



# **Forum Systems Sentry™ Version 9.1**

## **Monitoring and Reporting Guide**

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## Table of Contents

INTRODUCTION TO THE MONITORING AND REPORTING GUIDE .....	4
Audience for the Monitoring and Reporting Guide .....	<b>Error! Bookmark not defined.</b>
WS MONITORING .....	5
View Traffic Details .....	7
WS REPORTS .....	9
Web Services Reporting Criteria Screen Terms.....	10
WSDL Report Delivery Screen Terms .....	11
Example of Average Over Hours in Day Chart.....	13
Emailed Reports .....	14
Web Services Report Settings.....	16
Reporting Settings Screen Terms.....	16
Reports Prerequisites .....	17
WS Reports Examples.....	19
Add a Web Services Report .....	19
Preview Web Services Report Data when Available.....	20
Schedule a Web Services Report for Delivery .....	21
Disable Delivery of a Web Services Report .....	22
Delete a Web Services Report .....	23
Disable or Enable All Web Services Reporting Functionality.....	23
SNMP MANAGEMENT .....	24
Configure SNMP Security Settings and Send Test Trap .....	28
STATISTICS .....	31
JMX REMOTE .....	34
JMX Remote Screen Terms .....	34
Overview of JMX.....	35
JMX Remote Configuration Example .....	35
Configure JMX Remote .....	35
CENTRAL LOGGING TO FORUM SENTRY CONTROL CENTER .....	36
Diagnostics Config Screen Terms .....	36
PERFORMANCE MONITORING VIA FORUM SENTRY CONTROL CENTER .....	37
Setup Requirements for Enabling Centralized Logging and Reporting.....	37
Performance Monitoring Per System.....	37
Performance Monitor Screen Terms .....	38
Policy Monitoring .....	38
Policy Monitor Screen Terms.....	39
Operation Monitoring .....	39
Operation Monitoring Screen Terms .....	39
APPENDIX .....	41
Appendix A - Constraints in Monitoring and Reporting Guide.....	41
Appendix B - Specifications in Monitoring and Reporting Guide.....	41
Appendix C - Database Dictionary for Reporting Tables.....	42
INDEX .....	44

## List of Figures

Figure 1: Example of an Average Over Hours in a Day Chart.....	13
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# INTRODUCTION TO THE MONITORING AND REPORTING GUIDE

## Conventions Used

A red asterisk ( \* ) aligned with a field term means that this field is required. In this and other documentation, the Web Administration Interface is referred to as the WebAdmin and the Forum XML Security Appliance™ is referred to as the 'device', 'product' or 'system'.

In this document, all data or commands that must be entered or selected are displayed in boldface. Example:

User name:     **johnsmith**  
Password:     **\*\*\*\*\***

UI screens which display a STATUS column represent the following states:

- Green status light = enabled policy.
- Yellow status light = a required functional element of this policy is disabled.
- Red status light = disabled policy.

Throughout this and other documents in the Documentation Set, repetitive actions such as:

- View / edit a policy.
- Enable / disable a policy.
- Delete a policy.
- Rename a policy.
- Limit display of policies with Search or Max Results fields.

are not shown. For more information, refer to the Common Operations section of the *Forum Systems Sentry™ Version 9.1 Web-based Administration Guide*.

Customers with plug-in licenses on the system, confirm that your Integration License is visible on the General Info screen under the SUPPORTED FEATURES section.

Any specifications and constraints referenced in this volume appear in the Appendices of this volume.

## PERFORMANCE MONITOR

The Performance Monitor keeps track of transactions and statistics across all policies on the device and provides the 7 segments of latency metric tracking as well as CPU and memory statistics of the system.

**PERFORMANCE MONITOR**

Show:

Gateway	Load Average %			Memory %			# Requests	Error %	Threads			Connections									
	Avg	Cur	Max	Avg	Cur	Max			Avg	Cur	Max	Established		Close Wait		Time Wait					
												Avg	Cur	Max	Avg	Cur	Max	Avg	Cur	Max	
MacyWindowsXP	0.00	0.0	0.0	6.10	6.24	6.79	0	0.00	0	0	0	0	0	0	0	0	0	0	0	0	0

### PERFORMANCE MONITOR > POLICY MONITORING

Show:

Policy	# Requests	Error %	Total Latency (ms)			Avg Request Latency (ms)			Avg Response Latency (ms)			Request		Response	
			Avg	Min	Max	Std Dev	Client	Identity	Sentry	Service	Client	Sentry	Service	Avg Size (B)	Avg Size (B)

## WS MONITORING

The Web Service (WS) Monitoring screen displays a summary of activity for WSDL and XML policies. In the following graphic, only the top WSDL policy is enabled; therefore, only that WSDL policy displays activity data in the Web Service Monitoring screen. Reset the monitoring data without rebooting by selecting the **Reset** button at the bottom of the screen.

### Web Monitoring Screen Terms

While working with the Web Monitoring screen, please consider the following:

FIELD NAME	DEFINITION
Operation	Operation is the name of each WSDL operation being called in the WSDL policy.
	<b>Note:</b> While two operations with the same name can be monitored separately, Web Services Reporting displays them as a single unit with the two sets of data combined into one.
Client IP	The Client IP column maps which client IP is being graphically represented on the screen.
Traffic	The Traffic column is a double bar chart that represents the frequency that each WSDL operation is accessed. The green bar represents successes, the same data visible under the SUCCESSES column. The red bar represents failures, the same data visible under the FAILURES column.
Invocations	The Invocations column lists the number of invocations for each operation in the WSDL policy.
Successes	The Successes column lists the number of successful requests per operation in the

---

	WSDL policy.
Failures	The Failures column lists the number of failed requests or responses per operation in the WSDL policy.
Last Invocation	The Last invocation column lists a date/timestamp of the last operation request in the WSDL policy.
Reset	When clicked, resets WS Monitoring data without rebooting the appliance, setting the data back to zero.
Virtual Directory	When monitoring XML Policies that do not have Operations, the statistics are broken out by Virtual Directories.

---

## View Traffic Details

Administrators may view details of any operation or virtual directory that displays traffic (with a progress bar visible).

WEB SERVICES MONITORING						
<b>Policy: WebService File System WSDL Service: XMethodsFilesystemService Port: XMethodsFilesystemPort</b>						
OPERATION	TRAFFIC	INVOCATIONS	SUCCESSES	FAILURES	LAST INVOCATION	
<a href="#">readFile</a>		0	0	0		
<a href="#">readFileNoPW</a>		0	0	0		
<a href="#">writeFile</a>	<div style="width: 100%; height: 10px; background-color: green;"></div>	39	39	0	Jan 28, 2004 1:51:37 PM	
<a href="#">writeFileNoPW</a>		0	0	0		
<a href="#">removeFile</a>		0	0	0		
<a href="#">removeFileNoPW</a>		0	0	0		
<a href="#">listFiles</a>	<div style="width: 20%; height: 10px; background-color: green;"></div>	13	10	3	Jan 28, 2004 1:51:14 PM	
<b>Policy: WSDL_Document.wsdl WSDL Service: WebSiService Port: Wsp</b>						
OPERATION	TRAFFIC	INVOCATIONS	SUCCESSES	FAILURES	LAST INVOCATION	
<a href="#">getTime</a>		0	0	0		
<a href="#">echo1</a>		0	0	0		
<a href="#">echo2</a>		0	0	0		
<a href="#">echo3</a>		0	0	0		
<a href="#">echo4</a>		0	0	0		
<a href="#">echo5</a>		0	0	0		
<b>Policy: NewYorkOffice.wsdl WSDL Service: WebSiService Port: Wsp</b>						
OPERATION	TRAFFIC	INVOCATIONS	SUCCESSES	FAILURES	LAST INVOCATION	
<a href="#">getTime</a>		0	0	0		
<a href="#">echo1</a>		0	0	0		
<a href="#">echo2</a>		0	0	0		
<a href="#">echo3</a>		0	0	0		
<a href="#">echo4</a>		0	0	0		
<a href="#">echo5</a>		0	0	0		

Clicking on the Operation or Virtual Directory link in the top WSDL Policy, and the OPERATION DETAIL screen appears, presenting a summary of information for that Operation. Press your browser <back> button to return to the WEB SERVICES MONITORING screen.

WEB SERVICES MONITORING > OPERATION DETAIL						
OPERATION DETAIL						
Policy:	WebService File System					
Service:	XMethodsFilesystemService					
Port:	XMethodsFilesystemPort					
Operation:	writeFile					
CLIENT IP	TRAFFIC	INVOCATIONS	SUCCESSES	FAILURES	LAST INVOCATION	
10.5.6.102		39	39	0	Jan 28, 2004 1:51:37 PM	

A new feature added to the 9.1 release has been the display of monitoring statistics for XML Policies. This feature did not exist in the previous release. Please see the following figure where XML Policy statistics can be viewed under Policy: New XML Policy label:

<a href="#">DS_AddressMatchingRequest</a>		0	0	0	
<b>Policy: Remote-MS-IIS-Server WSDL Service: training Port: trainingSoap</b>					
OPERATION	TRAFFIC	INVOCATIONS	SUCCESSES	FAILURES	LAST INVOCATION
<a href="#">Multiply</a>		0	0	0	
<a href="#">Divide</a>		0	0	0	
<a href="#">Echo</a>		0	0	0	
<a href="#">Concat</a>		0	0	0	
<b>Policy: New XML Policy</b>					
VIRTUAL DIRECTORY	TRAFFIC	INVOCATIONS	SUCCESSES	FAILURES	LAST INVOCATION
<a href="#">New Virtual Directory</a>		0	0	0	
<b>Policy: qaservice WSDL Service: QAServices Port: QAServicesSoap</b>					
OPERATION	TRAFFIC	INVOCATIONS	SUCCESSES	FAILURES	LAST INVOCATION
<a href="#">Echo</a>		0	0	0	
<a href="#">SeverallInputs</a>		0	0	0	
<a href="#">BuildNestedXML</a>		0	0	0	
<a href="#">BuildElementXML</a>		0	0	0	
<a href="#">BuildSizeXML</a>		0	0	0	
<a href="#">BuildValidateFailXML</a>		0	0	0	

## WS REPORTS

The Web Services (WS) Reports screen provides a method of capturing, filtering and scheduling data to be presented as either data or a graphical chart.

Administrators may add, edit/view, and delete Web Services Reports as well as view reporting Settings. Administrators may preview the data being queried (if data is currently available) in a Web Services Report (as a Chart) before saving the query criteria. Additionally, Administrators may schedule a Web Services Report for email delivery, and disable Web Services Reporting functionality entirely.

### Available Reports

The types of reports available include:

- Number of Hits
- Throughput
- Request Size
- Response Size
- Response Time
- Number of Faults

### Number of Hits Report

The Number of Hits report provides a report summary based on the number of hits on each URI and virtual IP address/port listed in the WSDL and XML policies on the system.

### Throughput Report

The Throughput report provides a report summary based on bytes per second.

### Request Size Report

The Request Size report provides a report summary based on the sizes (in bytes) of requests leaving the system.

### Response Size Report

The Response Size report provides a report summary based on the sizes (in bytes) of responses entering the system.

### Response Time Report

The Response Time report provides a report summary based on the lifetime of active requests in WSDL and XML policies in the system and the time a response is processed on the WSDL and XML Policies in the system.

### Number of Faults Report

The Number of Faults report provides a report summary based on the number of faults on each URI and virtual IP address/port listed in the WSDL and XML policies on the system.

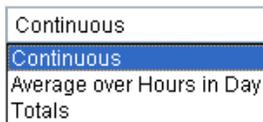
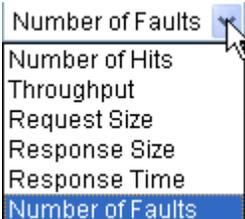
### Context-sensitive Help on Charts

By placing your cursor on the XY axis of a chart, the date/time is visible adjacent to a bolded ? through context-sensitive Help.

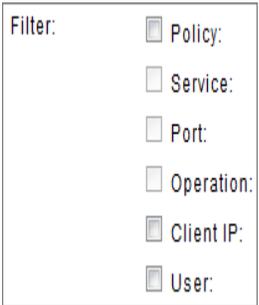
## Web Services Reporting Criteria Screen Terms

While working with the WS Reports screen, please consider the following:

FIELD NAME	DEFINITION
Report Name	The identifier for this Report
Report Type	Report types can be: <ul style="list-style-type: none"> <li>• Number of Hits</li> <li>• Throughput</li> <li>• Request Size</li> <li>• Response Size</li> <li>• Response Time</li> <li>• Number of Faults</li> </ul>
Time Period	The Time Period drop down allows users to select which block of time to capture in a report, including: <ul style="list-style-type: none"> <li>• Today – lists all data captured between current time and 12:00 AM.</li> <li>• Yesterday – lists all data captured during the previous calendar day.</li> <li>• Last 24 hours – lists all data captured between current time and backwards exactly 24 hours.</li> <li>• Week to date – lists all data captured between today and backwards to Sunday.</li> <li>• Last week – lists all data captured from the start of the last week (Sunday) to the end of the last week (Saturday).</li> <li>• Last 7 days – lists all data captured between today and backwards 7 complete days.</li> <li>• Month to date – lists all data captured between today and backwards one complete month.</li> <li>• Last month – lists all data captured during the last calendar month.</li> <li>• Year to date – lists all data captured between today and backwards one year.</li> <li>• Last year – lists all data captured for the previous calendar year.</li> <li>• Custom – after entering values in the From and To fields, lists all the data captured during the From and To blocks of time.</li> </ul>
View	The View drop down allows users to select which view of the data to capture for a report, including: <ul style="list-style-type: none"> <li>• Continuous –captures data as it is continuously monitored by the system.</li> <li>• Average over Hours in Day –captures aggregated data for each day within a given range of days, averages that data into 24 hourly blocks, and displays the data as a single 24 hour period. For more information, refer to the Example of Average Over Hours in Day Chart.</li> <li>• Totals –captures data and presents it as a cumulative TOTAL per day. No bar chart is visible on a day in which there are no hits.</li> </ul>



FIELD NAME	DEFINITION
Filter	Data can be filtered by: <ul style="list-style-type: none"> <li>• Policy – users select a specific WSDL or XML policy.</li> <li>• Service – users select the name of the service in the WSDL or the virtual directory of the XML policy.</li> <li>• Port–users select the port of a specific WSDL.</li> <li>• Operation – users select the operation name in a specific WSDL.</li> </ul> <div style="border: 1px solid black; background-color: yellow; padding: 5px; margin: 10px 0;"> <p><b>Note:</b> If the WSDL includes same-named operations, checking the <b>Operation</b> checkbox aggregates all operations and does not distinguish between same-named operations when creating a Report or Chart.</p> </div> <ul style="list-style-type: none"> <li>• Client IP – data is filtered by matching client IP entered.</li> <li>• User – user selects username that was used to connect to the system when making the request(s).</li> </ul>



Data Series	The Data Series drop down list allows users to view the presentation of data in the following categories: <ul style="list-style-type: none"> <li>• Single series – data displayed with no grouping criteria.</li> <li>• Group by IP – data is grouped by the source IP so that multiple data series are displayed, each series corresponds to a different IP.</li> <li>• Group by Service – data is groups by name of Service in WSDLs.</li> <li>• Group by Port – data is groups by port in WSDLs.</li> <li>• Group by Operation – data is groups by operation name in WSDLs.</li> </ul>
-------------	---



## WSDL Report Delivery Screen Terms

While working with the WS Reports screen, please consider the following:

FIELD NAME	DEFINITION
Name	The identifier for this report.
Delivery Format(s)	<ul style="list-style-type: none"> <li>• With Chart checked, the web services report is delivered as a chart.</li> <li>• With CSV checked, the web services report is delivered as a CSV file.</li> <li>• With XML checked, the web services report is delivered as an XML file.</li> </ul>
System Users	One or more selected users who will receive the scheduled report.
Other email address	Email address of an additional recipient of a scheduled report.
Schedule	<ul style="list-style-type: none"> <li>• With Not Scheduled selected, there is no report delivered.</li> <li>• With Daily selected, the report is delivered once each 24 hour period.</li> <li>• With Every and &lt;day of the week&gt; selected, the report is delivered on each weekday selected.</li> <li>• With On day of each month selected and &lt;numeric value&gt;, entered, the report is delivered on the specified day of the month.</li> </ul>
Time	The hour and meridiem selected for report delivery.

## Scheduled Reports Delivery Format and Time

Reports may be scheduled at specific intervals and frequencies to be delivered into your inbox. Scheduled reports are delivered in the following formats:

- chart
- comma separated value (csv)
- xml

Reports can be delivered in either one or all formats. Scheduled reports are emailed at the time specified by the Administrator, as the following graphic displays.

WEB SERVICES REPORTING CRITERIA > W S D L

---

**WSDL REPORT**

Name: ReqSize

Delivery Format(s):  Chart  CSV  XML

---

**RECIPIENTS**

System Users: 

jackkantos  
markcross  
rachelsmith  
walter

Other email addresses:

---

**REPORT DELIVERY SCHEDULE**

Schedule:  Not Scheduled  
 Daily  
 Every    
 On day  of each month

Time:

**Example of Average Over Hours in Day Chart**

The following chart captures aggregated data for each day within a given range of days, averages that data into 24 hourly blocks, and displays the data as one 24 hour period:



**Figure 1: Example of an Average Over Hours in a Day Chart.**

## Emailed Reports

The following graphics display an inbox with email containing scheduled reports:

From	Subject	Received
alertmanager@...	XWall Report: 'WebServiceReport524'	Mon 4/12/2004 11:01 PM
alertmanager@...	XWall Report: 'GJD Test Report'	Mon 4/12/2004 11:01 PM
alertmanager@...	XWall Report: 'WebServiceReport957'	Mon 4/12/2004 11:01 PM
alertmanager@...	XWall Report: 'WebServiceReport857'	Mon 4/12/2004 11:01 PM

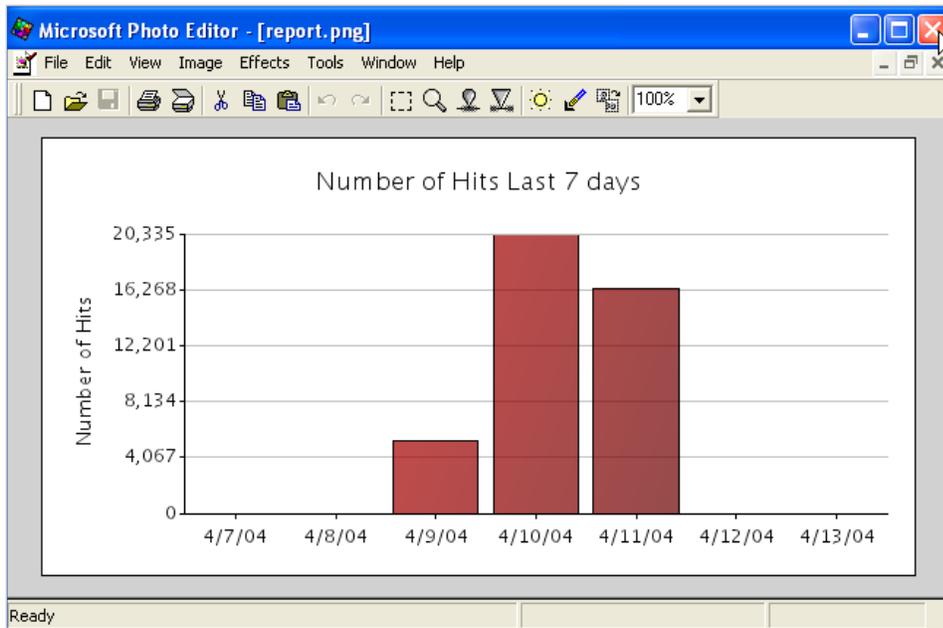
From: alertmanager@10.5.3.92  
To: Joyce Derenas  
Cc:  
Subject: XWall Report: 'GJD Test Report'  
Attachments: report.txt (669 B); report.txt (329 B); report.png (12 KB)

report.txt - Notepad

```
File Edit Format View Help
<ReportData><ReportName>GJD Test
Report</ReportName><ReportXAxis><xv
alue>wed Apr 07 00:00:00 EDT
```

report1.txt - Notepad

```
File Edit Format View Help
Time, XAXISTIME
wed Apr 07 00:00:00 EDT 2004, 0.0
Thu Apr 08 00:00:00 EDT 2004, 0.0
```



**Note:** Setting the view option to 100% guarantees clear graphs.



## Web Services Report Settings

Administrators may manage settings for reporting by selecting the Settings command from the WEB SERVICES REPORTS screen. The REPORTING SETTINGS screen appears where Administrators may enable or disable databases and save these settings.

## Reporting Settings Screen Terms

The terms and definitions for Reporting Settings screen include:

FIELD NAME	DEFINITION
Status	<p>The status lights reflect the state of reporting settings after an Administrator has selected desired options, and then selected the Enable or Disable or Save commands.</p> <ul style="list-style-type: none"> <li>• A green status light indicates that reporting settings are enabled.</li> <li>• A yellow status light indicates that reporting settings are enabled, but either the archiving policy is not properly configured or an archiving database is not enabled.</li> <li>• A red status light indicates that reporting settings are disabled.</li> </ul>
Save request and response	<p>When checked, actual SOAP request/response messages, in addition to standard statistics, are saved to the Reporting Database. Forum recommends this option be set only for diagnostics since enabling this option will generate significantly more data in the database.</p>
Data Source	<p>The Data Source (database) that will be used to store the WS Reports data and the saved requests and responses if that option is enabled.</p>

## Reports Prerequisites

Before reports can be received, there are a few prerequisites which must be set to enable receiving WS Reports:

- From the **System Settings** screen, populate the **Email Settings** section, and Save.

### SYSTEM SETTINGS

---

#### SYSTEM SETTINGS

Web Admin Port*:	<input type="text" value="5050"/>
Global Device Management (GDM) Port*:	<input type="text" value="5070"/>
NTP Time Server:	<input type="text"/>
Maximum Clock Skew (secs)*:	<input type="text" value="300"/>
Session Timeout (in minutes)*:	<input type="text" value="120"/>
SSL Termination Policy*:	<input type="text" value="factory ssl termination policy"/> <a href="#">Edit</a>
SSL Initiation Policy*:	<input type="text" value="factory ssl initiation policy"/> <a href="#">Edit</a>
Web Admin IP ACL Policy*:	<input type="text" value="Unrestricted"/> <a href="#">Edit</a>

Block access to unprotected services

---

#### EMAIL SETTINGS

SMTP Mail Server:	<input type="text"/>
From email address:	<input type="text"/>
Send system alerts to email address:	<input type="text"/>

---

#### PROXY SETTINGS

Use Proxy to connect to Remote Servers

HTTP Proxy Server:	<input type="text"/>
HTTP Proxy Port:	<input type="text"/>
HTTPS Proxy Server:	<input type="text"/>
HTTPS Proxy Port:	<input type="text"/>
Proxy Auth User:	<input type="text"/>
Proxy Auth Password:	<input type="text"/>
Bypass Proxy For:	<input type="text"/>

Example: \*.example.com|localhost

Add X-Forwarded-For header to outgoing requests

Add Via header to outgoing HTTP requests, as required by the HTTP specification

Add Via header to HTTP responses, as required by the HTTP specification

Via Host Alias:

Proxy Client's User Agent

Proxy Client's Host

[Save](#)

- From the **Data Sources** screen, Create, Test and Save your database configuration.

DATA SOURCES				
NAME	STATUS	TYPE	ADDRESS	DATABASE
<a href="#">QA MySQL</a>	<span style="color: green;">●</span>	MySQL	10.5.1.11:3306	archive8_0
<a href="#">Upgrade Driver</a> <a href="#">Enable</a> <a href="#">Disable</a> <a href="#">Delete</a> <a href="#">New</a>				

- From the **WS Reports** screen, select **Settings** and Enable one of the databases.

WEB SERVICES REPORTS	
REPORT NAME	DELIVERY SCHEDULE
No items to display	
<a href="#">Settings</a> <a href="#">Delete</a> <a href="#">New</a>	

WEB SERVICES REPORTS > WEB SERVICES REPORTING SETTINGS

**REPORTING SETTINGS**

Status: ●

Save request and response:

Data Source: [QA MySQL](#) [Edit](#)

[Enable](#) [Disable](#) [Save](#)

- On the **User Management Screen**, add an email to the user to receive reports.

USER MANAGEMENT > USER DETAILS

**USER DETAILS**

User Name: charleslee

Password:

Confirm Password:

**ADVANCED PROPERTIES**

Store recoverable passwords as well as password hashes (required in certain feature configurations)

Enable privileged access

Email:

Signer Key:

DN Alias:

[Find](#)

**GROUPS**

- East Coast Corporate
  - Bus Development
  - Engineering
  - SNMPMonitor
  - SNMPTech
  - Vendors

[Save](#)

## WS Reports Examples

Examples for Web Services Reports include:

- Add a Web Services Report.
- Preview Web Services Report Data when Available.
- Schedule a Web Services Report for Delivery.
- Disable Delivery of a Web Services Report.
- Delete a Web Services Report.
- Enable / Disable all Web Services Reporting Functionality.

**Note:** For information on editing or viewing a Web Services Report, refer to the Common Operations section of the Forum Systems Sentry™ Version 9.1 Web-based Administration Guide.

### Add a Web Services Report

Review the Reports Prerequisites section before creating your first web services report. Follow these steps to add a web services report:

The screenshot displays the 'WEB SERVICES REPORTING CRITERIA' configuration interface. It includes a 'CHART' section with the instruction 'Enter report criteria to display chart.' Below this, the 'REPORT CRITERIA' section contains several fields: 'Report Name' (text input with 'DailyNumOfHits'), 'Report Type' (dropdown menu with 'Number of Hits'), 'Time Period' (dropdown menu with 'Today'), 'View' (dropdown menu with 'Totals'), and a 'Filter' section with checkboxes and dropdown menus for 'WSDL Policy' (Chicago), 'Service' (TemperatureService), 'Port' (TemperaturePort), 'Operation' (getTemp), 'Client IP', and 'User' (admin1). At the bottom, there is a 'Data Series' dropdown menu set to 'Single series' and three buttons: 'Chart', 'Schedule Report', and 'Create'.

- Navigate to the Reports Prerequisite section and comply with all appropriate settings discussed for enabling Web Services Reports.
- Navigate to the **WS Reports** screen.
- On the WEB SERVICES REPORTS screen, click **New**.
- On the WEB SERVICES REPORTING CRITERIA screen, enter a **name** for this report in the Report Name field.
- From the Report Type drop down list, select a **Report Type**.
- From the Time Period drop down list, select a **Time Period**.
- From the View drop down list, select a **View** of the data to be captured.
- From the Filter area, select a number of **filtering criteria** or skip them all. This example skips all the filtering options.

**Note:** Role-based access control, managed by the Active Role at the bottom of the screen, allows users to view WSDL policies appropriate to their level of access.

- From the Data Series drop down list, select an **option** to view the presentation of the data by a number of methods.
- Click **Create**.

Continue with the next instruction.

## Preview Web Services Report Data when Available

Because there are so many options available when querying and capturing report data, Administrators may wish to preview the report before saving it. If the data is not currently available, a message stating this appears; otherwise, a preview of the report displays. Follow these steps to preview a web services report when data is available:

The screenshot displays the 'WEB SERVICES REPORTING CRITERIA' configuration page. At the top, there are three buttons: 'Chart', 'Schedule Report', and 'Save'. A mouse cursor is pointing at the 'Chart' button. Below this, the main content area is titled 'CHART' and contains a bar chart titled 'Number of Hits Today'. The chart shows a single bar for 'Total' with a value of 44. The y-axis is labeled 'Number of Hits' and ranges from 0 to 55 in increments of 11. Below the chart, the 'REPORT CRITERIA' section contains the following configuration options:

- Report Name: DailyNumOfHits
- Report Type: Number of Hits
- Time Period: Today
- View: Totals
- Filter:
  - WSDL Policy: Aggregate
  - Service: Aggregate
  - Port: Aggregate
  - Operation: Echo
  - Source IP: [empty field]
  - User: admin1
- Data Series: Single series

At the bottom right of the configuration area, there are three buttons: 'Chart', 'Schedule Report', and 'Save'. A mouse cursor is pointing at the 'Save' button.

- Click **Chart**. The WEB SERVICES REPORTING CRITERIA screen refreshes with a chart of data visible at the top of the screen.

If the displayed Web Services Report is as you expected, click **Save**.

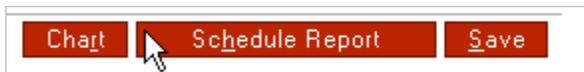
If not, change some of the REPORT CRITERIA options, and select **Chart** again.

Navigate to the Web Services Reports screen to view the newly created report with a notation that this report is not scheduled for delivery.

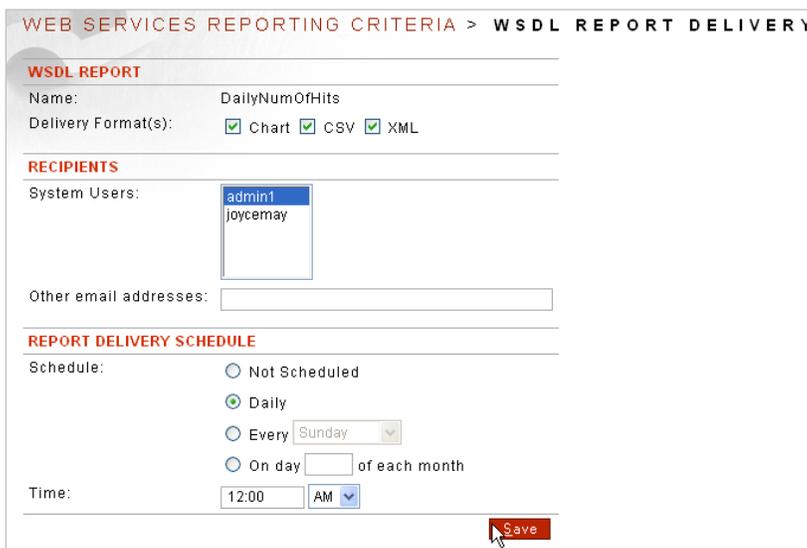
Continue with the next instruction.

## Schedule a Web Services Report for Delivery

Continuing with the last operation, follow these steps to add a web services report scheduled for delivery:



The screenshot shows a toolbar with three buttons: 'Chart', 'Schedule Report', and 'Save'. A mouse cursor is pointing at the 'Schedule Report' button.

The screenshot shows the 'WSDL REPORT DELIVERY' configuration screen. The breadcrumb path is 'WEB SERVICES REPORTING CRITERIA > WSDL REPORT DELIVERY'. The 'WSDL REPORT' section has 'Name: DailyNumOfHits' and 'Delivery Format(s):' with checked boxes for 'Chart', 'CSV', and 'XML'. The 'RECIPIENTS' section has 'System Users:' with a dropdown menu showing 'admin1' and 'joycemay'. Below it is an empty 'Other email addresses:' text field. The 'REPORT DELIVERY SCHEDULE' section has 'Schedule:' with radio buttons for 'Not Scheduled', 'Daily' (selected), 'Every' (with a 'Sunday' dropdown), and 'On day' (with a blank text field and 'of each month'). The 'Time:' section has a text field with '12:00' and a meridiem dropdown with 'AM' selected. A 'Save' button is at the bottom right.

- Click **Schedule Report**.
- On the WSDL REPORT DELIVERY screen, aligned with Delivery Format(s), select **one** or **all** of the checkmarks adjacent to the Chart, CSV or XML option.
- From the System Users text box, select a **System User name** to receive the email alert.
- From the Other email addresses text field, enter **one** or **more** email addresses for others to receive an email alert.
- If entering multiple email addresses, separate with a comma.
- Under the REPORT DELIVERY SCHEDULE area, from the Schedule section, select **one** radio button for the Not Scheduled, Daily, Every or On Day < > of each month delivery option.

**Note:** If selecting the **Every** option, from the drop down list, select a day of the week for delivery. If selecting the **On day** < > of each month option, enter a numeric value for the day of the month delivery option.

- From the Time text box, overwrite **12:00** and change the delivery time to a new time. Maintain the HH:MM format.
- From the meridiem drop down list, select **AM** or **PM**.
- Click **Save**.

## Disable Delivery of a Web Services Report

Follow these steps to disable delivery of a web services report:

WEB SERVICES REPORTING CRITERIA > WSDL REPORT DELIVERY

**WSDL REPORT**

Name: DailyNumOfHits

Delivery Format(s):  Chart  CSV  XML

**RECIPIENTS**

System Users:   
bobsmith  
gdadmin  
jackkantos  
james

Other email addresses:

**REPORT DELIVERY SCHEDULE**

Schedule:  Not Scheduled  
 Daily  
 Every   
 On day  of each month

Time:

**Save**

- From the Navigator, select the **WS Reports** screen.
- On the WEB SERVICES REPORTS screen, click a Web Services Report name.
- On the WEB SERVICES REPORTING CRITERIA screen, click **Schedule Report**.
- On the WSDL REPORT DELIVERY screen, from the REPORT DELIVERY SCHEDULE area of the screen, aligned with Schedule, select the **Not Scheduled** radio button, and then click **Save**.

## Delete a Web Services Report

Follow these steps to delete a Web Services Report:

- From the Navigator, select the **WS Reports** screen.
- On the WEB SERVICES REPORTS screen, check the **checkbox** prefacing the report name to delete and select **Delete**.
- The “Are you sure you want to delete the selected web service report?” message appears.
- Click **OK**.

## Disable or Enable All Web Services Reporting Functionality

Follow these steps to disable all web services reporting functionality:

- From the Navigator, select the **WS Reports** screen.
- On the WEB SERVICES REPORTS screen, select **Settings**.
- On the REPORTING SETTINGS screen, select **Disable**.
- Select **Save**.

## SNMP MANAGEMENT

A Simple Network Management Protocol (SNMP) is provided for read-only access to statistics and system information via an SNMP-capable manager.

The MIBS are located on the SNMP screen as links for easy copying and pasting. These are:

- SMI MIB
- General Information MIB
- Statistics MIB
- Appliance MIB

These MIB files include the Forum Systems MIBS and standard MIBS that apply to system and interface information.

SNMP management supports read-only access via v1, v2c and v3. Using SNMP requires the system Management IP address, the Forum private MIB files and an SNMP client application.

The SNMPMonitor group is a system group that provide members with access privileges to query SNMP information.

**Note:** Customers with the Forum software port will not see the Appliance MIB link; this link is only visible to customers running the system or the Type PCI-card.

### SNMP Master Agent Command on the CLI

Administrators may review the SNMP configuration from the CLI with the following command:

COMMAND	DESCRIPTION
show snmp	Displays snmp name, location and contact.

### Supported SNMP Traps

When starting up the system from Power UP using the system or a software port, SNMP traps allow the system to send an SNMP message, confirming that the system is up and running.

The Send Test Trap command is used to send a trap to the Management station to verify that traps can be sent successfully. The Send Test Trap command requires that the Trap IP Address has been entered and saved on the SNMP SETTINGS screen.

The traps supported in this release include:

- Coldstart (standard SNMPv2 trap)
- Shutdown (Forum)
- SNMP Traps as IDP Actions

## SNMP Settings Screen Terms

While working with the SNMP Settings screen, please consider the following:

FIELD NAME	DEFINITION
<b>GENERAL SETTINGS</b>	
Contact	Contact name of the SNMP device.
Location	Location for the SNMP device.
Port	The port for the SNMP device. The default port is 161.
Trap IP Address	SNMP Manager's IP address
Community String	The community string desired for this SNMP integration. Default if public.
Maximum Octet String length	Each SNMP community is named by a string of octets. Octets are not characters. Default maximum string length is 1400.
Enabled	Check to enable an SNMP listener on the system. Uncheck to disable an SNMP listener on the system.
<b>SNMPV3 SECURITY SETTINGS</b>	
Use SNMPv3 Security	When checked, SNMP v3 security settings are used. When unchecked, SNMP v2c is used.
<b>Note: Customers using the HP Openview Management station must not select the Use SNMPv3 Security option.</b>	
Authentication	The authentication algorithm to use for this SNMP policy: <ul style="list-style-type: none"><li>• SHA</li><li>• MD5</li></ul>
Encryption	The encryption algorithm to use for this SNMP policy: <ul style="list-style-type: none"><li>• AES</li><li>• DES</li></ul>
MIBS	<ul style="list-style-type: none"><li>• The SMI MIB link is used to open, cut and paste the SMI MIBs.</li><li>• The General Information MIB link is used to open, cut and paste the General Information MIBs.</li><li>• The Statistics MIB link is used to open, cut and paste the Statistics MIBs.</li><li>• The Appliance MIB link is used to open, cut and paste the Appliance MIBs.</li></ul>

## SNMPWALK Syntax

The following table displays snmpwalk version commands supported on the system:

VERSION	SYNTAX AND EXAMPLE	LEVEL OF SUPPORT
snmpwalk -v1	-c public DEVICE_IP -c public 162.93.84.129	public read-only access
snmpwalk -v2c	-c public DEVICE_IP -c public 162.93.84.129	public read-only access
snmpwalk -v3 *	-l authpriv -u FORUM_USER -a SHA -A FORUM_USER_PASSWORD -x DES -X FORUM_USER_PASSWORD DEVICE_IP -l authpriv -u johncole -a SHA -A password -x DES -X password 162.93.84.129	secure authenticated queries

\* Forum MIBS are available only using v3 authpriv queries with SHA and DES algorithms.

## Community String

The community string is "public" for v1 and v2c. If you are using the snmpwalk utility, you need to set up your ENVIRONMENT variable MIBS="ALL".

## Troubleshoot SNMPWALK Command

With no authentication or network connectivity errors, and the dataset simply empty, please check that the following criteria has been met:

Have you set up the Forum Systems MIBS on the SNMP client machine? The MIBS are located on the SNMP screen as links for easy cutting and pasting. These include the SMI MIB, General Information MIB, Statistics MIB and the Appliance MIB.

If you are using the snmpwalk utility, you need to set up the ENVIRONMENT variable MIBS="ALL".

## Sample SNMPWALK Command

The following is a sample snmpwalk configuration:

```
$ snmpwalk -v3 -l authpriv -u johncole -a SHA -A password -x DES  
-X password 162.93.84.129 forumsysGeneralStatsMib
```

yields the following statistics information:

```
FORUMSYS-GENERAL-STATS-MIB::fsgsDocSizeAverage.0 = Counter64: 0 bytes  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocSizeMin.0 = Counter64: 0 bytes  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocSizeMax.0 = Counter64: 0 bytes  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocProcessPass.0 = Counter64: 0 documents  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocProcessFail.0 = Counter64: 0 documents  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocChars.0 = Counter64: 0 bytes  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocProxies.0 = Counter64: 0 documents  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocTotalErrors.0 = Counter64: 0  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocSigCreatePass.0 = Counter64: 0 signatures  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocSigCreateFail.0 = Counter64: 0 signatures  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocSigVerifyPass.0 = Counter64: 0 signatures  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocSigVerifyFail.0 = Counter64: 0 signatures  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocElemEncryptPass.0 = Counter64: 0 elements  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocElemEncryptFail.0 = Counter64: 0 elements  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocContEncryptPass.0 = Counter64: 0 encryptions  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocContEncryptFail.0 = Counter64: 0 encryptions  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocElemDecryptPass.0 = Counter64: 0 elements  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocElemDecryptFail.0 = Counter64: 0 elements  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocTransforms.0 = Counter64: 0 transformations  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocTransformChars.0 = Counter64: 0 bytes  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocValidPass.0 = Counter64: 0 documents  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocValidFail.0 = Counter64: 0 documents  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocArchPass.0 = Counter64: 0 documents  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocArchFail.0 = Counter64: 0 documents  
FORUMSYS-GENERAL-STATS-MIB::fsgsDocArchiveChars.0 = Counter64: 0 bytes  
FORUMSYS-GENERAL-STATS-MIB::fsgsCryptAccelEnabled.0 = INTEGER: true(1)  
FORUMSYS-GENERAL-STATS-MIB::fsgsCryptRsaExponPass.0 = Counter64: 0 operations  
FORUMSYS-GENERAL-STATS-MIB::fsgsCryptRsaExponFail.0 = Counter64: 0 operations  
FORUMSYS-GENERAL-STATS-MIB::fsgsCryptRsaCrtPass.0 = Counter64: 3 operations  
FORUMSYS-GENERAL-STATS-MIB::fsgsCryptRsaCrtFail.0 = Counter64: 0 operations  
FORUMSYS-GENERAL-STATS-MIB::fsgsCryptPaddings.0 = Counter64: 0 paddings  
FORUMSYS-GENERAL-STATS-MIB::fsgsCryptSignedHiBits.0 = Counter64: 0 operations  
FORUMSYS-GENERAL-STATS-MIB::fsgsCryptMallocErrors.0 = Counter64: 0
```

## SNMP Configuration Examples

The example for configuring SNMP is Configure SNMP Security Settings and Send Test Trap.

## Configure SNMP Security Settings and Send Test Trap

To configure SNMP on the system:

- Create user policies from the Users screen, with the Store recoverable passwords as well as password hashes (required in certain feature configurations) checkbox checked. User passwords for users who will be assigned to the SNMPMonitor group or SNMPTech group must be entered in cleartext, are case sensitive, may be from 8 to 255 alphanumeric characters, and may include the '@' character, underscores and dashes. Additionally, the Store recoverable passwords as well as password hashes checkbox must be checked. When checked, a copy of the cleartext password is stored on the system. SNMP users must be configured for use with basic auth in order to use SNMP.



**USER MANAGEMENT**

**CREATE NEW USERS**

Add one username:password per line

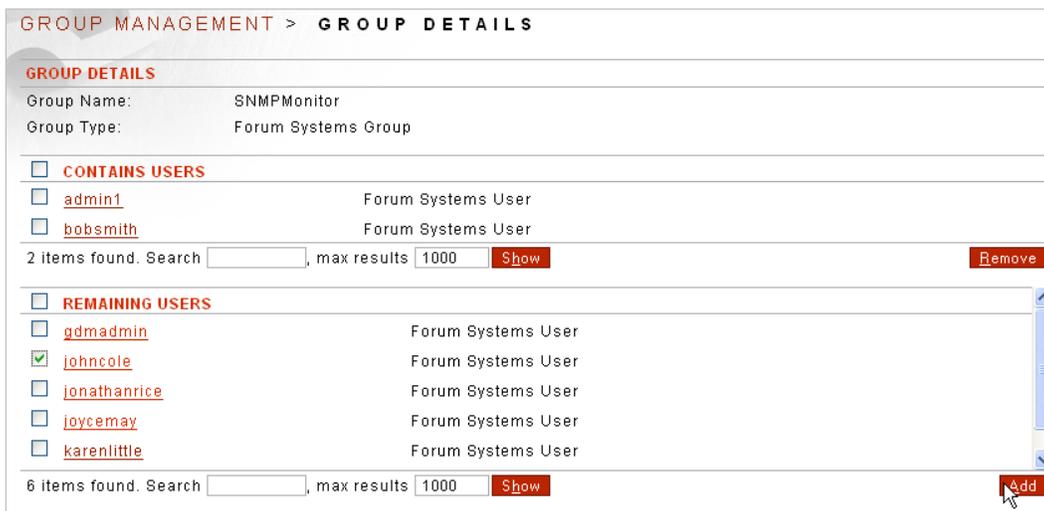
```
johncole:johncole
jonathanrice:jonathanrice
```

Passwords entered as **Cleartext**

Store recoverable passwords as well as password hashes (required in certain feature configurations)

**Create**

- Associate these users with the SNMPMonitor Group from the Groups screen.



**GROUP MANAGEMENT > GROUP DETAILS**

**GROUP DETAILS**

Group Name: SNMPMonitor  
Group Type: Forum Systems Group

**CONTAINS USERS**

<input type="checkbox"/> <a href="#">admin1</a>	Forum Systems User
<input type="checkbox"/> <a href="#">bobsmith</a>	Forum Systems User

2 items found. Search , max results 1000 **Show** **Remove**

**REMAINING USERS**

<input type="checkbox"/> <a href="#">gdadmin</a>	Forum Systems User
<input checked="" type="checkbox"/> <a href="#">johncole</a>	Forum Systems User
<input type="checkbox"/> <a href="#">jonathanrice</a>	Forum Systems User
<input type="checkbox"/> <a href="#">joycemay</a>	Forum Systems User
<input type="checkbox"/> <a href="#">karenliddle</a>	Forum Systems User

6 items found. Search , max results 1000 **Show** **Add**

**Note:** For more information on creating Users and Groups, refer to the Users and Groups sections of the *Forum Systems Sentry™ Version 9.1 Access Control Guide*.

- From the Network screen, enter the System name and Save.

### NETWORK SETTINGS

---

#### MANAGEMENT NETWORK INTERFACE

IP Address:

Netmask:

Management Interface\*:

System Name:

---

#### DEVICE CONFIGURATION

Topology Mode:  Inline (Single IP address)  Inline (Two IP addresses)  One Port

Device/WAN IP Address\*:

Device/WAN Netmask\*:

LAN IP Address:

LAN Netmask:

Default Gateway:

Gateway Interface:  System Default  WAN  LAN  Virtual Interface  Management

Allow communication between management and device networks

---

#### DNS SETTINGS

Changes will not take effect until the system is rebooted

Primary DNS:

Secondary DNS:

---

#### NETWORK ROUTES

Destination	Gateway	Netmask	Type	Interface
10.5.6.0	*	255.255.255.0	NET	Virtual Interface
10.5.3.0	*	255.255.255.0	NET	Management
127.0.0.0	*	255.0.0.0	NET	Loopback
0.0.0.0	10.5.6.1	0.0.0.0	NET	Virtual Interface

## SNMP SETTINGS

---

### GENERAL SETTINGS

Contact:	<input type="text" value="bsmith@forumsys.cor"/>
Location:	<input type="text" value="3rd floor, Room 314, B"/>
Port:	<input type="text" value="161"/>
Trap IP Address:	<input type="text" value="10.5.6.72"/>
Maximum Octet String length :	<input type="text" value="1400"/>
Enabled:	<input checked="" type="checkbox"/>

---

### SNMPV3 SECURITY SETTINGS

Use SNMPv3 Security:	<input checked="" type="checkbox"/>
Authentication:	<input type="text" value="MD5"/>
Encryption:	<input type="text" value="DES"/>

---

### MIBS

- [SMI MIB](#)
- [General Information MIB](#)
- [Statistics MIB](#)
- [Appliance MIB](#)

- From the Navigator, select the **SNMP** screen.
- On the SNMP SETTINGS screen, fill in appropriate **values**, select the **Enabled** checkbox and then click **Save**.

**Note:** View SNMP security configuration settings from the CLI in enable mode by using the show snmp command. For more information, refer to the Network section of the *Forum Systems Sentry™ Version 9.1 System Management Guide*.

The refreshed screen now included a Send Test Trap button.

- Select **Sent Test Trap**. The screen refreshes with the “Test trap sent.” message visible at the top of the screen.

## STATISTICS

The Statistics screen displays a variety of system and system data for document processing, and mimics the output from the show statistics command on the CLI. Reset the statistics data without rebooting by selecting the **Reset** button at the bottom of the screen. Monitoring the Statistics screen provides a quick and easy way to determine if traffic is being processed through the system.

### Statistics Screen Terms

The following table displays a definition for each statistic displayed on the screen:

DESCRIPTION	DEFINITION
Average document size in bytes *	The average document size for all processed documents since the system was last initialized.
Smallest document size in bytes *	The minimum document size for all processed documents since the system was last initialized.
Largest document size in bytes *	The document size is the length of the document after it has been read from the network and decoded.  For FTP, the document size is updated after a pgp encryption, decryption, signature or verification.
Documents processed successfully	The count of all documents processed without any errors since the system was last initialized.
Documents processed with errors	The count of documents encountering processing errors since the system was last initialized.  A processed document is an xml document to which a task list has been applied.  For FTP, the counter is incremented after a successful pgp encryption, decryption, signature or verification.
Megabytes processed	The count of bytes for all documents processed since the system was last initialized.
Documents proxied	The count of documents proxied since the system was last initialized. FTP does not use this statistic.
Errors encountered	The count of all errors encountered while processing documents since the system was last initialized. Ftp does not use this statistic.
Elements successfully encrypted **	The count of document elements that were successfully encrypted since the system was last initialized.
Reset	When clicked, resets Statistics data without rebooting the appliance, setting the data back to zero.

DESCRIPTION	DEFINITION
Elements failing encryption **	The count of document elements that failed encryption since the system was last initialized.
Successful content encryptions **	The count of content encryptions that were successful since the system was last initialized.
Failed content encryptions **	The count of content encryptions that failed since the system was last initialized.
Elements successfully decrypted **	The count of document elements that were successfully decrypted since the system was last initialized.
Elements failing decryption **	The count of document elements that failed decryption since the system was last initialized.
Signatures successfully created **	The count of all signatures passing creation while processing documents since the system was last initialized.
Signatures failing creation **	The count of all signatures failing creation while processing documents since the system was last initialized.
Signatures successfully verified **	The count of all signatures passing verification since the system was last initialized.
Signatures failing verification **	The count of all signatures failing verification since the system was last initialized.
Document transformations **	The count of successful document transformations since the system was last initialized.
Megabytes transformed **	The count of bytes involved in successful document transformations since the system was last initialized.  The bytes of the document after the transformation are used not the ones from the incoming document.
Documents successfully validated **	The count of documents successfully validated since the system was last initialized.
Documents failing validation **	The count of documents failing validation since the system was last initialized.
Documents successfully archived **	The count of documents successfully archived since the system was last initialized.
Documents failing archival **	The count of documents failing an archive operation since the system was last initialized.

DESCRIPTION	DEFINITION
Megabytes archived **	The count of bytes for all documents successfully archived since the system was last initialized.  The number of megabytes archived includes the size of the document if chosen to be archived and the length of each element being archived.
Documents virus scanned	The count of documents scanned for viruses since the system was last initialized.
Documents failing virus scan	The count of documents in which a virus was detected since the system was last initialized.

\* When processing attachments only the document to be processed within the attachment counts as the document size.

\*\* Statistics for security operations apply to every successful operation generated by a task. Every xml element selected on the task to operate on the document counts.

**Note:** Statistics counters are reset to 0 whenever the system is rebooted or the user selects **Reset** from the Statistics screen. Counters reflect values for the current running session of the system. Statistics counters apply to XML and OpenPGP processing.

## JMX REMOTE

Java Management Extensions (JMX) technology provides a modular way to expose management and monitoring functionality in server applications and distributed components. When coupled with the JMX Remote API, JMX provides another broadly accepted option for monitoring the health of the product.

All of our statistics have been centralized and represented as JMX artifacts, and they can be viewed either via SNMP using the SNMP screen or using JMX. The JMX Remote API allows third-party monitoring systems to connect to a system and view the JMX statistics. Support and settings for the JMX Remote API are collected in the JMX Remote screen.

The protocol for JMX Remote is RMI/JRMP (pronounced RMI over JRMP) - this is one of the mandatory protocols that must be supported for the JMX Remote API to be used. The default port number for RMI is 1099, but users can choose any other valid and available port to connect. In the special case of a software port running on Linux, if the software is not running as user root, then only port numbers of 1024 and above are allowed.

Users have the option to use a clear text connection or SSL using Forum Systems SSL policies to specify whether X.509 authentication is used. Users may also use basic username/password authentication and/or a combination of both.

**Note:** Forum Systems strongly recommends that SSL with mutual authentication is used for any administrative interaction with the software.

JMX Remote works in a similar fashion as SNMP in that appliance statistics are only available on an appliance platform; not on a software port.

### JMX Remote Screen Terms

When viewing the JMX Remote screen, the following information is presented:

Field Name	Definition
<b>GENERAL SETTINGS</b>	
Port	The Port number of the JMX remote server.
Enabled	When checked, the JMX remote server is enabled. When unchecked, the JMX remote server is not enabled.
<b>SECURITY SETTINGS</b>	
Basic Authentication	When checked, the JMX remote server is authenticated through Basic Auth. When unchecked, Basic Auth is not required to authenticate the JMX remote server, but SSL authentication will still be used if enabled.
Use SSL	When checked, an SSL handshake negotiates the connection from the JMX remote server to the system. When unchecked, there is no SSL handshake.
SSL Termination Policy	The name of the SSL Termination policy applied during the SSL handshake.
<b>JMX CONNECTION URL</b>	
JMX Connection URL	The JMX Connection URL is the connection string that the monitoring application can use to connect to the JMX Remote API that is exposed in the product. It is there displayed for convenience.

## Overview of JMX

JMX manages three separate layers (instrumentation, agent, and distributed services) for application management. Users working on the WebAdmin need only focus on the following layers.

### The Instrumentation Layer

The instrumentation layer exposes the application by using introspection to create metadata received from the Agent layer. The JMX agent invokes attributes and other operational methods defined in the interface. The Instrumentation layer links the managed resource (your application) and the rest of the JMX framework.

### The Agent Layer

The agent layer provides services, such as dynamic loading and monitoring.

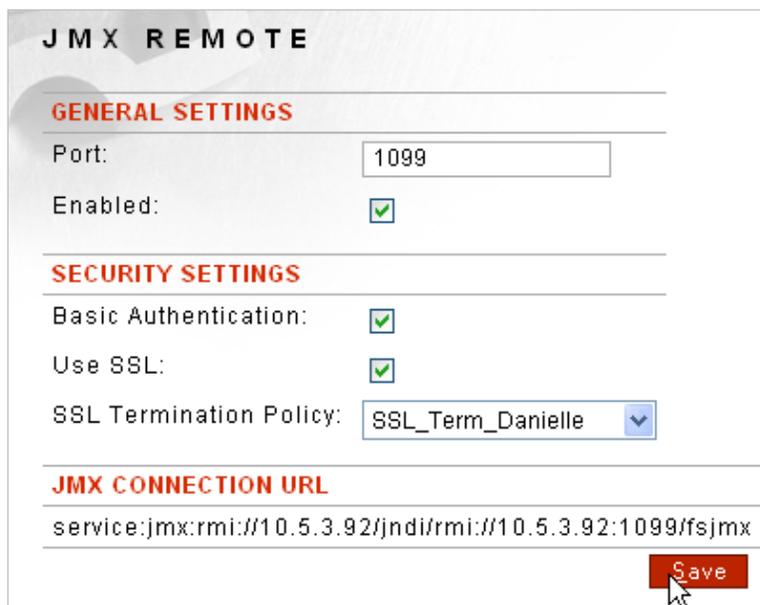
## JMX Remote Configuration Example

The example for configuring JMX Remote includes:

- Configure JMX Remote Policy.

### Configure JMX Remote

Follow these steps to configure a JMX Remote Server to the system:



The screenshot displays the 'JMX REMOTE' configuration page. It is divided into three sections: 'GENERAL SETTINGS', 'SECURITY SETTINGS', and 'JMX CONNECTION URL'. In the 'GENERAL SETTINGS' section, the 'Port' is set to 1099 and the 'Enabled' checkbox is checked. The 'SECURITY SETTINGS' section shows 'Basic Authentication' and 'Use SSL' both checked, and 'SSL Termination Policy' set to 'SSL\_Term\_Danielle'. The 'JMX CONNECTION URL' section contains the text 'service:jmx:rmi://10.5.3.92/jndi/rmi://10.5.3.92:1099/fsjmx'. A red 'Save' button is located at the bottom right of the form.

- From the Navigator, select the **JMX Remote** screen.
- On the JMX REMOTE screen, retain the default port number of 1099.
- Check the **Enabled** checkbox to enable the JMX Remote Server.
- To use Basic Auth for authenticating the JMX remote server to the system, check the **Basic Authentication** checkbox.
- To use an SSL handshake for connections, check the **Use SSL** checkbox.
- Apply an SSL Termination policy by selecting an **SSL Termination policy** from the drop down list.
- Click **Save**.

## CENTRAL LOGGING TO FORUM SENTRY CONTROL CENTER

If you have an instance of Forum Sentry Control Center running in your environment, you can choose to configure centralized logging and monitoring to the Forum Sentry Control Center instance. This feature provides system monitoring metrics including CPU utilization, Memory Utilization, Policy Health metrics for Policy transactions, Latency metrics for policies, and centralized consolidated logging.

To configure a Forum Sentry instance to send monitoring and logging information to a central Forum Sentry Control Center machine, go to the Diagnostics->Config screen.

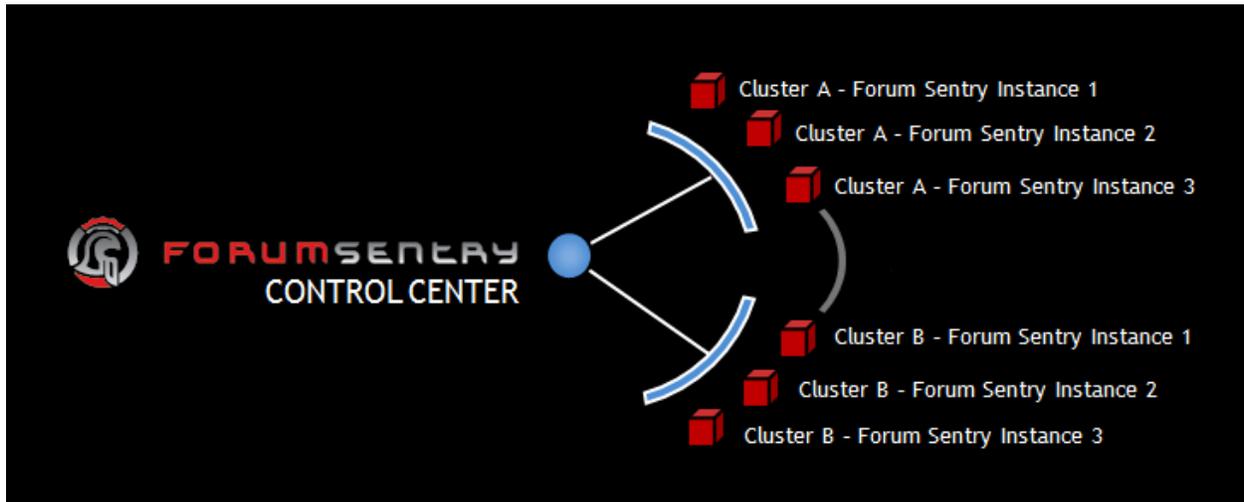
### Diagnostics Config Screen Terms

When viewing the Config screen for Central diagnostics, the following information is presented:

Field Name	Definition
Mode	<p>Configure the mode of this instance as to whether to send centralized monitoring statistics to a Forum Sentry Control Center machine.</p> <p>If running Forum Sentry XML Gateway, this setting will appear as: <b>Send Metrics Disabled</b></p> <p>If running Forum Sentry Control Center, this setting will appear as: <b>Gather Metrics Disabled</b></p>
Remote/Listener Policy	<p>If running on a Forum Sentry XML Gateway, this setting will be the Remote Policy to use to send metrics to the Forum Sentry Control Center</p> <p>If running on Forum Sentry Control Center, this setting will show the listener policy settings for inbound connections and metrics.</p>

## PERFORMANCE MONITORING VIA FORUM SENTRY CONTROL CENTER

The Forum Sentry Control Center provides 3 levels of drill-down performance monitoring enabling comprehensive visibility of all Sentry instances running in the environment. To view the Performance Monitor, go to Diagnostics->Performance Monitor.



### Setup Requirements for Enabling Centralized Logging and Reporting

The Forum Sentry Command Center uses a database to store central logs and monitoring statistics. This database must first be installed and populated with the schema. The database types supported are listed under the Diagnostics->Logging->Data Sources tab and each relevant set of SQL schema for creating the database schema is also provided on that screen.

Once the database has been properly configured, go to the Data Sources policy screen and create a new data source that points to the database. Then go to the Diagnostics->Config screen and choose the data source policy just created and configure the listener settings for how Sentry instances will communicate metrics to the central Command Center.

### Performance Monitoring Per System

The Performance Monitoring screen shows metrics for each gateway that is publishing to the Forum Sentry Command Center.

## PERFORMANCE MONITOR

Show: Last Day ▼

Gateway	CPU			Memory			# Requests	Error %	Threads			Connections								
	Avg	Cur	Max	Avg	Cur	Max			Established			Close Wait			Time Wait					
									Avg	Cur	Max	Avg	Cur	Max	Avg	Cur	Max			
<a href="#">ace</a>	2.8	3.1	3.1	0.0	0.0	0.0	11946	0.00	0	0	0	11	14	14	234	234	234	0	0	1
<a href="#">airborne</a>	2.3	2.4	2.4	0.0	0.0	0.0	14438	0.00	0	0	0	12	14	14	234	234	234	4	1	7
<a href="#">airtight</a>	2.1	2.2	2.2	0.0	0.0	0.0	14038	0.02	0	0	0	12	16	16	234	234	235	0	0	1
<a href="#">alpine</a>	2.0	2.0	2.0	0.0	0.0	0.0	14315	0.01	0	0	0	17	17	17	235	235	235	2	2	2
<a href="#">bazooka</a>	2.1	1.4	2.5	0.1	0.1	0.1	5666	0.00	85	128	128	145	163	209	160	160	166	922	68	1724
<a href="#">beachhead</a>	2.5	2.2	3.0	0.1	0.1	0.1	7634	0.03	69	0	128	114	56	222	171	158	235	686	6	1470
<a href="#">blowtorch</a>	2.9	2.6	3.2	0.1	0.1	0.1	6441	0.00	108	100	128	117	126	180	158	156	162	954	2	1588
<a href="#">breaker</a>	2.9	2.5	3.1	0.1	0.0	0.1	9929	0.00	82	100	128	82	124	159	193	171	260	218	0	415
<a href="#">chuckles</a>	3.1	2.8	3.4	0.1	0.1	0.1	8919	0.01	102	128	128	90	126	126	170	157	235	168	119	288
<a href="#">phoenix</a>	1.5	1.3	3.2	0.0	0.0	0.1	9361	0.05	19	0	128	37	51	175	214	157	284	146	3	1604

## Performance Monitor Screen Terms

When viewing the Performance Monitor screen for Central diagnostics, the following information is presented:

Field Name	Definition
Show	Duration of time to aggregate results being shown.
Gateway	Name of the Gateway reporting metrics
CPU	Average, Current, and Maximum values of the CPU utilization from the machine, averaged over 1 minute.
Memory	Average, Current, and Maximum values of the memory utilization from the machine
#Requests	# of total requests for the Gateway machine in the time scope allocated
Error%	% of errors this policy has seen on the connection and HTTP error code levels
Threads	Average, Current, and Maximum value of allocated worker threads on the machine
Established Connections	Average, Current, and Maximum number of Established connections on the machine
Close Wait Connections	Average, Current, and Maximum number of connections currently in the CLOSE_WAIT state.
Time Wait Connections	Average, Current, and Maximum number of connections currently in the TIME_WAIT state.

## Policy Monitoring

When you drill down from the top level gateway, the subsequent screen breaks down the metrics from policies on that instance.

### PERFORMANCE MONITOR > POLICY MONITORING

Show: All Gateways ▼ For Last Day ▼

Policy	# Requests	Error %	Total Latency (ms)			Avg Request Latency (ms)				Avg Response Latency (ms)			Request		Response	
			Avg	Min	Max	Client	Identity	Sentry	Service	Client	Sentry	Service	Avg Size (B)	Avg Size (B)		
<a href="#">Pingsvc</a>	11864	0.02	4137	66	140192	1821	0	1183	267	0	562	304	393	404		
<a href="#">gaservice</a>	57711	0.17	6203	11	265209	1696	831	4188	85	0	136	77	387	391		
<a href="#">Service</a>	37156	0.00	1407	3	95250	1002	0	405	0	0	0	0	389	0		

## Policy Monitor Screen Terms

When viewing the Performance Monitor screen for Central diagnostics, the following information is presented:

Field Name	Definition
Show	Choose to show all gateways or a specific gateway over the time interval specified
Policy	The name of the gateway policy
# Requests	The number of request that have been made to this policy within the selected time interval
Error %	Number of requests that resulted in a network or HTTP error response
Total Latency	The total latency of transactions to this policy displayed as the average, minimum, and maximum latency values for this time interval
Ave Request Latency	The components of the latency metric for the request portion of the transaction. <ul style="list-style-type: none"> <li>• <b>Client:</b> the time the client takes to write the data over the network to sentry</li> <li>• <b>Identity:</b> the time it takes to communicate to an identity system to authorize the transaction</li> <li>• <b>Sentry:</b> the time it takes Sentry to process the message</li> <li>• <b>Service:</b> the time it takes to write the post-processed request to the back-end server</li> </ul>
Ave Response Latency	The components of the latency metric for the request portion of the transaction. <ul style="list-style-type: none"> <li>• <b>Client:</b> the time it takes Sentry to write the processed response back to the client</li> <li>• <b>Sentry:</b> the time it takes Sentry to process the response message</li> <li>• <b>Service:</b> the time it takes to receive and read the response from the back-end system</li> </ul>
Request Avg Size	Average size of the requests to this policy over the specified time interval
Response Avg Size	Average size of the responses for this policy over the specified time interval

## Operation Monitoring

When you drill down from the Policy Monitoring screen you can view the operation monitoring for WSDL based services.

PERFORMANCE MONITOR > POLICY MONITORING > OPERATION MONITORING

Show: ace | qaservice | For Last Day

Operation	# Requests	Error %	Total Latency (ms)			Avg Request Latency (ms)				Avg Response Latency (ms)			Request	Response
			Avg	Min	Max	Client	Identity	Sentry	Service	Client	Sentry	Service	Avg Size (B)	Avg Size (B)
BuildElementXML	783	0.00	4067	43	52590	226	0	3566	131	0	102	42	393	392
BuildNestedXML	938	0.00	2679	33	39544	163	0	2340	94	0	55	26	379	353
BuildSizeXML	922	0.00	4270	65	58024	327	0	3583	98	0	186	76	373	374
BuildValidateFailXML	713	0.00	5030	86	65521	285	0	4195	271	0	139	140	360	517
Echo	1208	0.00	12509	119	134320	11332	11152	963	70	0	51	29	369	375
SeverallInputs	904	0.00	2338	155	41468	917	803	1300	26	0	26	11	438	350

## Operation Monitoring Screen Terms

When viewing the Operation Monitoring screen for Central diagnostics, the following information is presented:

Field Name	Definition
------------	------------

Show	Choose to show all gateways or a specific gateway over the time interval specified
Operation	Names of the operations defined in the selected WSDL policy
# Requests	The number of request that have been made to this policy within the selected time interval
Error %	Number of requests that resulted in a network or HTTP error response
Total Latency	The total latency of transactions to this policy displayed as the average, minimum, and maximum latency values for this time interval
Ave Request Latency	The components of the latency metric for the request portion of the transaction. <ul style="list-style-type: none"> <li>• <b>Client:</b> the time the client takes to write the data over the network to sentry</li> <li>• <b>Identity:</b> the time it takes to communicate to an identity system to authorize the transaction</li> <li>• <b>Sentry:</b> the time it takes Sentry to process the message</li> <li>• <b>Service:</b> the time it takes to write the post-processed request to the back-end server</li> </ul>
Ave Response Latency	The components of the latency metric for the request portion of the transaction. <ul style="list-style-type: none"> <li>• <b>Client:</b> the time it takes Sentry to write the processed response back to the client</li> <li>• <b>Sentry:</b> the time it takes Sentry to process the response message</li> <li>• <b>Service:</b> the time it takes to receive and read the response from the back-end system</li> </ul>
Request Avg Size	Average size of the requests to this policy over the specified time interval
Response Avg Size	Average size of the responses for this policy over the specified time interval
Show	Choose to show all gateways or a specific gateway over the time interval specified
Policy	The name of the gateway policy
# Requests	The number of request that have been made to this policy within the selected time interval
Error %	Number of requests that resulted in a network or HTTP error response
Total Latency	The total latency of transactions to this policy displayed as the average, minimum, and maximum latency values for this time interval

## APPENDIX

### Appendix A - Constraints in Monitoring and Reporting Guide

ELEMENT	CONSTRAINTS	CHAR COUNT
WS Report Name	Unique & case sensitive. Accepts the '@' character, underscores and dashes.	1-80
User Password for users assigned to the SNMPMonitor Group	Must be created in cleartext. Unique & case sensitive. Accepts the '@' character, underscores and dashes. Additionally, the Enable for use with basic auth checkbox must be checked.	8-255

### Appendix B - Specifications in Monitoring and Reporting Guide

ELEMENT	SPECIFICATIONS
SNMP Octet String length	Default maximum Octet String length is 1400.

## Appendix C - Database Dictionary for Reporting Tables

The following tables list common database terms, definitions and conventions used in the Reporting database.

TABLE NAME	FIELD NAME	DATA TYPE	DESCRIPTION
REPORTMETA			Reporting meta data
	ID	NUMBER(16)	Record Key (sequence)
	SERVERPOLICY	VARCHAR2(80)	Name of Network listener policy associated with the WSDL Policy
	WSDLPROJECT	VARCHAR2(80)	Name of WSDL Policy
	WSDLSERVICE	VARCHAR2(80)	Service name from the WSDL file
	WSDLPORT	VARCHAR2(80)	Port binding name from WSDL
	WSDLOPERATION	VARCHAR2(80)	Name of Operation from WSDL file
	REQUESTTAGNAME	VARVCHAR2(80)	Name of Operation input parameter from WSDL
	RESPONSETAGNAME	VARCHAR2(80)	Name of Operation output parameter from WSDL
REPORTDOC			Reporting XML documents
	AUTOID	NUMBER(16)	Primary Key
	REQUEST	BLOB	XML request document
	RESPONSE	BLOB	XML response document

TABLE NAME	FIELD NAME	DATA TYPE	DESCRIPTION
REPORTSTATS			Reporting statistics
	AUTOID	NUMBER(16)	Primary Key (sequence)
	ID	NUMBER(16)	Record Key (sequence)
	REQUESTTIME	NUMBER(32)	Device System time in milliseconds since 1/1/1970
	SOURCEIP	VARCHAR2(16)	Source IP address of client
	SOURCEPORT	NUMBER(16)	Source Port number of client
	SOURCEUSER	VARCHAR(32)	Name of Authenticated client
	REQUESTLENGTH	NUMBER(16)	Request length in Bytes
	RESPONSESTATUS	NUMBER(8)	HTTP code
	RESPONSELENGTH	NUMBER(16)	Response length in Bytes
	RESPONSEPROCTIME	NUMBER(16)	Number of milliseconds for the response to process

## INDEX

add a Web Services Report .....	17	Password for SNMPMonitor Group or SNMPTech Group users .....	26
Average over Hours in Day chart example .....	12	Port .....	32
Basic Auth .....	32	preview Web Services Report .....	18
Coldstart		report	
SNMP trap supported .....	22	Average over Hours in Day chart .....	12
community string for SNMP .....	24	Chart .....	10
configure a JMX Remote Server .....	33	CVS .....	10
configuring JMX Remote Server		Data Series .....	10
example .....	33	Delivery Format .....	10
configuring SNMP		Filter .....	10
example .....	25	Number of Faults .....	8
conventions used .....	4	Number of Hits .....	8
counters for statistics		other email address .....	10
resetting .....	29	Report Name .....	9
database dictionary for Reporting tables .....	14	Report Type .....	9
delete a Web Services Report .....	21	Request Size .....	8
disable all Web Services Reporting functionality .....	21	Response Size .....	8
disable delivery of a Web Services Report .....	20	Response Time .....	8
Enabled .....	32	Schedule .....	10
Every delivery option for Web Services Report scheduling .....	19	status of reporting settings .....	14
examples for Web Services Reports .....	17	System Users .....	10
failures		Throughput .....	8
Web Monitoring .....	5	Time .....	10
IDP Rule Violation		Time Period .....	9
SNMP trap supported .....	22	View .....	9
invocations		XML .....	10
Web Monitoring .....	5	Reporting Settings	
Java Management Extensions .....	32	terms .....	14
JMX Connection URL .....	32	Reporting tables in database dictionary .....	14
JMX Remote		Request Size report .....	8
Basic Auth .....	32	reset	
configuring the JMX Remote Server .....	33	Web Monitoring .....	5
Enabled .....	32	resetting statistics counters .....	29
examples for configuring the JMX Remote Server .....	33	Response Size report .....	8
JMX Connection URL .....	32	Response Time report .....	8
Port .....	32	sample snmpwalk command .....	25
Use SSL .....	32	schedule Web Services Report for delivery .....	19
JMX Remote Server .....	32	Send Test Trap .....	22
last invocation		send test trap for SNMP .....	28
Web Monitoring .....	5	Shutdown	
MIB files		SNMP trap supported .....	22
links to for SNMP configuration .....	23	Simple Network Management Protocol .....	22
MIB files for SNMP .....	22	SNMP .....	22
Number of Faults report .....	8	Authentication algorithm .....	23
Number of Hits report .....	8	Contact .....	23
On Day < > of each month Web Services Report delivery option .....	19	Encryption algorithm .....	23
operation		examples for configuring .....	25
Web Monitoring .....	5	IP port .....	23
		Location .....	23
		maximum string length .....	23
		MIB file links to .....	23
		sending test trap .....	28

Trap IP Address.....	23	view configuring security settings for the SNMP	
SNMP community string.....	24	Master Agent.....	26
SNMP Management.....	22	Web Monitoring	
SNMP Master Agent		terms.....	5
view configuration settings.....	26	Web Monitoring screen	
SNMP MIB files.....	22	failures.....	5
SNMP Settings screen		invocations.....	5
terms.....	23	last invocation.....	5
SNMP traps.....	22	operation.....	5
SNMP traps supported.....	22	reset.....	5
snmpwalk command		successes.....	5
troubleshooting.....	24	traffic.....	5
snmpwalk command sample.....	25	Web Services Report	
snmpwalk syntax.....	24	adding.....	17
statistics counters		deleting.....	21
resetting.....	29	delivery option Every.....	19
Statistics screen.....	29	delivery option On Day < > of each month	19
Statistics screen terms.....	29	disabling all adding Web Services Reporting	
successes		functionality.....	21
Web Monitoring.....	5	disabling delivery of.....	20
syntax for snmpwalk utility.....	24	previewing data.....	18
System		scheduling for delivery.....	19
Save request and response.....	14	Web Services Reports	
terms		delivery format.....	11
for Statistics screen.....	29	examples.....	17
terms on SNMP Settings screen.....	23	specify delivery time.....	11
Throughput report.....	8	WS Monitoring screen.....	5
traffic		WS Reports	
Web Monitoring.....	5	terms.....	9, 10
troubleshoot snmpwalk commands.....	24	types of Reports available.....	8
Use SSL.....	32	WS Reports screen.....	8