of data transmitted.

# SCC Reporting: Global Reporting

- Centrally view performance stats for all SteelHead appliances network-wide or from a specified group
- View sortable list of statistics for all appliances
- View graph of appliance performance (can be filtered)





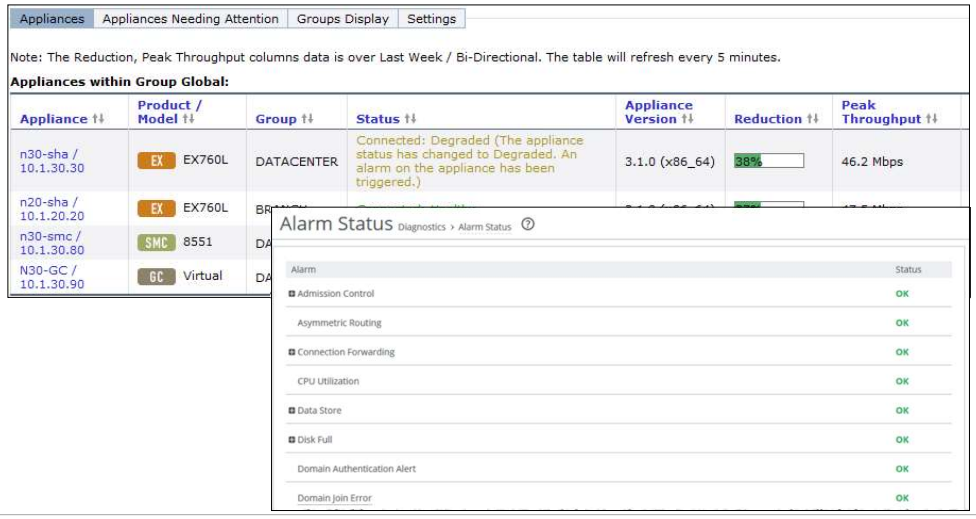
riverbed 7

The Data Reduction report summarizes the percent reduction of data transmitted by an application such as FTP, HTTP, NetBIOS and TCP, traffic in CIFS, and MAPI.

- *Total Data Reduction %* specifies the total decrease of data transmitted over the WAN, according to the following calculation: (Data In – Data Out)/(Data In).
- *Peak Data Reduction At <time> on<date>* displays the date and time that the peak data reduction occurred.
- *Optimized Bandwidth Capacity Increase* specifies the increase in the amount of data transmitted over the WAN, according to the following calculation: 1/(1-Reduction Rate).

# SCC Reporting: Alarms & Events

- Keep track of SteelHead health status and capacity
- Centralized access to alarms and triggered events



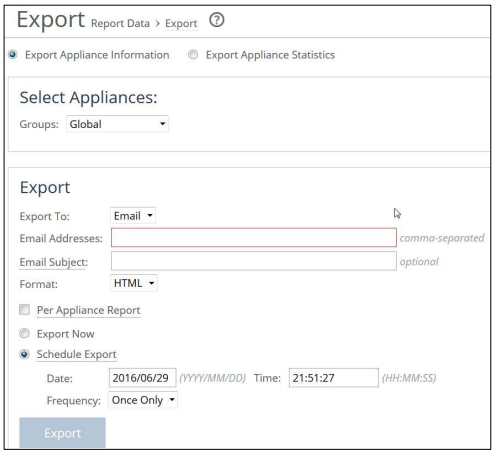


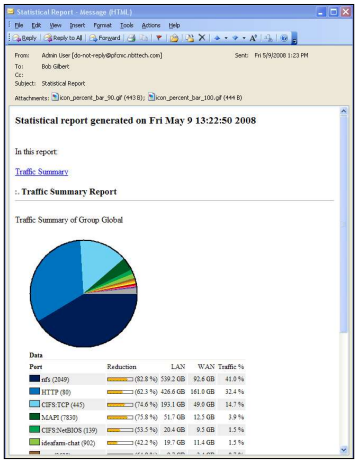


You can change alarm settings for the selected system settings policy in the Alarms page. Enabling alarms is optional.

# Reporting: Exporting Data

- Export global appliance information and performance stats to an HTML or .CSV file
- On SCCS, setup a recurring report email schedule with useful performance metrics in CSV, PDF, or HTML format






riverbed 9

On SteelHead appliances, you can export on-demand performance statistics in CSV, HTML, and PDF format in the Export report.

The CSV file contains commented lines (comments beginning with the # character) at the beginning of the file.

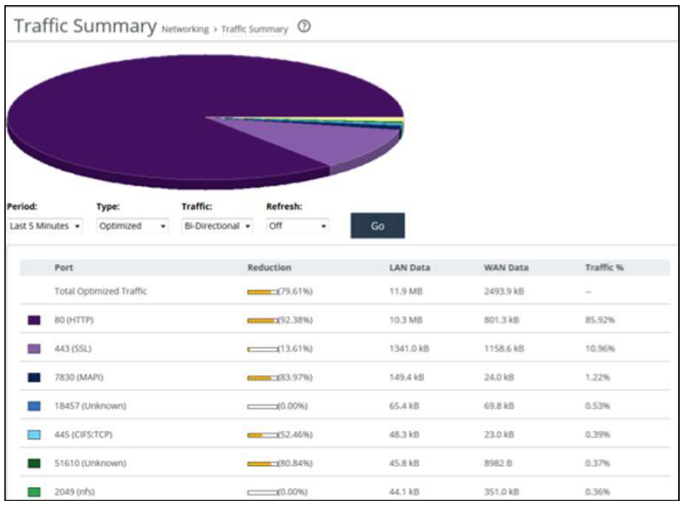
These comments report what host generated the file, the report that was generated, time boundaries, the time the export occurred, and the version of the SteelCentral the file was exported from.

The statistical values are provided in columns: the first column is the date and time of the statistic sample, the columns that follow contain the data.

# Describe the Different Report Types

# Traffic Summary

- Provides a percentage breakdown of the amount of TCP traffic going through the system






riverbed 11

The Traffic Summary report provides a percentage breakdown of the amount of TCP traffic going through the system. The SteelHead appliance automatically discovers all the ports in the system that have traffic.

The discovered port and its label (if one exists) are added to the report. If a label does not exist, an unknown label is added to the discovered port. If you want to change the unknown label to a name representing the port, you must re-add the port with a new label. All statistics for this new port label are preserved from the time the port was discovered.

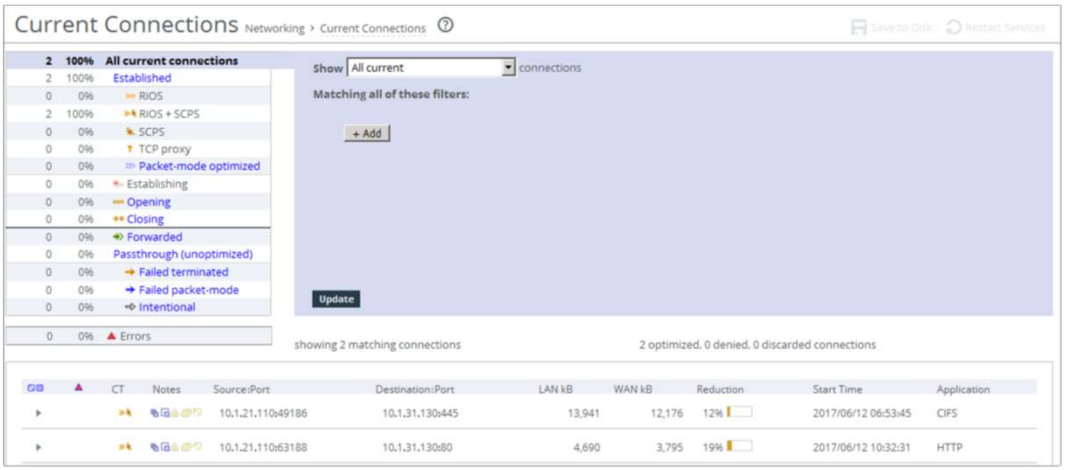
**Note**: The Traffic Summary report displays a maximum of 16 ports and pie slices for the traffic types comprising more than 0.005 percent of the total traffic (by destination port).

When there are more than 16 ports, the report displays 15 individual ports and aggregates the remaining ports into the 16th slice. The 16th slice is always gray. Any ports aggregated into the 16th slice are also gray.

Any traffic that comprises less than 0.005 percent of the total is not included in the Traffic Summary report, but is aggregated into the Bandwidth Optimization report.

# Current Connections

- Displays visible connection details – TCP by default, & UDP if Packet Mode enabled; highly filterable




`show connections`



riverbed 12

The Current Connections report displays the connections the SteelHead appliance detects, including the connections that are passing through unoptimized. You can search and customize the display using filters to list connections of interest. When you click Update , the report retrieves a listing of up to 500 real-time current connections.

The Connection Summary provides at-a-glance hierarchical overview of the traffic the SteelHead appliance detects. It displays the total connection numbers for various types of optimization, pass-through, and forwarding. It categorizes the optimized, established connections by type and displays the portion of the total connections each connection type represents.

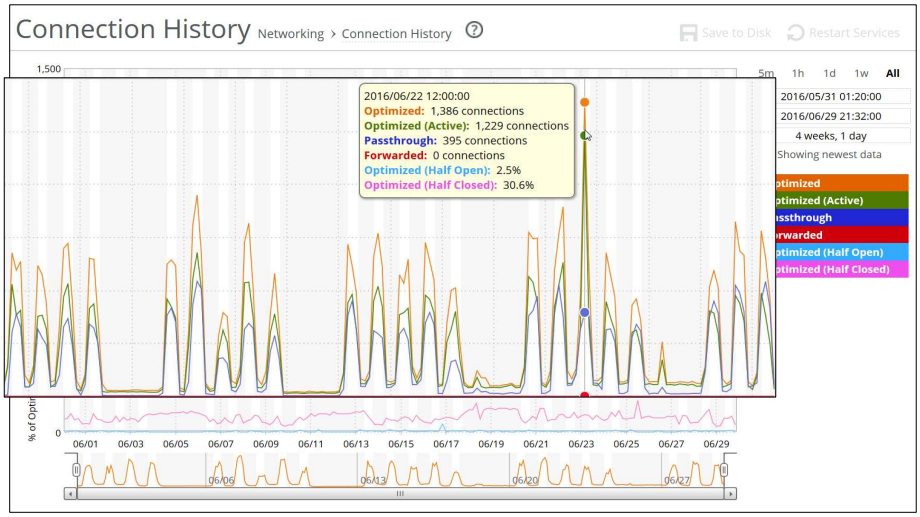
When you click a connection type, you select it and also drive the show statement in the query area to search for established connections and exclude the other types. Because the Connections Summary and Connections Table convey a lot of information about connections the SteelHead appliance is detecting, the best way to narrow your search is to filter and sort the report.

The Query area is where you select a simple or compound connection type for your search and optionally filter the results. The Show search control defines the contents of the connection summary and the connections table.

The simple connection search uses a match against a connection type to display only that type, and excludes the others. If you want to use more advanced criteria, you can add one or more filters to achieve this.

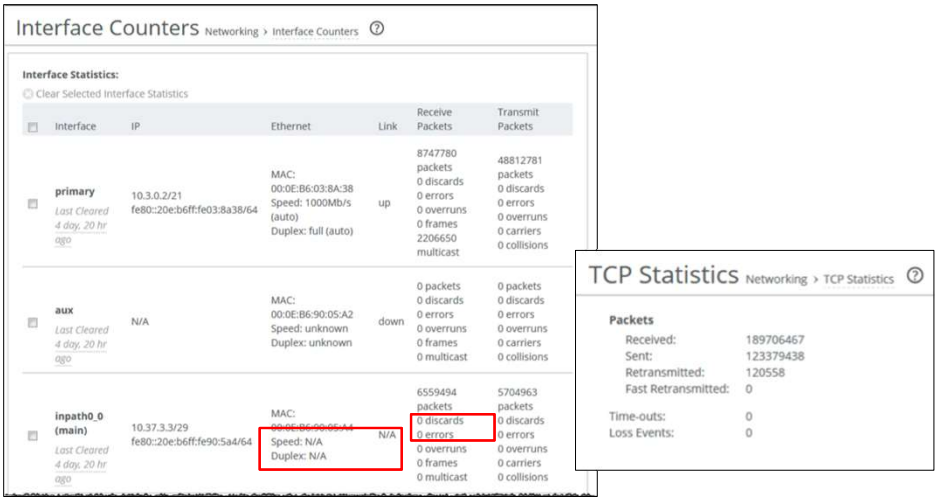
# Connection History

- Connection History report shows connection counts for a variety of connection types



# Interface Counters & TCP Statistics

- Summarizes the statistics for the interfaces and also displays the IP address, speed, duplex, MAC address, and current status of each interface







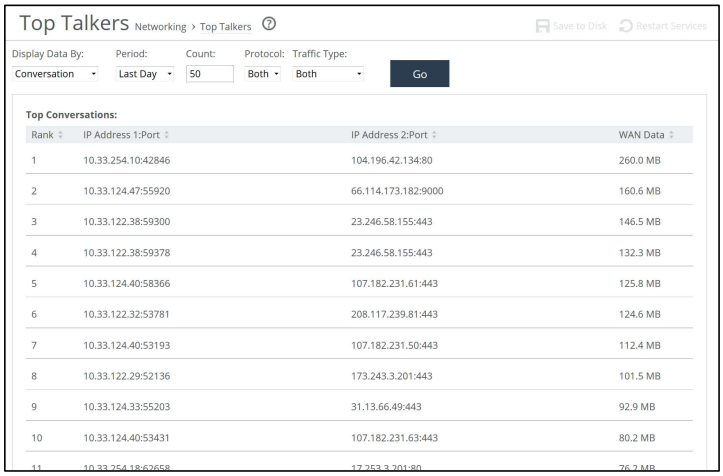
The Interface Counters report summarizes the statistics for the interfaces. It also displays the IP address, speed, duplex, MAC address, and current status of each interface. For automatically negotiated speed and duplex settings, the Interface Counters report displays the speed at which they are negotiated.

**Note**: If you have multiple dual port, four-port, or six-port bypass cards installed, the Configure > Networking > Interface Counters report displays the interface statistics for each LAN and WAN port.

This report can help make sure there are no errors here such as mismatch duplex or interface errors.

# Top Talkers

- Displays the top talking hosts on a per-port basis for the time period specified




```
stats settings top-talkers …
```



riverbed 15

The Top Talkers report displays the top talking hosts on a per-port basis for the time period specified. The traffic flows that generate the heaviest use of WAN bandwidth are known as the Top Talkers. This report provides WAN visibility for traffic analysis, security monitoring, accounting, load balancing, and capacity planning. It can include both optimized and pass-through traffic.

A traffic flow consists of data sent and received from a first single IP address and port number to a second single IP address and port number over the same protocol. Only traffic flows that start in the selected time period are shown in the report. Select a Top Talkers report column heading to sort the column in ascending or descending order.

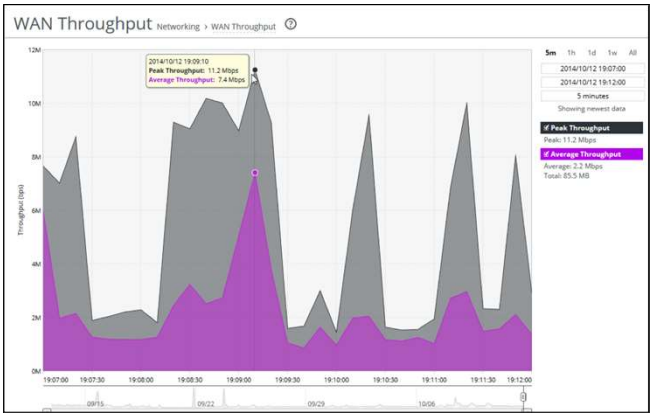
Important: The Top Talkers report includes bytes used for packet headers and is an approximation based on various assumptions.

You can export this report in CSV format in the Export report. The CSV format allows you to easily import the statistics into spreadsheets and databases. You can open the CSV file in any text editor. Also available as CSV report: top-conversations, top-senders, top-receivers, and top-applications.

**Tip**: The Top Talkers data does not exactly match the Traffic Summary data, the Bandwidth Optimization data, or specific connection data that appears when you select a particular connection in the Current Connections report. This is due to packet headers, packet retransmits, and other TCP/IP effects that flow export collectors see, but RiOS does not. Consequently, the reports are proportional but not equivalent.

# WAN Throughput Report

- Reports all data (optimized, passthrough and local) that is transmitted out of:
  - All enabled WAN interfaces in case of Standard in-path or virtual in-paths deployment
  - Primary interface in case of server side out-of-path deployment







The WAN Throughput report summarizes the WAN throughput for the time period specified. In standard in-path and virtual in-path deployments, the throughput is an aggregation of all data the system transmits out of all WAN interfaces. In a server-side out-of-path configuration, the report summarizes all data the system transmits out of the primary interface.

WAN throughput statistics are enabled by default.

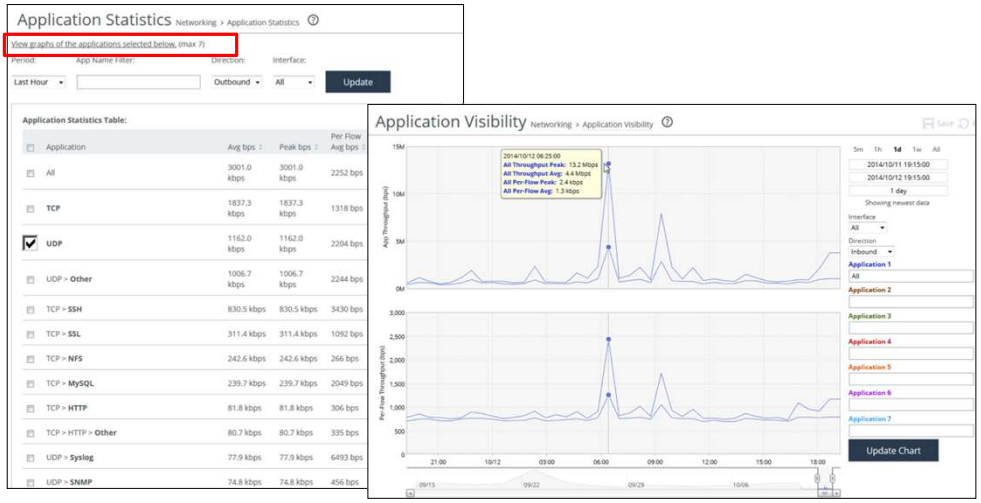
The WAN Throughput report does not include any traffic that is bypassed, either by an in-path interface in hardware bypass, or the portion of traffic that is bypassed by hardware-assist rules on supported Fiber 10 Gigabit-Ethernet in-path cards.

The WAN Throughput report includes a WAN link throughput graph that provides these statistics describing data activity for the time period you specify.

In some configurations, RiOS transmits LAN traffic out of WAN interfaces: for example, virtual in-path deployments and deployments using the default gateway on the WAN side without simplified routing. In such deployments, you can configure subnet side rules to decide which channel traffic is not destined for the WAN.

# Application Statistics / Visibility

- Provides a tabular summary or a graph of the traffic flowing through a SteelHead appliance for the time period specified








The Application Statistics report provides a tabular summary or a graph of the traffic flowing through a SteelHead appliance for the time period specified. You can view up to seven applications in a stacked view.

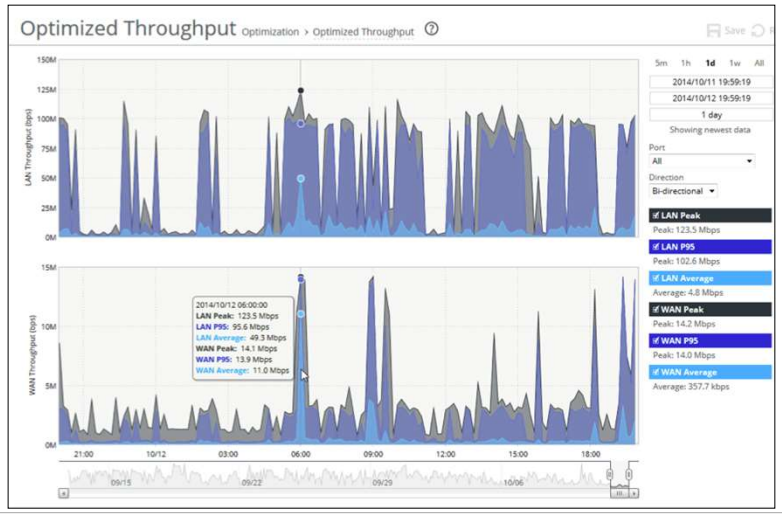
The Application Visibility report summarizes the traffic flowing through a SteelHead appliance classified by the application for the time period specified. This report provides application level visibility into layer-7 and shows the application dynamics for pass-through and optimized traffic.

You must enable application visibility on the Configure > Networking > Flow Statistics page before the Application Statistics report can gather and display statistics. Note the following restrictions:

- Only the last 30 days of stats are maintained, older stats are deleted.
- Maximum of 1024 applications listed in the tabular view.
- Only WAN and primary interface traffic is collected.

# Optimized Throughput

- Summarizes the throughput or total data transmitted for the application and time period specified





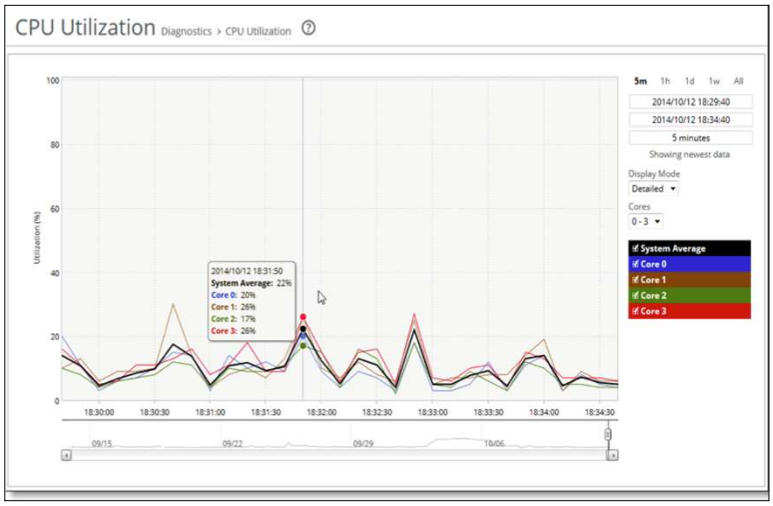



The Optimized Throughput report summarizes the throughput for the port, traffic direction, and time period specified.

The Optimized Throughput report includes LAN and WAN link throughput graphs that include the following statistics that describe data activity for the port, traffic direction, and the time period you specify.

# CPU Utilization

- Summarizes the percentage of all the CPU cores used in the system within the time period specified







The CPU Utilization report summarizes the percentage of all of the CPU cores used in the system within the time period specified.

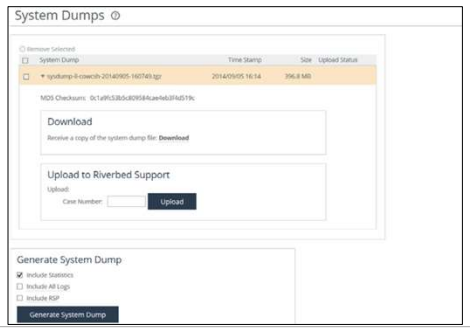
You can display individual cores or an overall average, or both.

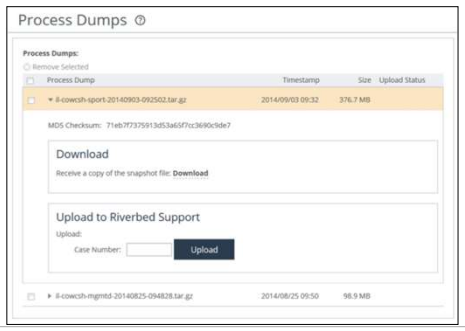
Typically, a SteelHead appliance operates on approximately 30-40 percent CPU capacity during non-peak hours and approximately 60-70 percent capacity during peak hours.

No single SteelHead appliance CPU usage should exceed 90 percent.

# System & Process Dumps

- System Dumps
  - Contains a copy of the kernel data on the system
  - Support will typically ask for sysdump when opening a ticket
- Process Dumps
  - A saved copy of memory including the contents of all memory, bytes, hardware registers, and status indicators
  - Periodically taken to restore the system in the event of failure







You can generate, display, and download system dumps in the System Dumps page. A system dump contains a copy of the kernel data on the system. System dump files can help you diagnose problems in the system.

Because generating a system dump can take a while (especially when including ESXi information on a SteelHead EX appliance), a spinner appears during the system dump creation. When the system dump is complete, it appears in the list of links to download.

System Snapshot (process dumps can be quite large, around 56MB or more).

**Note**: Support will typically ask for a system dump (sysdump) from each impacted device to help diagnose the issue.

You can display and download process dumps in the Process Dumps page. A process dump is a saved copy of memory including the contents of all memory, bytes, hardware registers, and status indicators. It is periodically taken to restore the system in the event of failure. Process dump files can help you diagnose problems in the system.

# User & System Logs – Overview

- Used to monitor system activity and to troubleshoot problems
  - For example, you can monitor who logged in, who logged out, and who issued particular CLI commands, alarms and errors
- The most recent log events are listed first





You can view system logs in the Reports > Diagnostics > System Logs page. View System logs to monitor system activity and to troubleshoot problems. The most recent log events are listed first.

You can view user logs in the Reports > Diagnostics > User Logs page. The user log filters messages from the system log to display messages that are of immediate use to the system administrator.

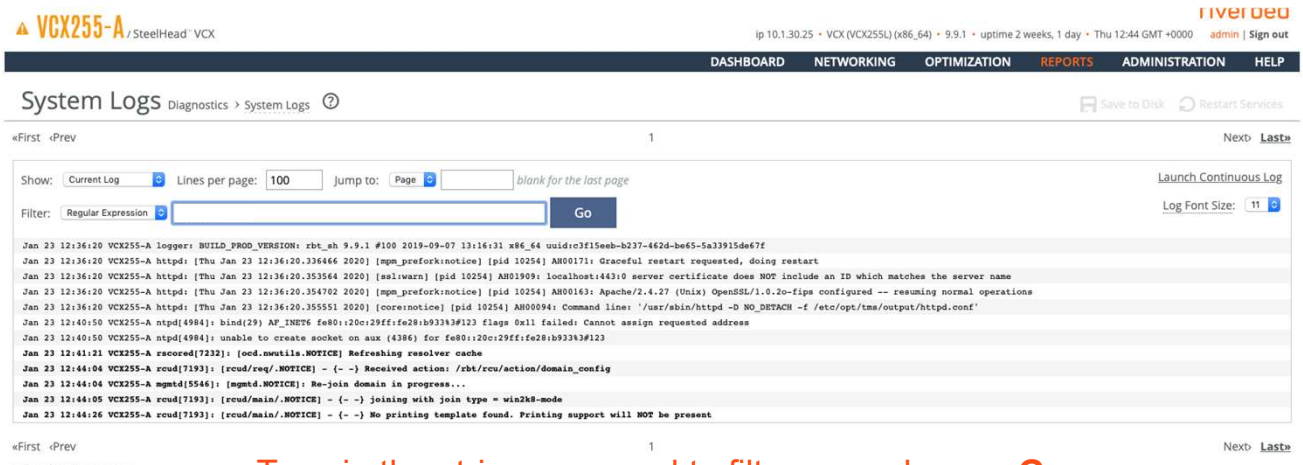
View user logs to monitor system activity and to troubleshoot problems: for example, you can monitor who logged in, who logged out, and who entered particular CLI commands, alarms and errors. The most recent log events are listed first.

Enable Logging - Be sure to enable logging and log to a syslog server. At a minimum, set logging to the notice level to capture failed login attempts.

**Note**: If the continuous log does not appear after clicking Launch Continuous Log, a pair of SteelHead appliances might be optimizing HTTP traffic between the user's Web browser and the primary or auxiliary interface of the SteelHead for which the user is viewing the log, and they are buffering the HTTP response.

To display the continuous log, you can switch to HTTPS because the SteelHead appliances will not optimize HTTPS traffic. Alternatively, you can configure the other SteelHead appliances to pass-through traffic on the primary or auxiliary interfaces for port 80.

# User & System Logs – Viewing

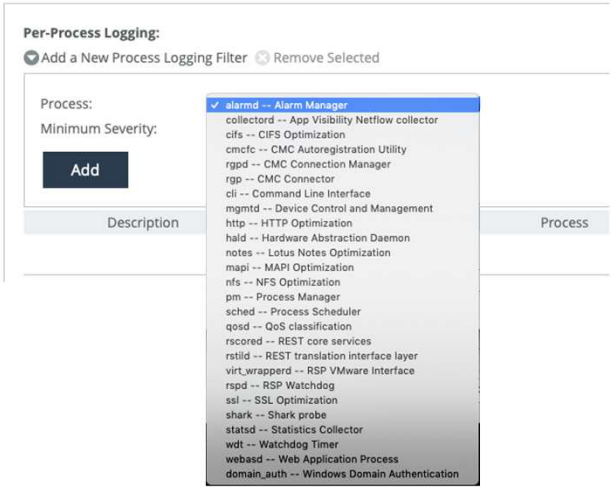



Type in the string you need to filter on and press **Go**.

# User & System Logs – Filtering

# User & System Logs – Per-Process Logging Option

## Filter by Application or Process, in Administration > System Settings





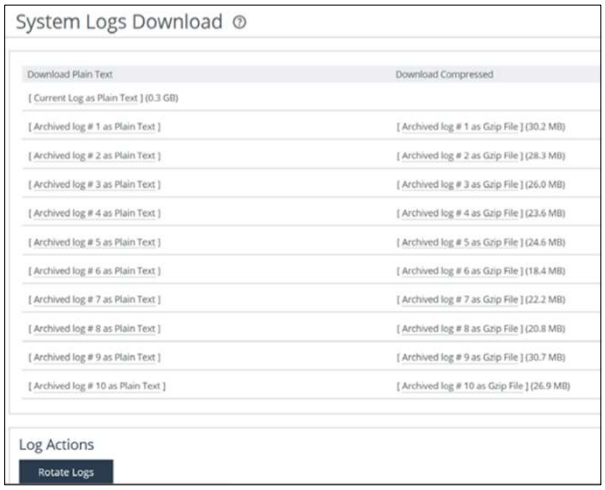


You can filter a log by one or more applications or one or more processes. This is particularly useful when capturing data at a lower severity level where a SteelHead might not be able to sustain the flow of logging data the service is committing to disk.

Choose Administration > System Settings: Logging to display the Per-Process Logging option.

# User & System Log Download

- Download logs and analyze offline
- Plain text or compressed (gzip) format







You can download system logs in the System Logs Download page. Download system logs to monitor system activity and to troubleshoot problems.

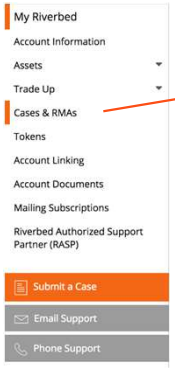
The System Logs Download page displays up to ten archived log files plus the current day log file. By default, the system rotates each file every 24 hours or if the file size reaches one Gigabyte uncompressed. You can change this to rotate every week or month in the Configure > System Settings > Logging page.

Additionally, you can rotate the files based on file size. The automatic rotation of system logs deletes your oldest log file, labeled as Archived log #10, pushes the current log to Archived log # 1, and starts a new current-day log file.

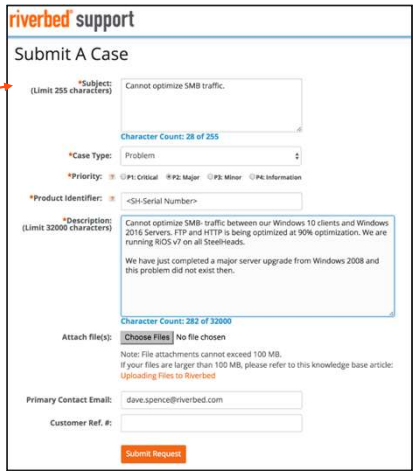
Log Actions – Rotate Logs: closes the current log and converts it into a downloadable format (text or compressed). Creates a new current log file.

# Information Required to Log a Case with Riverbed

- https://support.riverbed.com




Ensure that you give as much information as possible!







https://support.riverbed.com
- Customer name
- Product model and serial #
- RiOS software version
- Problem description

# Support Service Levels – Priority Levels Explained

- Problem severity
  - P1 - Critical
  - P2 - Major
  - P3 - Minor
  - P4 - Informational
- Network diagram if not on record
- Sysdump from the relevant device

# Support Service Levels: Priority 1 – Critical

- Definition:
  - A catastrophic problem that severely impacts Customer's ability to conduct business. This may mean that the Customer's systems and/or the Product are down or not functioning and no procedural workaround exists.
- Riverbed Response:
  - Riverbed to initially respond within one hour following receipt of a call or trouble report for Support.
  - The objective is to restore Customer's capacity to remain productive and maintain necessary business-level operations affected by the problem within 24 hours and to downgrade the problem severity accordingly.
  - Efforts to isolate, diagnose, and deliver a workaround or repair will be continuous.

# Support Service Levels: Priority 2 – High

- Definition:
  - A high-impact problem in which Customer's operation is disrupted but there is capacity to remain productive and maintain necessary business-level operations.
  - The problem may require that a fix be installed on the Customer's system prior to the next planned commercial release of the applicable Product software.
- Riverbed Response:
  - Riverbed to initially respond within four hours following receipt of a call or trouble report for Support.
  - Efforts to isolate, diagnose, and deliver a workaround or repair will be continuous during Riverbed's business hours.

# Support Service Levels: Priority 3 – Minor

- Definition:
  - A medium-to-low impact problem that involves partial loss of non-critical functionality.
  - The problem impairs some operations but allows Customer to continue to function.
  - This may be a minor issue with limited loss or no loss of functionality or impact to Customer's operation.
- Riverbed Response:
  - Riverbed to initially respond within eight hours following the receipt of a call or trouble report for Support.
  - Responsive action will be reasonably appropriate to the nature of the problem.

# Support Service Levels: Priority 4 – Informational

- Definition:
  - Minor problems and all other errors. This includes documentation errors. The inconvenience is slight and can be tolerated.
- Riverbed Response:
  - Riverbed shall initially respond within the next business day following the receipt of a call or trouble report during Riverbed's normal business hours, or within two business days if received outside of Riverbed's normal business hours.
  - Responsive action will be reasonably appropriate to the nature of the problem.

# Riverbeds Escalation Procedures

## Timings and Notifications

| Priority | Severity | Notification | | |
|---|---|---|---|---|
| | | *Escalation Engineer* | *Local TAC Manager* | *Regional Support Director* |
| 1 | Critical | Within 1 Hour | 1 Hour | 4 Hours |
| 2 | High | Within 4 Hours | 8 Hours | 24 Hours |
| 3 | Minor | Within 8 Hours | Weekly | N/A |
| 4 | Informational | Within 24 Hours | N/A | N/A |

To escalate a case, email support@riverbed.com or call 1-888-RVBD-TAC (1-888-782-3822) or 1-415-247-7381. A case follows this escalation path: Support Escalation Engineer > Local TAC Manager > Regional Support Director > Director of Support Operations > VP Support.



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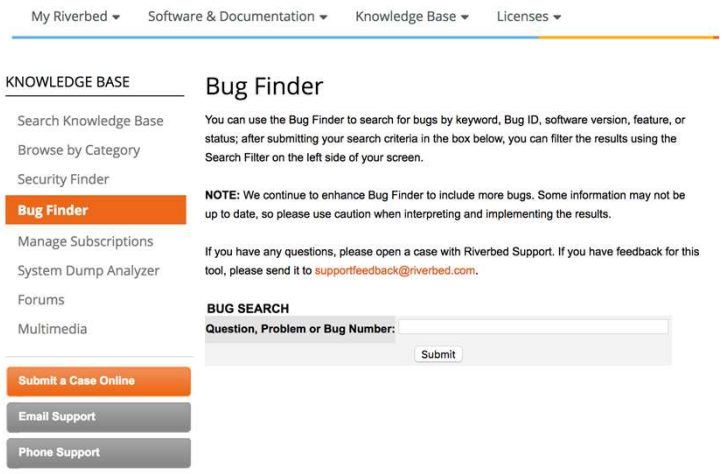
If problems are not responded to as targeted above, the Customer may escalate the issue to appropriate Riverbed management personnel. Riverbed provides systematic escalation management to Customers, provided that the Customer has a current Support plan for the affected Product.

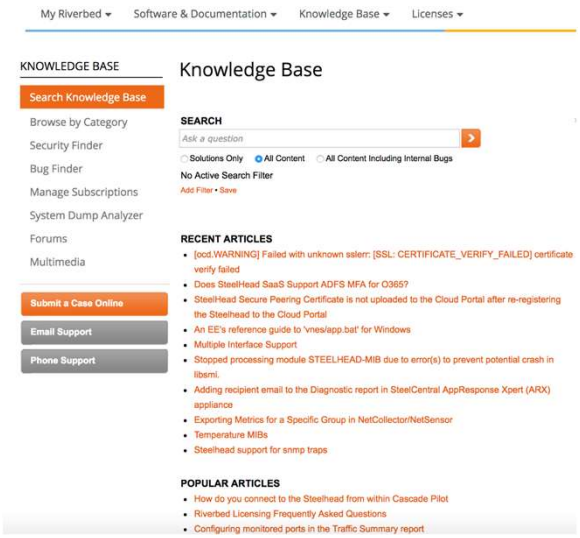
The Riverbed escalation process notifies levels of Riverbed management throughout the life cycle of the technical issue as set forth in the table shown.

This assists the appropriate Riverbed resources to resolve outstanding technical problems as efficiently as possible.

# On-line Help and Support – Bug Finder

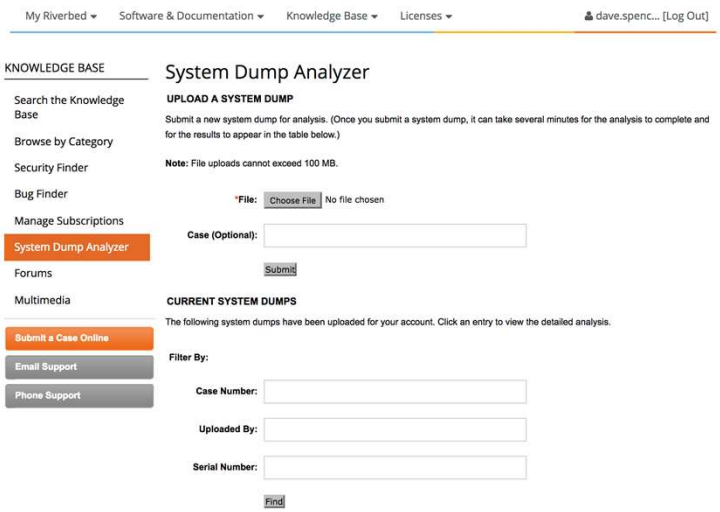


# On-line Help and Support – Riverbed Knowledge Base



# On-line Help and Support – System Dump Analyzer

If you want to do it yourself…



# Hints and Tips When Raising a Support Ticket

- Be as descriptive as possible with faults, don't just say "It doesn't work!"
- Investigate the nature of the fault
  - Confirm whether the reported symptoms are the actual fault
  - Investigate whether other applications, users or servers are affected
  - Do a preliminary analysis of system dumps and packet captures to identify root cause
- Search the knowledge base
  - http://support.riverbed.com/
- Collect together all relevant information
  - Sanity check all information before forwarding it to Riverbed Support
  - Ensure you have all required information before raising a case

# 1172: Monitor SteelHead Performance
# 1173: Troubleshoot & Maintain SHs

HOL1172
HOL1173

In these labs, you will:

HOL1172:

- Configure Monitored Ports
- Enable Netflow-dependent reports
- Examine many traffic and system report types

HOL1173

- Troubleshoot optimization issues

Duration: **30 + 30 minutes**

*eLab system: link and access details provided in your course confirmation email*



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# Module Review

## You should now be able to:

- Describe SteelHead reporting.
- Describe the different report types.
- Generate reports using the SCCM.
- Run system reports.
- Work with Riverbed Support.



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