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Preface

This guide explains all aspects of eHealth report management. It describes the types of reports available, the methods that you can use to generate and view reports, and the ways in which eHealth analyzes the data. It also describes how to control user access to reports and customize them. This guide supports eHealth Release 6.0 and later.

Audience

This guide is intended for administrators who are responsible for scheduling and customizing reports, and report users who run reports for their own use. To use this guide, you should have a basic understanding of networking and data communications concepts.

About This Guide

This section describes the reading path that you should follow, as well as the revision history of this guide. It also includes the documentation conventions used in this guide.

Reading Path

If you are also responsible for organizing elements into groups and group lists, you should review the eHealth Element and Poller Management Guide for detailed information about grouping your resources. This guide is available in PDF format in the eHealth Web Help and on the eHealth Support web site.

Revision Information

This is the first release of this guide.
Documentation Conventions

Table 1 lists the conventions used in this document.

Table 1. Documentation Conventions

<table>
<thead>
<tr>
<th>Convention</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>File or Directory Name</td>
<td>Text that refers to file or directory names.</td>
</tr>
<tr>
<td>code</td>
<td>Text that refers to system, code, or operating system command lines.</td>
</tr>
<tr>
<td>emphasis</td>
<td>Text that refers to guide titles or text that is emphasized.</td>
</tr>
<tr>
<td>enter</td>
<td>Text that you must type exactly as shown.</td>
</tr>
<tr>
<td>Name</td>
<td>Text that refers to menus, fields in dialogs, or keyboard keys.</td>
</tr>
<tr>
<td>New Term</td>
<td>Text that refers to a new term, that is, one that is being introduced.</td>
</tr>
<tr>
<td>Variable</td>
<td>Text that refers to variable values that you substitute.</td>
</tr>
<tr>
<td>→</td>
<td>A sequence of menus or menu options. For example, <strong>File → Exit</strong> means “Choose Exit from the File menu.”</td>
</tr>
<tr>
<td><strong>NOTE</strong></td>
<td>Important information, tips, or other noteworthy details.</td>
</tr>
<tr>
<td><strong>CAUTION</strong></td>
<td>Information that helps you avoid data corruption or system failures.</td>
</tr>
<tr>
<td><strong>WARNING</strong></td>
<td>Information that helps you avoid personal physical danger.</td>
</tr>
</tbody>
</table>

Technical Support

If you have a Support Contract ID and password, you can access our Support Express knowledgebase at the following URL: [http://search.support.concord.com](http://search.support.concord.com).

If you have a software maintenance contract, you can obtain assistance with eHealth. For online technical assistance and a complete list of primary service hours and telephone numbers, contact Technical Support at [http://support.concord.com](http://support.concord.com).
**eHealth Report Management: an Overview**

As eHealth identifies and collects data from existing devices, agents, and management systems in your infrastructure, you can generate reports on the historical and current performance data to manage your resources. If you log in as an eHealth administrator, you can generate eHealth standard reports from the eHealth console and Web interface, control user access, customize reports, and schedule them to run on a regular basis. If you log in as an eHealth web user and your user account has the appropriate permissions, you can generate eHealth reports from the eHealth Web user interface.

This chapter describes the user interfaces available for managing reports, the roles of the report user, and the types of reports that you can generate to monitor the health of your infrastructure.

**eHealth User Interfaces**

The eHealth software offers two user interfaces (UIs) for generating and customizing reports: the eHealth console and the eHealth Web interface. The interface that you use should depend on your role. Not all functions are available through both interfaces; some are only available in one. This guide describes the most efficient and practical methods for performing a particular report management task based on your role within your organization. To control user access to reports, eHealth provides a user management interface through the OneClick for eHealth (OneClickEH) administrative console.

*N*ote

In addition, eHealth Report Center is available as a separately-installed reporting capability that enables you to create entirely new custom reports. For details, refer to the Introduction to Report Center topic.

**The Administrator’s Role in Report Management**

As an eHealth report administrator, you can generate reports on demand from the eHealth console, schedule them, and output them to the Web for users to view. You can also e-mail reports to one or more eHealth users. To meet the specific needs of a user or organization, you can customize reports in various ways, as well as control access to particular report types and drill-down report features from the eHealth console. You can run reports on demand (_ad hoc_), or schedule them to run on a regular basis.

**The User’s Role in Report Management**

As an eHealth report user, you can generate reports from the Run Reports page of the eHealth Web interface on demand and immediately display them within your web browser, or print them. You can also customize their appearance from the Run Reports page. From some report charts, you can drill down to additional reports for more information. To generate, customize, and view reports from the Web interface and access drilldowns, your web user account must have the appropriate permissions.
Reporting Concepts

An eHealth report presents data in a particular format, which typically includes one or more charts. A chart is a graphical or tabular representation of data within the report. From many web-based eHealth report charts, you can drill down to other eHealth reports by clicking on a bar in a chart or an element name in a table. An element is a resource (such as a router, system, interface, or modem) for which eHealth collects data.

When you drill down from one report to another, you do not need to specify report criteria; eHealth automatically uses the context of the current report and the selected report item to determine the appropriate criteria for the new report. You can generate reports on elements or groups (sets of elements that are related based on their function or geographical location within your infrastructure).

eHealth reports assess the overall health of the resources within your network by analyzing performance indicators, or variables, such as the following:

- **Usage** – Demand or activity on a resource.
- **Availability** – Amount of time that an element is active and running.
- **Traffic** – Type of information that travels over a network.

For Health, MyHealth, and Service Level reports, eHealth assigns a performance grade, or health index, to the elements based on these variables. eHealth analyzes trends and calculates averages based on a service profile—a set of defined Health Index thresholds, Trend thresholds, service level ranges, and percentiles. For a detailed discussion of data analysis, refer to Chapter 4, “Report Data Analysis and Management.”

Types of eHealth Reports

As an eHealth web user with reporting permissions, you can generate several types of reports from the Web interface and modify their presentation. As an eHealth administrator, you can generate most of these same reports from the eHealth console, output them to the Web for users to view, and customize them. You can run reports on all technology types that eHealth supports (such as Router/Switch and LAN/WAN); however, your eHealth system must be licensed to monitor the specific technology types.

Table 1 lists standard reports that are available through the eHealth console and the Web interface, and the following sections explain the purpose of each one. For complete details on a particular chart or report, refer to the Web Help for reports.

**Table 1. Standard Report Types**

<table>
<thead>
<tr>
<th>eHealth Console and Web</th>
<th>eHealth Console Only</th>
<th>Web-Based Only</th>
</tr>
</thead>
<tbody>
<tr>
<td>At-a-Glance</td>
<td>Standard Traffic Accountant</td>
<td></td>
</tr>
<tr>
<td>Top N</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trend</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service Level</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Quick Start Traffic Accountant | | What-If
| MyHealth               | |
At-a-Glance Reports

An At-a-Glance report is composed of a series of charts that show the performance of critical variables for a specified element during the report period. You typically run these reports for a particular element to obtain immediate, detailed information on the critical performance parameters. The charts that appear in an At-a-Glance report vary, depending on the element type that the report represents.

Figure 1 is an At-a-Glance report for a wide area network (WAN) element. Using these charts, you can determine if the WAN element is experiencing any performance problems. For example, the Bandwidth charts provide a quick assessment of how busy the link was. The Bytes In and Bytes Out charts show the volume of traffic handled by the element. The Discards In and Discards Out charts identify links that may be bottlenecks.

Top N Reports

A Top N report (shown in Figure 2) is a tabular report that lists the top elements in a group that exceed or fall below the performance values that you specify. If you are troubleshooting the infrastructure or planning for upgrades, Top N reports can identify those elements on which you should focus your management efforts. You can also use these reports to specify a service goal against which you can compare the performance of the elements.

For example, Figure 2 shows a Top N report for elements that have a CPU utilization above a certain percentage. You could also run a report on system partitions that have less than a certain percentage of utilization. When you run a Top N report, you can specify up to six variables on which to report.
**Trend Reports**

A Trend report shows the behavior of one or more performance variables for an element or a group of elements, over a specified period of time. Because of its flexibility, you can use a Trend report to reveal traffic patterns over time, as well as relationships between elements and between variables. If it indicates that two variables are correlated, then it suggests a causal relationship between them. For instance, if the bandwidth utilization and the collision rate on an Ethernet segment show a strong correlation, the high bandwidth utilization is likely causing the high rate of collisions.

Figure 3 is an example of a Trend report that was run on one variable (bandwidth utilization) for two WAN elements. The graph is color-coded to enable you to compare the performance of the two elements throughout the report period.

**MyHealth Reports**

A MyHealth report (shown in Figure 4) can contain up to 20 customized panels that summarize performance data on your critical resources. Administrators and web users with MyHealth editing permissions can design the MyHealth panels and content from the Web interface. From the console, administrators can change the baseline periods, the MyHealth report schedule, and the service profiles that are associated to them.

![Sample Trend Report](image)

**Figure 3. Sample Trend Report**

![Sample MyHealth Report](image)

**Figure 4. Sample MyHealth Report**
What-If Reports

A What-If report is an interactive web-based Trend report that measures capacity—the amount of traffic, volume, or usage that a resource can support. This report is not available in the eHealth console. Administrators and web users who have permission to run What-If reports can generate them to evaluate the current trends in resource usage, and plan for growth and changes before problems occur.

For example, you can adjust the capacity to observe what would happen if you upgraded or downgraded the resource, and then modify the demand (the load that users or applications place upon a resource) to observe what would happen if the usage increased or decreased for the resource. Using these results, you can visualize possible scenarios and devise the appropriate solution.

When you initially generate the What-If Capacity Trend report, you can set a goal line (shown in red in Figure 5) to enable you to measure the changes in data with respect to a specific threshold.

Health Reports

A Health report evaluates the health of a group of elements by comparing current performance to historical performance over the course of a day, week, or month. As shown in Figure 6, the report identifies errors, unusual utilization rates, or shifts in volume that warrant investigation.

This report helps you evaluate the health of your resources by monitoring how efficiently those resources are running, checking for availability of critical resources, and detecting whether they are beginning to experience problems. The report analyzes trends based on historical data and calculates averages using a service profile. Table 3 lists the various types of Health reports that you can run and describes their purpose.
Health reports are multi-page reports that contain several sections. As an eHealth administrator or a web user, you can easily exclude or include any sections from a Health report (Table 4) by setting presentation attributes. The charts that appear in each section vary for each technology.

### Table 3. Types of Health Reports

<table>
<thead>
<tr>
<th>Health Report</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard Health</td>
<td>Identifies errors, unusual utilization rates, or shifts in volume that warrant investigation.</td>
</tr>
<tr>
<td>CIO Summary</td>
<td>Describes the performance of a group of monitored applications based on response time, service level agreement (SLA) violations, and availability, and alerts you to situations that require your attention.</td>
</tr>
<tr>
<td>Service Response</td>
<td>Provides information based on active tests of response time and availability of Internet services, business applications, and network services. Identifies slow or unavailable services and applications that are hindering user productivity.</td>
</tr>
<tr>
<td>Application Response</td>
<td>Shows a response path summary, a list of the poorest performing paths, and a response history. Identifies slow response paths that may degrade service.</td>
</tr>
<tr>
<td>Busy Applications</td>
<td>Identifies the applications that perform the most transactions and may, therefore, require additional resources to maintain service level expectations.</td>
</tr>
<tr>
<td>High Traffic Applications</td>
<td>Identifies the applications that create heavy network traffic.</td>
</tr>
<tr>
<td>Slow Applications</td>
<td>Identifies the applications with the slowest response times, which may be interfering with user productivity.</td>
</tr>
</tbody>
</table>

### Table 4. Health Report Sections

<table>
<thead>
<tr>
<th>Report Section</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exceptions</td>
<td>Identifies elements that have exception points as the result of errors or high utilization.</td>
</tr>
<tr>
<td>Summary</td>
<td>Compares the volume performance of a group of elements to their performance over a baseline period.</td>
</tr>
<tr>
<td>Top Ten</td>
<td>Alerts you to the leading elements in the report.</td>
</tr>
<tr>
<td>Element Top N</td>
<td>Compares the health and performance of the specified number of elements in a group to their performance over a baseline period. Elements appear in order from highest utilization to lowest within the chart.</td>
</tr>
<tr>
<td>Element Detail</td>
<td>Compares the health and performance of all elements to their performance over a baseline period. Elements appear in alphabetical order within the charts.</td>
</tr>
<tr>
<td>Supplemental</td>
<td>Contains additional report pages that provide information about availability, latency, reachability, and other factors.</td>
</tr>
</tbody>
</table>

**NOTE:** Health reports that are output to the web also include drill-down reports such as Health Index Detail and Situations to Watch Detail reports. These reports explain the cause of a poor Health Index rating or Trend evaluation.
Service Level Reports

A Service Level report (shown in Figure 7) summarizes the performance of the resources in an enterprise, region, department, or business unit for a group or group list based on analysis ranges and thresholds defined in a service profile. Table 5 describes the types of Service Level reports that are available. Each type of report can provide details on individual technologies. For example, you can run a LAN/WAN Executive report or a Response Service Customer report. These reports provide the most value when you run them for a month.

<table>
<thead>
<tr>
<th>Report Name</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Unit</td>
<td>Summarizes the service level for the network resources that belong to a department, company, or organization.</td>
</tr>
<tr>
<td>Executive</td>
<td>Determines how workloads, availability, and latency vary with time across the enterprise.</td>
</tr>
<tr>
<td>IT Manager</td>
<td>Summarizes service levels by specific groups in a group list and provides details on elements.</td>
</tr>
<tr>
<td>Service Customer</td>
<td>Provides information on the service level performance of the elements in a group or group list for a service customer. Determines quality of service.</td>
</tr>
<tr>
<td>Response</td>
<td>Determines the relative performance of an application for a location or functional group.</td>
</tr>
<tr>
<td>VoIP</td>
<td>Monitors the quality of voice services across groups within the enterprise.</td>
</tr>
</tbody>
</table>

Traffic Accountant Reports

A Traffic Accountant report (shown in Figure 8) analyzes your network traffic. Traffic Accountant is a specialized network and application monitoring capability that collects traffic flow information from RMON2 probes and traffic sources such as Cisco NetFlow. These reports enable you to track individual users and departments who are consuming your network resources. You can use this information to do the following:

- Analyze the IT infrastructure and solve problems.
- Plan and implement infrastructure reconfiguration, growth, and security procedures.
- Relate IT infrastructure costs to the nodes and organizations that use it.
Distributed Reports

If you have a large infrastructure, you could deploy multiple Distributed eHealth systems across large geographic ranges or locate them centrally to gather data and manage various segments of your network. This configuration is referred to as a cluster. The cluster contains several eHealth systems that manage specific sets of resources, and share the information with each other.

When you run a report across multiple Distributed eHealth Systems, the systems process their specific data in parallel and then send it to the Distributed eHealth Console. The Console collates the data into a single distributed report, as illustrated in Figure 9. Distributed reports are identical to standard eHealth reports. As an eHealth administrator, you can generate distributed reports from the console or Web interface using the same method that you would use to generate other eHealth reports.

Large-Scale Reports

In a large-scale environment, a group or group list may contain many thousands of elements. If you have a large-scale or Distributed eHealth environment in which you can run Service Level or Health reports for more than 20,000 elements in one report, you should use the large-scale versions of the reports listed in Table 6, which are variations of the standard reports. While the standard reports display all elements based on the selection criteria, the large-scale reports reduce the number of elements shown in certain charts or tables. Although the reports might take longer to run, they are easier to review because they are much shorter.

<table>
<thead>
<tr>
<th>Standard Report</th>
<th>Large-Scale Version of the Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health report</td>
<td>StandardLite Health report</td>
</tr>
<tr>
<td>IT Manager Service Level report</td>
<td>IT Manager Top 100 Service Level report</td>
</tr>
<tr>
<td>Service Customer Service Level report</td>
<td>Service Customer Top 100 Service Level report</td>
</tr>
</tbody>
</table>
Determining Which Reports Will Address Your Current Needs

It is important to become familiar with the different types of eHealth reports that are available to you and determine which ones closely meet your needs. As your infrastructure changes and expands, you may need to introduce different charts into your analysis to fully evaluate the health of your resources. To increase your understanding of the value of each report discussed in this chapter, review the Web Help for reports. The eHealth Web Help describes the purpose of each report and chart in detail; provides helpful examples; and clearly defines the variables, or performance indicators, on which you can generate your reports.

The Report Management Task Roadmap

Because eHealth allows both users and administrators to generate and view reports on demand from the Web user interface, some of the tasks related to report management are shared. However, as the primary administrator, you control the ability for other administrators and web users to generate, customize, and view reports by granting the appropriate permissions to their web user accounts. Table 7 outlines the primary tasks that administrators and users need to follow to properly manage eHealth reports. These tasks are all discussed in detail in their respective chapters.

Table 7. Report Management Task Roadmap

<table>
<thead>
<tr>
<th>Primary Tasks</th>
<th>Subtasks</th>
<th>Chapter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Report Generation</td>
<td>• Running reports on demand from the eHealth console</td>
<td>Chapter 2</td>
</tr>
<tr>
<td></td>
<td>• Setting global options</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Setting the report output</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Providing user access to reports</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Scheduling reports</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Generating reports from the eHealth Web interface</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Restricting user access to web-based reports and report templates</td>
<td></td>
</tr>
<tr>
<td>Viewing, Saving, and Deleting Reports</td>
<td>• Viewing reports on the Report List page</td>
<td>Chapter 3</td>
</tr>
<tr>
<td></td>
<td>• Viewing reports on the Organization page</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Saving report templates</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Deleting reports, saved run screens, and report files</td>
<td></td>
</tr>
<tr>
<td>Report Data Analysis and Management</td>
<td>• Evaluating the health of your resources</td>
<td>Chapter 4</td>
</tr>
<tr>
<td></td>
<td>• Understanding the eHealth data analysis process</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Managing the service profiles on which eHealth bases its analysis</td>
<td></td>
</tr>
<tr>
<td>Report Customization</td>
<td>• Changing the report definition file</td>
<td>Chapter 5</td>
</tr>
<tr>
<td></td>
<td>• Specifying business-hour reporting</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Changing the baseline period</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Changing the service profile</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Modifying presentation attributes of reports</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Accounting for planned downtime</td>
<td></td>
</tr>
</tbody>
</table>
As an eHealth administrator, you can generate reports from the eHealth console, and also schedule reports to run on a regular basis. As a report user, you can generate and view reports from the Web interface if your user account has the appropriate permissions to do so. This chapter describes how to effectively manage the report generation process as a user and as an administrator.

Running Reports from the eHealth Console

From the eHealth console, administrators can set global options for time zones and elements, run reports on demand, and schedule reports to run on a regular basis. The following sections describe the general procedures for performing these tasks.

Setting Global Options

As an eHealth administrator, you can set some global options from the eHealth console for time zones, element filtering, and alias names by selecting Options from the Setup menu. These settings apply to all reports that you generate from the eHealth console. If you have several eHealth administrators at your site using different eHealth consoles, refer to the Using Secondary eHealth Consoles topic for instructions and guidelines on using these settings.

Showing Alias Names

Because eHealth creates names for elements based on data obtained during discovery, the names can be long and complex. To make statistics elements easier to recognize, you can assign more meaningful alias names to them by using the element management feature of OneClickEH (you cannot specify alias names for conversations (Traffic Accountant) elements). Alias names do not have to be unique. If you enable the Show Alias Names option, alias names appear when you view and edit the poller configuration, browse for elements, or run and schedule reports from the eHealth console. This option does not affect the display of elements that appear in the Web interface or the OneClickEH console. To view alias names in the Web interface, your web user account must have permission to do so. The OneClickEH console displays both alias names and element names regardless of your user account setting.

Showing Report Time Zones

Your eHealth report output correlates events and volume with the time zone specified for the report. To provide eHealth reports that are customized for report consumers in other time zones, you can
specify a particular time zone for each report that will appear in the title and footer. When you generate a report and select a time zone, the reporting period reflects the time range in the specified time zone. The time zone setting does not affect database rollups. eHealth displays data for the report that is appropriate for the time zone. For example, you can run daily Health reports from an eHealth system in New York for customers in Paris. The reports show data for the 24-hour day in Paris, which is actually the time from 18:00 (day 1) to 18:00 (day 2) in New York. If you scheduled a daily Health report for 7 A.M. Paris time, eHealth actually runs the report at 1 A.M. New York time, and uses the 24-hour range from 18:00 to 18:00 in New York to obtain the 24-hour day in Paris time. For scheduled reports, eHealth applies the Greenwich Mean Time (GMT) offset to run the report at the scheduled time in the specified time zone.

**NOTE**
Keep in mind that operating systems might not support all time zones. eHealth displays only time zones that it supports.

**Setting an Element Filter**
If you are using groups to organize your elements, you can use the Set Element Filter option to ensure that only the elements in the specified groups appear when you edit the poller configuration and run reports from the console. This option filters all elements except probe elements for Traffic Accountant. For detailed instructions on creating groups, refer to the eHealth Element and Poller Management Guide.

**Running Reports on Demand**
As an eHealth administrator, you can run a report from the eHealth console for elements, groups, or group lists, depending on the report type. While some Run Report dialogs contain most of the options shown in Figure 10, a few have unique options that are specific to that report. Regardless of the one you choose, the basic procedure for generating a report is the same for all types.

![Figure 10. Run Report Dialog](image)
To run a report on demand from the eHealth console:

1. In the eHealth console, select **Reports**; then choose the name of the report that you want to run.
2. In the Run Reports dialog, specify the criteria for the subject of the report.
3. Specify a time range for the report, and optionally, a time zone.
4. Specify whether you want to display element names or alias names in the report.
5. Select the format in which you would like to output the report.
6. Click **OK**.

**Setting the Report Output**

When you run a report, you can specify one or more of the following output formats for it:

- Print the report.
- Display the report on your screen.
- Send the report to a web server for viewing.
- Save the report as a file.
- Run a command to e-mail the report to specified users.

**Printing a Report.** You can send your reports directly to a printer. The PRINTER environment variable specifies the default printer, but you can specify an alternate by changing the value.

- **On UNIX Systems** – Specify the name of the printer and then add the PRINTER environment variable to your nethealthrc.sh.usr file. For example, to print eHealth reports using a printer named colorps, add the following definition to your nethealthrc.sh.usr file:

  ```
  export PRINTER; PRINTER=colorps
  ```

- **On Windows systems** – Specify the name of the printer server and the name of the printer using the following format without spaces: `\printServer\printerName`

  For example, if you specify `\utah\laser2`, eHealth sends your reports to the laser2 printer connected to the print server utah.

To send reports to a local printer, specify the name of the printer port such as LPT1 or COM1. If you defined a default printer while installing eHealth, you can change this printer by using the System Properties dialog to change the NH_PRINTER environment variable, and then stop and restart the eHealth server to enable the changes.

**Displaying a Report on the Screen.** If you do not want to save an interactive report, you can use the **Screen** option to display it on your monitor. The **Screen** option is not available for scheduled reports. eHealth UNIX systems use a PostScript image display utility or Adobe Acrobat Reader to display the report on the screen. To use Adobe Acrobat Reader, you must download the software from the Adobe web site and install it.

- **Using a PostScript Image Display Utility** – The PostScript image display utility that you use is specific to the UNIX operating system. eHealth supplies the Image Tool utility for the Solaris operating system, or the GhostView utility for the HP-UX operating system. On Solaris 9 or later systems, eHealth uses the GhostView utility by default. To use the GhostView utility on a Solaris operating system, change the value of the NH_PSVIEWER1 environment variable by entering the following:

  ```
  NH_PSVIEWER1="ehealth/bin/ghostview"
  ```
• **Using the Adobe Reader** – For Windows systems, eHealth uses the Adobe Reader, which you must install, to display reports on the screen. You can also use this application to view screen-based reports on a UNIX system. To use the Adobe Reader on a UNIX workstation, confirm that your PATH environment variable includes the installation directory for Adobe Reader. As a best practice, you should not install it in the same directory in which you installed eHealth. In the nethealthrc.sh.usr file, change the NH_VIEWER_TYPE environment variable setting by entering the following:

```bash
export NH_VIEWER_TYPE; NH_VIEWER_TYPE="pdf"
```

After you change the variable, stop and restart the eHealth console to make the changes take effect.

**Sending a Report to the Web Server.** When you choose the Web Directory output option, you enable users to view reports in the web directory of the eHealth installation or through the Report List page of the eHealth Web user interface. This output mechanism also allows you to specify the users who can view At-a-Glance and element-based Trend reports.

**Saving Reports in the Web Directory.** eHealth saves the reports as Hypertext Markup Language (HTML), Graphics Interchange Format (GIF), portable document format (PDF), and comma-separated ASCII files in subdirectories of your eHealth installation. eHealth creates a PDF file for each web report; you can open the PDF file in Adobe Reader to print the report. eHealth automatically creates ASCII reports as well. You can access these reports by using links when viewing the reports from the Web. Figure 11 illustrates the web directory structure and the report locations.

![Figure 11. Web Directory Structure](image-url)
In the **Web Directory** field, you can specify the name of the lowest level directory for a report by rearranging, removing, or adding variables; you cannot specify characters. You can combine or remove variables to name the directory. If you do not include any variables, eHealth automatically uses the date as the name of the directory. If you do not want the date, subject name, or report name to appear in the directory name, specify empty braces ({}).

By default, eHealth names this directory as follows:

\[$(SUBJECT)_$(DATE)_$(TIME)\]

The eHealth variables are defined as follows:

- The \$(SUBJECT) variable is one of the following:
  - For statistics elements, the name of the element, group, or group list for which the report was run
  - For conversations elements (Traffic Accountant), the name of the group, view, node, or probe
- The \$(DATE) variable is the date on which the report was run in *YYYY_MM_DD* format.
- The \$(TIME) variable is the time at which the report was run in *HH_MM_SS_NUM* format (where NUM is a unique number that identifies the report).
- Optionally, you can specify the \$(CONFIG) variable to include the report name as part of the directory name.

For example, if you ran a report for the Finance group on December 22, 2006 at 8:23 P.M., the default directory name for the report is as follows:

Finance_2006_12_22_20_23_20_491

### Restricting User Access to Element-Based Reports Generated by Other Users.

At-a-Glance and element Trend reports are based on elements only. As a security mechanism, eHealth does not allow users to view these reports unless the users actually generated the reports from the Web interface themselves. When you select the output options for a report through the eHealth console, you can specify the users who can view these reports on the Web.

To specify viewing access to element-based reports:

1. In the Run Report dialog, under **Output**, select **Web Directory**.
2. Specify the name of the lowest level directory for the report by rearranging, removing, or adding variables, as described above.
3. In the **Web User** field, specify one or more web user names (separated by commas):
   - If you do not want users to view the report, specify **admin**.
   - If you want all users to view the report, specify **all**.

   **NOTE**

   If you specify one or more names in the field, eHealth outputs them to the Web for those users *and* the admin.

4. Click **OK**.
Saving a Report as a File. To save a report as a file, you can select Other and select a format (ASCII, PDF, or PostScript) and then specify the name and/or directory in which you want eHealth to save the report. To save the reports in another directory, specify the pathname and file name in the field next to the file format that you select. eHealth names ASCII, PDF, and PostScript files according to the default syntax:

\$(SUBJECT)_$(DATE)_$(TIME)\_fileType

The extension \_fileType is .csv (for ASCII files), .pdf, or .ps, according to the file format in which the report was saved. For example, if you ran a report for your Sales group on December 22, 2006, at 8:23 A.M., and saved it as an ASCII file, the default file name for the report is as follows:

Sales_2006_12_22_08_23.csv

Optionally, you can use the $(CONFIG) variable to include the name of the report as part of the file name. You can use any combination of these variables and characters to name your files.

Running a Command to E-mail a Report to Users. You can e-mail reports to specified users by running the nhMail command automatically after the report generates. It sends PDF or PostScript report files as Multipurpose Internet Mail Extension (MIME) attachments. To use this feature, you must have an Internet e-mail account. (Aliases in local .mailrc files are not recognized, but system-wide aliases operate correctly.) If the mail recipient has a MIME-compliant e-mail application, the recipient can double-click the attachment icon to display the report file or save the file and open it using the appropriate application.

To mail a report to users:

1. In the Run Report dialog, select Other and choose an output format.
2. Select Run Command.
3. Specify another e-mail address in place of eHealthUser or specify multiple users by doing the following:
   - On a UNIX system, separate the user names and file names with a space and enclose each set in single quotation marks:

     nhMail 'smith@xyz.com sales@xyz.com dev@xyz.com'

   - On a Windows system, separate the user names with a plus sign (+) and enclose each set in single quotation marks:

     nhMail 'jdoe@acb.com+jsmith@zzz.com'

   You can create a script that accepts a file name as an option and specify the script in the Run Command field. eHealth passes the full pathname for the saved file to the specified script. If you specify more than one file format (such as ASCII and PDF), the option runs the command for each file format separately.
Scheduling Reports

Because Health and Service Level reports can take a long time to run, you might want to schedule them to run during off-peak hours. When you schedule these reports, eHealth runs a Data Analysis scheduled job that analyzes the data for each element in the report, based on the thresholds in the service profile for that report. eHealth saves the daily analysis summaries for each element. When you run future Health and Service Level reports for the same profile and elements, the reports finish faster because eHealth does not need to perform data analysis for the elements for which summaries already exist.

If you run several large Health, MyHealth, or Service Level reports simultaneously from the console or the Web, you could impact the performance of the eHealth system. As a best practice, you should run only two of those report types at one time (that is, two Health reports, two MyHealth reports, or two Service Level reports). You could run up to five At-a-Glance reports or ten Trend reports at one time without impacting the performance of your system.

Recommended Scheduling Practices

Initially, you might want to schedule a limited set of reports and examine the results to confirm that the interface elements in the poller configuration have correct speed settings. For example, you might need to set Frame Relay speeds to your committed information rate (CIR). You should also create service profiles that you want to use with the reports, as described in “Managing the Service Profiles on Which eHealth Bases Its Analysis” on page 42. You might want to schedule reports to run in the early morning hours when your resources are less busy; the report users can then review them when they start their day.

Detecting Patterns

Over time, you can observe patterns in your resources such as the periods during which IT resources generate more volume. As you become familiar with these patterns in your infrastructure behavior, you can also detect changes in normal behavior. If changes occur because of increased volume, you can run a Trend report to identify the time that they occurred. If the change in behavior is due to poor performance by an element, you can run a Trend report or an At-a-Glance report to identify possible causes, and the time that the change occurred.

Considering Time Zones

By default, eHealth schedules one data analysis job to occur before the first scheduled Health or Service Level report. When you set time zones, it schedules one data analysis job for each time zone that you use in a Health or Service Level report, including a job for all reports scheduled for the local time zone. If you schedule a report and specify a time zone setting, eHealth applies the time zone to the report.

Using the Job Scheduler

As an eHealth administrator, you can use the eHealth console’s job scheduler to create scheduled report jobs for every standard type of report. With the exception of the additional Schedule options, the Add Scheduled Report dialog for a report type is exactly the same as its Run Report dialog counterpart. Regardless of the report type that you choose, the basic procedure for adding a scheduled report job is the same across all types.
To schedule a report:

1. In the eHealth console, select **Setup → Schedule Jobs**.
2. Select **Add**  *Report_type* from the list.
3. In the Add Scheduled Report dialog, do the following:
   a. Select the subject of the report.
   b. Specify a time range for the report, and optionally, a time zone.
   c. Select the format in which you would like to output the report.
   d. Set the schedule for the job.
4. Click **OK**.

### Changing the MyHealth Report Schedule

Once a user has created and saved a MyHealth report, eHealth schedules the MyHealth report job to run at 1:00 A.M. daily. To reduce the load on the eHealth server, the eHealth administrator can schedule the report job to run at a different time on specific days of the week or on a specific day of the month. In the Schedule Jobs dialog, a MyHealth job appears under the **Applications** column for each MyHealth report that you have created.

To change a scheduled MyHealth report:

1. In the eHealth console, select **Setup → Schedule Jobs**.
2. In the Schedule Jobs dialog, select the MyHealth job for the specific web user for whom you want to schedule the report; then click **Modify**.
3. In the Modify Time for MyHealth Report dialog, specify the schedule.
4. Click **OK** and click **OK** again to apply the changes in the Schedule Jobs dialog.

If your web user account has MyHealth reporting permissions, you can run the MyHealth report on demand rather than waiting for eHealth to generate it.
Running Reports from the Web Interface

In the eHealth Web user interface, web users with the appropriate permissions can generate reports through the Run Reports page and then view them on the Report List and Organization pages. Using this interface, web users can select resources and the time periods during which they want to generate data for their elements. They can also customize the reports in various ways by setting presentation attributes, or create customized Run Report templates of their own that they can reuse to save time.

Understanding Web Reporting Security

If you log in to an eHealth system as the admin, you can generate any type of report from the eHealth Web interface. For security purposes, web users have permission to run reports, but they do not have access to any subjects (elements, groups, or group lists) against which they can run the reports. To be able to generate a report, an admin must assign access permissions to each web user account.

As an additional security measure, you can control user access to report templates and report directories by modifying the web user account. By default, web users can view eHealth templates that you have created for the eHealth site and all eHealth directories that contain reports that you output to the Web from the eHealth console.

To enable a user to run an eHealth report from the Web user interface:

1. Log in to OneClickEH as an administrator (or a web user with permission to manage user accounts); then click User Administration.
2. Double-click the user name in the web user account list.
3. Select the Reports tab on the left and do the following:
   - Select the report types that the user should be allowed to run.
   - Optionally, restrict the user’s access to specific report templates. Enter text in the Report templates security patterns field by following these guidelines:
     - Specify more than one template name by separating each name with a space.
     - Restrict the user to template names containing specific text by specifying the text followed by the * symbol. For example, specify Blue* to permit the web user to run default reports and customized report templates with names that begin with Blue.
   - Click Apply.
4. By default, the user can view all report directories. Optionally, restrict access to specific directories:
   a. Select the General tab and enter text in the Web report directory security patterns field:
      - To allow the user to view specific reports saved in a Web directory, specify the common characters followed by an asterisk (for example: Blue*).
      - To allow the user to view reports saved in Web directories that begin with more than one set of characters, specify both sets of characters in this field (for example: Blue* and Red*).
   b. Click Apply.
5. Enable the user to access the subjects (elements, groups, and group lists) for the reports:
   - For Health, Service Level, Top N, and Trend, enable the account to access the **groups** against which the reports will be run. Select the **Groups** tab. Select **All** or select specific groups; then click **Apply**.
   - For Service Level reports, enable the account to access the **group lists** against which the reports will be run. Select the **Group Lists** tab. Select **All** or select specific group lists; then click **Apply**.
   - For At-a-Glance, element-based Trend, and What-If reports, enable the account to access the **elements** against which the reports will be run. Select the **Groups** tab. Select **All**; then click **Apply**.

6. Click **OK**.

**Using the Run Reports Page**

If your web user account has permission to run a report and to view the subjects against which you want to run it, you can generate it by selecting the **Run Reports** tab.

**To generate a report from the Web interface:**

1. On the Run Reports page, select a report template from the report list in the left pane.
2. On the Run Report screen, do the following:
   a. Specify the criteria for the subject of the report (element, a group, or a group list).
   b. Specify a time range for the report, and optionally, a time zone.
   c. Customize the presentation by clicking **More Options** and setting presentation attributes.
3. Click **Generate Report**.
If you are an administrator, you can output any eHealth report from the eHealth console to the Web to enable users to view it on the Report List and Organization pages. Any user who has a web account with the appropriate permissions can view reports, access report shortcuts, save their own custom report templates, and remove reports that they no longer need. This chapter explains how to view reports from the Web interface, create and save report templates, and delete reports.

**Viewing Reports on the Report List Page**

The Report List page provides links to all web-based reports that you have generated from the Run Reports page, as well as reports that other users have generated from that page if your account has permission to access the subjects against which the reports were run. For example, an eHealth administrator generated At-a-Glance and element-based Trend reports from the eHealth console and explicitly specified your user name in the Run Report dialog, these reports will also appear on this page. The following table lists the tasks that any user can perform from the Report List page.

<table>
<thead>
<tr>
<th>Task</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>List the reports in a particular order.</td>
<td>Use the sorting options.</td>
</tr>
<tr>
<td>List reports of a specific subject, technology, report type, or date.</td>
<td>Use the filtering options.</td>
</tr>
<tr>
<td>Condense the list.</td>
<td>Click Hide Titles.</td>
</tr>
<tr>
<td>View the report in your web browser.</td>
<td>Click the link for the title or subject.</td>
</tr>
<tr>
<td>View the report using Adobe Reader.</td>
<td>Click the PDF link.</td>
</tr>
<tr>
<td>View the ASCII report in Microsoft Excel or another application.</td>
<td>Click the ASCII link.</td>
</tr>
<tr>
<td>View previous versions of a scheduled report on the web server.</td>
<td>Click the History link.</td>
</tr>
<tr>
<td>Identify a scheduled report that failed to run or is disabled.</td>
<td>View Status field.</td>
</tr>
<tr>
<td>Delete element-based reports that you no longer need (available only if your user account has permission to delete reports).</td>
<td>Select the box next to each report and click the delete button above the list.</td>
</tr>
</tbody>
</table>

**To view the History link and the Status field, you must select the Scheduled reports only filter at the top of the screen.**
Viewing Reports on the Organization Page

The Organization page provides links to all subjects (group lists, groups, and elements) that your user account can access and the reports that you or other users have run against them. It also provides links to views, groups, and nodes for Traffic Accountant. The report list changes each time that you select a new subject. Table 9 describes the various ways that you can view reports from this page.

The left frame of the Organization page lists the subjects in your web-based reports, as shown in this example.

- To show the reports for a subject in the right frame of the page, click the subject name. Subjects can include group lists, groups, elements, views, and nodes.
- To search for a specific subject, specify a string in the **Find** field. The search is not case-sensitive. You cannot use wildcards in the string, but eHealth finds items that contain that string anywhere in the name. For example, if you specify lan, the search highlights the groups, group lists, or views that contain “lan” anywhere in the element, group, group lists, view or node name, and places a bullet in front of the name.
- To expand an entry and view its subcomponents, click the plus sign (+).

Table 9. Viewing Reports from the Organization Page

<table>
<thead>
<tr>
<th>Task</th>
<th>Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locate a group to which an element belongs or a group list to which a group belongs.</td>
<td>Specify text in the <strong>Find</strong> field.</td>
</tr>
<tr>
<td><strong>NOTE:</strong> You must have access to the group or group list.</td>
<td></td>
</tr>
<tr>
<td>View the reports in a particular order.</td>
<td>Use the sorting options.</td>
</tr>
<tr>
<td>View reports of a specific technology or report type, or generated on a specific date.</td>
<td>Use the filtering options.</td>
</tr>
<tr>
<td>View your reports as PDF files.</td>
<td>Click <a href="#">Get Adobe Reader</a> to download the software.</td>
</tr>
<tr>
<td>Locate elements within a cluster environment by identifying the Distributed eHealth System on which the elements reside.</td>
<td>Use the <strong>Find Element</strong> icon at the top of the page.</td>
</tr>
<tr>
<td><strong>NOTE:</strong> To access this option, you must have an eHealth Distributed license. For specific information, refer to the Distributed eHealth Administration Guide.</td>
<td></td>
</tr>
<tr>
<td>Access shortcuts to generate At-a-Glance, Trend, and Top N reports on demand (if your user account has permission to generate these report types and access shortcuts).</td>
<td>Click the appropriate icon at the top of the page.</td>
</tr>
<tr>
<td>Drill down to an Element Configuration Report or an Element Variable report (if your account has permission to generate the report type).</td>
<td>Click the appropriate icon at the top of the page.</td>
</tr>
<tr>
<td>Delete element-based web reports that you no longer need (if your account has permission to delete reports).</td>
<td>Select the box next to the report title; then click the delete button above the list.</td>
</tr>
</tbody>
</table>
Viewing Web-Based Reports

When viewing web-based eHealth reports, you can compare reports by opening one report in a new window, or search for text in the current page.

Comparing Reports by Opening One Report in a New Window

When you view a web-based report, the web server displays the report in your current browser window. If you would like to compare two or more reports at the same time, you can use a browser command to open one report in a new browser window.

To compare a report that was run last week with the same report that was run two weeks ago:

1. In the Report List page, locate the link for the report that was run two weeks ago.
2. Place the mouse pointer over the link and click the right mouse button.
3. In the pop-up menu that appears, do one of the following:
   • If you use the Microsoft Internet Explorer browser, select **Open in New Window**.
   • If you use the Netscape Navigator browser, select **Open Link in New Window**.
   The web browser opens a new browser window containing the report.
4. Use the mouse to select (return to) the original browser window.
5. In the original browser, locate the link for the report for last week; then click it to view the report in the current browser.

Searching for Text in the Current Page

You can use the browser **Find** command to locate text strings within the current page. The **Find** command searches the current page. If the current page uses HTML frames, this command searches each frame in the order of its appearance on the page. While the Find dialog is displayed, you cannot alternate between the browser window and the dialog. You must dismiss the dialog to return to the browser window.

**NOTE**

The **Find** command locates text strings in HTML text areas, but not in GIF images or selection lists.

Saving Report Templates

If you tend to run your reports on a regular basis using the same options and attributes, you can create your own customized report page templates to save time.

- **Saving a template of the Run Report page through the Web interface** – If your web user account has permission to save custom report templates, specify a name in the **Template Name** field of the Run Report screen and click **Save Report Template**. If you do not specify a report name, eHealth names it **MyReport**. eHealth adds the template to the list of available reports in the left pane under the specific report type.

- **Saving a customized version of a standard report through the eHealth console** – Select a report in the Edit Report dialog and select **Copy**. Rename the report, complete the remaining fields, and click **OK**. If you do not specify a name for the report, eHealth names it **copy_of_reportName**. eHealth adds the template to the list of available reports in the Run Report and Edit Report dialogs.
For any user who has an account with permission to run At-a-Glance, Trend, and Top N reports, eHealth displays shortcuts to the standard report templates at the top of the Organization page of the Web interface. By setting your user preferences, you can link to your own customized reports instead of the standard templates, as described in the next section.

**Creating Customized Report Shortcut Icons**

If your web user account has permission to generate At-a-Glance and Trend reports from the Web interface, you can customize a report template and customize the icon that links to it from the Organization page to make it easily identifiable.

**To create a customized report shortcut for your eHealth site:**

1. Create and save an At-a-Glance or Trend report template using the appropriate Run Report page (for example, **Router**). After you save it, the template should appear within the **Available Reports** list on the Run Report page. eHealth generates a file named `Router.rpt` and stores it in the `ehealth/reports/glance/users/admin` or `ehealth/reports/trend/users/admin` directory.

2. Within the `ehealth/web/output` directory, locate the `toolbar.htm.usr.sample` file.

3. Make a copy of the `toolbar.htm.usr.sample` file and rename it `toolbar.htm.usr`. Open the file and scroll to the entries shown in this example.

4. Replace the template text as follows, but do not italicize it:
   - To link to a Trend report template, at the beginning of the first entry, replace `LanWanBandwidthTrend` with `Router`. At the end of the entry, replace ‘Run a LanWan Bandwidth Trend’ with ‘Run a Router Trend’.
   - To link to an At-a-Glance report template, at the beginning of the first entry, replace `LanWanGlance` with `Router`. In the last line of the entry, replace ‘Run a LanWan AAG’ with ‘Run a Router AAG’.

5. Customize the image that appears on the shortcut icon:
   - Locate the reference to the image file in the last line of the entry for the shortcut link.
   - Replace the `.gif` image name with your new GIF image file, but do not italicize the name. It must be approximately 35 x 35 pixels.
   - Place a copy of the image file in the `ehealth/web/output` directory.

7. Set the user preferences to display the icon on the Organization page. Select Preferences on the Admin page and select the template that you just created.

8. Select the Organization tab at the top of the Web interface. The customized report icon should appear at the top of the Organization page along with other shortcut icons.

9. Click the plus sign (+) next to Elements in the left pane; then click the shortcut icon. eHealth generates a report for that element using the specified router report template and displays it.

Creating Multiple Customized Report Shortcuts

To create additional shortcuts for your eHealth site, you must create individual customized report templates using the Save Report Template feature of the Run Reports page of the eHealth Web interface, and then add the appropriate link to the toolbar.htmusr file. The report shortcut will not use the appropriate report template unless the template .rpt file name matches the reference that appears in the toolbar.htmusr file for that shortcut.

Deleting Reports, Saved Run Report Screens, and Files

Over time, you may accumulate customized versions of standard console reports, versions of Run Report screens that you have saved, and generated web reports. The following sections describe how to remove the reports, associated templates, and files that you no longer need.

eHealth Console Reports

To delete a customized version of a standard report from the eHealth console, log in as the administrator, select the report from the Available Reports list in the Run Report dialog, and click Delete. Click Delete again to confirm the removal and eHealth will remove it from your Reports list.

Web Interface Reports

If your eHealth web account has permission to delete reports, you can delete any element-based report from the Report List or Organization page by selecting the checkbox next to the report name and clicking the delete icon at the top of the screen, as shown in Figure 12. You cannot delete group-based reports unless you are logged in as the administrator. Keep in mind that eHealth does not remove web report files from the ehealth/web/output directory until it runs the Delete Old Reports scheduled system job (as described in “Old Report Files” on page 34). To delete the files immediately, you must log in as the eHealth web administrator and click Remove Reports Marked for Deletion under Site Management.

Figure 12. Deleting Reports
Saved Run Report Screens

At any time—regardless of your web account permissions—you can remove any report run screen that you have saved previously using the Save Report Template option, as shown in the following example. Select the run screen name under Available Reports and click the delete icon. (You cannot delete report templates that the administrator created for you using the eHealth console. The administrator must remove those templates using the appropriate Edit Report dialog on the eHealth console.)

Old Report Files

eHealth runs a scheduled job daily at 6:00 A.M. to clean up report and temporary files. The Delete Old Reports job deletes reports and files that are older than 31 days and that are saved in certain eHealth directories. If you log in to the eHealth console as the eHealth administrator, you can modify the Delete Old Reports job to change the number of days that specific reports are kept and when the job runs. This scheduled job removes files only from the default directory.

To modify the Delete Old Reports job:

1. In the eHealth console, select Setup → Schedule Jobs.
2. In the Schedule Jobs dialog, double-click Delete Old Reports.
3. In the Modify Scheduled Delete Old Reports dialog, change the number of days to retain report files. For Health and Service Level reports, you can change the number of days to retain daily, weekly, and/or monthly report files.
4. Change the number of days to retain temporary files saved in the ehealth/tmp directory.
5. Specify a daily or monthly schedule and the time when the job should run.
6. Click OK; then click OK in the Schedule Jobs dialog to apply the change.
Report Data Analysis and Management

To generate Health, MyHealth, and Service Level reports, eHealth assesses the overall health of the resources within your network by analyzing performance indicators for an element, assigning a performance grade to the element, and then analyzing trends and calculating averages based on a service profile. As an eHealth administrator, it is important to understand the process that eHealth uses to analyze data and to also effectively manage the service profiles. This chapter describes the data analysis process, and explains how to interpret the data and identify changes in the health of your resources. It also provides detailed instructions for managing your service profiles.

Evaluating the Health of Your Resources

To evaluate the health of your resources, eHealth collects historical data over a period of time—defined as a baseline period—and calculates a Health Index for your elements based on variables, such as bandwidth, capacity, availability, and traffic. This index grades the performance of each element based on the utilization and number of errors that eHealth detects. eHealth uses upper limits for utilization and errors, referred to as Trend thresholds, to identify problem areas.

The data analysis process analyzes polled, hourly, or daily samples. Data analysis computes Health Index points, health exceptions, distributions of variables (such as bandwidth), percentiles, service level ranges, and situations-to-watch trends.

Understanding the eHealth Data Analysis Process

A service profile is a group of policy settings that control how eHealth analyzes the data against which it generates reports. These settings include the following:

- Thresholds that eHealth uses to detect health exceptions and compute the Health Index
- Long-term trend thresholds
- Time-of-day and day-of-week filters
- Distribution chart thresholds, also called service level ranges

eHealth uses a standard service profile to analyze the data for Health, MyHealth, and Service Level reports. The way that eHealth actually stores and uses the analyzed data varies, depending on whether you run the reports on demand or schedule them.

Data Analysis and On-Demand Reports

When you run reports on demand, eHealth analyzes the data while the reports runs, which increases the amount of time that it requires to generate them. The length of time depends on how many elements are included in each report, and the length of the baseline period. eHealth creates a baseline of analyzed data based on the available data for the element. It uses the available as-polled and
rolled-up data for the element. Analyzed data that is based on rolled-up data is not as granular as the as-polled data, but the reports use the available data to show a complete baseline. You can configure reports so that they do not use rolled-up data for analysis, but the reports show gaps for any days in the baseline that do not have as-polled data.

When the report finishes generating, eHealth discards the analyzed data. Each time that you run a report on demand, eHealth analyzes the data again and discards the analysis when it finishes.

**Data Analysis and Scheduled Reports**

When you schedule a Health, Service Level, or MyHealth report, eHealth creates a scheduled data analysis job to analyze the data before the report runs. For each element in the report, the data analysis job creates a summary of the data for each day in the baseline based on the service profile that the report uses, as illustrated in Figure 12.

![Figure 12. Data Analysis Process](image)

The first time that you schedule the report, eHealth creates the baseline of data up to the last whole day of data; for each subsequent day, the analysis job creates the new daily summary, based on the setting in the Data Analysis Schedule dialog. As with on-demand reports, you can configure scheduled reports not to use rolled-up data for analysis. The reports show gaps for the earliest days in the baseline, but with each new day, analyzed data that is based on the as-polled data appears in the report.

eHealth saves the analyzed data for each element/service profile pair in the database. Any future reports on that element and service profile run faster because the reports do not have to analyze the data during report generation; the report simply uses the analyzed data that already exists. Any future on-demand reports for the same elements and service profile will also run faster; eHealth uses the saved analyzed data whenever possible, rather than re-analyzing the same data for the element and profile.

**Determining the Baseline Period**

The baseline period is a rolling period that projects back from the day on which the report is run. Health reports compare hourly information to the same hour of the day and daily information to the same days of the week in the baseline period.
eHealth uses the following baselines:

- 6-week baseline period for daily Health reports
- 13-week baseline for weekly Health reports (6-week baseline for weekly MyHealth reports)
- 12-month baseline for monthly Health reports

**NOTE**

If you add elements to a group or group list that is used in a scheduled report, eHealth may have to analyze the history of that element over the baseline period. If the added element is part of another group that has been analyzed against the same service profile, eHealth can reuse the analyzed data.

In Figure 13, the shaded days are included in an example six-week baseline period. In a Health report that is run for Thursday, eHealth averages data from the previous Thursdays to compare with the data collected for the report day. The baseline allows eHealth to compare data from the same day to data for previous days to identify changes in behavior or performance for that day.

![Figure 13. Baseline Period Example](image)

### Assigning the Health Index

eHealth assigns a Health Index to each element that is based on the amount of volume and number of errors that the element experienced. A high Health Index indicates problems, while a low one indicates a healthy element. It evaluates the data that it collects on each element in the report for each poll. It groups the data into categories, referred to as Health Index variables, and divides each of them into four ranges: excellent, good, fair, and poor.

eHealth then assigns health points to each range as follows:

- Excellent receives 0 points
- Good receives 2 points
- Fair receives 4 points
- Poor receives 8 points
For example, Table 10 lists the default Ethernet Health Index thresholds.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Excellent</th>
<th>Good</th>
<th>Fair</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilization</td>
<td>0 up to 10%</td>
<td>10 up to 20%</td>
<td>20 up to 35%</td>
<td>35% and over</td>
</tr>
<tr>
<td>Collisions</td>
<td>0 up to 5%</td>
<td>5 up to 9%</td>
<td>9 up to 15%</td>
<td>15% and over</td>
</tr>
<tr>
<td>Other errors</td>
<td>0 up to 3%</td>
<td>3 up to 7%</td>
<td>7 up to 10%</td>
<td>10% and over</td>
</tr>
<tr>
<td>Broadcast/multicast</td>
<td>0 up to 100</td>
<td>100 up to 200</td>
<td>200 up to 300</td>
<td>300 and over</td>
</tr>
</tbody>
</table>

eHealth adds the points for each variable to determine a Health Index for each element. A very healthy element would have a Health Index of 0, in which all variables are in the excellent range. The most points an element can receive depends on the element type. In the example presented in Table 11, eHealth collected data for one poll of an Ethernet element and assigned the Health Index shown. For details on the Health Index for the different element types, refer to the Web Help.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Current Value</th>
<th>Assigned Range</th>
<th>Health Index Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utilization</td>
<td>32%</td>
<td>Fair</td>
<td>4</td>
</tr>
<tr>
<td>Collisions</td>
<td>5.4%</td>
<td>Good</td>
<td>2</td>
</tr>
<tr>
<td>Other Errors</td>
<td>&lt;1%</td>
<td>Excellent</td>
<td>0</td>
</tr>
<tr>
<td>Broadcast/Multicast</td>
<td>158</td>
<td>Good</td>
<td>2</td>
</tr>
<tr>
<td>Health Index</td>
<td></td>
<td></td>
<td>8</td>
</tr>
</tbody>
</table>

**Setting the Trend Thresholds**

eHealth sets an upper limit—defined as a Trend threshold—on the same variables that it uses for the Health Index. It uses the Trend threshold to predict when an element might experience difficulty. eHealth uses the data from the baseline period to construct a trend line. For each element in the report, it uses the trend line to predict the value that each element would receive at the end of the reporting period.

When a report runs, eHealth evaluates the predicted value for any variable to determine whether it is near or above the Trend threshold, or whether it has reached the threshold. For variables with values that are increasing, eHealth attempts to predict when the variable might reach the threshold. For more details on Trend thresholds for different element types, refer to the Web Help.

**Assigning Exception Points**

eHealth assigns exception points to elements based on the assigned Health Index and the Trend behavior of each variable. It also assigns exception points to elements that have suddenly experienced new errors or that have availability problems. The Situations to Watch chart and its Supplemental report display the Trend behavior of element variables. An element can receive 100 exception points for each variable, with 66 points allocated to the Health Index and 34 points allocated to the Trend analysis. The maximum
number of exception points that an element can receive depends on the number of variables that it has. By customizing the Health report and its service profile, you can specify the number of exception points that an element needs to accumulate before it can appear in reports, the maximum number of elements that can appear, and the type of elements that appear.

eHealth further divides the Trend analysis in two ways: how close the predicted value is to the threshold (Trend proximity) for 17 points, and how rapidly the trend is increasing (Trend slope) for the other 17 points. It totals the exception points for each element for the reporting period. For example, a WAN element has four variables: utilization, discard errors, other errors, and non-unicast frames. Figure 14 illustrates how eHealth allocates the exception points for each WAN variable. For information on exception points for the different element types, refer to the Web Help.

![Figure 14. Exception Points for a WAN Element](image)

**Health Index Exception Points**

eHealth assigns exception points to an element based on the Health Index that the element receives for a variable. For example, an element with few errors for a reported day would receive a low Health Index for errors and few or no exception points. If that same element experienced a high percentage of errors during the day, the element would probably receive a high Health Index and all 66 exception points.

Elements rarely experience extreme problems that cause them to receive the maximum Health Index for an entire day. To ensure that eHealth assigns the appropriate number of exception points to all error conditions, it aggressively assigns exception points to lower Health Indexes using the logarithmic equation illustrated in Figure 15.

![Figure 15. Assigning Health Index Exception Points](image)
Exception Points for Availability

If a Response or System element is unavailable during the report period, eHealth assigns up to 100 availability exception points based on the amount of time that the element was down. The Unavailable setting in the service profile determines the number of Health Index points that eHealth assigns for each second of unavailability. As with other Health Index exceptions, it uses the logarithmic equation illustrated in Figure 15 to assign exception points based on the average Health index for the day (assigning exception points to lower Health Indexes).

Exception Points for Sudden New Errors

If an element has been error-free for at least eight days and suddenly experiences new errors during the report period, eHealth assigns 34 exception points to that element. This type of error condition might be the result of adding a faulty or misconfigured piece of equipment to the infrastructure.

Trend Proximity Exception Points

eHealth evaluates the predicted behavior from the Trend analysis to compare the predicted value for a variable to the threshold. It starts assigning exception points when the predicted value is at 90% of the threshold and assigns all 17 points once the predicted value is 200% or above the threshold. If the predicted value is less than 90% of the threshold, eHealth does not assign any exception points. Figure 16 illustrates how eHealth assigns exception points to Trend proximity.

Trend Slope Exception Points

eHealth assigns exception points to the Trend slope based on the steepness of the slope, as illustrated in Figure 17; that is, it assigns more points as the steepness of the slope increases. It determines the steepness of the Trend slope based on the number of days predicted for the element to increase from a value of zero to the threshold value.

If the number of days is greater than 120 (four months), it does not assign any exception points. If the number of days is 30 or less (one month), it assigns the maximum of 17 points.
Analyzing As-Polled and Rolled-Up Data

When you generate a Service Level report, eHealth analyzes the data for the entire report period against the service profile in the following order:

- Any available as-polled data
- Rolled-up hourly data (during the time as-polled data is not available)
- Rolled-up daily data

Reports show data only for the times and days when eHealth polled the elements. When you first discover, poll, and run Service Level reports for elements, they show data only for the days that have polled data available. The analyzed data generated for hourly and daily rolled-up data is not as detailed as that for as-polled data because rolled-up data does not include all of the peaks and spikes seen in as-polled data. The scheduled Statistics Rollup job creates the hourly and daily rolled-up data when it compresses the database.

Guidelines for Interpreting Service Level Report Chart Data

When you run a Service Level report, the data for charts that use a timeline might increase sharply in granularity for those days when the analyzed data is based on as-polled data. Also, the per-element charts may lack subtle variations. Do not interpret this increase as a sign that a new event or condition has occurred suddenly in your infrastructure. In six weeks, or the length of time that you retain analyzed data, the report will show that all analyzed data is based on as-polled data.

Service Level reports display a note that informs you of the percentage of data that is based on rolled-up samples. To suppress the note, disable the Show Data Notes General presentation attribute by selecting More Options on the Run Report screen.

Saving Analyzed Data

By default, eHealth saves analyzed data for six weeks. With each new day, the scheduled data analysis job adds another day of analyzed data and deletes analyzed data that is older than six weeks. eHealth runs a data analysis job once a day immediately prior to the first scheduled Health, MyHealth, or Service Level report. This data analysis job analyzes the data for all scheduled reports, except reports that are scheduled for a different time zone. If you specify time zones for Health, MyHealth, or Service Level reports, eHealth runs an additional data analysis job before running the first report scheduled for each time zone. The data analysis schedule records information about the job in the /ehealth/log/Data_Analysis.jobId.log file.

Using Analyzed Data for On-Demand Reports

eHealth also uses the analyzed data for on-demand reports that use the same service profiles for the same data, which increases the speed of the report generation. However, if the elements in an on-demand Health or Service Level report do not have any analyzed data, the report could require several hours to finish. For example, if you create a new report and run it on demand, eHealth performs all analysis while running the report. It does not save the analyzed data for the reports that you run on demand, since these might be temporary tests of new reports. When you test new reports, you should run the reports for a small group of elements so that the reports run more quickly. When you are satisfied that the report format and service profile are what you want, schedule your reports for the full group of elements to take advantage of the scheduled data analysis job.
Setting the Time to Retain Analyzed Data

When you schedule a report, eHealth performs a preliminary analysis of the statistics data for each element in the report. If you prepare the information needed for each element, your scheduled reports run faster. By default, eHealth retains six weeks of analyzed data for each element in scheduled reports. You can increase this time, but before you do so, carefully consider the value of the data versus the cost to maintain it. The recommended maximum is 12 weeks.

To change the number of weeks of analyzed data to retain:

1. In the eHealth console, select Database → Data Analysis.
2. In the Data Analysis Schedule dialog, specify a value in the Keep analysis for field. Because all reports have only one setting, specify the longest report period in the reports that you schedule. For example, if you schedule a Service Level report for a quarter, specify at least 12 weeks.
3. Click OK.

Managing the Service Profiles on Which eHealth Bases Its Analysis

By default, every Health, MyHealth, and Service Level report uses the eHealth Standard service profile. At any time, you can associate a different profile to the report by either editing the default service profile or creating a new profile. The impact of associating a new service profile to a report varies, depending on whether you schedule the report or run it on demand. The following sections provide guidelines to follow.

Specifying Profiles for Scheduled Reports

When you create a new service profile for a scheduled report, the change impacts the database size, as well as the time required to run the first data analysis job. The next time that the data analysis job runs, it detects that the report now uses a new service profile; it must, therefore, create a new baseline of data for the elements in the report based on the new profile’s setting. eHealth saves the new set of analyzed data in the database, which increases the disk space of the database.

If you modify an existing profile, eHealth uses the new settings to analyze the data gathered after you changed the profile and does not discard the existing analyzed data, which was based on the old profile settings. Thus, your scheduled reports typically show a combination of analyzed data based on the old and the updated profile settings. eHealth displays a note in the reports that indicates when the profile changed, which might identify the reason for a change in the appearance of the charts.

Specifying Profiles for Reports Run on Demand

When you specify a new service profile for a report that you run only on demand, the report uses the new profile settings for the data analysis. The impact is usually minimal; because on-demand reports analyze the data during report generation, the reports take just as long to run after the change as they did before the change. However, because on-demand reports do not save data analysis results, the database size does not grow as a result of the change.

Unlike scheduled reports, the on-demand reports do not show data based on the old and new profiles; these reports show data based on the new profile settings only. However, if your on-demand report includes elements that are also in a scheduled report that uses the same service profile, the on-demand report will include data that is based on the old and new profile settings. Because eHealth does have existing analyzed data for the element, it uses the data that is based on the old profile settings and uses the new settings for any elements that do not have stored analyzed data, as well as for any new data that has not been analyzed.
Editing a Service Profile

eHealth allows you to change the settings of the service profile associated with a report by customizing the report or by editing the service profile. eHealth uses the new values for all future data analysis, but the changes do not affect previously analyzed data. Any changes that you make will change the appearance of all reports using this profile.

As a best practice—before modifying a service profile—always determine which reports are associated with it by clicking Used by in the Edit Service Profile dialog. eHealth does not apply your changes unless you confirm your understanding of the impact that they will have on the reports that are associated with it. You can make any of these modifications:

- **Health, MyHealth, and Service Level reports** – Set the data analysis schedule and specify the data direction of full-duplex interfaces.
- **Health reports** – Change the exception points cutoff number, and Health Index and Trend thresholds.
- **Service Level reports** – Change the service level range and percentile.

Specifying Business-Hour Reporting

By modifying your service level profiles, you can include data that is collected during specific times to control the core hours and days to include in your MyHealth, Health, and Service Level reports. In the Edit Service Profile dialog under Data Filter, select the hours of the day and the days of the week during which eHealth should analyze data (for example, Monday through Friday between the hours of 9:00 A.M. and 5:00 P.M.). When you run Health and Service Level reports that use those service profiles, the reports include the data for the specified hours and days only. The charts do not show data for those hours and/or days that are not included, and do not include that data in the analysis for historical data or trends.

Charts for a daily Health report that uses service profiles for partial weeks are affected in the following ways:

- **Network Volume charts** – Volume data does not appear for days that are not analyzed.
- **Situations to Watch charts** – Trends do not include, and are not affected by, the data for days that are not analyzed; the Daily Average column shows data for the last analyzed day of the report period.
- **Volume Leaders, Health Index Leaders, and Volume Change Leaders charts** – Prior ranking is based on the previous analyzed day before the last analyzed day of the report period.
- **Health Index Change Leaders charts** – Prior ranking and the Health Index are based on the previous analyzed day before the last analyzed day of the report period.

When you run a weekly Health report that limits analysis to the data for a part of the week, the Actual values in the Situations to Watch chart are the actual values from the previous analyzed day. For example, if you run a weekly Health report on Sunday for the previous week, and you analyze only the days from Monday through Friday, the Actual values for the Situations to Watch chart are the values for Friday.
Specifying Data Direction of Full-Duplex Elements

The Edit Service Profile dialog allows you to specify how you want to analyze the following data for full-duplex links such as WAN, Frame Relay, or MIB2 LAN interfaces:

- In data
- Out data
- Max data (the most data observed, regardless of direction)
- In & Out data
- Total data

When eHealth analyzes full-duplex interface elements for Total data, it combines the data for both incoming and outgoing directions on the interface and reports the data as one value, the Total value. When it analyzes full-duplex interface elements for In & Out data, it reports both the incoming data and outgoing data as separate data for the element. Figure 18 shows how eHealth represents In & Out data and Total data in the Element Volume vs Baseline chart.

![Figure 18. Element Volume vs Baseline Chart for In & Out and Total Data](chart)

As illustrated in Figure 18, eHealth reports a full-duplex link as two distinct elements (incoming and outgoing) using In & Out data analysis. The incoming data is the right column, and the outgoing data is the left column. eHealth reports a full-duplex link as one element with combined incoming and outgoing data using Total analysis.

If you want your reports to show the activity for both the incoming and outgoing directions, use the In & Out data direction in your service profiles. You can specify data to be analyzed based on the direction of full-duplex interfaces such as WANs, Frame Relays, or MIB2 LANs. For viewing, you can select In, Out, Max (the direction in which the maximum amount of data was observed), In & Out, or Total. By default, eHealth analyzes the Total data, reporting on your full-duplex links as a total of both incoming and outgoing data. To change the data direction to analyze, specify it in the Data Direction list.

Setting the Exception Points Cutoff and Thresholds for a Health Report

In the Exceptions section of a Health report, eHealth displays those elements that have received a number of exception points that exceed a specified threshold. By default, this number is 25. You can use service profiles to control when elements appear in the Exceptions section of a Health report. If, for example, you do not want WAN links to appear in Exceptions reports unless they have reported over 70% bandwidth utilization, you should set the Health Index for WAN utilization to 70%, 80%, and 90%; then set the Trend Threshold for WAN utilization to 70%. An element would then not appear in Exceptions reports with
utilization exceptions until the element was approaching or had exceeded 70% bandwidth utilization. You can change the Health Index thresholds for any variable for an element type. For a general discussion on how eHealth uses the Health Index and for a listing of the default Health Index ranges, refer to the Web Help. You can change the Trend thresholds for any variable for an element. For a general discussion of eHealth Trend thresholds and a listing of the default Trend thresholds, refer to the Web Help.

To modify a service profile for a Health report:

1. In the eHealth console, select Reports → Customize → Health Reports.
2. In the Edit Health Report dialog, select the report from the list; then click Edit next to Service Profile.
3. In the Edit Service Profile dialog, select General from the list on the left under Service Settings.
4. Change the Exceptions Points cutoff. Select Exception Thresholds from the list on the right. eHealth selects Points Cutoff automatically.
5. Specify a value that indicates the number of points that an element must receive before eHealth lists it in the Exceptions sections of the Health report.
6. Select the element type from the list on the left; then select Health Index Thresholds from the list on the right. The variables for that element type appear in the list with the Health Index ranges below it. Select the variable for which you want to change the Health Index thresholds, and set the new boundaries for each range.
7. Select Trend Thresholds from the list on the right. The variables for that element type appear in the list with their values below it. Change the threshold value.
8. Repeat Steps 6 and 7 to change the thresholds for other elements and/or other variables.
9. Click OK or Apply; then click Yes to change the service profile.

Changing the Underutilization Thresholds for Modems

eHealth calculates the average use for a modem or ISDN element at each poll. If the average use is below the underutilization threshold for a percentage of polls in one hour that exceeds the underutilized polls threshold, eHealth includes the element in the Underutilized Connections Supplemental report. The Underutilized Connections report is a supplemental report of the Modem/ISDN Health Report. eHealth uses 50% as the default for the underutilized polls threshold.

For example, using a five-minute polling interval, eHealth polls a modem element up to 12 times in one hour. If the element was underutilized for only one poll, it does not assign exception points. If the element was underutilized for six or more polls, it assigns abused modem exception points. An abused modem is a modem that is in the connected state but is sending little or no data across the connection.
You can adjust the underutilized threshold to appropriate values for your infrastructure. You can also change the underutilized polls threshold to control how many times during an hour an element must have underutilized connections before eHealth assigns abused modem exception points.

**To change the underutilization thresholds:**

1. In the Edit Service Profile dialog, select **Modem** from the list on the left under **Service Settings**; then select **Exception Thresholds** from the list on the right.
2. Select **Underutilized Threshold** from the list; then specify a value for the new volume rate in bits per call second.

3. Select **Underutilized Polls**; then specify a value for the percentage of polls.
4. Click **OK** or **Apply**; then click **Yes** to change the service profile.

**Changing Service Level Ranges and Percentiles for a Service Level Report**

You can change the service level ranges for variables used by any Service Level report and the service level percentiles for variables used in the Element Summary table of the IT Manager report. For a listing of the variables used by the reports and their default settings, refer to the Web Help.

**Guidelines for Setting Service Level Ranges.** When you set your Service Level ranges, define the following for each goal level:

- Lowest line utilization range
- Lowest bandwidth utilization range
- Highest availability range
- Lowest latency range
- Lowest CPU utilization range

**Guidelines for Setting Service Level Percentiles.** By default, eHealth percentile (Pctl) variables show the one-hundredth percentile value in the Element Summary table of the IT Manager report. The one-hundredth percentile is the top (largest) value in a set of sample values. If you include percentile variables in your Element Summary report, and you run a report for a day, the percentile variable value is, by default, the same as the peak variable value. It represents the largest polled value obtained for that element during the day. If you run the report for more than one day, the percentile variable value is the average of the daily one-hundredth percentile values for each day in the report period.

If you include percentile values in your Element Summary table, you might not want to use the one-hundredth percentile value. For example, you might want to show the ninety-fifth percentile. That is,
rather than show the top value, you would prefer to see the value that was ninety-fifth from the top. When
you poll at five-minute intervals during the day, you collect 288 samples. If you list the samples in order
from smallest to largest, the ninety-fifth percentile value is the sample in position 274; only 5% of the
samples are larger. You can change the service level percentiles used for each variable to meet your
reporting needs.

To change the service level range and percentile for variables:

1. In the Edit Service Profile dialog, select the element type from the list on the left under Service Settings.

2. Select Service Level Ranges from the list on the right. Select the variable for which you want to change
   the ranges, and specify new boundaries for these ranges.

3. Select Service Level Percentiles from the list on the right. Select the variable for which you want to
   change the percentiles and specify the value.

4. Repeat these steps to change service level ranges or service level percentiles for other elements and/or
   other variables.

5. Click OK or Apply; then click Yes to confirm the changes to the service profile.

Deleting Service Profiles

If you delete service profiles, eHealth removes them from the list of available profiles, and also deletes any
analyzed data that was based on those service profiles. If you have created reports that use these profiles,
you must change them to use other service profiles. Although you can delete the service profiles named
Standard, you cannot edit the default reports to use other service profiles. To run the Standard Health
report and the Executive, IT Manager, and Service Customer Service Level reports, you must have service
profiles named Standard. If you delete the Standard service profiles, you can recreate them.

To delete a service profile:

1. In the Edit Service Profile dialog, select the service profile that you want to delete from the Named
   Profiles list.

2. Click Used By to identify the reports that will not run after you delete the service profile.

3. In the Edit Service Level Report dialog, for each report listed under Report that uses this service profile,
   select another service profile from the Service Profile list; then click OK.

4. Click Delete, click Delete in the Confirm Delete dialog, and click OK. The eHealth rollup process
eventually removes any analyzed data for the deleted profile.
**Tips for Using Service Profiles Effectively**

In general, it is good practice to carefully plan the number and types of service profiles that you use. The following are some common tips for using and managing service profiles effectively:

- First, run your Health and Service Level reports on demand for a small group of elements to observe the effects and thresholds of the analysis. If necessary, edit the service profile settings and run the reports on demand again. Once you are satisfied with the profile settings, schedule your reports for the groups or group lists that you want to monitor to reduce unnecessary and unwanted analyzed data samples in the database.

- In general, do not create several profiles that have the same settings but different names. If you do, do not schedule reports that use different profiles for the same groups of elements (such as All). This causes eHealth to create several baselines of identical analyzed data (one per profile) for each element and significantly increases the database disk space size.

- If you do require multiple profiles to show different levels of service monitoring, plan your element groups and group lists carefully to reduce the number of scheduled reports with different profiles on the same elements.

- Whenever possible, do not change settings for profiles used in scheduled reports. This can help reduce confusion for those who read or review the reports. When you must change the settings, be prepared for user questions regarding the change in report appearance.

- Whenever possible, do not customize a scheduled report to use a different service profile. If you do, eHealth creates a new baseline of analyzed data for the new profile and the old data is lost to the report. The lost data eventually ages out of the database.

- If you (or your report consumers) run the same Health or Service Level reports on demand every day, consider changing one or more of them to scheduled reports to speed processing and reduce the performance impact on the eHealth server.
Customizing Reports

eHealth uses default report settings for its standard reports, most of which are customizable. Some customization options are only available through the eHealth console, but the majority are accessible through the Web interface if the web user account that you are using has permission to customize reports. This chapter provides an overview of the customization options that are available. Detailed instructions on setting presentation attributes and other customization options are provided in the Web Help for reports.

**NOTE**

As an alternative to the standard report customization options, eHealth offers two additional customization tools:

- **eHealth Report Center** provides an optional web-based report customization application. This application also introduces new report types that you can generate on your eHealth data, or use as samples for designing your own custom reports. For information on this application, refer to the *Introduction to Report Center* topic.
- **eHealth Developer Program** provides encoded versions of report definition files for different types of reports. To use this program, you must complete the Report Developer training. For information on this program, refer to the *eHealth Report Designer Guide*.

---

**Summary of Customization Options**

eHealth provides default report templates for each type of report: At-a-Glance, Top N, Trend, Health, MyHealth, and Service Level. The default report templates are not modifiable; however, if you log in as an eHealth administrator, you can create a new custom report by copying the default template, renaming it, and changing the settings. Similarly, if your Web user account has permission to customize reports, you can create custom reports using the Run Report screen options.

You can access any customized template that you create or your admin creates for you; however, you cannot use customized templates that other users have created. Some customization options are available for every report, whereas others are specific to a report type, as illustrated in Table 12.

<table>
<thead>
<tr>
<th>Customization Option</th>
<th>Applicable Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Change the report definition.</td>
<td>At-a-Glance, Top N, Service Level</td>
</tr>
<tr>
<td>Specify business-hour reporting.</td>
<td>At-a-Glance, Top N, Trend</td>
</tr>
</tbody>
</table>
Table 12. Customization Options (Page 2 of 2)

<table>
<thead>
<tr>
<th>Customization Option</th>
<th>Applicable Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modify the service profile.</td>
<td>Health, MyHealth, Service Level</td>
</tr>
<tr>
<td>Change the baseline period.</td>
<td>Health only</td>
</tr>
<tr>
<td>Account for planned downtime.</td>
<td>Health, MyHealth, Service Level, At-a-Glance, Trend</td>
</tr>
<tr>
<td>Set presentation attributes.</td>
<td>All report types</td>
</tr>
</tbody>
</table>

**NOTE**

Different customization options are available for Traffic Accountant reports. For more information and instructions, refer to the Web Help.

To create a custom report using the eHealth console:

1. Display the Edit Report dialog by selecting Reports → Customize → reportType on the console, or click Edit next to the Report list in the Add Scheduled Report or the Run Report dialog.

2. Select a report from the list and click Copy.

3. Rename the report by specifying a maximum of 64 single-byte characters. You can include the letters A through Z and a through z, the numbers 0 through 9, periods (.), dashes (-), and underscores (_). Space characters are not permitted. On Windows systems, accented characters are also not permitted.

4. Customize your report by setting the available options; then click OK. Your customized report should now appear in the Report list of the appropriate Run Report dialog.
Changing the Report Definition

A report definition file is the main file for reports. It contains the report components, layout, and data content of a report and identifies the styles files that you use for the report. A styles file provides templates or shared definitions for the various components of a report such as page, text, table, chart, graph, and color. To create or modify a report definition file, you must purchase the eHealth Developer Program product and must complete the Report Developer training. The eHealth Report Designer Guide is intended for report designers who want to develop custom reports for themselves or customers. eHealth provides encoded versions of report definition files for different types of reports.

The Definition File field in the Edit Report dialog lists the encoded report definition files that reside in the appropriate directory for a report type. Select the file that you want to use from this list; then click OK.

Specifying Business-Hour Reporting

In the Edit Report dialog for At-a-Glance, Top N, and Trend reports, you can specify that the report include data for 24 hours every day of the week or for selected time ranges such as 8:00 A.M. to 6:00 P.M. For reports that are generated for a week or longer, you can also specify that the report include data for certain days of the week, such as Monday through Friday. For Health, MyHealth, and Service Level reports, you can specify business-hour reporting by editing the service profile to control the number of hours and specific days to include, as described in “Specifying Business-Hour Reporting” on page 43.

Changing the Service Profile

Using the Edit Report dialog, you can change the service profile associated with a Health, MyHealth, or Service Level report, or edit an existing profile to customize the report. When you change a service profile associated with a report type, you cause eHealth to analyze data differently, which affects the scheduled reports that use the service profile. Before you edit a service profile, obtain a list of the reports that use it to determine which reports would be affected if you change or delete it. For detailed instructions, refer to “Managing the Service Profiles on Which eHealth Bases Its Analysis” on page 42.

Changing the Baseline Period

You can specify the number of weeks in the daily, weekly, or monthly baseline period for a Health report, but the baseline cannot exceed the number of weeks for which you are retaining analyzed data. To modify the number of weeks for retaining analyzed data, you must modify the data analysis schedule, as described in “Specifying Business-Hour Reporting” on page 43.

By default, Health reports use the following baseline periods:

- For reports run for a day and MyHealth reports: six weeks
- For reports run for a week: 13 weeks
- For reports run for a month: 12 months

Accounting for Planned Downtime in Reports

eHealth reports provide availability information for the elements that support them and their components. Planned (scheduled) downtime includes any time periods during which an element in your IT infrastructure is unavailable because it is shut down for system maintenance, undergoing an upgrade, or being moved. Reports do not display data for elements during planned downtime, even if those elements were available during the planned downtime. eHealth schedules downtime on a per-element basis. You cannot schedule planned downtime for groups of elements.
eHealth reports account for planned downtime for individual elements in their associated Availability charts in various ways, as described in Table 13.

Table 13. Showing Planned Downtime in Reports

<table>
<thead>
<tr>
<th>Method Used to Enable Planned Downtime</th>
<th>Report Type</th>
<th>How eHealth Indicates Planned Downtime</th>
</tr>
</thead>
<tbody>
<tr>
<td>Select <strong>Account for Planned Downtime in Availability</strong> in the Edit Report dialog.</td>
<td>Health report</td>
<td>Shows a color change in the bar chart for each element and displays a footnote.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Service Level report</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• MyHealth report</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Top N Report</td>
</tr>
<tr>
<td>Enable the General presentation attribute <strong>Show Data Notes</strong> (this is the default setting).</td>
<td>• At-a-Glance report</td>
<td>Reflects planned downtime in the Availability chart’s calculations and displays a footnote to indicate that one or more elements experienced downtime or an outage.</td>
</tr>
<tr>
<td></td>
<td>• Trend report for an element</td>
<td></td>
</tr>
<tr>
<td>Not applicable</td>
<td>Trend report for a group</td>
<td>Not applicable.</td>
</tr>
<tr>
<td></td>
<td>Traffic Accountant report</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 19 shows an example of an At-a-Glance report with a footnote and a Health report without a footnote.**

![Figure 19. Planned Downtime in Reports](image)
The following sections describe how to customize the default planned downtime file, import it into the eHealth database, and export a summary. For instructions on customizing planned downtime on Distributed eHealth Systems, refer to the section on setting up planned downtime in a cluster in the Distributed eHealth Administration Guide.

## Customizing the Planned Downtime Import File

To account for planned downtime in Availability charts and reports, you maintain a single file of all planned downtime or outages. eHealth provides you with a default plannedDowntime.pdi file, located in the ehealth/reports/dataAnalysis directory, which you can import into the eHealth database.

The file is **element-based**; that is, every planned outage in the file refers to only one element—not a list of elements, a group, or a group list. Each entry in the .pdi file specifies a time period during which you plan to perform maintenance work on an eHealth element (or shut it down).

Each line of this file documents a single event or a recurring outage using this format:

```
elementName, recurrence, startDate, endDate, startTime, endTime, dayOfWeek, dayOfMonth, timezone
```

**NOTE**

eHealth maintains a separate database table containing all planned outages for its elements. When you import a .pdi file, it replaces the entire table with the outages defined in that file. Before changing an outage for an element, first export the .pdi file to obtain the latest outages; then edit the exported file. For more information, refer to “Obtaining a Summary of Existing Outages” on page 55.

Table 14 lists each attribute that you must define in the .pdi file, the required syntax, and a description. For each entry, you must define the attributes using the specified format.

### Table 14. Defining Attributes in .pdi File (Page 1 of 2)

<table>
<thead>
<tr>
<th>Attribute Name</th>
<th>Syntax</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>elementName</strong></td>
<td>Element name as defined in the poller configuration</td>
<td>Enclose the name in double quotation marks and do not use alias names. If you specify an element that has subcomponents (such as a router, system, or response endpoint), eHealth automatically applies planned downtime to all of its subcomponents. Frame Relay component elements require separate entries.</td>
</tr>
<tr>
<td><strong>recurrence</strong></td>
<td>once, daily, weekly, monthly</td>
<td>Use once to define a single outage that will not occur on a regular basis. Use daily, weekly, and monthly to define recurring maintenance.</td>
</tr>
<tr>
<td><strong>startDate</strong></td>
<td>mm/dd/yyyy</td>
<td>For a one-time outage, the date of the outage. For recurring downtime, it is the first day on which the planned events begin.</td>
</tr>
<tr>
<td><strong>endDate</strong></td>
<td>mm/dd/yyyy</td>
<td>For a one-time outage, the date of the outage. For recurring downtime, it is the last day on which the planned events occur.</td>
</tr>
<tr>
<td><strong>startTime</strong></td>
<td>hh:mmAM &lt;br&gt; hh:mmPM</td>
<td>The exact time of day at which the downtime starts. You can specify this time using a 12- or 24-hour clock. Do not insert a space before AM or PM.</td>
</tr>
</tbody>
</table>
As shown in Table 15, you must separate each attribute with a comma. If you omit an optional attribute, you must include a comma as a placeholder.

**Table 15. Examples of Syntax for .pdi File Entries**

<table>
<thead>
<tr>
<th>Event</th>
<th>Syntax for Entry in .pdi File</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single non-recurring event</td>
<td>&quot;myRouter-RH&quot;, once, 12/14/1999, 12/14/1999, 12:30AM, 1:30AM, ,,</td>
</tr>
<tr>
<td>Weekly recurring event</td>
<td>&quot;myServer-SH&quot;, weekly, 1/1/1999, 12/1/2004, 12:30 AM, 1:30PM, Sun, ,,</td>
</tr>
</tbody>
</table>

**Overlapping the Midnight Boundary**

eHealth considers midnight as the boundary that defines the start and end times for the planned downtime. If the planned downtime for an element overlaps the midnight boundary, you *must* enter two entries in the .pdi file using syntax similar to the following:

"myServer-SH", weekly, 1/1/1999, 12/1/2004, 11:00PM, 11:59PM, Sun, ,,  
"myServer-SH", weekly, 1/1/1999, 12/1/2004, 12:00AM, 1:30AM, Mon, ,

These entries define a weekly outage for a server and its components from 11:00 P.M. on Sunday to 1:30 A.M. on Monday.
Specifying a Different Time Zone

You can document planned downtime for a particular device or component that is in a different time zone from that of the eHealth server. If you do not specify a time zone for a particular element, eHealth uses the time zone of the eHealth server. In the last field of the file entry for a particular element, you can specify a time zone for the start and end times of the outage using the following syntax:

"myRouter-RH",monthly,1/1/1999,12/1/2004,12:30AM,1:30AM,Sun,15,GMT0

**NOTE**

If you define the timeZone attribute, you must specify values for the dayOfWeek and dayOfMonth attributes within the entry, although eHealth will ignore them.

Importing the .pdi File

After you define outages for each element in your .pdi file, you can import the downtime schedule into the eHealth database by running the following command:

```
nhImportDowntime filename.pdi
```

You can also import the .pdi file to account for planned downtime that has already occurred.

**NOTE**

Before changing an outage for an element, you should first export the .pdi file to obtain the latest outages; then edit the exported file.

Obtaining a Summary of Existing Outages

You can output a summary of all planned downtime that was previously imported into the eHealth database and then use this information to confirm all existing planned outages or resolve discrepancies between existing planned outages and actual occurrences (events). You can also correct errors, add new outages, or delete outages that did not occur.

To export all planned downtime from the eHealth database, run the following command:

```
nhExportDowntime filename.pdi
```

After updating the schedule by correcting or changing the .pdi file (or files), you can reimport the data into the eHealth database.

Setting Presentation Attributes

You can easily customize the appearance, content, and configuration of your reports before you generate them by changing the settings of the report presentation attributes. If your Web user account has permission to set presentation attributes, you can select **More Options** on any Run Report page of the eHealth Web interface to customize a report. The options that are available for each report are identical to those that are available in the corresponding Edit Report dialog on the eHealth console. The attributes that are available for Health and Service Level reports vary, depending on the specific template that you use.
While some attributes are specific to a report type, numerous attributes apply to all reports, as shown in Table 16. Some require values, while others simply require you to enable or disable them. The following sections describe the purpose of the presentation attributes. Detailed instructions for setting them are provided in the Web Help for reports.

Table 16. eHealth Presentation Attributes Available for Each Report Type

<table>
<thead>
<tr>
<th>Report Type</th>
<th>Description</th>
</tr>
</thead>
</table>
| All report types | • Show data notes, unsupported variables, and interface speed; specify layout; and sort entries in tables based on variable values.  
• Change the title and subtitle, display a logo image and URL, change the page length, enable drilldowns, and show x-axis tick labels.  
• Change the title and subtitle in PDF, PostScript, and ASCII reports, and show the company logo. |
| Health        | • Modify the content of Capacity charts.  
• Modify the chart color and sort order, add or remove charts, specify the criteria for including elements, and specify the report panels to include.  
• Modify the display of data in tables.  
• Include or exclude the Chronic Situations chart. Specify that eHealth compare peak projections or percentile value projections against threshold.  
• Add or remove charts from the Summary section, specify the number of elements to include in Element Top N section, and specify the reports to include in the Supplemental section.  
• Specify the units that eHealth uses for the vertical axis (y-axis). |
| Service Level | • Control the display of one or more charts.  
• Specify the maximum number of elements to include.  
• Specify the number of groups to show in a chart and sort order.  
• Show pages in the Business Unit Report.  
• In response reports, show service level violations for each application. In IT Manager reports, specify the number of rows and elements. |
| Top N         | • Control the format of currency values; display of information, labels, and financial values; and format of variable values in financial reports. |
| Trend         | • Control the display of goals in line or bar charts.  
• Increase or decrease the number of charts and columns shown. Scale the y-axis maximum to the chart’s data, independent of other charts.  
• Change the number of decimal places shown in variable values.  
• Set the y-axis (vertical) scale for line or bar charts. |
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