Release 6.3.0

Usage Manager

User Guide

DOC-UM-ETM630-2011-1031

About SecureLogix Corporation

SecureLogix Corporation enables secure, optimized, and efficiently managed enterprise voice networks. The company's ETM® (Enterprise Telephony Management) System hosts a suite of integrated telecom applications that protect critical network resources from telephony-based attack and abuse, and simplify voice network management.

SecureLogix® Solutions address real-world problems for real-world voice networks. The flexible ETM System scales to support any voice environment, no matter how large or small. Engineered with full hybrid voice technology, the ETM System supports multi-vendor networks containing any mix of converging VoIP and legacy voice systems.

SecureLogix Solutions are currently securing and managing over two million enterprise phone lines. The company's customers span nearly every industry vertical, from regional banks and hospitals, to the largest military installations and multi-national corporations.

For more information about SecureLogix Corporation and its products and services, visit our website at *http://www.securelogix.com.*

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IMPORTANT NOTICE:

ETM is used herein as shorthand notation to refer to the ETM® System.

This product includes:

DOC-UM-ETM630-2011-1031

Customer Support
for Your ETM® System

1-877-SLC-4HELP
(1-877-752-4435)
support@securelogix.com
http://support.securelogix.com

SecureLogix Corporation offers telephone, email, and web-based support. For details on warranty information and support contracts, see our web site at

http://support.securelogix.com

Contents

Scheduling Automated Reports 118

Web-Based Reporting 137

Appendix A: Fields that Can Appear in Reports 157

Appendix B: Predefined Reports 175

Preface

About the ETM® System Documentation

The complete documentation for the ETM® System consists of a set of user guides in PDF format and in-depth, context-sensitive online Help. The electronic PDFs are available from the **SecureLogix** directory on the **Start** menu (Windows systems), the **Documentation** folder in the ETM System installation directory (all systems), and the root of the ETM Software installation CD.

ETM® System Documentation

The following set of guides is provided with your ETM® System:

ETM® System User Guide—Explains ETM System Concepts and provides task-oriented instructions for using the ETM System, including a Quick Start.

ETM® System Installation Guide—Provides task-oriented installation and configuration instructions and explanations for technicians performing system setup.

Voice Firewall User Guide—Provides an overview of the Voice Firewall, examples of and instructions for creating and managing Firewall Policies, and instructions for viewing results of Policy monitoring and enforcement.

Voice IPS User Guide—Provides an overview of the Voice IPS (Intrusion Prevention System), examples of and instructions for creating and managing IPS Policies, and instructions for viewing results of Policy monitoring and enforcement.

ETM® Call Recorder User Guide—Provides an overview of the Call Recorder system, instructions for installing, configuring and using the system, examples of and instructions for creating and managing Call Recorder Policies, and instructions for accessing and managing the recordings.

Usage Manager User Guide—Provides task-oriented instructions and tutorials for producing reports of telecommunications accounting and Policy enforcement. Includes an appendix describing each of the predefined Reports.

ETM® System Administration and Maintenance Guide—Provides task-oriented instructions for using the ETM System to monitor telco status and manage ETM System Appliances.

ETM® System Technical Reference—Provides technical information and explanations for system administrators.

ETM® Database Schema—Outlines the schema of the SecureLogix database, to facilitate use of third-party reporting tools.

ETM® Safety and Regulatory Compliance Information—Provides statements regarding safety warnings and cautions; includes statements required for compliance with applicable regulatory and certification authorities. (Provided as a package insert with new Appliance hardware.)

Tell Us What You Think

We welcome your suggestions or comments on the user guides and the online Help provided with your ETM System. Please send your documentation feedback to the following email address:

docs@securelogix.com

Additional Documentation on the Web

SecureLogix Corporation provides corrections and additional documentation for its products via the SecureLogix Knowledge Base online at the following web address:

http://support.securelogix.com

Conventions Used in This Guide

The following conventions are used in this guide:

- Functions that require two or more mouse clicks to open a dialog box or make a selection are written using the pipe symbol. For example:

  Click **View | Implied Rules**.

- Names of keys on the keyboard are uppercase. For example:

  Highlight the field and press DELETE.

- If two or more keys must be pressed at the same time, the PLUS SIGN (+) is used as follows:

  Press CTRL+ALT+DELETE.

- Bold text indicates GUI labels, menu items and options, literal file names, and paths. For example:

  Click **Edit**, and then click **Preferences**.

  C:\Program Files\SecureLogix\ETM\TWLicense.txt

- Keyboard input is indicated by monospaced font. For example:

  In the **Name** box, type: `My report tutorial`

- Italics indicate web addresses and names of publications.
- ETM System components and features are capitalized.

Usage Manager Reporting and Analysis

Introduction

The Usage Manager provides a powerful call accounting, reporting, analysis, and usage management solution for today's rapidly evolving enterprise voice networks. The Usage Manager can scale to support your network no matter how large or small, and works across multi-vendor networks with any mix of VoIP and legacy voice systems.

The Usage Manager's capabilities span far beyond basic billing reports. It provides a full-service reporting package that enables you to:

- Schedule all of your call accounting reports to run automatically.
- View telecom resource utilization.
- Track phone network usage.
- Perform traffic analysis.
- Report on service performance and call quality.
- Plan for and scale your VoIP roll out.
- Identify service abuse, toll fraud, and other voice security issues.

Ease of Use and Flexibility

The Usage Manager reporting solution is easy-to-use. It includes more than 60 out-of-the-box, predefined reports to immediately support a broad range of security, auditing, and operational management needs. Both a web browser interface and a desktop interface are available.

The Usage Manager is also flexible. You can alter existing reports or craft new ones tailored to your specific operational needs. You can easily produce both detailed staff reports for in-depth analysis functions, and summary graphical reports for managerial briefings and decision support.

Automated and Ad Hoc Reporting

The Usage Manager reporting solution is your around-the-clock, automated telecom assistant. It delivers critical telecom administrative information when and where you need it. You can run ad-hoc reports when needed and you can schedule batch reports to run on a daily, weekly, or monthly basis, and have the results emailed to your desktop or posted to a central network drive.

Tour of the Usage Manager

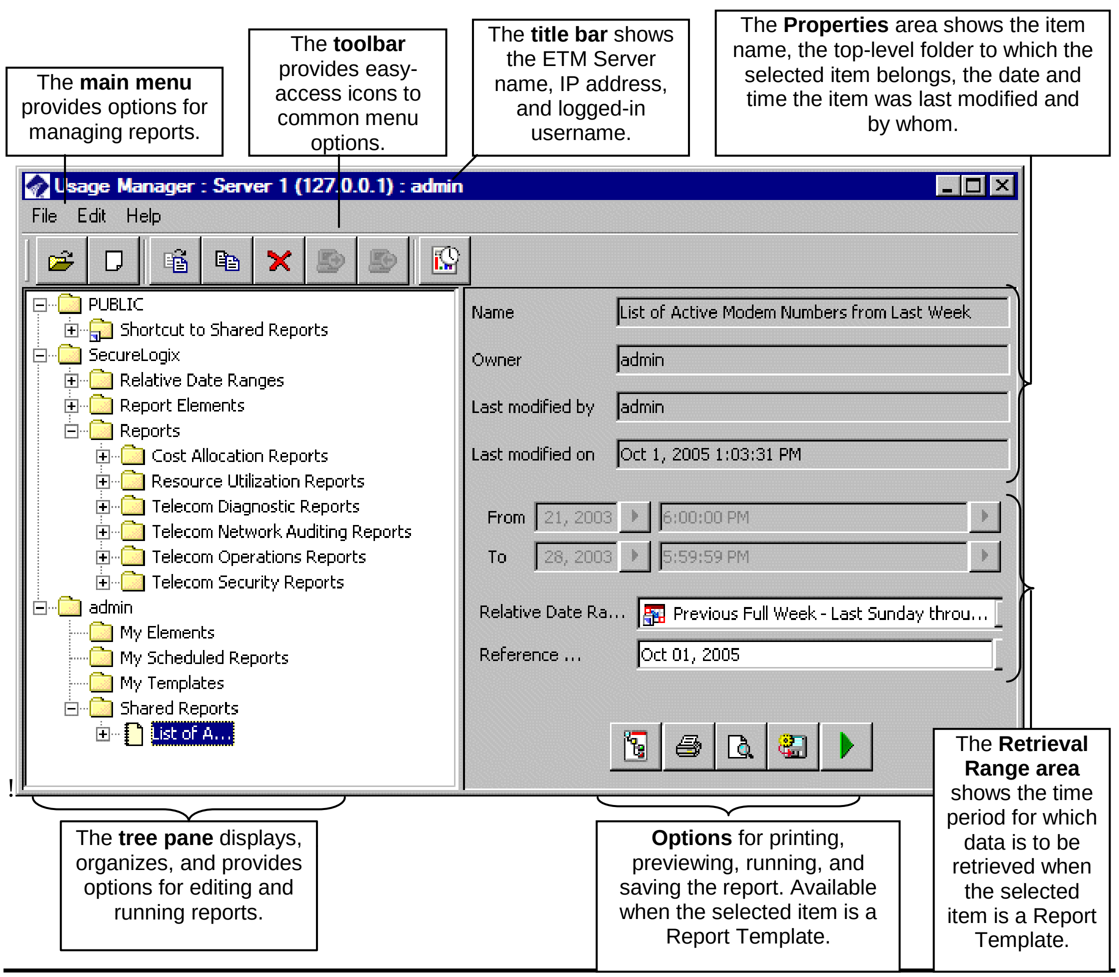
The Usage Manager consists of these components:

- The Usage Manager GUI
- The ETM® Report Server
- The ETM Web Portal, which provides browser-based access for viewing and scheduling reports.

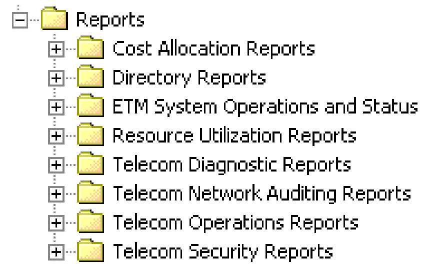
The Usage Manager GUI

The Usage Manager GUI provides access to all of the Usage Manager features. The Usage Manager is launched from the ETM System Console after ETM Server login.

The Usage Manager GUI consists of a *tree pane*, an *application pane*, a *toolbar*, a *title bar*, and a *main menu*.



Predefined Reports



A large set of predefined reports are provided that are ready to use right away. Categories of predefined reports include: Cost Allocation, Directory, ETM System Operations and Status, Resource Utilization, Telecom Diagnostic, Telecom Network Auditing, Telecom Operations, and Telecom Security. See “Appendix B: Predefined Reports” on page 175 for a complete description of each of these reports.

Tree Pane

The Usage Manager tree pane organizes the report components and provides options for generating and editing reports, and for viewing saved reports. The tree pane contains the following types of items:

- Report Templates, which define a complete Report.
- Report Elements, which provide the content for Reports.
- Relative Date Ranges, which define the time period a Report is to cover.
- Shortcuts to Templates, Elements, Relative Date Ranges, and other folders.
- Folders to organize the items.
- Generated Reports that were saved to the tree.

These items are organized into three top-level folders:

- **PUBLIC** contains items that can be used by anyone allowed to use this Usage Manager. All users can use, create, edit, and delete items in the **PUBLIC** folder.
- **SecureLogix** contains the predefined Report Templates, Elements, and Date Ranges provided with your system. This folder is read-only—no one can edit or create items in this folder, regardless of user permissions. However, you can run and schedule reports from this folder, including specifying a different Retrieval Range for the current case, and you can copy items from this folder to the **PUBLIC** folder or your user folder, where they become editable.
- ***<user>*** bears your login username and contains items that belong only to your user account. Only you can see, create, edit, or delete the items in your user folder. Your user folder is empty until you add items to it.

Editing Pane

The editing pane displays properties and options for the item you select in the tree pane, including.

- Name of the item selected in the tree pane.
- The top-level folder to which the item belongs.
- User who owns the selected item.
- Date and time the item was last modified.
- User who last saved changes to the selected item.
- When the selected item is a Report Template:
  - The Retrieval Range that determines the time period for which data is to be retrieved.
  - Options for generating the Report—print, preview, save, or run it now and save it to the Usage Manager tree pane or send it as an email attachment.
- When the selected item is a generated Report:
  - Options for printing, previewing, and saving the Report.

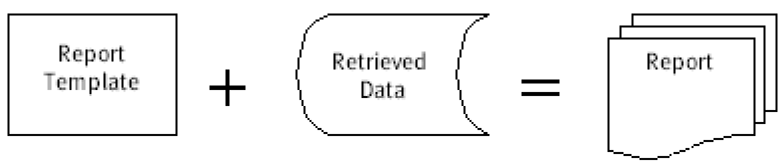
Report Components

A Usage Manager Report consists of the following components:

- A *Report Template*.
- One or more *Report Elements* (or shortcuts to Report Elements).
- A *Retrieval Range* (or a shortcut to a Retrieval Range).

Report Templates

Report Templates specify what is to be included in the report, what time period it is to cover, and how the document is to be formatted. Report Templates can contain Report Elements, Retrieval Ranges, and shortcuts to Elements and Retrieval Ranges.



Detailed information about Report Templates is provided in "Report Templates" beginning on page 47.

Report Elements

Report Elements are the building blocks of reports. Report Elements specify exactly which information is to appear in a report and how that information is to be arranged. You add one or more Report Elements to a Report Template to define the content of a Report. Report Elements determine:

- **Which records are to be included.** For example, you may want to see only outbound modem calls, or you may be interested in unanswered calls to your customer support phone lines.
- **Which information from the specified records is to be shown in the report.** For example, you might want to see the source and destination of outbound modem calls, but not the duration of each call.
- **How the information is presented.** For example, you may need a detailed list of data for each call for your telco manager, but only a high-level summary in chart form for presentation to upper management.

Detailed information about Report Elements is provided in "Report Elements" beginning on page 57.

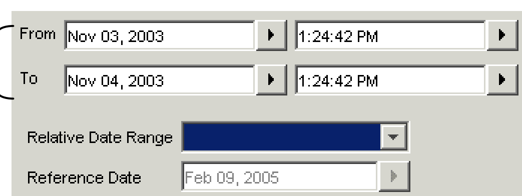
Retrieval Ranges

When you generate a report, the ETM® Report Server retrieves the data specified by the selected Report Template from the ETM Database. The *Retrieval Range* specifies the period the report is to cover. The Retrieval Range can be either *absolute* or *relative*.

If another user has a Template open when you generate a report, the Retrieval Range is not saved.

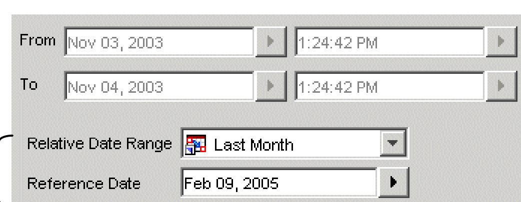
- An **absolute** Retrieval Range uses a specific starting and ending date/time for the data.

Absolute Range (Relative Date Range area grays out)



- A **Relative Date Range** defines the Retrieval Range in relation to a *reference date*. For example, in the illustration below, data is to be retrieved for the full month prior to February 9, which is January 1 through 31. The **Reference Date** in this dialog box always defaults to the date and time at which the report is generated; however, you can specify a different reference date.

Relative Date Range (Absolute Range area grays out, does not reflect Relative Date Range)



When you generate a report (save, preview, or print) from your user folder or the **PUBLIC** folder, the Retrieval Range is saved with the Template. When you generate a report from the **SecureLogix** folder, the Retrieval Range is not saved, since the **SecureLogix** folder is read-only.

Detailed information about Retrieval Ranges is provided in "Retrieval Ranges" beginning on page 48.

Shortcuts

Detailed information about Shortcuts is provided in "Shortcuts" beginning on page 53.

Shortcuts allow you to reuse report components or "publish" them to the PUBLIC folder, while maintaining only one version of the item and retaining edit control. For example, you might create a folder named **Custom Elements** in your user folder and create all of your custom Elements there. Then, when you create a new report, you can use Shortcuts to those Elements. In this way, changes you make to an Element in the **Custom Elements** folder are automatically reflected in all reports that use the Element. You can also use a Shortcut to publish the **Custom Elements** folder to the PUBLIC folder so that other users can use but not modify the Elements, while you maintain them in one location.

Report Server

The ETM® Report Server provides the processing engine that retrieves call, Firewall Policy enforcement, IPS, Diagnostic Log, and Directory data from the ETM Database when you generate a report. The Report Server does not have to be running for you to define and edit report components, since you log in to the ETM Server to access the Usage Manager. You do not log in to the Report Server. However, the Report Server must be running for reports to be generated. This includes both ad hoc and scheduled reports.

On Windows, the Report Server runs as a service. On Solaris, the Report Server can run as a daemon or an application. Because the Report Server is a processing engine, it has no separate GUI. All of the reporting features in the Usage Manager application are accessed from the Usage Manager GUI.

Report Server Activation

To conserve system resources, the ETM® Report Server does not activate until a report is requested via the Usage Manager (in the case of ad hoc reports) or by the ETM® Server (in the case of Scheduled Reports). When a report is requested, the system activates the Report Server, which typically takes 10 seconds or less (depending on the computer configuration).

You can change the one-minute deactivation default in the **twms.properties** file on the Report Server computer. See the *ETM® System Technical Reference* for instructions.

After the Report Server is activated, it continues to run while generating the report, and then (by default) idles for one minute after the report is completed. After one minute of inactivity, it deactivates and frees any resources used for report generation. It remains in an idle state until it receives the next report generation task, when it again activates to retrieve the data. This functionality greatly improves resource usage on the Report Server computer; however; retrieving data from an inactive Report Server takes slightly longer than retrieving data from an active one, since you must wait briefly for the Report Server to activate.

Data Retrieval

Call, Firewall and IPS Policy processing, and Diagnostic Log data is saved in the ETM® Database in an *active* area and an *historical* area.

You can modify the transfer frequency. See "Changing the Active-to-Historical Data Transfer Frequency" in the *ETM® System Administration and Maintenance Guide* for more information.

- The active area stores data as it is generated. The **Call Log**, **Firewall** and **IPS Policy Logs**, and **Diagnostic Log** display data from the active area. Every 6 hours (by default), the data in the active area is automatically copied to the historical area. After the data is copied to the historical area, it becomes available for Usage Manager reports.
- Report data is retrieved from the historical area. Every 12 hours (by default), any data that was copied from the active area to the historical call area is automatically deleted from the active area. After the data is deleted from the active area, it can no longer be viewed in the log tools. Use Usage Manager Reports to view historical data.

Suppose you want to generate a report at 5 PM for calls that occurred during the lunch hour, 12 PM to 1 PM. Depending on the transfer schedule, the data for those calls may not have transferred to the historical area. In this case, you could schedule the report to run later in the evening or the next morning, to ensure that the data is available for retrieval. In the meanwhile, you can view the data in the **Call Log**, **Firewall** or **IPS Policy Log,** or **Diagnostic Log**.

Report Permissions

The ETM® System provides an **Access Usage Manager** permission for user accounts. If you have this permission, you can access the Usage Manager, generate and schedule reports, and define/edit report components. If you do not have this permission, you cannot access the reporting area of the Web Portal, nor will the **Usage Manager** option be available in the ETM System Console. Contact your ETM System administrator.

A separate **Administer Scheduled Reports** permission is also available. This permission allows you to view, edit, and delete other users' scheduled reports in addition to your own.

When you generate a report containing the **SMDR Access Code** field, the actual access code is shown only if you have **View Access Codes** user permission. If you do not have this permission, the retrieved Access Codes in the generated report appear as a string of asterisks (*******). Values are shown for all other Access Code-related fields, such as **Access Code Last Name**.

For details about the user permissions available in the ETM System, see "User Permissions" in the *ETM® System Administration and Maintenance Guide*.

Web Reports

The ETM® System provides a web-based interface called the Web Portal that enables you to view and schedule Usage Manager reports using the Internet Explorer web browser. See "Web-Based Reporting" on page 137 for details. Note that you cannot create or edit Report components from the Web Portal; it is used only to view and generate Reports. To edit Report Components, you must use the Usage Manager GUI.

Quick Start

The procedures below are designed to quickly get you started using the Usage Manager. You will learn how to:

- Launch the Usage Manager.
- Log in to the ETM® Server.
- Generate a Report.
- Use **Run Now** to schedule a Report to run right away.

You can only access the Usage Manager if your user account has the **Access Usage Manager** permission. If you do not have this permission, you will not see the **Usage Manager** option in the ETM System Console when you log in, and you will not be able to log in via the Standalone GUI or the Web Portal. Contact your ETM System administrator.

Launching the Usage Manager

To launch the Usage Manager

1. From the ETM® System Console, log in to the ETM Server:
2. Do one of the following:
   - Click **Usage Manager**, and then click the **Open Tool** icon.
   - Double-click **Usage Manager**.
   - Right-click **Usage Manager** and click **Open**.

   The Usage Manager opens.

   IMPORTANT You can define and manage reports and their components without the Report Server running, but it must be running to generate ad hoc or scheduled reports.

A browser-based interface is also available for viewing and scheduling reports. For more information, see "Web-Based Reporting" on page 137.

Starting the ETM® Report Server

The ETM® Report Server is typically already running on the ETM Server computer. If it is not running, an error similar to the following appears when you try to run a report:

If the Report Server is running and you see this error, verify the connection information on the **ETM® Report Server** tab of the **ETM Server Administration Tool**.

See "Report Server Connection Information" in the *ETM® System Administration and Maintenance Guide* or the online Help for instructions.

To start the ETM® Report Server

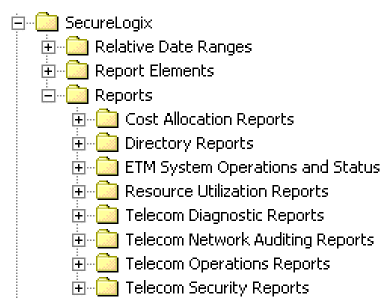
- Solaris—On the Report Server host computer, from an XTerm window or command-line shell, execute the following script, located in the Report Server installation directory:

  ```
  ETMReportServer
  ```

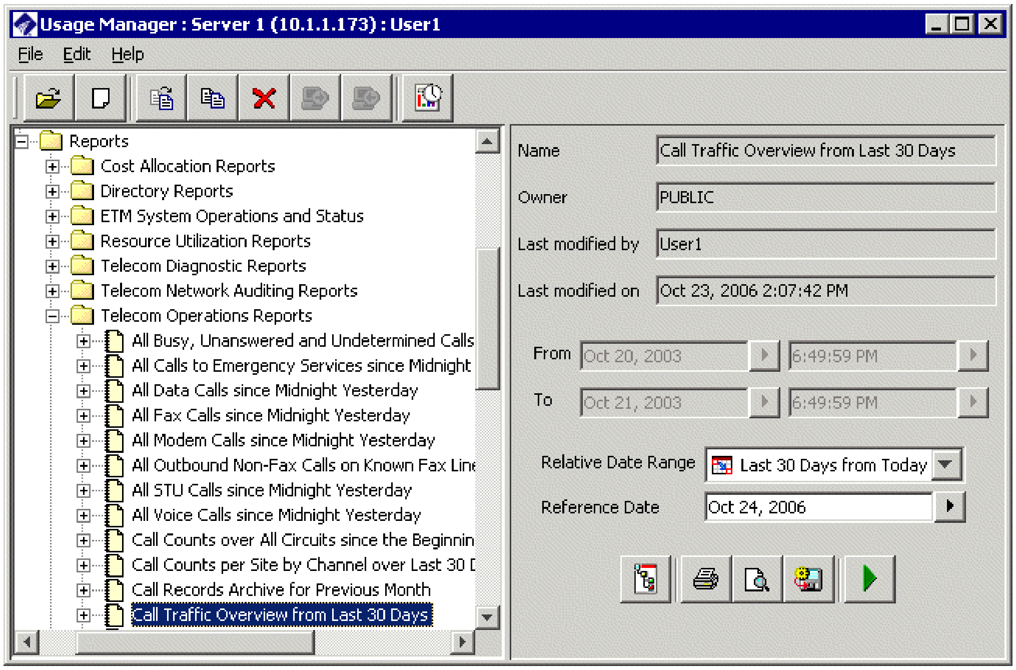
- Windows—Do one of the following on the Report Server host computer:
  - Double-click the **ETM® Report Server** icon on the desktop.
  - Click **Start | Programs | SecureLogix | ETM System Software | ETM Report Server**.

Running a Report

To run a report



1. In the Usage Manager tree pane, locate and click the Report Template for the Report you want to run. For example, click the **PLUS SIGN** next to the **SecureLogix** folder to expand the node. The predefined Reports are grouped into folders that indicate their purpose. See “Appendix B: Predefined Reports” on page 175 for a description of each report.
2. Click the PLUS SIGN next to the **Reports** folder.
3. Click the **PLUS SIGN** next to the folder that contains the report you want to run. For example, click the **PLUS SIGN** next to **Telecom Operations Reports**. A list of Report Templates appears, each with a **PLUS SIGN** next to it.
4. Click a Report Template. Report Templates are identified by the  icon. For example, click **Call Traffic Overview from Last 30 Days**. The right pane updates to show information about the selected item.



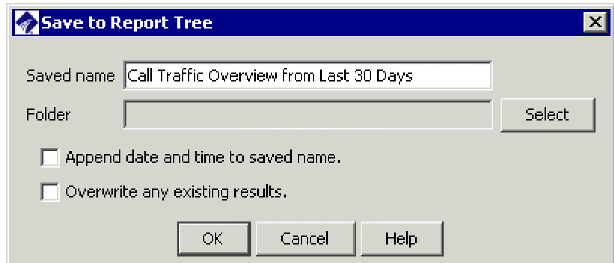
Tip Only Relative Date Ranges under a Template in the tree are available to that Template. Therefore, you cannot select a different Relative Date Range for a predefined Report unless you copy the Report to the **Public** or **User** folder and add the Date Range. See "Custom Reports" on page 37 for more information.

5. Each predefined Report has a Relative Date Range assigned to it. The Relative Date Range in the Report Template appears in the **Relative Date Range** box. The **Reference Date** box shows the date to which the Relative Date Range is relative (by default, the current date).

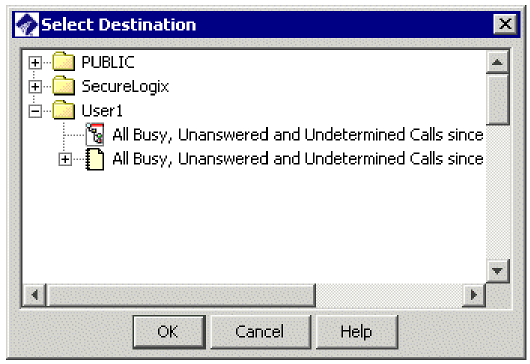
   - To retrieve data relative to a different date, type or select a different date in the **Reference Date** box.
   - To run the report for an absolute Retrieval Range, first select **None** in the **Relative Date Range** box to clear the Relative Date Range selection, and then click the arrows next to the **From** and **To** boxes to select the time period for which you want to run the report.

6. To generate the report, do one of the following:

   - Click the **Save to Tree** icon to save the report in the Usage Manager tree pane. After the data is retrieved, the **Save to Report Tree** dialog box appears.



a. Click **Select**. The **Select Destination** dialog box appears.



b. Click the writeable Folder in which you want to save the generated report. You cannot save generated reports in the **SecureLogix** folder. If you want other people to be able to access the report, save it in the **Public** folder.

c. Click **OK**.

d. To view the saved report, click it in the tree and then click the **Preview** icon; to print it, click it and click the **Print** icon; to save it to a hard drive location, click it and click the **Save** As icon.

- Click the **Preview** icon to retrieve the data and view the report in the **Print Preview** dialog box. After previewing, you can click **Print**, **Save As**, or **Save to Tree** to print a hardcopy, save it to a hard drive location, or save it in the Usage Manager tree pane. In many cases, the data is still in memory, so it does not have to be retrieved again.
- Click the **Print** icon to print the report to your default printer without previewing it.
- Click the **Save As** icon to save the report to a file on the hard drive of the computer. Browse for and select the save location, and then click **Save**.

- Click **Run Now** as a streamlined way to save the Report to your user folder and get an email notification, or email it to yourself as an attachment. See "Using "Run Now" to Generate a Report" on page 30 for more details.

IMPORTANT Some predefined reports rely on default Directory Objects. The Directory Objects are empty until you add Directory information specific to your organization. For example, the report **All Outbound Non-Fax Calls on Known Fax Lines** relies upon the default **Fax Numbers** Directory Group. See "Directory Groups" in the *ETM® System User Guide* for more information and instructions for defining and editing Directory Groups.

Some predefined reports have filters that use predefined Intervals. You may need to adjust these Objects for the times applicable to your business environment. See "Intervals" in the *ETM® System User Guide* for instructions for defining and modifying these Objects.

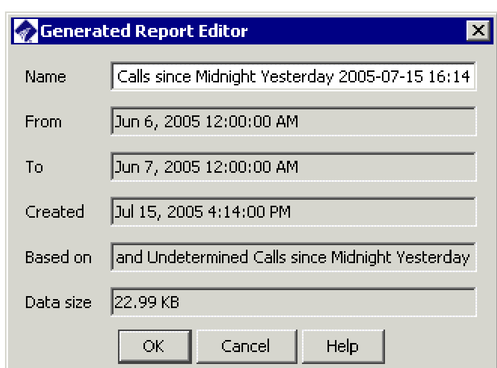
Viewing a Report Saved in the Tree

To view a previously generated Report that is saved in the tree

- In the tree pane, click the Report, and then click the **Preview** icon. The Report opens in the **Print Preview** dialog box, from which you can view and print it.
  - To print the Report, click the **Print** icon.

Renaming or Viewing Properties of a Saved Report

The **Generated Report Editor** is used to rename a generated Report saved in the tree and to view its properties. To view the actual Report, close the **Generated Report Editor**, and then click the generated Report in the tree and click the **Print Preview** icon.

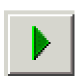


To rename or view properties of a saved Report

- In the tree pane, double-click the saved Report.

- **Name**--The filename of the saved Report. To rename the Report, type the new name in the **Name** box, and then click **OK**.
- **From** and **To**--The time period the data in the Report covers.
- **Created**--The date the report was generated.
- **Based on**--The Report Template used to generate the Report.
- **Data Size**--The size of the saved Report in the database.

Using "Run Now" to Generate a Report

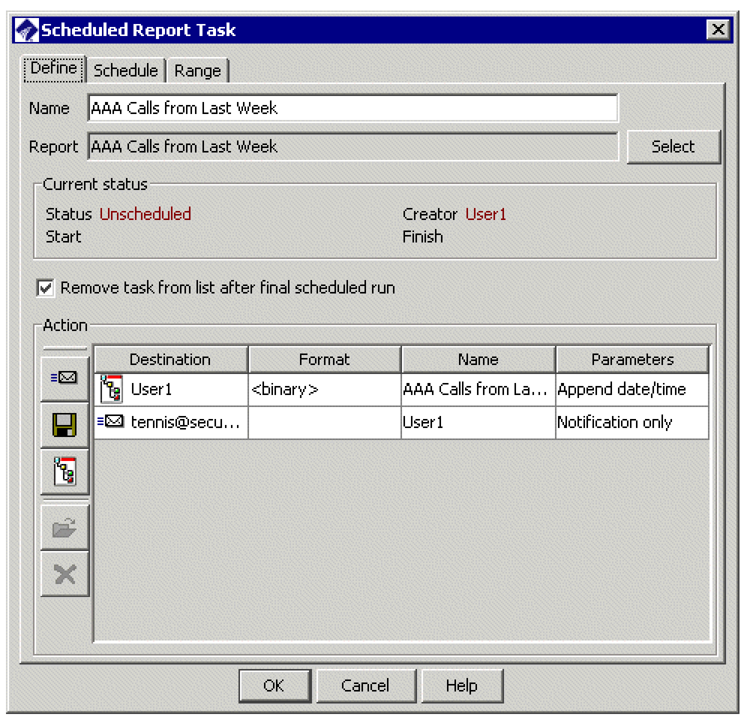


Run Now icon

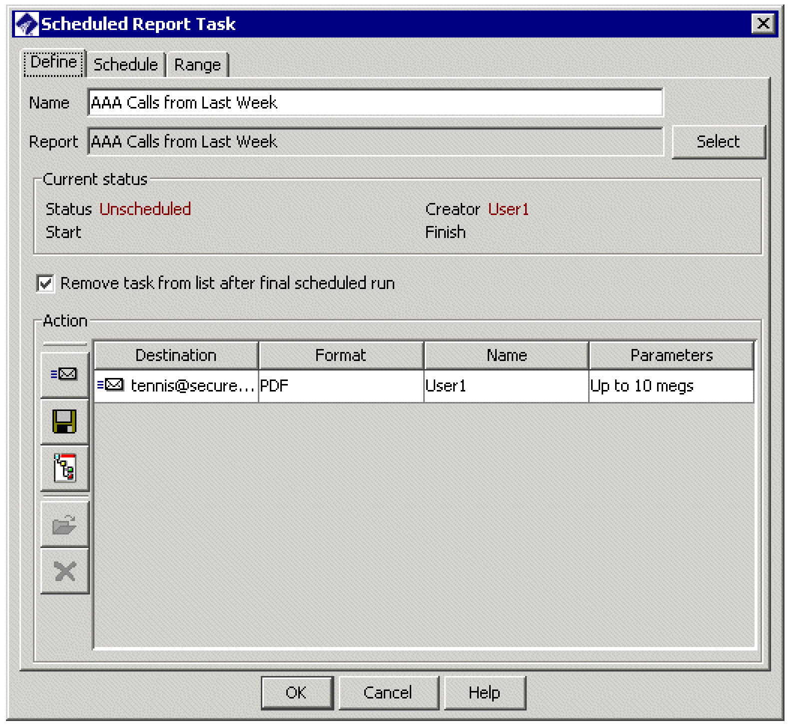
Run Now provides an easy, streamlined way to run a Report, since all the configuration settings are automatically supplied.

To use Run Now to generate a Report

1. In the Usage Manager tree pane, click the Report Template you want to run, and then click the **Run Now** icon and click one of the following:
   - To save the generated Report to the Usage Manager tree pane, click **To Tree**. The **Scheduled Report Task** dialog box appears, prepopulated with a **Save to Tree** action for you user folder and an **Email** notification action to the email address associated with you user profile, if one is defined. If no email address is defined for your user account, no email delivery option is prepopulated. You can manually define one, if desired.



- To email the Report as an attachment, click **Send Email**. The **Scheduled Report Task** dialog box appears prepopulated with a PDF **Email** action to the email address associated with your user profile. If no email address is associated with your user profile, **Send Email** is unavailable.



Tip You can change any of the settings on a Run Now Report using the same procedures as for any other Scheduled Report. See "Scheduling a Report" on page 122 for instructions.

2. The task is scheduled to run once at the current time, and the Retrieval Range specified in the Report Template is selected in the **Use the Range defined below** box on the **Range** tab. The task is set to be removed from the **Scheduled Reports** dialog box after it executes.
3. Click **OK** to generate the Report and close the dialog box. Since the **Scheduled Report Tool** is used for Run Now Reports, the task appears in the Completed Scheduled Reports dialog box after it runs. See "Completed Scheduled Reports" on page 132 for more information, including instructions for rescheduling tasks.

Archiving Call Data with the Usage Manager

You can use the Usage Manager to archive call data in **.csv** format so that it is available for historical use in analysis or investigation. While the archived data cannot be accessed from within the Usage Manager, you can use other tools such as Microsoft Excel to access it.

You can use **Save As** to manually archive data, or you can set up a recurring Scheduled Report task to automate data archiving. In either case, select **.csv** format, **.zip** file compression, and a hard-drive save location for the generated report.

A predefined report, titled "Call Records Archive for Previous Month," is included with the ETM System. See "Call Record Archive for the Previous Month" on page 189 for a description of the data included in this report. If the data included in this report meets your archive needs, you can use it to archive date. If you need other data, you can create a custom report that includes all of the fields you need.

Archiving Call Data

To archive call data

Do one of the following:

- To archive data manually, click the data archiving Report Template and click **Save As**. After the report is generated, the **Select File** dialog box appears.

  See "Custom Reports" on page 37 for detailed instructions for defining Reports.

  a. In the **Files of type** box, click the down arrow and click **Comma Separated Values (*.csv)**.

  b. Select the **Zip output (.zip)** check box.

  c. Browse for and select the save location, if other than the default.

  d. Optionally, type a different name for the saved report file. The default is the name of the Template.

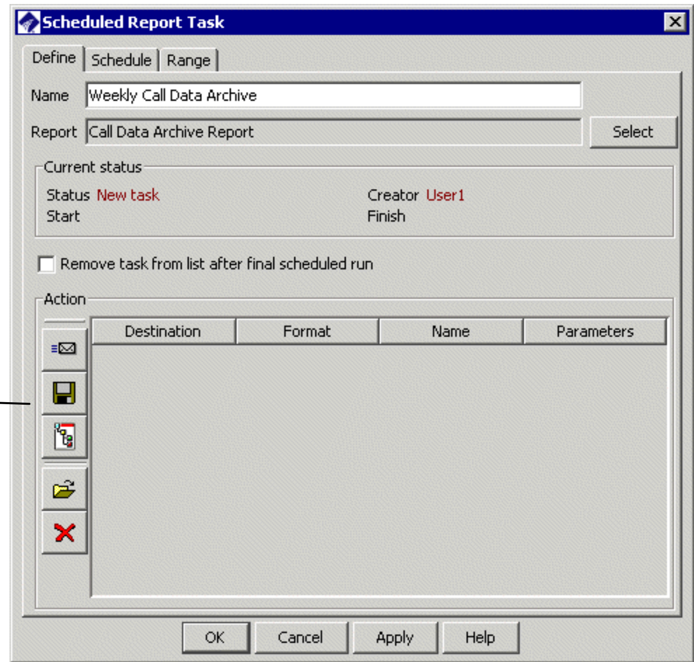
  e. Click **Save**.

- To automate data archiving, schedule the data archiving Report Template:

  a. Click the **Manage Scheduled Report Tasks** icon. The **Scheduled Report Tool** appears.

  b. Click **File | New**. The **Scheduled Report Task** dialog box appears.

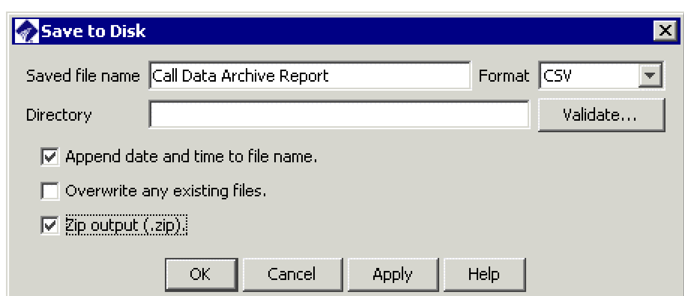
Save to Disk icon



c. In the **Name** box, type a name for the task. For example, type: `Weekly Call Data Archive`.

d. Next to the **Report** box, click **Select**; browse for and select the call data archive Report Template you are scheduling, and then click **OK**.

e. In the **Action** area, click the **Save to Disk** icon. The **Save to Disk** dialog box appears.



f. The **Saved file name** defaults to the name of the selected Template. You can type a different file name, if you like.

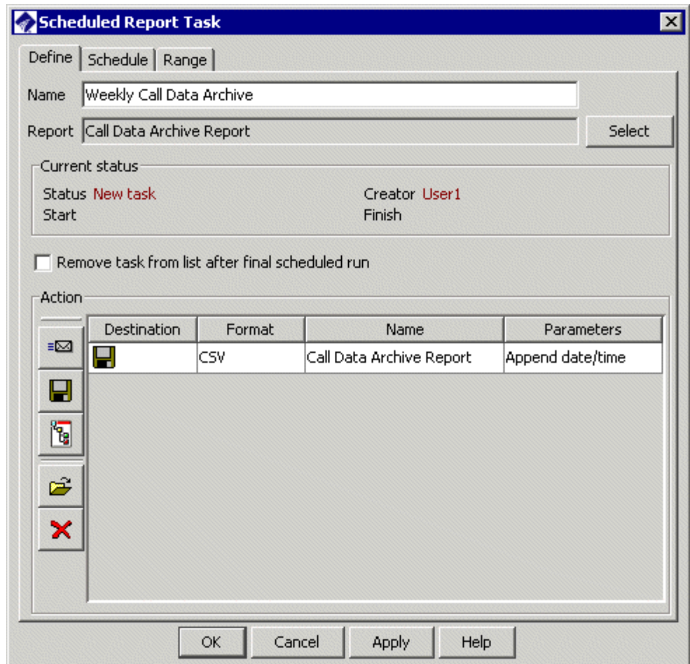
g. In the **Format** box, click the down arrow and select **CSV**.

h. Select the **Append date and time to file name** check box.

i. Select the **Zip output (.zip)** check box.

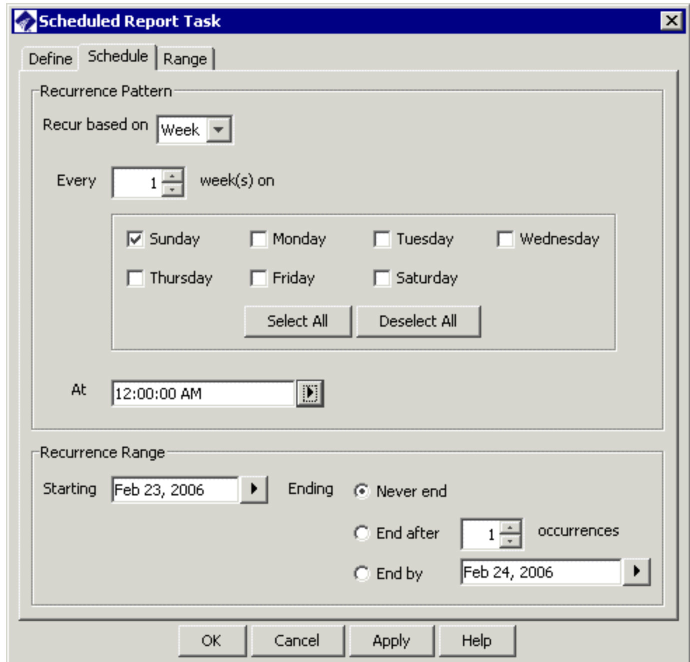
j. If you leave the **Directory** box blank, the save location defaults to the ETM Server installation directory. To specify a different location, type the full path and click **Validate** to verify that the specified path is writable.

k. Click **OK** to save the report task and close the dialog box. The task appears in the **Scheduled Report Task** dialog box.



f. Optionally, define a notification email action as for any other report.

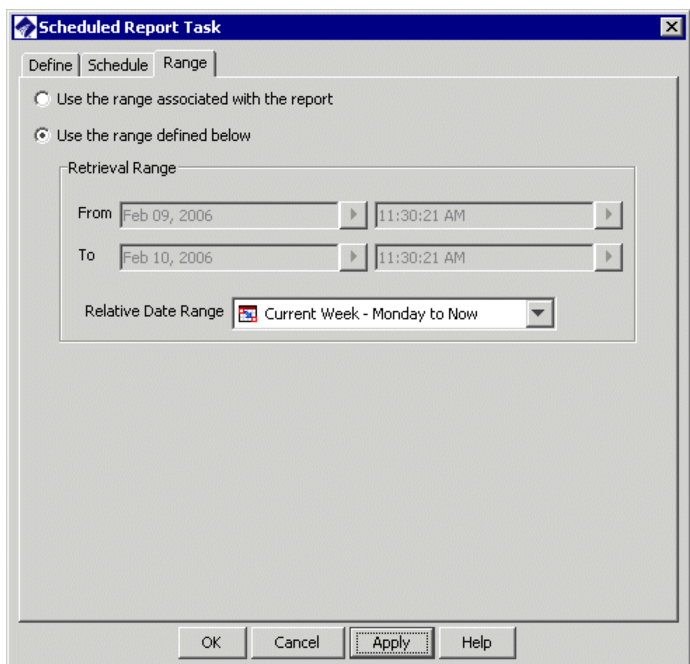
g. Click the **Schedule** tab.



See "Scheduling a Report" on page 122 for detailed instructions for scheduling a report, if necessary.

h. Schedule as you would any scheduled report. In the illustration above, the report is scheduled to run weekly at 12:00 AM every Sunday, with no end date.

i. Click the **Range** tab.



j. Select one of the following:

   - **Use the range associated with the report**. Use only if you are sure another user will not modify the report Template, such as running it ad hoc for a different range.
   - **Use the range defined below**. (*Recommended*.) Prevents the range from inadvertently being changed by other users of the Template. Either type an absolute range or click the down arrow and select a Relative Date Range from the list. Only Relative Date Ranges below the Template in the tree are available. This is recommended for recurring reports. In the example above, the Range **Current Week - Monday to Now** is selected.

k. Click **OK** to save and schedule the report task.

Custom Reports

Creating Custom Reports

You can create a custom report in your user folder or in the **PUBLIC** folder. You can create custom reports either by copying and modifying predefined report components, by creating your own from scratch, or by reusing some predefined components and creating others from scratch.

When you create or modify reports in the user folder, you are assured that no one else will make changes to them. When you create or modify reports in the **PUBLIC** folder, any other Usage Manager user can use, modify, or delete the report. For this reason, although you can create Report Templates, Elements, and Relative Date Ranges directly in the **PUBLIC** folder, it is recommended that you first create them in your user folder and then copy them to or place shortcuts to them in the **PUBLIC** folder.

A *Report* consists of a *Template* that contains one or more *Elements* and a *Retrieval Range*.

- A *Template* specifies the name of the report, the period for which data is to be retrieved, the Report Elements to be included, the page layout, and the format of the report.
- An *Element* defines the type of data to be included and how that data is to be organized.
- A *Retrieval Range* specifies the time period the report is to cover. A Retrieval Range can be absolute (specify the exact date range) or relative (specify a period of time relative to a given date, such as the previous work week).

Custom Reports Step-by-Step

Defining a custom report consists of the following sequence of steps:

1. Create a Template.
2. Place one or more Elements and, optionally, Date Ranges (or shortcuts to these items) under the Template in the tree.
3. Verify that the Elements you want are in the report and in the correct order.
4. Specify the Retrieval Range.
5. Set layout and format options.

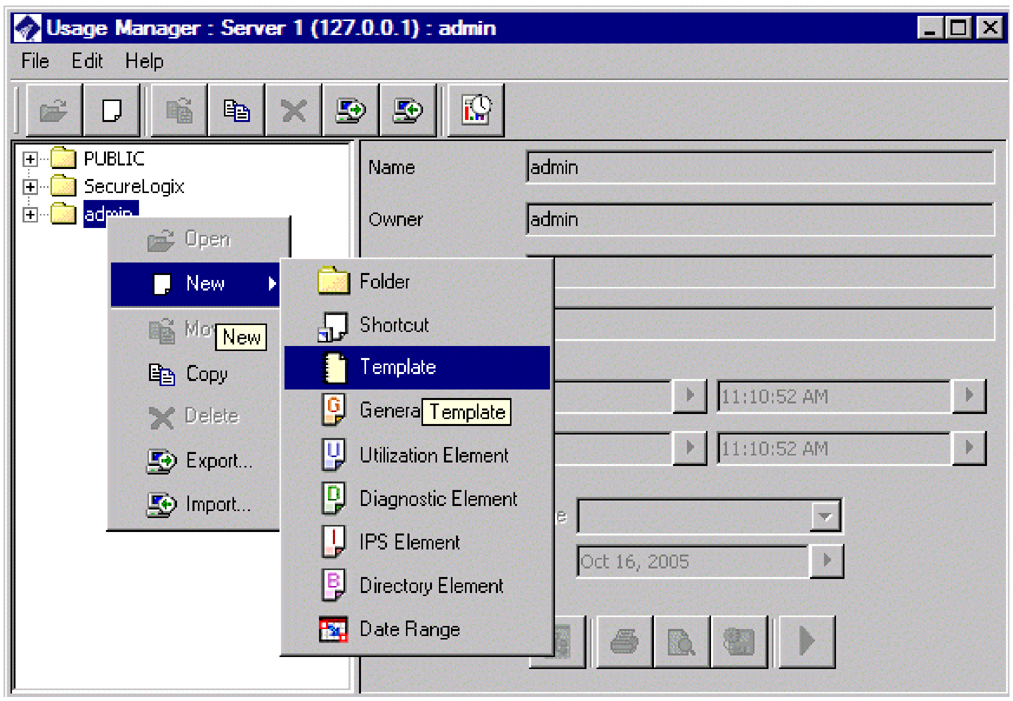
Station-Side CDR Reporting

Defining a report for station-side CDR is identical to reporting on trunk-side call data. In the imported CDR, the **SMDR_1** and **SMDR_2** fields contain the names of the trunks, and the **Call Details** field contains `CDRImported`. To report on (or exclude) station-side records, filter for that string in the **Call Details** field.

Creating a Custom Report

To create a custom report

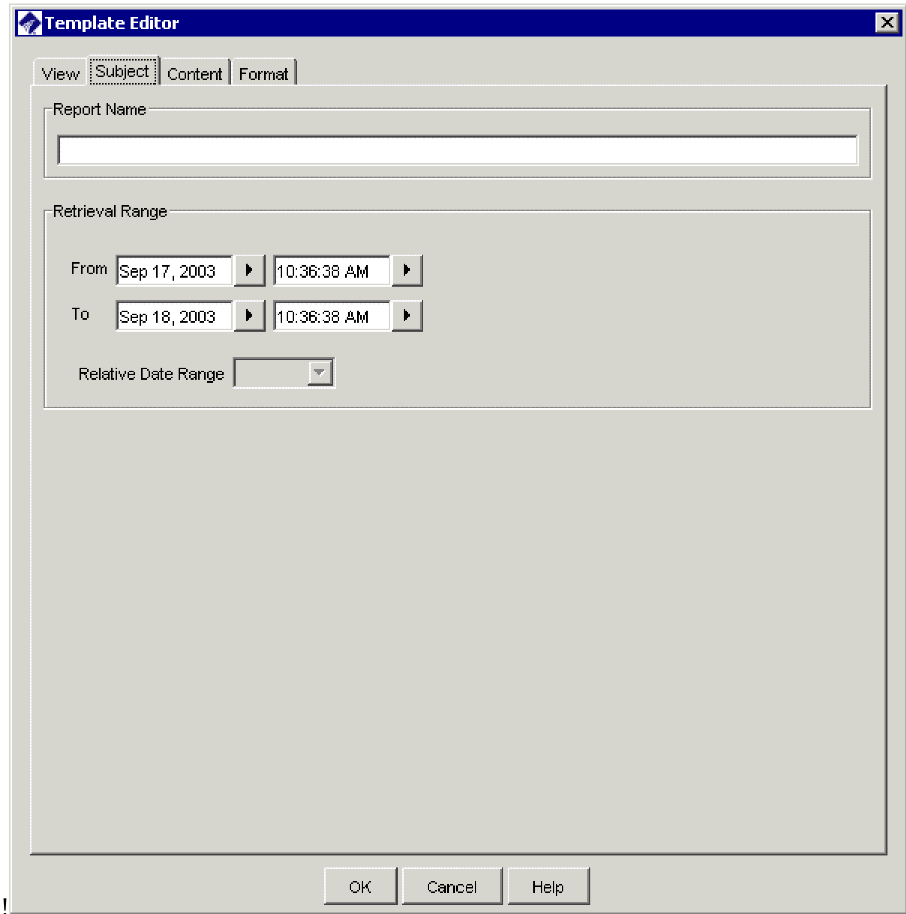
1. Right-click the folder in which you want to create the report and click **New | Template**.



For example, to create the report in your user folder, right-click your user folder. To create it in a subfolder under your user folder, right-click the subfolder.

2. The **Template Editor** appears.

Tip: To create a subfolder, right-click the folder it is to be within and click **New | Folder**. You can create a new folder under any other folder except the **SecureLogix** folder and its subfolders.



!

3. Click the **Subject** tab.

4. In the **Report Name** box, type a name to identify this report. Choose the name carefully to ensure that you can identify the purpose of the report later. For example, if you are defining a report to show a summary of after-hours outbound long distance calls by source number, you might type:

```
Summary - After-hours Outbound Long Distance by
Source
```

5. Click **OK**. The new Template appears in the tree pane.

6. Next, place one or more Elements and/or shortcuts to Elements in the tree under the Template. These will provide the content for your report. Only Elements and shortcuts that appear below the Template in the tree pane are available for use in the report.

   - To create a new item under the Template, right-click the Template and click an option in the menu that appears, as follows

     New | Shortcut—The **Shortcut Editor** appears. Click **Select**, browse to and select the item to which you want the shortcut to point, and then click **OK**. The name defaults to **Shortcut to <*item*>**; you can type a different name. Click **OK**.

     New | General Element—The **Element Editor** appears. For step-by-step instructions for creating a new General Element, see "Defining a General Element" on page 66.

     New | Resource Utilization Element—The **Element Editor** appears. For instructions for creating a Resource Utilization Element, see "Resource Utilization Elements" on page 87.

     New | Voice IPS Element—The **Element Editor** appears. For instructions for creating a Voice IPS Element, see "IPS Elements" on page 86.

     New Directory Element——The **Element Editor** appears. For instructions for creating a Directory Element, see "Directory Elements" on page 104.

     New | Diagnostic Element—The **Element Editor** appears. For instructions for creating a Diagnostic Element, see "

IMPORTANT If you use a shortcut to an Element in a Report and someone makes changes to the Element the shortcut refers to, those changes are reflected in your Report.

Diagnostic Elements" on page 103.

- To copy an existing Element or Shortcut to the Template, right-click the item you want to copy and click **Copy**. The **Select Destination** dialog box appears. Click the Template and click **OK**.

- To move an existing element or shortcut to the Template, right-click the item you want to move and click **Move**. The **Select Destination** dialog box appears. Click the Template and click **OK**.

7. If you want to have Relative Date Ranges available as options when selecting the Retrieval Range for the report, place one or more Relative Date Ranges or Shortcuts to Relative Date Ranges under the Template. If you do not want to use Relative Date Ranges with this Template, skip this step.

   - To create a new Date Range, right-click the Template and click **New | Date Range**. For instructions for creating a Relative Date Range, see "Defining a Relative Date Range" on page 50.

   - To copy a Relative Date Range to the Template, right-click the Date Range and click **Copy**. The **Select Destination** dialog box appears. Click the Template and click **OK**.

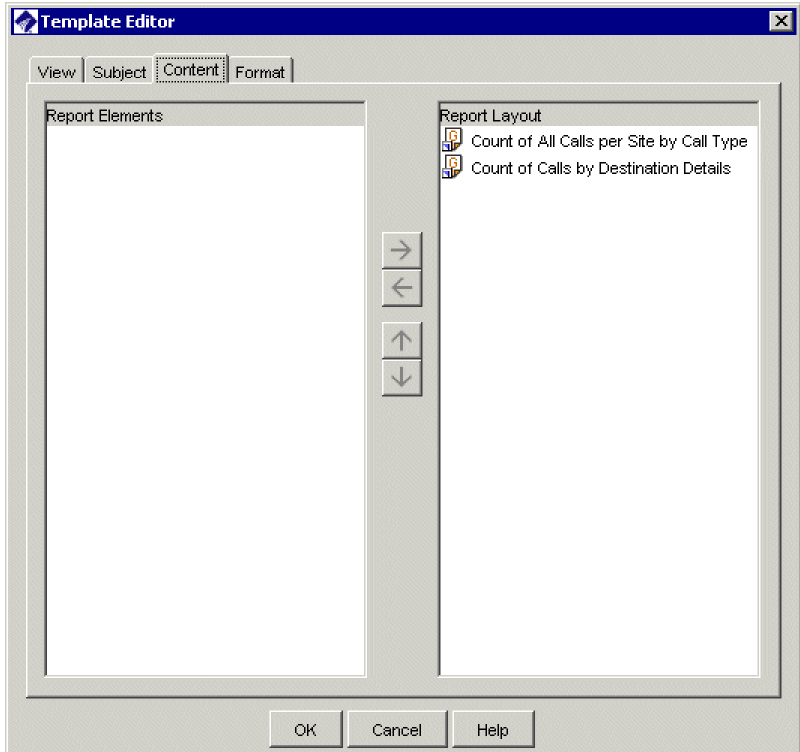
   - To move a Relative Date Range to the Template, right-click the Date Range and click **Move**. The **Select Destination** dialog box appears. Click the Template and click **OK**.

   - To make a shortcut to a Relative Date Range, right-click the Template and click **New | Shortcut**. The **Shortcut Editor** appears. Click **Select**, browse to and select the Date Range to which you want the shortcut to point, and then click **OK**. The name defaults to **Shortcut to <item>**; you can type a different name. Click **OK**.

8. When all of the Elements and Relative Date Ranges you want to be able to use in the Report appear below it, double-click the Template to open it.

9. Click the **Content** tab. Notice that the Elements you placed beneath the Template in the tree appear in the **Report Layout** box. This means that they will appear in the generated report, in the order in which they appear in the **Report Layout** box.

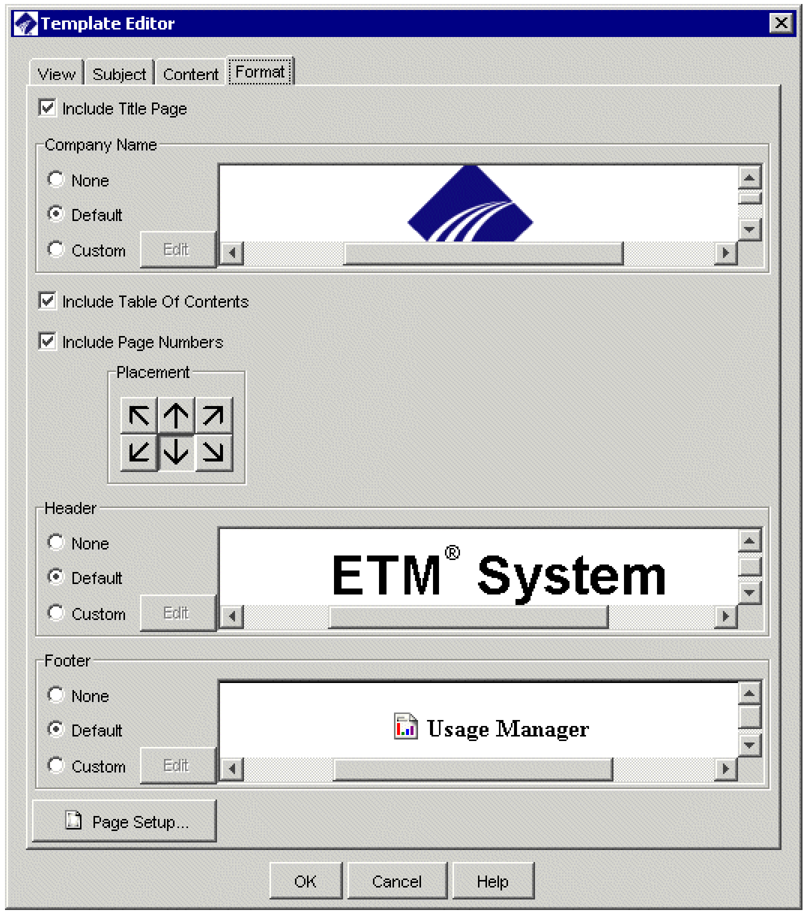
   - If you do not want a certain Element to appear in the report, double-click it to move it to the **Report Elements** box.



10. Since the order of the items in the **Report Elements** box determines the order in which the content appears in the report, verify that the order is as desired.

    - To reposition an item, click it in the **Report Elements** box and click the **Up Arrow** to move it up or the **Down Arrow** to move it down.

11. Click the **Format** tab. This tab is used to set document formatting and page layout options.



Tip If you create a custom header, footer, or company name and the graphics do not appear on the **View** tab, the graphic is too large for the available area. Scale the graphic to a smaller size and it will be visible.

- Select **Include Title Page** if you want a title page on the Report.
  - If you selected **Include Title Page**, select one of the following options in the **Company Name** area:

    None—The company name area on the title page is blank.

    Default—"SecureLogix Corporation" appears in the company name area on the title page.

    Custom—Enables you to define a company name unique to this report. If you select **Custom**, click **Edit** and use the **Styled Text Editor** to define the custom company name. See "Defining a Custom Header, Footer, or Company Name " on page 47 for details on using the **Styled Text Editor**.
- Select **Include Table of Contents** if you want the report to include a table of contents. The table of contents lists the included Elements in the order that they appear plus an entry for report errors if any occurred.

- Select **Include Page Numbers** if you want the pages of the report to be numbered.
  - If you selected **Include Page Numbers**, click the arrow that represents the location where you want the number to appear on the page.
- In the **Header** area, select one of the following options:

  None—No header appears on the pages of the report.

  Default—The default header appears on each page of the report. The default header is "ETM® System."

  Custom—Enables you to define a header unique to this report. If you select **Custom**, click **Edit** and use the **Styled Text Editor** to define the custom header. See "Defining a Custom Header, Footer, or Company Name" on page 47.
- In the **Footer** area, select one of the following options:

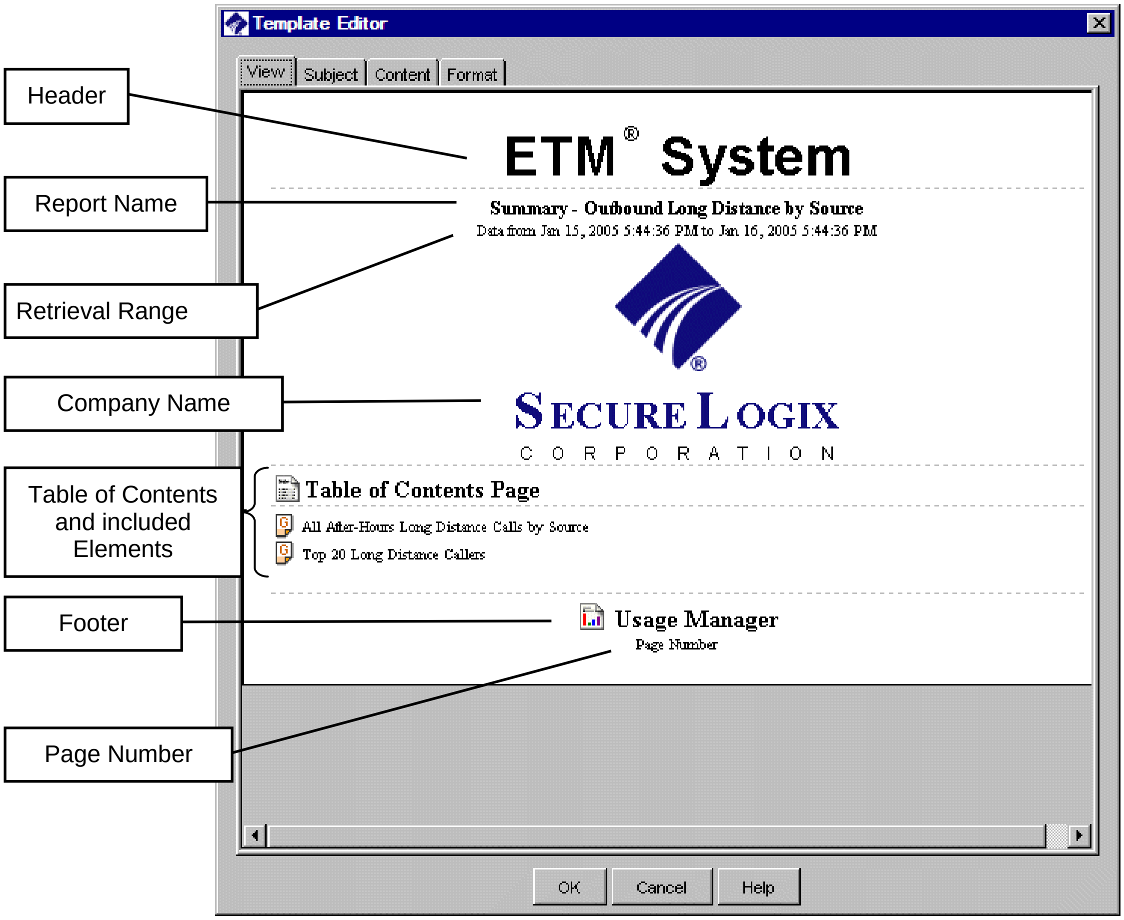
  None—No footer appears on the pages of the report.

  Default—The default footer appears on each page of the report. The default footer is "Usage Manager."

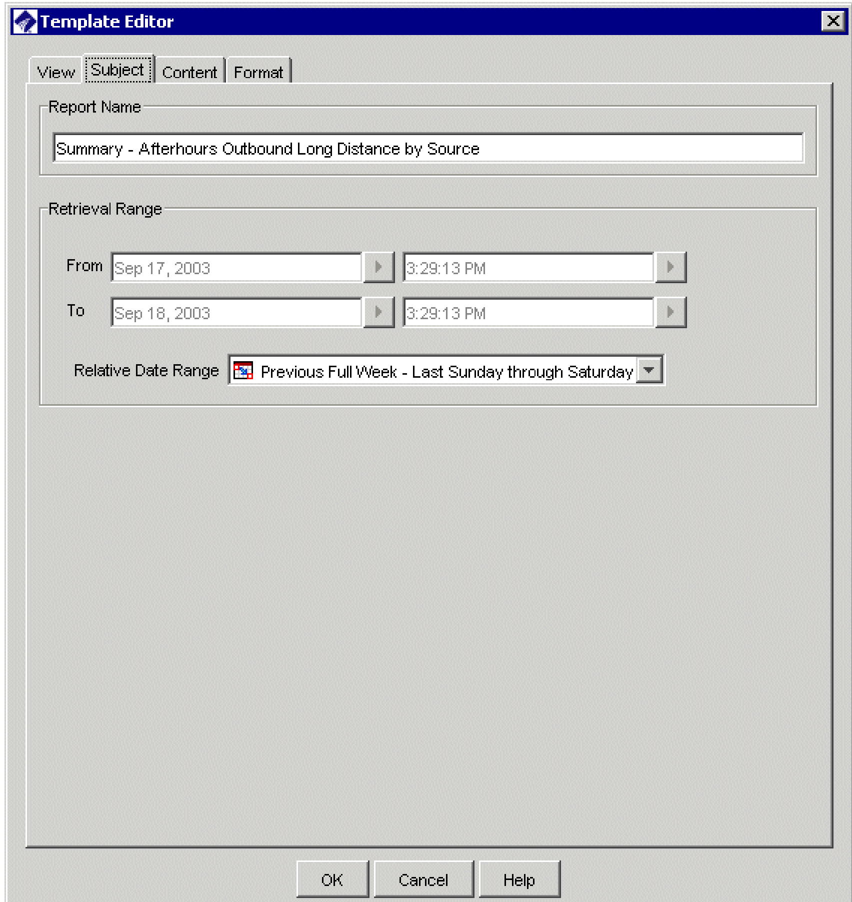
  Custom—Enables you to define a footer unique to this report. If you select **Custom**, click **Edit** and use the **Styled Text Editor** to define the custom company name. See “Defining a Custom Header, Footer, or Company Name" on page 47 for details on using the **Styled Text Editor**.
- Click **Page Setup** if you want to change margins, orientation, or printer settings. By default, new reports use letter-size paper in portrait orientation, with a one-inch margin on all sides.

If the error, “The width of the printable area is less than one inch,” appears when you attempt to save the Template, the amount of space remaining for the report content after you set page layout and formatting options is less than one inch. This allows no room to print the report. Correct the margins, header and footer font or image sizes, and so forth, to allow room for the content.

12. Click the **View** tab to preview your report layout choices.



13. Click the **Subject** tab.



14. The **Retrieval Range** area specifies the default time period the report is to cover. The Retrieval Range defaults to the previous 24 hours from the time you opened the **Template Editor**. You can associate a Relative Date Range with the Template or specify a different absolute Range. When you actually run the report (print, preview, or save), you can choose a different Retrieval Range.

    - To set an absolute Retrieval Range:

      In the **From** and **To** boxes, type or select the starting and ending dates and times for the period the report is to cover.

    - To select a Relative Date Range:

      In the **Relative Date Range** box, click the down arrow and click the applicable Relative Date Range. Note that only Relative Date Ranges and shortcuts to Relative Date Ranges that appear beneath the Report in the tree pane are available in this box.

For instructions for defining a Relative Date Range, see "Defining a Relative Date Range" on page 50.

15. Click **OK** to save the custom Report Template and close the dialog box.

Report Templates

A Template that contains one or more Elements constitutes a Report. Templates specify the Elements that are to provide the report content, formatting and page layout options, and the time period the report is to cover.

Creating a New Template

To create a new Template

1. Right-click any folder other than the **SecureLogix** folder and click **New | Template**. The **Template Editor** appears.
2. Click the **Subject** tab and type a descriptive name in the **Report Name** box. Choose the name carefully to ensure that you can identify the purpose of the report later. For example, if you are defining a report to show a summary of after-hours outbound long distance calls by source number, type:
   `Summary - After-hours Outbound Long Distance by Source`
3. Click **OK**. The new Template appears in the tree pane.
4. Before you can use the Template to run a report, you must place one or more Elements below it in the tree. See "Creating a Custom Report" on page 38 for step-by-step instructions for defining a complete report.

Defining a Custom Header, Footer, or Company Name

If you want a Report to contain a unique header, footer, and/or company name, you can define custom components that apply only to that Template. Note that custom headers, footers, and company names are saved with that Report Template and are not available for use in other Templates.

To define a custom header, footer, or company name

1. On the **Format** tab of the **Template Editor**, in the **Header**, **Footer**, or **Company Name** area, select **Custom**.
2. Next to the **Header**, **Footer**, or **Company Name** box, click **Edit**. The **Styled Text Editor** appears.
3. Type or paste text in the box.
   - To paste text, copy it from the source, and then click in the **Styled Text Editor** box and click **Edit | Paste** or press CTRL+V. Note that text formatting is not retained with pasted text; the text is pasted as black, monospaced, plain text.
4. To format the text, highlight the text, and then do any of the following:
   - To specify a font face, click **Font | Type**, and then click the font face (**Serif**, **Monospaced**, or **Sans Serif**).

- To specify a font style, click **Font | Style**, and then click the style (**Bold**, **Underlined**, or **Italic**).
- To specify a font size, click **Font | Size**, and then click the size (**8**, **10**, **12**, **16**, or **24** point).
- To specify a font color, click **Font | Color**, and then click the color (**Black**, **Blue**, **Cyan**, **Dark Gray**, **Gray**, **Green**, **Light Gray**, **Magenta**, **Orange**, **Pink**, **Red**, **White**, or **Yellow**).

5. To insert a graphic, click **Edit | Insert Image**. The **Select Image** dialog box appears.
6. Click the image that you want to insert, and then click **Insert Image**.
7. To scale the image, select the image, and then click **Scale Image**. The **Scale Image** dialog box appears.

If the inserted graphic does not appear in the **View** tab of the **Template Editor**, the graphic is too large for the available area in the Template. Scale the graphic to a smaller size and it will be visible.

   a. Do one of the following:
      - To scale the image in pixels, select **Pixel Size**, and then type or select the **Width** and **Height** in pixels.
      - To scale the image as a percentage of its current size, select **Percentage of current**, and then type or select the **Width** and **Height** as a percent.
      - To scale the image in inches, select **Actual size**, and then type or select the **Width** and **Height** in inches.
      - Select the **Maintain aspect ratio** check box to maintain the width and height proportions of the image when you resize it.

   b. Click **OK** to close the **Scale Image** dialog box.
8. Click **OK** to exit the **Styled Text Editor**.
9. Click the **View** tab to view your custom header, footer, and/or company name as it will appear in the report.

Retrieval Ranges

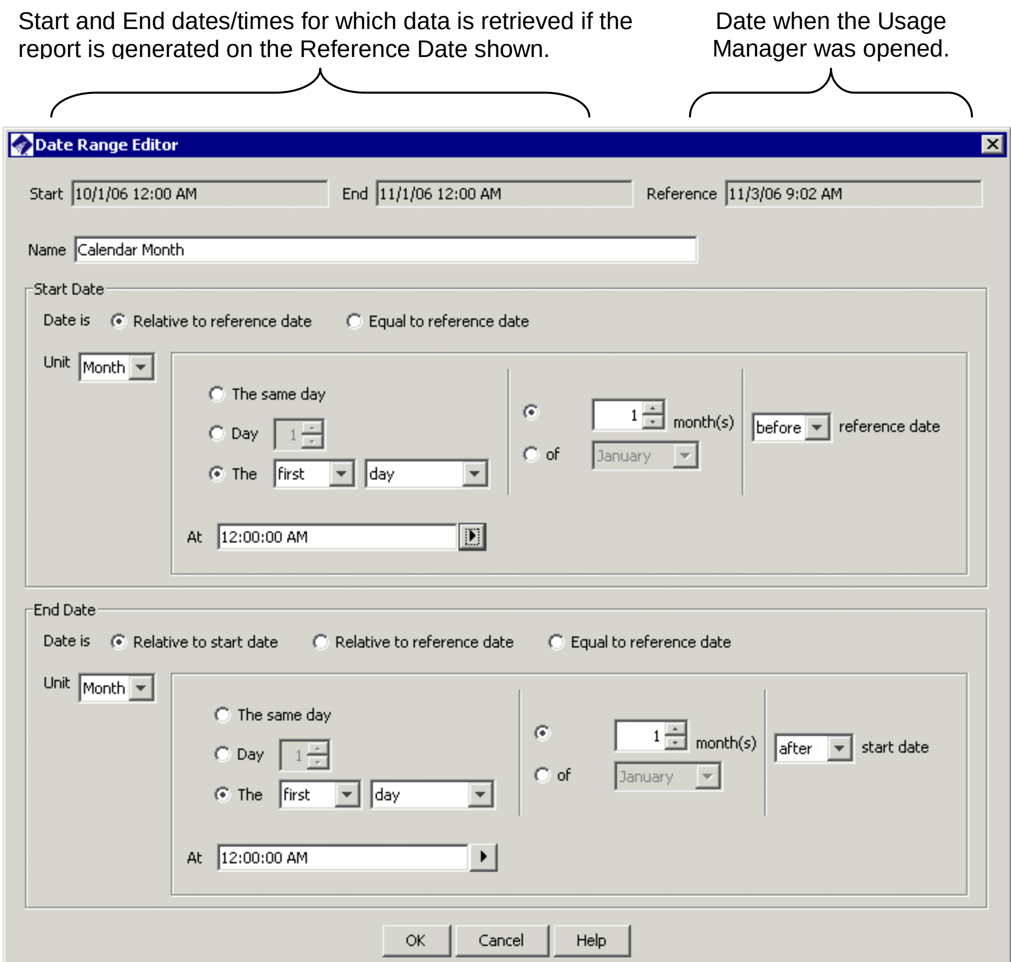
When you define or run a report, you specify the Retrieval Range for which you want to retrieve data. Two types of Retrieval Ranges are available:

- An *absolute Retrieval Range* denotes a specific start and end date and time. This range always retrieves data for the same period of time no matter when you run the report. For example, you might run a report for January 10 at 8:00 AM to January 14 at 5PM. Whether you run the report on January 15 or August 8, the time period is the same. If you run the same report in January and August, the data in the reports will be exactly the same.
- A *Relative Date Range* defines the Retrieval Range in relation to a *reference date*. For example, suppose you define a relative date range to represent the previous work week, Mon–Fri from 8 AM to 5 PM.

The week that represents the previous work week for which data will be retrieved depends on the Reference Date; that is, the week previous to Monday, January 10 is not the same time period as the week previous to Saturday, February 26.

When you generate a report using the Relative Date Range, the Reference Date defaults to the date and time at which you select the Report Template, but you can choose a different Reference Date.

The illustration below is an example of a Relative Date Range that spans a one-month period, starting at 12 AM on the first day of the month prior to the **Reference Date** and ending at 12 AM on the first day of the month following the **Start** date. In other words, data is to be retrieved for the previous calendar month.



Defining a Relative Date Range

A *Relative Date Range* defines the Retrieval Range in relation to a *reference date*. You can define Relative Date Ranges by day, week, or month.

When you generate a report using the Relative Date Range, the Reference Date defaults to the date and time at which you run the report, but you can choose a different Reference Date.

To define a Relative Date Range

1. In the Usage Manager tree pane, right-click the folder or Template under which you want to create the Date Range and click **New | Date Range**. The **Date Range Editor** appears.
   - The **Reference** box always shows the date and time at which you opened the Usage Manager. and it is in relation to this Reference Date that you define the **Relative Date Range**. When you generate a Report using a Relative Date Range, you can specify a different date/time as a reference.
   - The **Start** and **End** boxes display the actual period of time for which data would be retrieved if you generated a report at the reference date and time shown in the **Reference Date** box. These boxes change dynamically to reflect the information that you enter in the fields on the dialog box.

Tip: To see the current date and time in the **Reference Date** box, close and reopen the Usage Manager.

2. In the **Name** box, type a name that is easy to recognize when selecting a Relative Date Range for a Report Template. For example, type:

   ```
   Calendar Month
   ```

3. In the **Start Date** area, define the starting date and time for the range as follows:

   a. In the **Date is** area, select one of the following:

      - **Equal to Reference date**—Select this option to use the reference date as the start date/time for the range. The other fields in the **Start Date** area become grayed out.

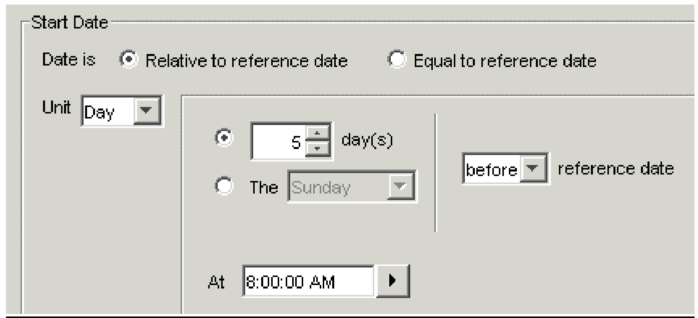
        Proceed to Step 4 to define the end date.

      - **Relative to reference date**—Select this option to define how the start date relates to the reference date. For example, you might want the report to start 5 days before the reference date, or the first day of the month before the reference date.

When you use a Relative Date Range for which the Start Date is <u>after</u> the Reference Date, you need to manually set the Reference Date to a time prior to the Start Date. Otherwise, the Relative Date Range reflects a future time and no data is available.

b. In the **Unit** box, you select the unit of time you want to use: **Day**, **Week**, or **Month**. The remaining fields in the **Start Date** area update according to your selection. Use the applicable procedure below.

<u>Day:</u>



The illustration above specifies that the range starts "5 days before the reference date at 8 AM."

1) Do one of the following:

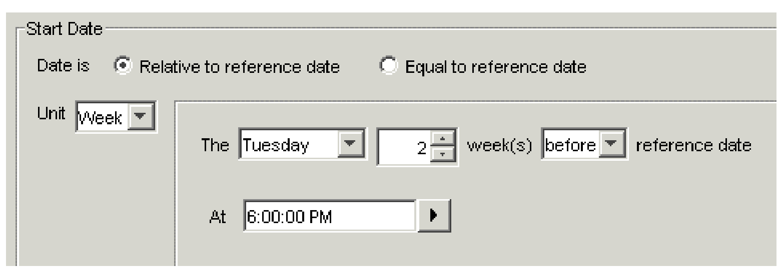
   - Type or select the number of days the start date varies from the reference date.

   - Select the radio button and then click the down arrow and select a specific day of the week on which the report is to start.

2) Click the down arrow and select whether the Start Date is **Before** or **After** the reference date.

3) In the **At** box, type or select the time at which the relative date range starts.

<u>Week</u>



The example above specifies that the range starts "the Tuesday 2 weeks before the reference date at 6 PM."

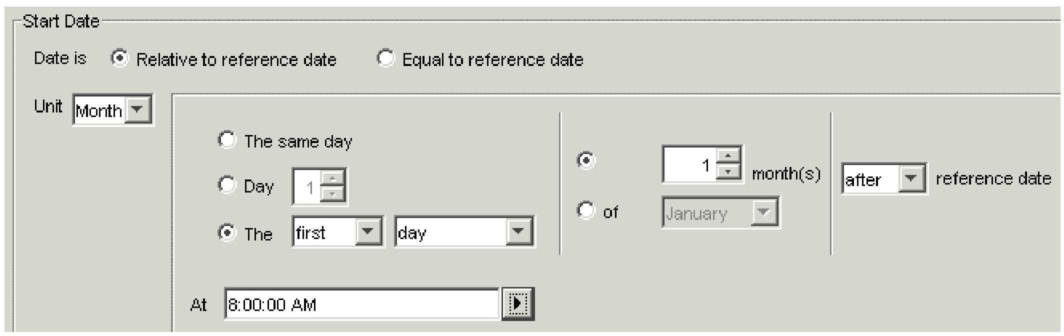
1) Select the day of the week on which the report is to start. You can choose either the same day of the week as the reference date, or a specific day of the week.

2) Select the number of weeks by which the start date varies from the reference date.

3) Specify the whether the Start Date is **Before** or **After** the Reference Date.

4) In the **At** box, type or select the time at which the relative date range starts.

Month



The illustration above specifies that the range starts "the first day of the month after the reference date at 8 AM."

1) Select which day of the month the report is to start:

   – The **Same day** of the month as the reference date.

   – A specific day of the month (e.g., the **1st** or **23rd** day of the month).

   – A specific day, weekday, weekend day, or day of the week (e.g., **first Tuesday** or **3rd Weekend day** of the month).

2) Select a number of months and direction in which the start date varies from the reference date (e.g., **2 months before** or **1 month after** the reference date) or select a specific month in which the report is to start (e.g., **of February**).

3) In the **At** box, type or select the time at which the relative date range starts.

4. In the **End** date/time, specify the date and time at which the report is to end:

   a. In the **Date is** area, select one of the following:

If you specify **Month** as the unit and want the **End** date to fall within the same month as the **Start** date, specify 0 months.

If you specify **Week** as the unit and want the **End** date to fall within the same week as the **Start** date, specify 0 weeks.

- **Relative to Start date**—Select this option to define how the **End** date relates to the **Start** date. Define the **End** date exactly as described for the **Start** date.
- **Relative to Reference date**—(Only available if **Relative to Reference Date** is selected for the **Start** Date.) Select this option if you want to define the **End** date in relation to the reference date. Define the **End** date exactly as described for the **Start** date.
- **Equal to Reference date**—(Only available if **Relative to Reference Date** is selected for the Start Date.) Select this option to use the current date and time as the end date/time for the range. The other fields in the **End Date** area become grayed out.

b. In the **At** box, type or select the time at which the relative date range ends.

5. View the **Start** and **End** fields at the top of the dialog box to ensure that they represent the time range you intended to cover.
6. Click **OK**. The Date Range appears in the Usage Manager tree pane.

Shortcuts

You can create *shortcuts* to folders, Templates, Elements, and Relative Date Ranges. Shortcuts enable you to:

- Allow **PUBLIC** users access to a read-only version of the Reports, Elements, and Relative Date Ranges in your user folder, while you retain control of the items and make changes in a single place.
- Reuse Elements and Date Ranges in various custom reports, while maintaining only one version. For example, you might create a folder named **Custom Elements** in your user folder and create all of your custom Elements there. Then, when you create a new report, you can use Shortcuts to those Elements. In this way, changes you make to an Element in the **Custom Elements** folder are automatically reflected in all reports that use the Element.

If you "publish" a shortcut in PUBLIC to items in your user folder, other users can see and use those items. They cannot edit them.

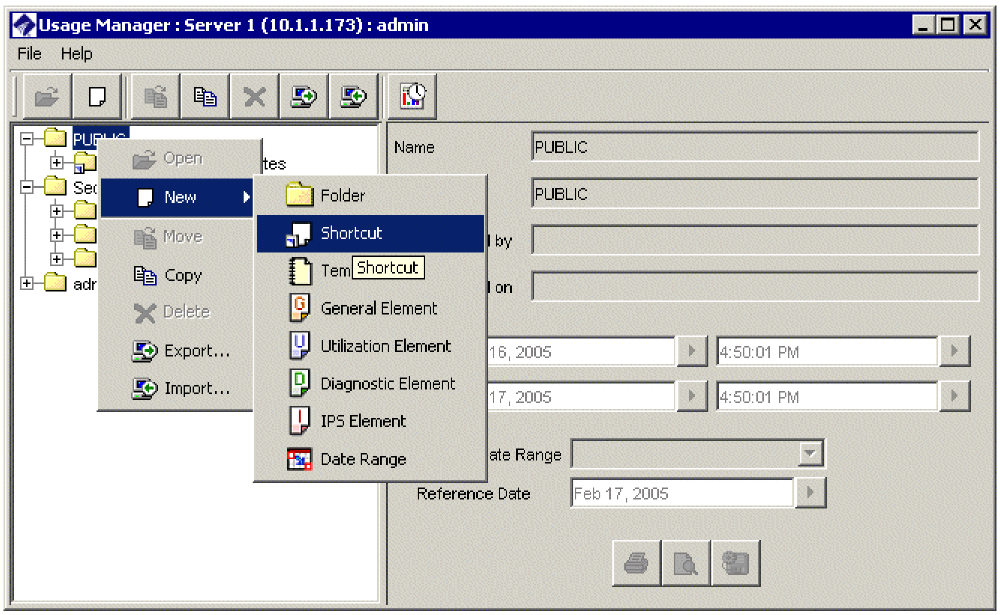
When you make a shortcut to a folder or Report Template, all of the items belonging to that target appear below the Shortcut. It is important to note that these are not copies—they provide access to the actual items. If you have write permission to the folder that owns these items, you can edit the items beneath the shortcut. Otherwise, your access is view-only. Also, you can paste new items below the shortcut. The pasted item becomes available from both the shortcut tree and the target tree.

Shortcuts are represented by an icon indicating the type of object to which the shortcut points (folder, Template, Relative Date Range, or Element), overlaid in the lower left corner by a !GRAPHIC! icon. If the target of a shortcut is deleted, the unknown object type icon appears as a  (question mark).

Creating a Shortcut

To create a Shortcut

1. Right-click the Folder or Template under which you want to place the Shortcut and click **New | Shortcut**.

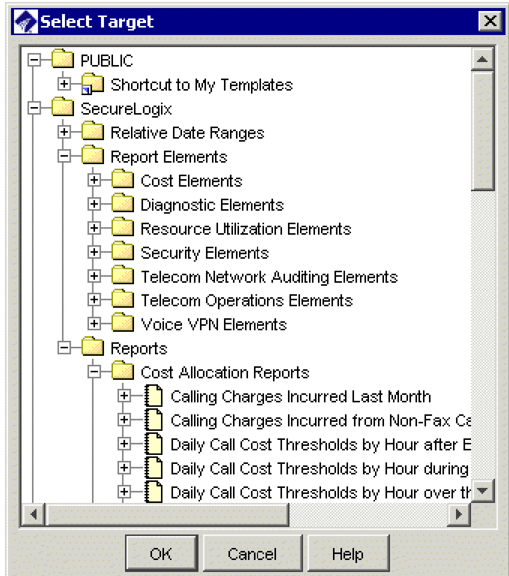


The **Shortcut Editor** appears.

2. Click **Select**.

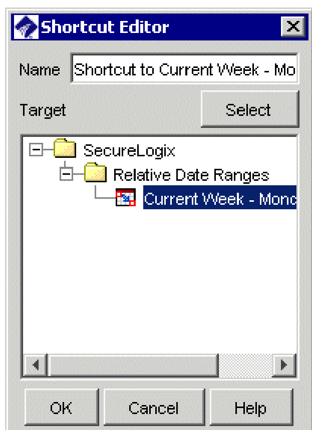
   The **Select Target** dialog box appears.

The item you can select for the target of a Shortcut depends on where you are creating the Shortcut. Folders can contain all types of Report Components and can therefore contain shortcuts to these items; Templates can contain Elements and Date Ranges or Shortcuts to them.



3. Click the item to which the shortcut is to point, and then click **OK**. The path to the selected target appears in the **Target** box.

You can open the target of a Shortcut for editing by double-clicking it in the **Target** box.



4. The **Name** defaults to "Shortcut to <*name of target*>". You can type a different name in the **Name** box, if desired.

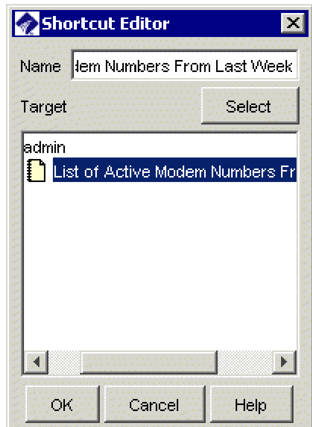
5. Click **OK**. The Shortcut appears in the tree pane beneath the selected folder or report.

If the Shortcut points to a Template or Folder, all of the items in the Template or Folder are available under the Shortcut when you expand the tree. If you have write access to the items, you can edit them. To access the item that a Shortcut points to, simply double-click it in the **Shortcut Editor**.

Opening the Target of a Shortcut

To open the target of a Shortcut

1. In the Usage Manager tree pane, double-click the Shortcut. The **Shortcut Editor** appears showing the target of the selected Shortcut.



2. In the **Target** box, double-click the item to which the Shortcut points. The item opens in the applicable editor for the type of item. If you have write access to the item, you can edit it. If you do not, **READ-ONLY** appears in the title bar.

Renaming a Shortcut

To rename a shortcut

1. In the tree pane, double-click the Shortcut. The **Shortcut Editor** dialog box appears.
2. In the **Name** box, type the new name.
3. Click **OK**.

Changing the Target of a Shortcut

To change the target of a shortcut

1. In the tree pane, double-click the shortcut. The **Shortcut Editor** dialog box appears. The **Target** box shows the path to the Target.
2. Click **Select**. The **Select Target** dialog box appears.
3. Click the item to which you want the Shortcut to point, and then click **OK**.
4. If the Shortcut for which you are changing the target bore the default name of **Shortcut to *<target>***, the **Name** automatically changes to reflect the new target. You can type a different name in the **Name** box, if desired. If the Shortcut has a user-defined name, the name does not change when you change the target. Type a new name to reflect the new target, if desired.
5. Click **OK**.

You can open the target of a Shortcut for editing by double-clicking it in the **Target** box.

Report Elements

Several types of Report Elements are available:

- Two types of *Call Elements*:
    - **General Elements** are used for reports of call activity, Firewall Policy enforcement, identifying appropriate thresholds for IPS Policies, and call accounting/billing reconciliation. VoIP call data can be included in General Elements.
    - **Resource Utilization Elements** track usage of network resources over time and provide trends to project future utilization. Resource Utilization Elements do not apply to VoIP Spans, since they have no set number of channels.
- **IPS Elements** are used for reports of Voice IPS Policy processing.
- **Diagnostic Elements** provide reports of **Diagnostic Log** data.
- **Directory Elements** provide reports of the Directory Listings in the Directory Manager.

Modifying Headings for Report Fields

You can optionally specify a different report display heading for the fields displayed in reports, or specify that a field is to have no heading. By default, the field name is used as the heading for each field in a report. However, the field names can be fairly long to ensure that they are unique and readily distinguishable. Depending on the number of fields and the length of the field names, this can result in a cluttered report.

Important Since Average Utilization and Peak Utilization are not tied to fields in the **Detail** tab, you cannot change the headings for these fields.

Two means are provided for specifying custom report field headings:

User-level properties—You can specify the default report display heading for each call, Diagnostic, IPS, and Directory Element field. These preferences apply to all reports you generate, except when you explicitly override them by specifying Element-specific headings.

Element-specific headings—You can specify unique report display headings for the fields in a given Element. These headings override those set in user-level properties and apply only to the Element in which they are defined.

Defining User-Level Report Heading Defaults

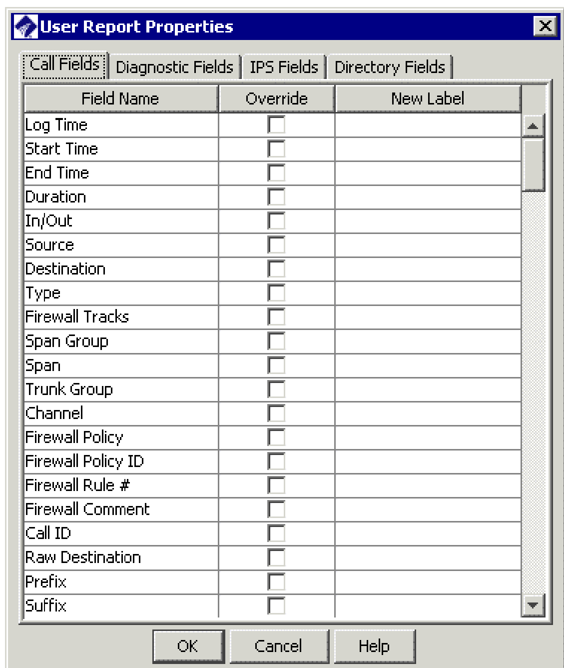
User-level report heading defaults apply to all reports you generate, unless you specifically override them with custom, Element-specific headings in a given report. They do not affect reports that other users generate, even if you created the Report Template or Element they used.

Tip Click a column heading to sort the entries according to that column.

To define user-level report heading defaults

1. On the Usage Manager main menu, click **Edit | Properties**. The **User Report Properties** dialog box appears, containing these tabs.

   - The **Call Fields** tab includes all of the fields available on the **Detail** tab in General and Resource Utilization Elements.
   - The **Diagnostic Fields** tab includes all of the fields available on the **Detail** tab in Diagnostic Elements.
   - The **IPS Fields** tab includes all of the fields available on the **Detail** tab in IPS Elements.
   - The **Directory Fields** tab includes all of the fields available on the **Detail** tab in a Directory Element.



2. For each field for which you want to replace the field name with a new label, select the **Override** box, and then type the new label in the **New Label** box.

   - For any field you want to have no label (for example, fields with obvious data types, such as the two-letter state abbreviation), select the **Override** check box and leave the box blank.

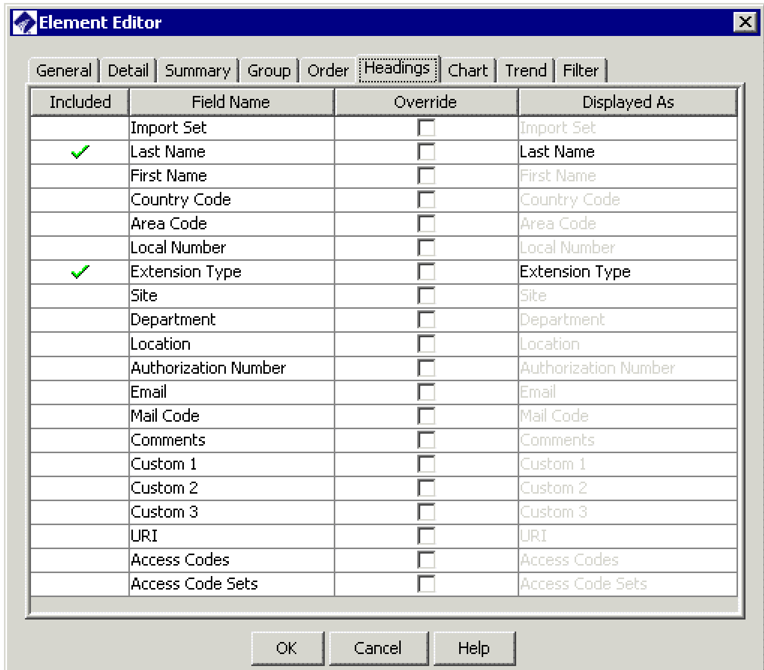
3. Click **OK** to save the changes and close the dialog box.

Defining Element-Specific Headings

Tip Entries are grayed out in the **Displayed As** column unless a field is included in the **Detail** tab, but all of the entries are editable when you select the **Override** checkbox.

To modify display headings in a given element

1. In the Element Editor, click the **Headings** tab. Each field selected in the **Details** tab has a green check mark in the **Included** column. You can edit the heading for any field, not just those included in the report. Then, if you later include the field, the heading you specified is used.



Tip Click a column heading to sort the entries according to that column. For example, sort by the Included column to bring all entries currently in your element to the top of the list.

2. To change the display heading for a field:

   a. Select the **Override** check box for the field.

   b. In the **Displayed as** box, type the text to be displayed. If you do not want the field to have a header, clear the text and leave the box blank. For example, if you are displaying the last name and first name fields adjacent to one another, you might want to label the **Last Name** field "Name" and leave the **First Name** field label blank.

3. Repeat step 2 for each included field for which you want to change the heading displayed in the report.

Configurable Grouping Fields

Configurable fields enable you to combine CCMI data fields and/or Directory Listing fields (depending on the type of configurable field) to create a custom field for grouping and summarizing data. For example, you might want a single field to show the full name and phone number of the calling party, instead of having individual columns for **First Name**, **Last Name**, and **Source**. This is especially useful for providing a concise report for grouped and summarized data. For example, consider the two illustrations below. Both provide the same information, but the second illustration, which uses a configured field, is much more concise.

Source Directory First Name	Source Directory Last Name	Source	Destination	Type	Start Time	Duration	Cost
Alex G	Bell	[1](303)4802955	[1](859)5186462	Voice	02/16/05 13:07:43	0:01:19	$0.05
			[1](859)5186462	Voice	02/16/05 13:07:48	0:01:19	$0.05
			[1](859)5186462	Voice	02/16/05 13:07:48	0:01:19	$0.05
			[1](859)5186462	Voice	02/16/05 13:07:48	0:01:19	$0.05
			[1](859)5186462	Voice	02/16/05 14:38:18	0:01:18	$0.05
			[1](859)5186462	Voice	02/16/05 14:38:23	0:01:18	$0.05
			[1](859)5186462	Voice	02/16/05 14:38:23	0:01:18	$0.05
			[1](859)5186462	Voice	02/16/05 14:38:23	0:01:18	$0.05
		Sum of Duration					0:10:28
		Count					8
		Sum of Cost					$0.42
	Sum of Duration						0:10:28
	Count						8
	Sum of Cost						$0.42
Sum of Duration							0:10:28
Count							8
Sum of Cost							$0.42

Figure 1. Multi-level grouped fields with summaries, without using configured field. Summaries are repeated for each grouped field, even though in this case the value is the same at each group level.

Source Configure 1	Destination	Type	Start Time	Duration	Cost
Alex G, Bell - [1](303)4802955	[1](859)5186462	Voice	02/16/05 13:07:43	0:01:19	$0.05
	[1](859)5186462	Voice	02/16/05 13:07:48	0:01:19	$0.05
	[1](859)5186462	Voice	02/16/05 13:07:48	0:01:19	$0.05
	[1](859)5186462	Voice	02/16/05 13:07:48	0:01:19	$0.05
	[1](859)5186462	Voice	02/16/05 14:38:18	0:01:18	$0.05
	[1](859)5186462	Voice	02/16/05 14:38:23	0:01:18	$0.05
	[1](859)5186462	Voice	02/16/05 14:38:23	0:01:18	$0.05
	[1](859)5186462	Voice	02/16/05 14:38:23	0:01:18	$0.05
Sum of Duration					0:10:28
Count					8
Sum of Cost					$0.42

Figure 2. Grouped field configured to show first and last name and phone number for the calling number, with summaries. Since only one field is grouped, the summary information appears only once.

You can also include punctuation and spaces to format the field. The Directory Listing and CCMI items are called *data tokens* and the formatting characters are called *literal tokens*.

Three types of configurable fields are available:

- **Access Code** configurable fields, available in General and Resource Utilization Reports. Access Code configurable fields can contain any combination of Directory tokens and literal tokens. Access Code fields provide Directory data by correlating the access code used to make a call (as report by the PBX) with the access code associated with a Directory Listing.
- **Called/calling number** configurable fields, which include Source, Destination, External Number, and Internal Number; available in General and Resource Utilization Reports. These extension-based fields can contain any combination of Directory data tokens, CCMI data tokens, and literal tokens.
    - For Directory data tokens, data is provided by correlating the phone number/VoIP URI in the call data with the same data in a Directory Listing. Note that if more than one Directory Listing has the same phone number/URI as the call data, one of the matches is arbitrarily chosen for display.
    - For CCMI data tokens, data is provided by correlating the country code, area code, and exchange in the call data with the same fields in CCMI data.
- **Directory Listing** configurable fields, available only in Directory Elements. Directory Listing configurable fields can contain any combination of Directory tokens and literal tokens. Data is provided by a direct matching of the Directory Listing's underlying unique identifier.

Configured fields belong to the Element in which you configured them; they cannot be reused in other Elements. Also, you cannot filter directly on configurable fields, but you can filter each of the fields represented by the tokens used to achieve the same results.

Configurable fields contain the word "Configurable" and are denoted by a **Properties** icon.

Distinct vs. Merged Grouping

When you configure a field, you can select the grouping method for that field. Two options are provided: **Distinct** and **Merged**.

Distinct—The field is grouped based on the *underlying entity* for the field. The grouped configured field appears for each applicable underlying entity in the data, as though you had grouped on the field that the underlying entity represents. (For example, a line appears for each source extension when **Source Configurable 1** is used, just as it would if you grouped by **Source**.) Summary data is provided for each underlying entity and overall, but not for distinct values in the configured field.

The data item that represents the underlying entity depends on the type of configurable field:

For the **Source**/**Destination**/**Internal**/**External Configurable** fields, the underlying entity is the phone number. For example, if you configure **Source Configurable 1** to include country code and area code and select **Distinct** for the grouping method, when you group on this field, a row appears for each distinct Source phone number in the data, even if the value in the configured field is the same. If a summary is defined, the summary appears for each phone number and overall, but not for each unique value in the configured field.

- For **Access Code Configurable** fields, the underlying entity is the Access Code.
- For **Directory Listing Configurable** fields, the underlying entity is the Directory Identifier.

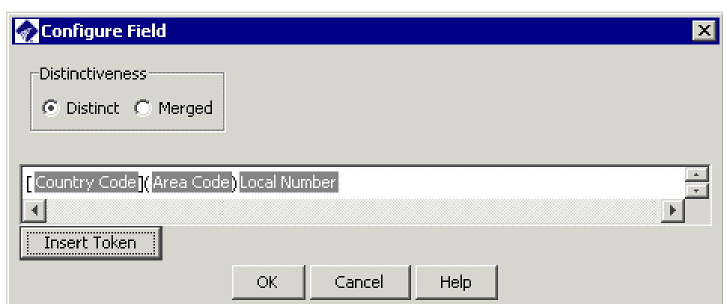
Merged—The data is formatted the way grouping normally works. The grouped configured field appears once for each group (that is, each distinct value the configured field contains) and is not repeated for each underlying entity; summary data is provided for each group and overall, but not for each underlying entity. For example, suppose you group by a configurable field that contains **Country Code** and **State/Province**. If **Merged** is selected, a group and summary appears for each country code/state combination represented in the data.

Configuring a Field

Properties icon

To configure a field

1. On the **Detail** tab of the Element Editor, click a configurable field.
2. Click the **Properties** icon that illuminated on the center bar when you clicked the field. The **Configure Directory Field** (for Access Code or Directory Listing configurable fields) or **Configure Field** (all other configurable fields) dialog box appears. The dialog boxes are identical except for the title and the available tokens.



3. The **Grouping Criteria** area determines how the data is to be displayed when the field is grouped and summarized. In the **Grouping Criteria** area, select one of the following:

- **Distinct**—The grouped configured field appears for each applicable underlying entity in the data, as though you had grouped on the field that the underlying entity represents. (For example, a line appears for each source extension when **Source Configurable 1** is used, just as it would if you grouped by **Source**.) Summary data is provided for each underlying entity and overall, but not for distinct values in the configured field.
- **Merged**—Formats the data the way grouping normally works. The grouped configured field appears once for each group (that is, each distinct value the configured field contains) and is not repeated for each underlying entity; summary data is provided for each group and overall, but not for each underlying entity. For example, suppose you group by a configurable field that contains **Country Code** and **State/Province**. If **Merged** is selected, a group and summary appears for each country code/state combination represented in the data.

4. Specify the tokens for the field. The Access Code Configurable and Directory configurable fields can use Directory Tokens and literal tokens; all other configurable fields can use Directory tokens, CCMI data tokens, and literal tokens.

   - By default, the **Country Code**, **Area Code**, and **Local Number** Directory tokens are included. If you do not want these included, click in the box and use the BACKSPACE, ARROW, and DELETE keys to remove those tokens.

   To add a token

   a. Click **Insert Token**.

   b. Do one of the following:

      - If you are configuring an **Access Code** or **Directory Listing** configurable field, click a Directory token.
      - If you are configuring any type of configurable field other than Access Code, point to **Directory** or **CCMI**, and then click a token.

   c. The token is inserted into the field. You can type spaces or punctuation (literal tokens) between inserted fields to separate them. The fields and literals appear in the report exactly as specified here.

   d. Repeat for additional tokens.

5. When all desired tokens have been added, click **OK**.

Call Elements

General and Resource Utilization Report Elements are referred to collectively as *Call Elements*, because they report data from the individual call records stored in the Database. This is in contrast with IPS Elements, which report cumulative calling pattern data, Directory Elements, which report on the Listings in the Directory Manager, and Diagnostic Elements, which report on the Diagnostic Log data in the Database.

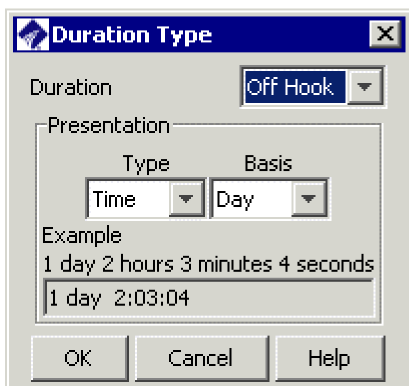
Duration Properties in Call Elements

For each Call Element, (that is, a General or Resource Utilization Element), you can specify whether call duration should be reported from the Start Time of the call (**Off hook**) or from the Connect Time of the call (**Answered**). You do this by changing properties for the **Duration** field. Note that this change applies only to the Element in which you make the change.

To change Duration properties

1. On the **Details** tab of the **Element Editor**, click **Duration**. The **Properties** icon becomes available. It does not matter whether **Duration** is in the **Hide Fields** or **Show Fields** box when you perform this procedure; the **Properties** icon below the **Left** and **Right** arrows applies to an item selected in the **Hide Fields** box, while the **Properties** icon below the **Up** and **Down** arrows applies to an item selected in the **Show Fields** box.

2. Click the **Properties** icon. The **Duration Type** dialog box appears.



3. In the **Duration** box, select one of the following:

   - **Off Hook** means that Duration is reported from the time the line is seized, indicating call initiation. On outbound calls, Duration is reported from the time the calling party uncradled the phone; on inbound calls, it is reported from the time the phone begins to ring. **Off Hook** is the default.

   - **Answered** means Duration is reported from the time the calling party answers the phone on circuit types that provide answer supervision, or from the **Call Established Timeout** on circuit types that do not provide answer supervision.

4. In the **Presentation** area, select the **Type** and **Basis** that represent how you want the time to be displayed. The **Example** box reflects how your selections would affect the display of a duration of 1 day, 2 hours, 3 minutes, and 4 seconds.
   a. In the **Type** box, click the down arrow and select **Time** or **Decimal**.
   b. In the **Basis** box, click the down arrow and select the time basis: **Day**, **Hour**, **Minute**, or **Second**.
5. Click **OK**.

Cost Properties in Call Elements

If you want to include cost accounting information in a Report, you can define properties for the **Cost** field to associate a Billing Plan with a Call Element. The Billing Plan correlates Service Types with billing rates. For more information, see "Cost Elements" on page 84.

Access Codes in Call Elements

When you run a report that contains the **SMDR Access Code** field, the actual Access Codes appear in the report if your user account has the **View Access Codes** user permission. If your user account does not have this permission, a string of asterisks (******) appears instead of the actual Access Code. All other Access Code-related Directory Listing fields (for example, **Access Code Last Name**) show their values.

Directory Listing Fields in Call Elements

You can use Directory Listing fields to *decorate* the data in Call Elements. That is, Directory Listing fields, such as First Name, Last Name, or Department, do not actually exist in the call data for a call. However, Directory Listing information can be supplied in a Report by correlating called and calling numbers in the call data with the phone numbers and URIs in Directory Listings, or by comparing SMDR Access Codes in the call data with the Access Codes associated with Directory Listings. This is referred to as *decorating* the data.

It is important to note, though, that if more than one Directory Listing has the same phone number or URI (for example, if two people share an office and a phone and you define a separate Listing with the same phone number for each person) and you attempt to decorate a report based on that called or calling number, the ETM System has no way to know which phone-number-duplicate Listing is correct for a given call. In this case, the Directory information supplied in the Report may not represent the actual person who made or received the call. One of the matching Listings is selected in an arbitrary but consistent fashion.

General Elements

You can create a General Element under a Folder or a under a Template. Defining a General Element consist of the following sequence of steps:

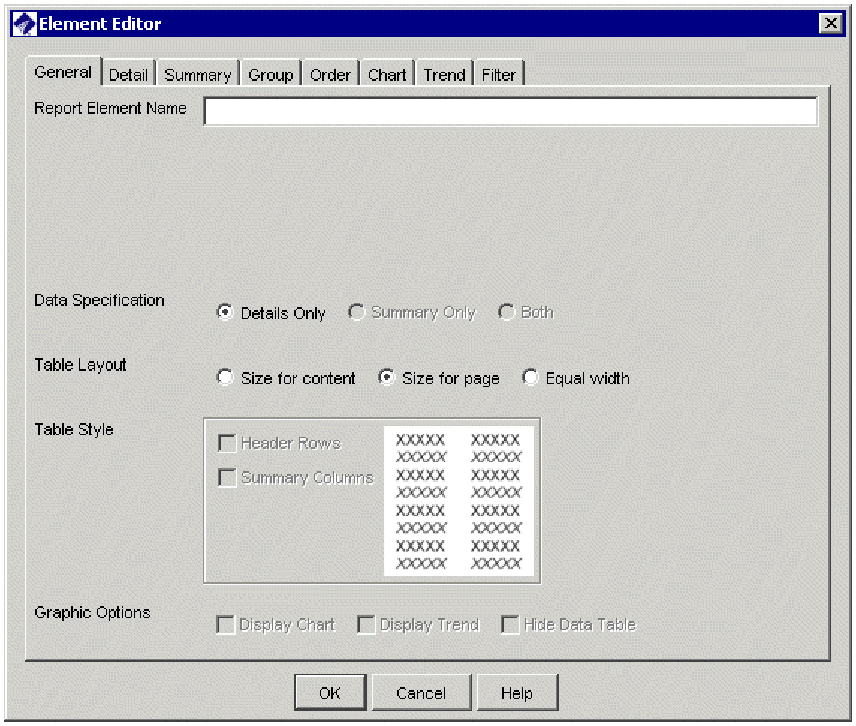
1. Open the **Element Editor** for a General Element.
2. Name the Report Element. (You cannot save changes until you name the Report Element.) (**General** tab)
3. Select the data fields to appear in the report (**Detail** tab).
4. Create filters to limit the report to calls containing certain types of information (**Filter** tab).
5. Specify grouping and sorting to determine the organization of the report and available X-axis values in trends or charts (**Group** tab).
6. Specify the order of the detail data (**Order** tab).
7. Select fields used to create a chart or trend, if one is to be included (**Summary** tab).
8. Select the X- and Y-axis values and appearance of a chart (**Chart** tab), if one is to be included.
9. Select the X- and Y-axis values, data values, and appearance for a trend (**Trend** tab), if one is to be included.
10. Select layout, level of detail, and graphics options for presenting the data (**General** tab).

Defining a General Element

To define a General Element

1. In the tree pane, right-click the Folder or Template where you want to create the Element, and then point to **New** and click **General Element**.

   The **Element Editor** appears.



2. In the **Report Element Name** box, type a descriptive name for the Element. Try to indicate the purpose, content, level of detail, and organization. For example, if you were defining an Element to detail outbound modem calls, grouped by the source phone number, you might type:

```
Security Detail - Outbound Modem Calls by Source
```

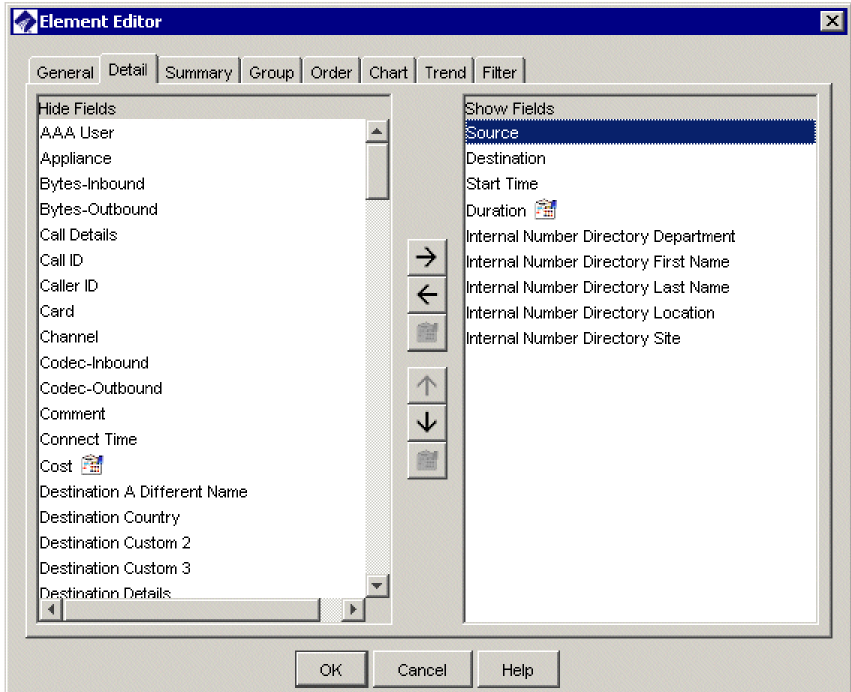
Choosing the Fields to Appear in the Report

IMPORTANT If you use **Cost** or **Duration** in your Element in either the **Details** or **Filter** tabs, see "Cost Properties in Call Elements" on page 65 or "Duration Properties in Call Elements" on page 64 for instructions for defining their properties.

See "Configurable Grouping Fields" on page 59 for instructions for using the fields that contain the word "Configurable."

To choose the fields to appear in the report

1. Click the **Detail** tab. The **Detail** tab is used to select the data fields you want to see in the report. All of the fields in the Call Log appear, plus fields you can use to add Directory Listing, locale, and cost accounting information to the report, and configurable fields in which you can place multiple data tokens. See "Configurable Grouping Fields" on page 59 for instructions for using configurable fields in an Element. See “Fields Available in Call Elements” on page 158 for a description of each field available in a General Element.



2. In the **Hide Fields** box, double-click each data field you want to add to the Element. The selected data fields move to the **Show Fields** box. For the outbound modem example, you might want to see the Source, Destination, Duration, and Start Time of the calls, plus the first name, last name, location, site, and department that are associated with the Source number in the Directory Manager. You would move these fields to the **Show Fields** box.

   IMPORTANT Only add fields to the **Show Fields** box that you actually want to *see* in the report. You can filter on any field—a field does not need to be in the **Show Fields** box for you to apply a filter to it. For example, if you want to see only outbound calls, you do not need to add **In/Out** to the **Show Fields** box. You can simply apply an Outbound Call Direction filter to the **In/Out** field in the **Filter** tab to limit the data to outbound calls. "Filtering the Data" on page 69 for details.

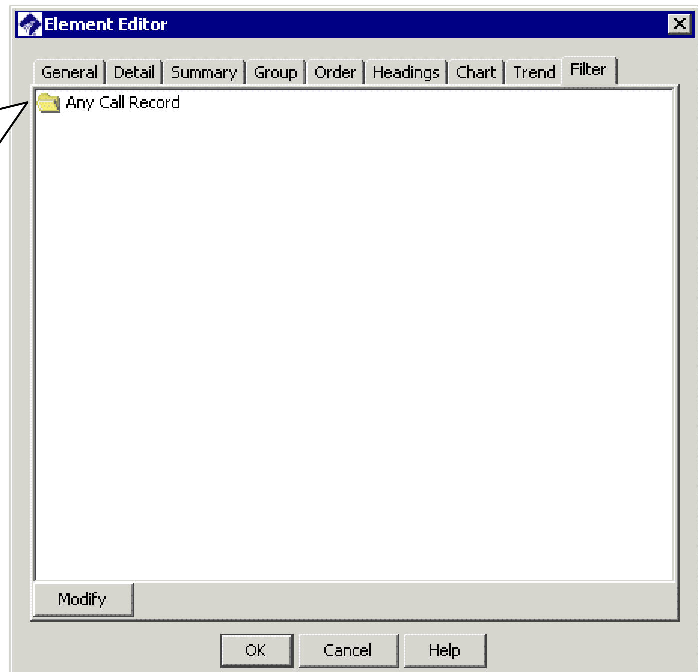
Note You can optionally customize the display heading for the fields in the Report. See "Modifying Headings for Report Fields" on page 57 for instructions.

Filtering the Data

To filter the data

1. Click the **Filter** tab.

"Any Call Record" indicates that no filters are applied to this Report Element.



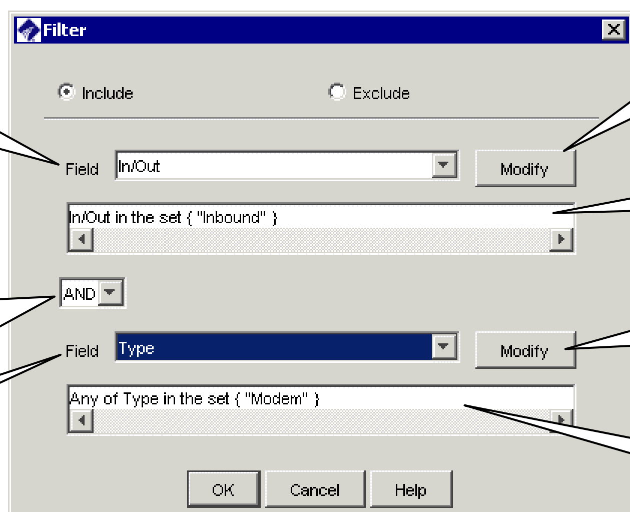
Tip If a filter is already defined, you can double-click or right-click any node to edit that portion of the filter. For example, if a Call Type filter is defined, you can double-click that node to open it in the **Call Type Filter** dialog box.

2. Click **Modify**. The **Filter** dialog box appears.

First filter field

Logical Operator box for adding a second filter

Second filter field



Opens **Filter** dialog box to define a filter

Shows filter definition

Opens **Filter** dialog box to define a filter

Shows filter definition

IMPORTANT If you use **Duration** in your Element in either the **Details** or **Filter** tab, see "Duration Properties in Call Elements" on page 64 for instructions for defining Duration properties.

3. Specify whether to include or exclude data matching the filter criteria.

   - **Exclude**—Only data for calls that *do not* match the filter criteria is included.
   - **Include**—Only data for calls that match the filter criteria is included.

4. In the **Field** box, click the down arrow to select the data field to which you want to apply a filter. The filter dialog box applicable to that field appears. See "Using Filters in the ETM® System" in the *ETM® System User Guide* for a description of each filter.

   - After you define a filter, you can choose **Subfilter** in the **Field** box to filter within the data represented by the first filter and more narrowly tailor the data. See "Defining Subfilters" on page 109 for an example of how subfilters are used.

5. To specify more than one filter criterion, select a logical operator:

   - **OR**—Data containing either or both of the specified filter criteria is included.
   - **AND**—Only data containing both of the specified filter criteria is included.
   - **XOR**—Data containing either, but not both, of the specified filter criteria is included.

6. If you select a logical operator, the second **Field** box becomes editable. Repeat step 4 to specify the second filter.

   Notice that both the filter dialog box for the selected field and the **Filter** dialog box have **Exclude**/**Include** check boxes. These fields work together. For example:

Filter Dialog Box	Extension Filter Dialog Box	Result
Include	Include Modem	Includes Listings with extension type Modem
Include	Exclude Modem	Exclude Listings that contain extension type Modem
Exclude	Exclude Modem	Exclude Listings that do not contain Modem.

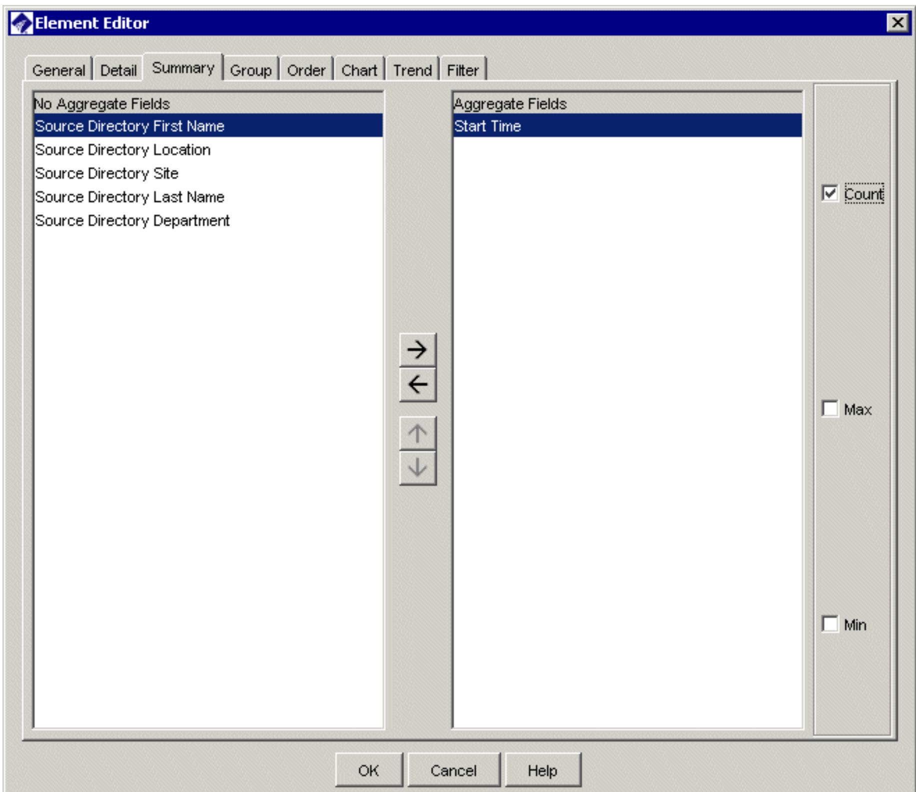
Summarizing the Data

Summary (or *aggregate*) data fields provide the Y-axis values for charts and trends. Summary data fields are also useful for organizing report data. Each type of aggregation that you define in this tab appears as an **Order by** selection in the **Group** tab.

You cannot summarize and group the same fields.

To summarize the data

1. Click the **Summary** tab. The **Summary** tab is used to provide summary information about the data, such as the count, sum, or max value.



These check boxes are available only when a field in the **Aggregate Fields** box is selected.

2. Move the field(s) you want to summarize to the **Aggregate Fields** box.

3. Click a field you want an aggregate value for. One or more check boxes appear at the right of the tab. The available selections vary according to the data element selected. If multiple check boxes are listed, you can select more than one. For example, suppose you want a total count of calls for each Source number in the report. Move **Start Time** to the **Aggregate Fields** box and select **Count**.

Depending on the field selected, one or more of the following options are available:

Aggregate Option	Definitions
Count	A tally of the total number of data items in the selected aggregate data field at each group level and overall. Count usually provides valuable summary information for defining Y-axis values in a chart or trend. *The result of counting is the same, no matter which field is selected. It represents the total number of records in the group.*
Average	The arithmetic mean of all the data item values in the selected aggregate data field to be calculated at each group level.
Sum	The result of adding the data item values for the selected aggregate data field at each group level and overall.
Max	The greatest data item value in the selected aggregate data field at each group level and overall.
Min	The least data item value in the selected aggregate data field at each group level and overall.

Grouping the Data

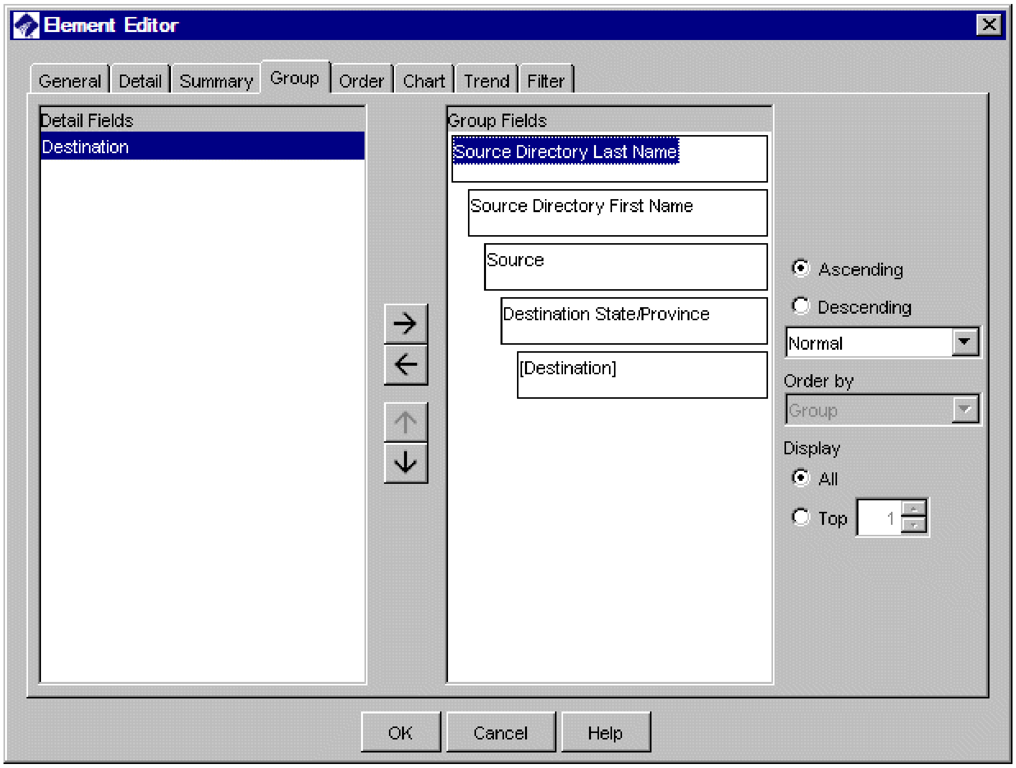
Caution If you group by a field you have already summarized, the Summary is removed.

Groups are used to organize the data and to provide X-axis selections for charts and trends.

- **Organization**—Groups determine how the data is organized. For example, if you group by **Source**, each Source number appears as a heading, followed by all the data for that Source number.
- **X-axis values**—If you intend for the report to contain a chart or trend, define one or more Groups. Groups provide the available X-axis selections for charts and trends. You choose one (or more, for charts) of the Group fields to define the meaning of the X-axis; the grouping criteria selected for that field become the discrete points on the X-axis.

To group the data

1. Click the **Group** tab.



2. In the **Detail Fields** box, double-click a field you want to group by. The field moves to the **Group Fields** box.

3. To create nested groups, move other fields to the **Group** tab. The Groups appear in the report in the order they are listed in the **Group Fields** box. To reorder the groups, click a group and click the up or down arrow.

4. For each field in the **Group Fields** box, click the field and set the following options:

   a. **Sort Order**:

   - **Ascending** sorts the data according to the selected Group field, from A-Z and 0-9. For example, if the Group field is **Source**, 555-1212 comes before 597-1212.

   - **Descending** sorts the Groups from Z-A and 9-0. For example, if the Group field is **Type**, STU comes before Fax.

   b. **Grouping Criteria**:

   Click the down arrow in the grouping criteria box (the unlabeled list box to the right of the **Group Fields** box) to display the options. Note that whatever option is selected in the grouping criteria box appears in the report in place of the group name. Available options depend upon the field selected, as follows:

Non-time-related fields—You can specify the number of letters or digits used in determining how data is grouped. For example, if the selected field is **Type** and you select **First letter** as the grouping criteria, all data for call types beginning with the same letter is grouped together (e.g., **Unanswered** and **Undetermined** are grouped under the heading of **U**). Available grouping criteria choices vary according to the field chosen.

Time-related fields—You can specify the time interval that determines the scope of the groups. For example, if the selected group is **End Time** and you select **By Hour** as the group criteria, data for all calls ending between 0800 and 0900 are grouped under the heading of **0800**. No individual end times appear. Options are: **By Second**, **By Minute**, **By Hour**, **By AM/PM**, **By Day of Year**, **By Week of Year**, **By Month**, **By Year**, or by a defined Interval Object.

c. **Ordering criteria**:

In the **Order by** field, click the down arrow and click **Group** or a type of aggregation (i.e., Count, Max). **Order by** is only available if you have defined an aggregate field in the **Summary** tab.

d. **Display criteria**:

The **Display** field allows you to show all of the members in the **Group** field, or only the Top *n*. Select **All** to show all entries; select **Top** and type a number to show only the specified number of members with the greatest frequency or value. For example, if you want to show the 10 calling numbers that made the greatest number of long-distance calls, you would filter the **Call Details** field for LD, group by Source, and then select **Top** and type 10. To show the 10 calling numbers with the highest duration of long-distance calls, you would group by Duration instead and specify Top 10.

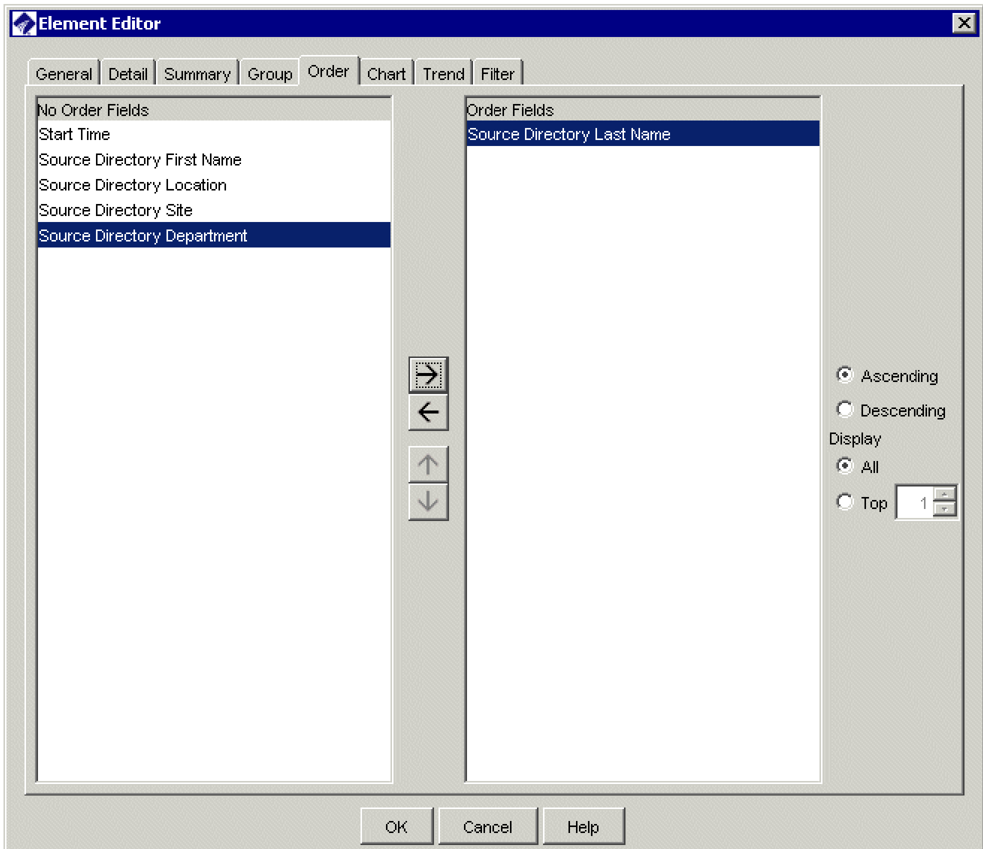
Ordering the Detail Data

The **Order** tab determines the sort order of the detail data in each group. The detail data includes all fields you added to the **Show Fields** box on the **Detail** tab and did not group by on the **Group** tab. For example, suppose the data is grouped by **Source** number, and the detail data includes **Destination**, **Duration**, and **Start Time**. You might order the calls for each **Source** phone number by **Duration** in ascending order (e.g., shortest call for that source number first). You can order by multiple detail fields. For example, if you order by **Duration** and **Destination**, rows that have the same **Duration** are then ordered by **Destination**.

Note that Grouped data fields do not appear in this tab; this tab determines the order of the Detail data within each group. The order of the group fields is determined in the **Group** tab.

To order the detail data

1. Click the **Order** tab.



2. In the **No Order Fields** box, double-click each field you want to order by. If you select multiple fields, use the up and down arrows to place them in the correct order in the **Order Fields** box.
3. In the **Order Fields** box, click each field in turn and select one of the following options:
   - **Ascending** sorts the data according to the selected Group Field, from A-Z and 0-9. For example, if the Group Field is **Source**, 555-1212 comes before 597-1212.
   - **Descending** sorts the Groups from Z-A and 9-0. For example, if the Group field is **Type**, STU comes before Fax.
4. Optionally, select how many detail data entries to include (**All** or the **Top *n***). A single **Display** setting applies to all Order fields.

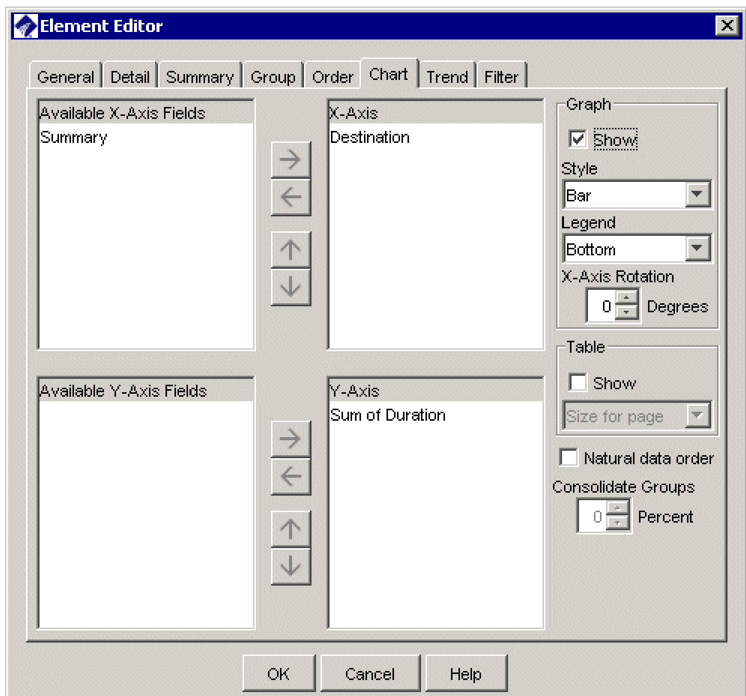
Charting the Data

Before you can create a chart:

- One or more groups must be specified in the **Group** tab. Each Group in the **Group** tab is available as the X-axis. The grouping criteria for the selected group(s) determine the discrete points on the X-axis in certain graph styles. For example, if **Start Time** is selected as the X-axis and **By Second** is specified in the grouping criteria box for that group, the points on the X-axis will be 1-second intervals.
- One or more aggregations (summaries) must be specified in the **Summary** tab. The aggregate value of each **Summary** field is available as the Y-axis.

To define a chart

1. Click the **Chart** tab.



2. In the **Available X-Axis Fields** box, select the data field for the chart's X-axis and click → to move it to the **X-Axis** box. Each group field in the **Group** tab is available for the X-axis; the grouping criteria specified for each X-axis group (e.g., by week, by first letter) create the discrete points on the X-axis.

- If you want the aggregate total for each X-axis data field to appear on the chart (in addition to the data for each discrete point), click **Summary** and click → to move it to the **X-Axis** box. For example, suppose you are charting the number of outbound modem calls by source. To also see the total count of all outbound modem calls for all source phone numbers, move **Summary** to the **X-Axis** box.

3. In the **Available Y-Axis Fields** box, select the summary data that is to provide the values on the chart's Y-axis and click →. The type(s) of summary (e.g., Count, Max, Min) specified on the **Summary** tab appear(s) as options. More than one option can be selected.
4. In the **Graph** area:
    a. Select **Show** if you want the chart you are defining to appear in the report. Otherwise, it is not shown.
    b. In the **Style** box, click the down arrow and select a chart type. See "Available Graph Styles" on page 113 for a list and description of each graph type.
    c. In the **Legend** box, click the down arrow and select where you want the legend for the chart to appear in relation to the chart: **Bottom**, **Top**, **Left**, **Right**, or **None** (no legend is shown).
    d. (*Optional*) In the **X-Axis Rotation** box, type or select the degree of rotation for the labels on the X-axis, from **0** to **90** degrees. If a large number of data points are to be shown, rotating the X-axis is recommended or not all labels can be shown.
5. In the **Table** area:
    a. To include a table describing the data beneath the chart, select **Show**.
    b. Select the **Natural data order** check box for data values to be presented in the order in which they are organized in the detail data table. If you do not select this check box, the data is depicted in the same order as it appears in the **Show Fields** list on the **Detail** tab.
    c. If you include a table, click one of the following display choices:
        - **Size for Content**—Each column is sized to the width of the data it contains. Data wraps to the next line if necessary.
        - **Size for Page**—(*the default*) Table row or column widths are determined by the settings in the **Page Setup** dialog box and by the available space on the page.
        - **Equal Width**—Table columns are of equal width, which is determined by the available space on the page.

To verify whether **Count** is selected, on the **Summary** tab, click a data field in the **Aggregate Fields** box to display the aggregate function check boxes.

d. If **Count** is selected on the **Summary** tab, you can consolidate fields into an **Other** category in the chart. In the **Consolidate Groups** box, type or select the percentage limit for a group. Any group with a count that is less than or equal to the percentage in the **Consolidate Group** box is grouped in the **Other** category in the chart.

For example, consider the following call-type data:

Voice = 50% of calls

Modem = 15% of calls

Fax = 10% of calls

Busy = 8% of calls

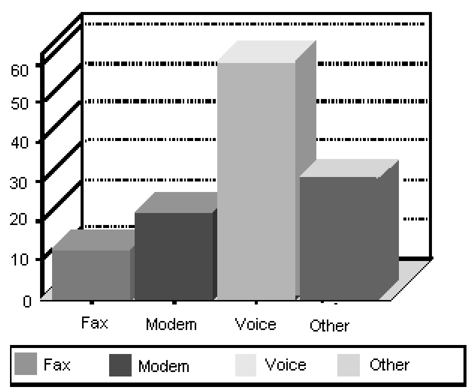
STU = 7% of calls

Data Call = 5% of calls

Unanswered = 3% of calls

Undetermined = 2% of calls

If you set the **Consolidate Groups** percentage to 9%, any group with a total count percentage less than or equal to 9% (in this example, Busy, STU, Data Call, Unanswered, Undetermined) is consolidated into the **Other** group, as shown in the chart below:



Adding a Trend

You can graph time-related report data to depict trends over time for a user-specified number of projections.

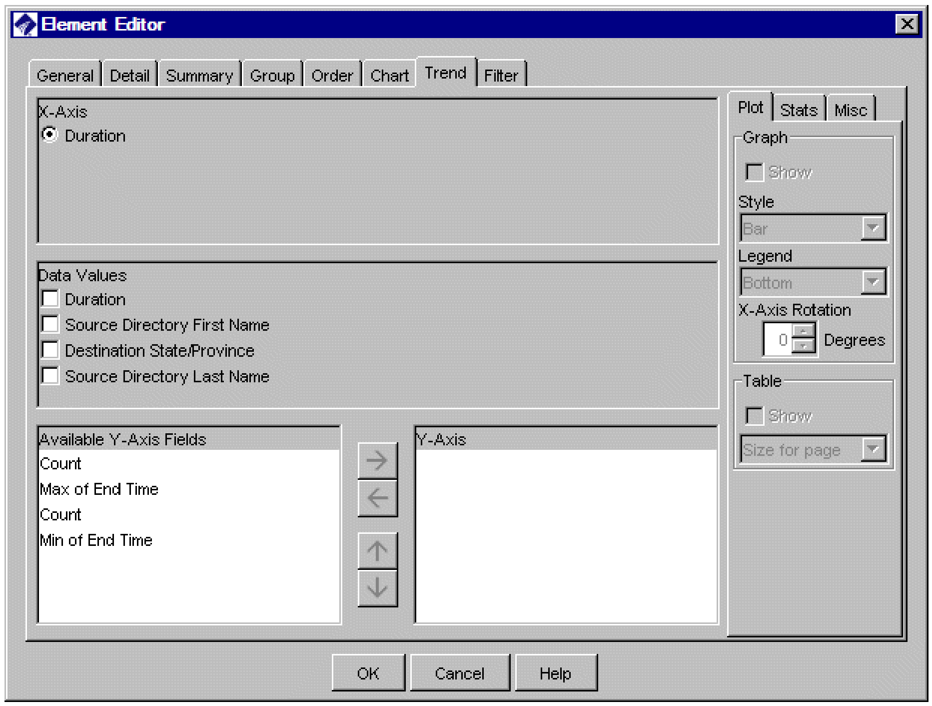
Before you can create a trend, the following must be true:

- One or more time-related groups are specified on the **Group** tab. (Log Time, Start Time, Connect Time, End Time, Duration, Local Start Time, Local Connect Time, Local End Time). These provide the possible X-axis values.
- One or more aggregations (summaries) are specified on the **Summary** tab, which creates possible Y-axis values. The type of summary (e.g.,

count, average, sum) you specified in the **Summary** tab for the selected aggregate determines the Y-axis values.

To create a trend

1. Click the **Trend** tab.



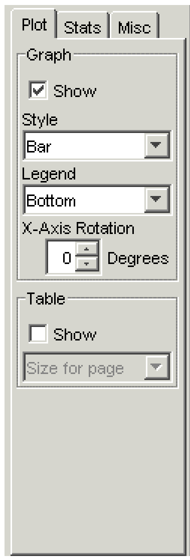
2. In the **X-Axis** area, select the data field to provide the time basis for the trend. Only one of the available selections in the X-axis area can be chosen. Time-related fields (e.g., start time, end time) grouped in the **Group** tab appear as **X-Axis** choices.

   The selected Group field determines the meaning of the X-axis, and the grouping criteria (e.g., **By Second**, **By Minute**) for that group determine the time intervals on the X-axis (if applicable to the graph style chosen).

3. In the **Data Values** area, select the data field(s) for which you want to calculate a trend over time. This field is grayed out until you select an X-axis. The field you choose as the X-axis, and any Groups subordinate to it on the **Group** tab, are available as **Data Values** selections.

4. In the **Available Y-Axis Fields** box, click the summary value for the Y-axis and click → to move it to the **Y-Axis** box.

   The aggregate function (count, average, sum, etc.) you specified in the **Summary** tab for the selected field determines the Y-axis values.



5. To include a plot of the trend, click the **Plot** subtab, if not already selected:

   a. In the **Graph** area:

      i. Select **Show** if you want the trend to appear in the report.

      ii. In the **Style** box, click the down arrow and click a graph style. See "Available Graph Styles" on page 113 for a description of each graph style.

      iii. In the **Legend** box, click the down arrow and click where you want the legend placed in relation to the graph: **Top**, **Bottom**, **Left**, **Right**, or **None** (no legend is shown).

      iv. (*Optional*) Specify the orientation of the labels along the X-axis by typing or selecting a value from 0 to 90 degrees in the **X-Axis Rotation** box. If many data points are to be graphed, this is recommended, or not all labels can be shown.

   b. In the **Table** area:

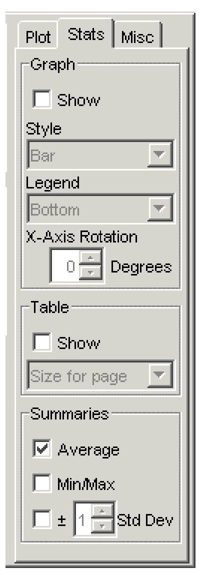
      i. To include a table describing the data beneath the graph, select **Show**.

      ii. If you include a table, click one of the following display choices:

         - **Size for Content**—Each column is sized to the width of the data it contains. Data wraps to the next line if necessary.

         - **Size for Page**—(*the default*) Table row or column widths are determined by the settings in the **Page Setup** dialog box and by the available space on the page.

         - **Equal Width**—Table columns are of equal width, which is determined by the available space on the page.



6. To graph one or more collective aggregations, click the **Stats** subtab. This produces a separate graph for each data series, with the selected summaries overlaying the graph of the base data series. Values of 0 are included in calculating the collective aggregation.

   a. In the **Summaries** area, select one or more of the following collective aggregations (the other options on this tab are unavailable until you select a summary type):

      i. **Average**—The average aggregate values on the X-axis.

      ii. **Min/Max**—The minimum and maximum aggregate values on the X-axis.

      iii. **Std Dev**—The standard deviation of the aggregate values on the X-axis. If you select **Std Dev**, specify a value from +/- 1 to 3 standard deviations to show. Standard deviation can be useful in determining appropriate thresholds to set in IPS

Policies. For example, you might consider values within +1 standard deviation to represent acceptable variation but write IPS Rules for values that fall above the +2 standard deviation line.

b. In the **Graph** area:

   i. Select **Show** if you want the graph(s) to appear in the report.

   ii. In the **Style** box, click the down arrow and select the graph style.

   iii. In the **Legend** box, click the down arrow and select where you want the legend placed in relation to the graph: **Top**, **Bottom**, **Left**, **Right**, or **None** (no legend is shown).

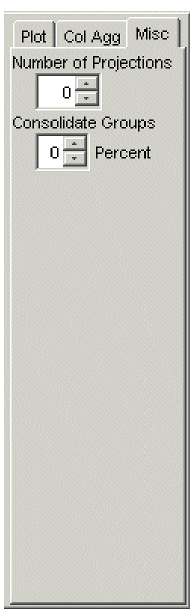
   iv. *(Optional*) Specify the orientation of the labels along the X-axis by typing or selecting a value from 0 to 90 degrees in the **X-Axis Rotation** box. If many data points are to be graphed, this is recommended for the labels to be legible.

c. In the **Table** area:

   i. To include a table beneath the graph describing the data, select **Show**.

   ii. If you include a table, click one of the following display choices:

      - **Size for Content**—Each column is sized to the width of the data it contains. Data wraps to the next line if necessary.



      - **Size for Page**—(*the default*) Table row or column widths are determined by the settings in the **Page Setup** dialog box and by the available space on the page.

      - **Equal Width**—Table columns are of equal width, which is determined by the available space on the page.

d. Click the **Misc** tab.

   i. In the **Number of Projections** box, type or select a number (greater than zero) for the number of projections for the trend. If you type 0, the trend simply provides a graph of the current call data values. It does not provide projections for future calls.

   Generally, a greater base of data more accurately depicts the actual linear trend of the data. For example, depicting a trend based on the number of calls a company receives in a week, including weekends, might produce a wildly fluctuating trend. However, if the trend were based on an entire month's worth of data, the fluctuation caused by the lack of call traffic on weekends would tend to smooth out and become more insignificant in the overall trend.

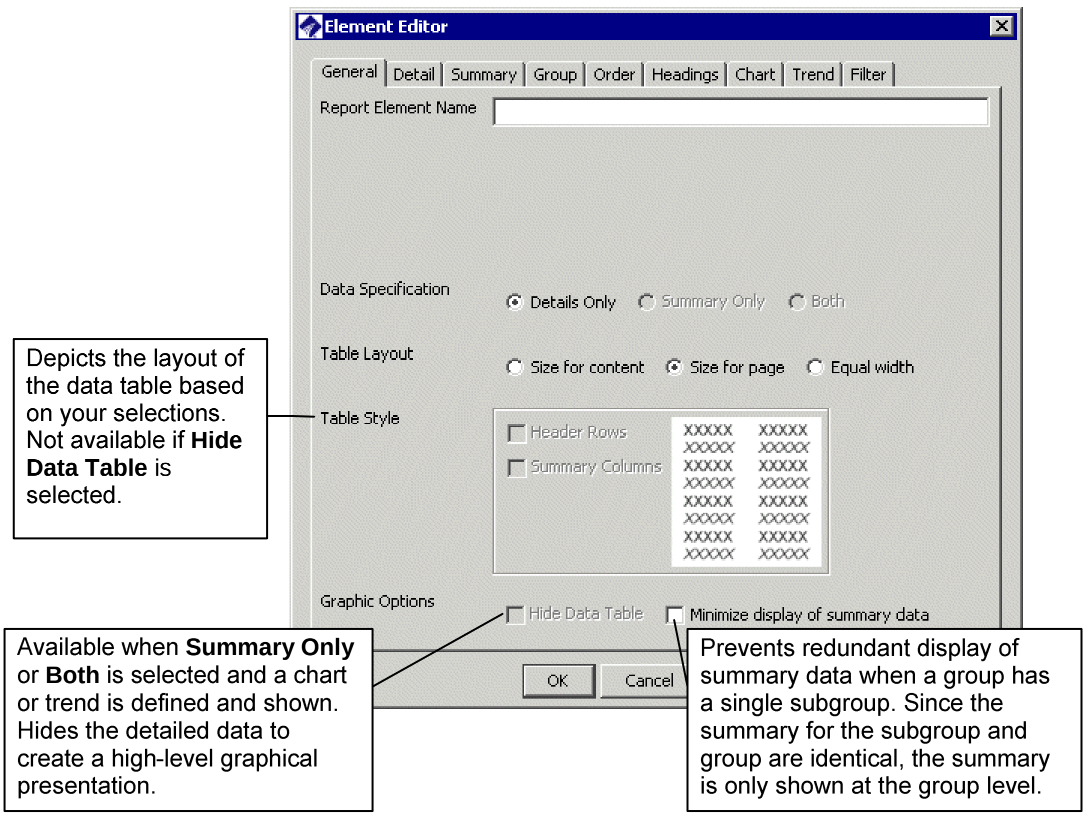
ii. If **Count** is selected on the **Summary** tab, you can consolidate fields into an **Other** category in the trend. In the **Consolidate Groups** box, type or select the percentage limit for a group. Any group with a count that is less than or equal to the value in the **Consolidate Group** box is grouped in the **Other** category in the chart.

Choose Level of Detail and Table Options

Finalize the General Report Element by selecting the level of detail and table layout options.

To choose the level of detail and table settings

1. Click the **General** tab.



2. In the **Data Specification** area, select the level of detail for this Report Element:

   - **Details Only**—No summary information, charts, or graphs are included, even if they are defined.
   - **Summary Only**—No detail fields are included. Only summary data and charts/trends are included (if they are defined and if the appropriate check box is selected)

- **Both**—All detail fields and summary information are included. Charts and trends are included if they are defined and if their **Show** check box is selected.

3. If you do not hide the data table, select a **Table Layout** option:

   - **Size for Content**—Each column is sized to the width of the data it contains. Data wraps to the next line if necessary.
   - **Size for Page**—Table row or column widths are determined by the settings in the **Page Setup** dialog box and by the available space on the page.
   - **Equal Width**—Table columns are of equal width, which is determined by the available space on the page.

4. The **Table Style** area illustrates the layout of the report data detail table based on your settings and provides the following additional options:

   - By default, the group headings are aligned with the first row of data for that group. For example, if data is grouped by Source phone number, each Source phone number is aligned with the data for the first call for that source. To offset the group heading (that is, raise it to the line above the first row of data), select **Header Rows**. Note that this setting applies to all groups and subgroups.
   - By default, each group heading appears only at the beginning of the associated data and is not repeated for each line. To cause the group headings to be repeated for each line of data, select **Summary Columns**.

5. If you have selected the **Show** box for a chart or trend, you can choose to hide the detail data table in the report. To hide the detail data table, click **Hide Data Table**.

   Selecting **Hide Data Table** enables you to create more versatile Report Elements. For example, you can easily turn a multi-page detailed report suitable for your IT staff into a high-level graphical summary suitable for top executives, simply by hiding the data table.

6. To prevent redundant display of summary data for groups with a single subgroup, select **Minimize display of summary data**. Since the summary for the subgroup and group are identical, the summary is only shown at the group level.

7. Click **OK** to save the Report Element and close the Element Editor. The new Element appears in the Usage Manager tree pane.

Cost Elements

A *Cost Element* is a special type of General Report Element that enables you to generate Cost Accounting Reports. You can define any number of Cost Elements to suit your internal reporting requirements. By using Cost Elements with the other powerful reporting features of the Usage Manager, you can tailor Cost Reports to a variety of reporting needs. For example, you can compute enterprise costs, departmental costs, or charges associated with a particular person or extension.

Important Considerations for Cost Elements

Several important points must be considered when defining and using Cost Elements:

- Only one Billing Plan can be specified per Element. Within a given Billing Plan, each Service Type is associated with a single cost. For example, by default, INTL denotes an international call. However, not all international calls have the same billing rate. If you want to create a Cost Element that addresses multiple international rates, you need to add custom, locale-specific Call Labels to your Dialing Plan and then create Billing Plans using these Service Types. Or, you can create separate Elements with appropriate filters for specific international calls and the Billing Plans applicable to those calls. For example, you can filter for specific country codes.
- When you define a Billing Rule for a given Call Label, the rate you assign applies at all times of day. If you need to generate a report that shows varying rates based on time of day, you must define multiple Billing Elements filtered by time of day. For each Element, define a Billing Policy with the rates applicable at the time(s) that the Element is to represent.
- When you use more than one Cost Element in a Report, results from the various Elements are listed in the order in which they appear in the Template. They are not combined or concatenated.
- If the Call Labels in the Dialing Plan are modified, be sure to update your Billing Plans to reflect the changes, or Cost Reports run using these Billing Plans will be invalid.
- Cost Elements can be a valuable asset for tracking costs, comparing actual call traffic with the charges assessed by your provider for various types of calls, and so forth. However, the information is only as accurate as the Billing Plan input. Variations from the actual billing plan your provider uses produce results that do not reflect actual charges. Therefore, no guarantee that results are accurate is expressed or implied.

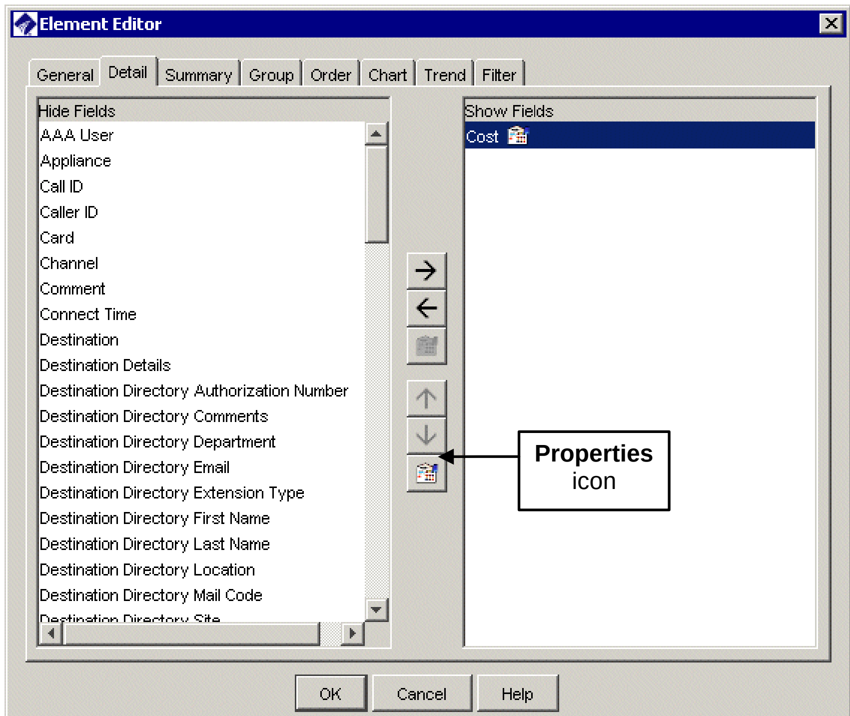
Defining a Cost Element

Tip You can also right-click in the **Hide Fields** or **Show Fields** box to access the **Properties** editor.

To define a Cost Element

1. In the tree pane, right-click the Folder or Template under which you want to place the Cost Element, and then click **New | General Element**. The **Element Editor** appears.

2. Click the **Detail** tab.

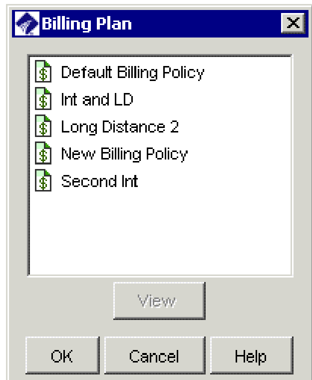


3. In the **Hide Fields** box, double-click **Cost** to move it to the **Show Fields** box.

   The **Properties**  icon below the up and down arrow becomes available when **Cost** is selected in the **Show Fields** box.

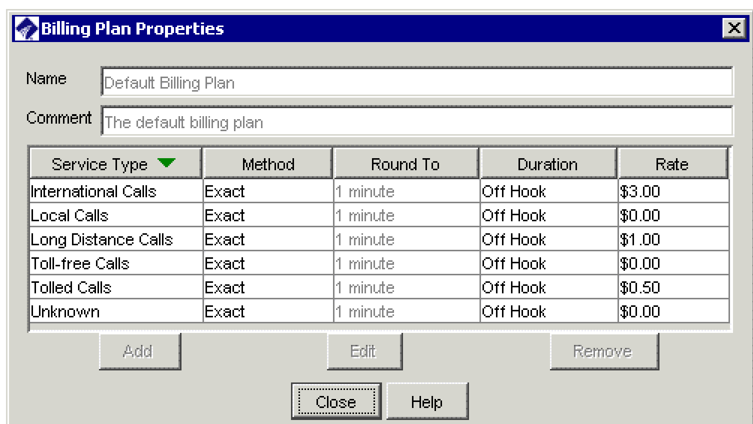
   - You can associate a Billing Plan with **Cost** without moving it to the **Show Fields** box. You may want to do this if you want to filter on **Cost** but do not want to show the **Cost** field in the Report. Simply click it in the **Hide Fields** box and then click the **Properties** icon that appears below the left and right arrow icons.

4. Click the **Properties** icon. The **Billing Plan** dialog box appears.



5. Click the Billing Plan for this Element, and then click **OK**. The selected Billing Plan is associated with **Cost** in this Report Element. Note that you must define **Cost** properties for each Element in which the **Cost** field is used.

   - To view the Billing Rules in the Billing Plan, click the Billing Plan, and then click **View**. The **Billing Plan Properties** dialog box appears showing the Billing Rules in the Plan.



You cannot edit Billing Plans from within Report Elements. You create and edit Billing Plans from the Performance Manager **Manage** menu. See "Billing Plans" in the *ETM® System User Guide* for instructions.

6. Define the remainder of the Element as you would any General Report Element. See "Defining a General Element" on page 66 for step-by-step instructions.

IPS Elements

IPS Elements enable you to generate reports of IPS Policy processing results. They are defined in exactly the same way as General Elements. Only the available Report fields differ. These correspond exactly with those in the IPS Policy Log. See "IPS Policy Log" in the *Voice IPS User Guide* for a description of each field.

TIP With IPS Elements, since no call-specific data is saved, the **Comment** field can be especially valuable in identifying the data you want to see. For example, if you have a Rule in an IPS Policy that is terminating excess long-distance calls for a given Interval and the **Comment** field has been populated properly with a description and perhaps the name of the Interval (for example, "Terminate Current and Future Excess LD Calls—Weekdays Interval"), you can filter the **Comment** field for the string **LD** or **Terminate** and then filter a time-related field by the defined Interval the Rule is using (in this example, **Weekdays**).

See “General Elements” on page 66 for instructions that also apply to IPS Elements.

Resource Utilization Elements

Resource Utilization Elements provide insight into current and projected utilization of your TDM telecommunications circuits. They are a valuable planning tool for right-sizing your telecommunications infrastructure.

The following sequence of steps is used to define a Resource Utilization Element:

Resource Utilization Elements do not apply to VoIP Spans, since they have no known quantity of enabled channels.

1. Open the **Element Editor** for a Resource Utilization Element.
2. Name the Report Element (**General** tab).
3. Select the data fields that will appear in the report (**Detail** tab).
4. Select filtering options to define and tailor report data (**Filter** tab).
5. Specify whether Average Utilization or Peak Utilization (or both) is to be calculated (**Summary** tab).
6. Specify grouping and sorting to determine the organization of the report and available X-axis values in trends or charts (**Group** tab).
7. Create a chart, if desired (**Chart** tab).
8. Create a trend (**Trend** tab).
9. Select layout options (**General** tab).

Calculating Utilization

Utilization is calculated per active channel per Span for a specific period of time. A channel can carry a single call. For any given second, the channel is in use or it is not; that is, a call is present on the channel or it is not. The Span has a known quantity of enabled channels. So a 24-channel T1 Span has a potential per-minute usage of 60 seconds per channel x 24 channels, or 1440 seconds of calls. Therefore:

Utilization=Actual Usage/Potential Usage

You can select whether to calculate average or peak utilization, or both.

- **Average utilization** is computed as the weighted average of the total utilization for the period, based on the number of enabled channels in the Span.
- **Peak utilization** is calculated by averaging utilization at user-defined intervals and selecting the highest average for the group.

Since the resource upon which utilization is calculated is a channel, each Span has a known quantity of enabled channels, and utilization is calculated over time, **Span**, **Channel**, and **Start Time** or **Connect Time** are always groups in a Resource Utilization Element.

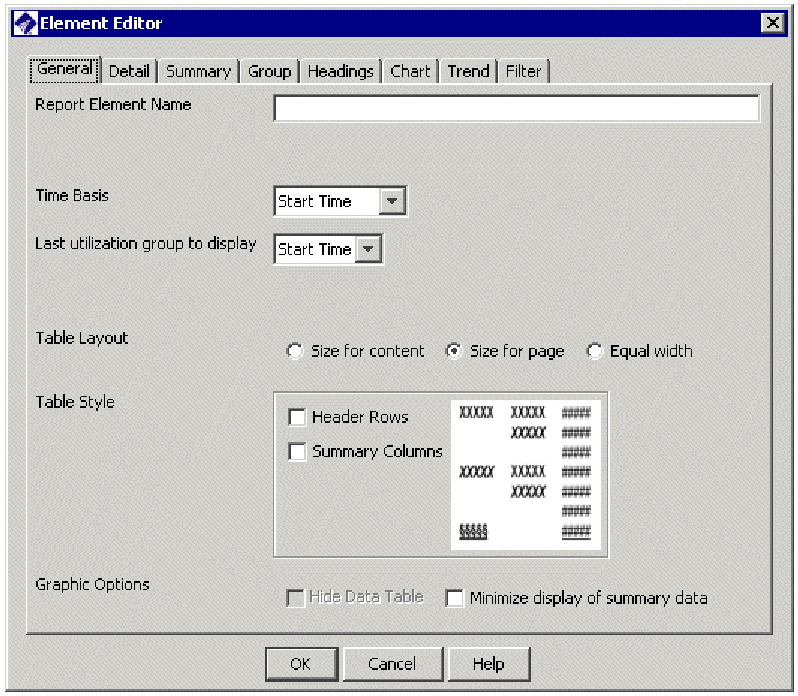
IMPORTANT To prevent the D-Channel from being included in Resource Utilization Reports, disable monitoring of that channel in the **Channel Map** tab of the **Span Configuration** dialog box.

Because utilization is calculated based on the number of active channels, it is important that you note any changes to the number of active channels and do not generate reports that cross the date/time at which the number of active channels was changed. Otherwise, the utilization figures will be invalid. For example, suppose you have a single T1 Span in a Span Group, and all 24 channels are enabled during March. Then you add a second 24-channel T1 Span to the Span Group on April 1. The number of available channels has doubled. To obtain valid average utilization calculations for that Span Group, you should *not* run a resource utilization report for a period that crosses April 1.

Defining a Resource Utilization Element

To define a Resource Utilization Element

1. In the Usage Manager tree pane, right-click the Folder or Template under which you want to create the Element.
2. Click **New | Utilization Element**. The **Element Editor** appears.



3. Click the **General** tab.
4. In the **Report Element Name** box, type a descriptive name for the Report Element. Any name can be used, but it is helpful if the name indicates the type of Report Element, level of detail, and the data it provides. For example, a Report Element that summarizes Peak Utilization per Span per hour might be titled.

```
Resource Utilization Summary—Peak Utilization
Per Span by Hour
```

Choosing Fields to Appear in the Report

The **Detail** tab specifies the data fields to be included in a report. **Span**, **Channel**, **Call ID**, and either **Start Time** or **Connect Time** always appear on this tab because they are required for utilization processing; however, you can select the **Last Utilization Group to Display** on the **General** tab to determine which of the fields used to calculate utilization actually appear in the report.

Call ID is never displayed in a Resource Utilization Report, because it is a call detail in a summary-only report.

IMPORTANT Only add fields you actually want to see in the report. On the **Filter** tab, you can filter on any field; whether or not it appears in the report.

To choose the fields to appear in the report

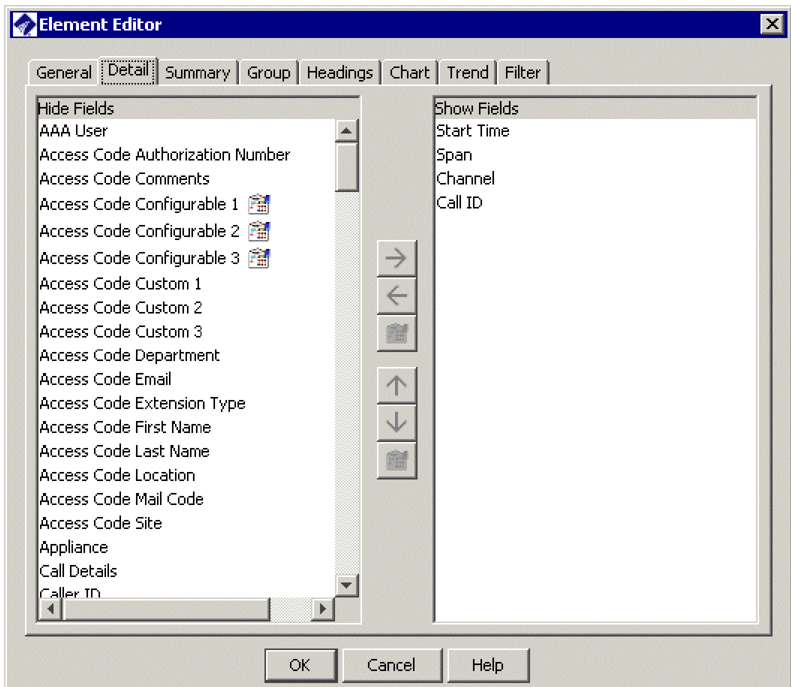
1. Click the **Detail** tab.
2. Add any additional fields you want to appear in the report by double-clicking them in the **Hide Fields** box to move them to the **Show**

Fields box. For example, you might want to see utilization per Span Group. Double-click **Span Group** to move it to the **Show Fields** box.

See "Configurable Grouping Fields" on page 59 for instructions for using the fields that contain the word "Configurable."

Note You can optionally customize the display heading for the fields in the Report. See "Modifying Headings for Report Fields" on page 57 for instructions.

IMPORTANT If you use **Duration or Cost** in your Element in either the **Details** or **Filter** tab, see "Duration Properties in Call Elements" on page 64 and "Cost Properties in Call Elements" on page 65 for instructions for defining their properties.



Start Time (or **Connect Time)**, **Span**, **Channel**, and **Call ID** cannot be reordered.

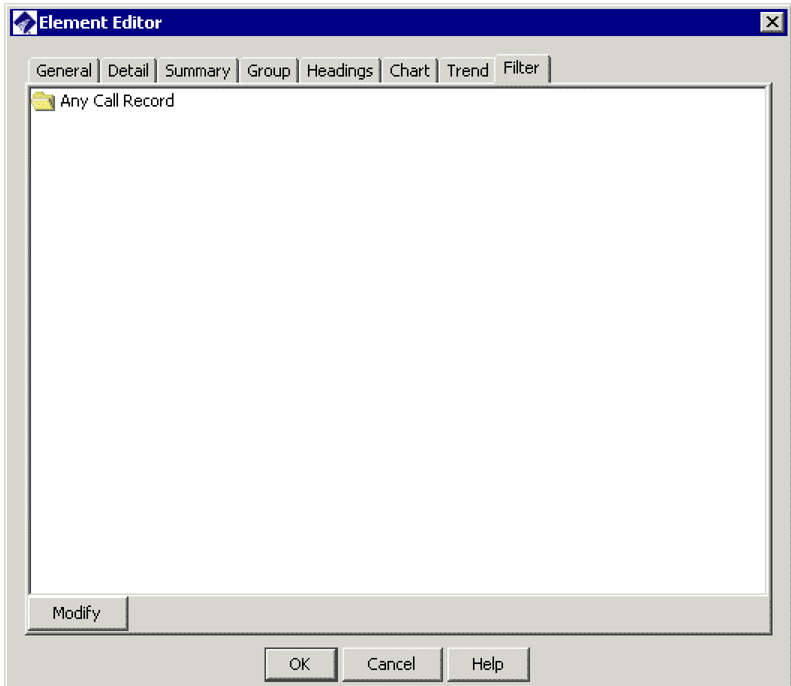
3. Detail fields appear in the report in the order selected in this box. To change the order of the selected data fields, in the **Show Fields** list, select a data field and click ↑ to move it up one position in the list, or click ↓ to move it down one position in the list.

Filtering the Data

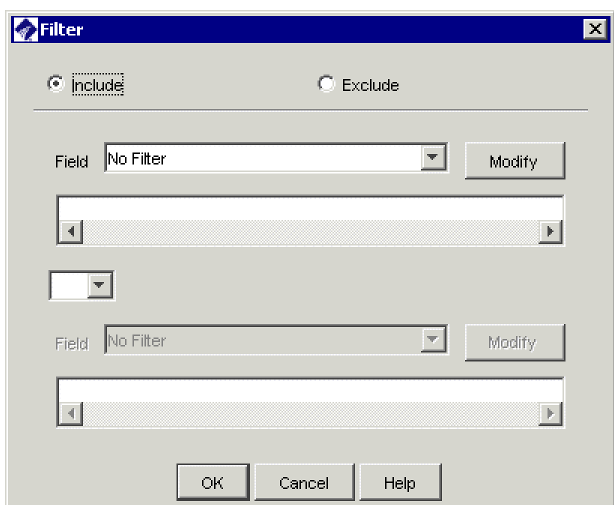
Tip If a filter is already defined, you can double-click or right-click any node to edit that portion of the filter. For example, if a Call Type filter is defined, you can double-click that node to open it in the **Call Type Filter** dialog box.

To filter the data

1. Click the **Filter** tab.



2. Click **Modify**. The **Filter** dialog box appears.



3. To specify whether to include or exclude data matching the filter criteria, select one of the following check boxes:

- **Exclude**—Only data for calls that *do not* match the filter criteria is included.
- **Include**—Only data for calls that match the filter criteria is included.

4. In the **Field box**, click the down arrow and select the data field to which you want to apply a filter. The filter dialog box that applies to that field appears. See "Filters" in *ETM® System User Guide* for instructions for each type of available filter.

   - If you click **Subfilter**, a new **Filter** dialog box appears. Subfilters filter within the data represented by another filter. See "Defining Subfilters" on page 109 for an example of how subfilters are used.
   - If you are editing an existing filter and the correct field appears in the **Filter** box, click **Modify**.

   Notice that both the filter dialog box for the selected field and the **Filter** dialog box have exclude/include check boxes. These fields work together. For example:

Filter Dialog Box	Extension Filter Dialog Box	Result
Include	Include Modem	Includes Listings with extension type Modem
Include	Exclude Modem	Exclude Listings that contain extension type Modem
Exclude	Exclude Modem	Exclude Listings that do not contain Modem.

5. To specify more than one filter criterion, select a logical operator:

   - **OR**—Data containing either or both of the specified filter criteria is included.
   - **AND**—Only data containing both of the specified filter criteria is included.
   - **XOR**—Data containing either, but not both, of the specified filter criteria is included.

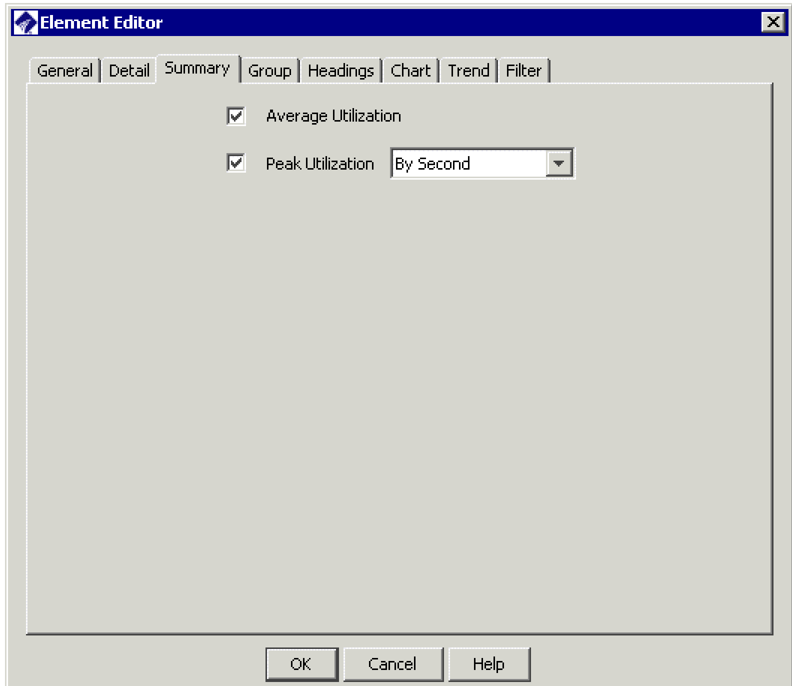
6. After you select the logical operator, the second **Field** box becomes editable. Repeat step 4 to specify an additional filter.
7. Click **OK** to save the filter and close the dialog box.

Choosing the Type of Utilization

To choose the type of utilization to calculate

1. Click the **Summary** tab and select whether to calculate Average Utilization, Peak Utilization, or both. The selection(s) in this tab determine options for ordering groups and for specifying Y-axis values in charts and trends.
2. If you select **Peak Utilization**, select the time interval at which to calculate utilization: **By Second** (the default), **By Minute**, **By Hour**,

By AM/PM, **By Day of Year**, **By Week of Year**, **By Month**, or **By Year**.



Organizing the Groups

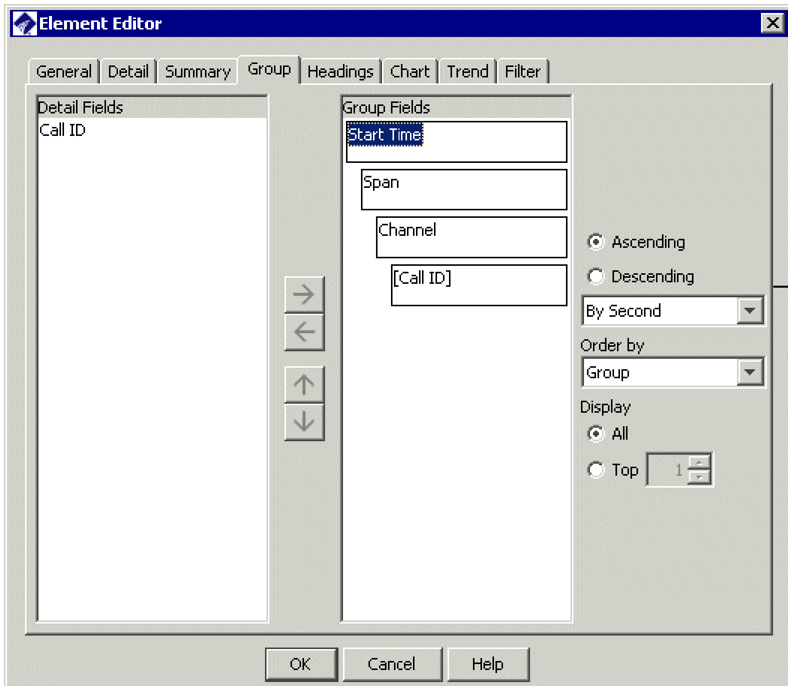
Groups determine how the data in the report is organized. Groups also provide the available X-axis selections for charts and trends—you choose one of the Group fields to define the meaning of the X-axis; the grouping criteria selected for that field become the discrete points on the X-axis. For example, if you select **Start Time** for the X-axis and **Start Time** is grouped by hour, each hour is a discrete point on the X-axis.

In Resource Utilization Elements, all of the fields on the **Detail** tab automatically become Groups. **Span**, **Channel**, and either **Start Time** or **Connect Time** are always groups because they are required for utilization processing. The **Time Basis** field (**Start Time** or **Connect Time**) is always the first Group, followed by any user-added fields.

You can change the order of fields you add and select grouping criteria. You cannot reorder the **Time Basis** field or **Span** and **Channel**; however, you can choose not to show **Span** and **Channel**, using the **Last Utilization Group to Display** selection on the **General** tab.

To organize the groups

1. Click the **Group** tab.



Grouping Criteria boxes. Apply to selected field only.

The value chosen in the **Grouping Criteria** box for the field chosen as the X-axis determines the discrete points on the X-axis in certain graph styles. For example, if **Start Time** is selected as the X-axis and **By Second** is specified in the **Grouping Criteria** box for that group, the points on the X-axis will be one-second intervals.

2. The **Group Fields** box shows how the data is grouped in the report. In a Resource Utilization Element, all of the fields you selected in the **Detail** tab are Groups.

   - The order of the groups in this tab determines their order in the report. To change the group level order, select the group you want to move up or down a level in the **Group Fields** box and click ↑ to move up one level, or ↓ to move down one level.

3. To change the sort order of a group from ascending (the default) to descending, select the appropriate group in the **Group Fields** list, and select **Descending**.

   - **Ascending** order sorts the group from A to Z or 0 to 9.
   - **Descending** order sorts it from Z to A or 9 to 0.

4. To specify how a field is grouped, select the field in the **Group Fields** list and click the down arrow in the **Grouping Criteria** box (the unlabeled list box to the right of the **Group Fields** box) to display the options. Note that whatever option is selected in the **Grouping**

Criteria box appears in the report in place of the group name. Available options depend upon the field selected, as follows:

Non-time-related fields—You can specify the number of letters or digits used in determining how data is grouped. For example, if the selected field is **Type** and you select **First letter or digit** as the grouping criteria, all data for call types beginning with the same letter is grouped together (e.g., **Unanswered** and **Undetermined** are grouped under the heading of **U**). Available choices vary according to the field chosen.

Time-related fields—You can specify the time interval that determines the scope of the groups. For example, if the selected group is **End Time** and you select **By Hour** as the group criteria, data for all calls ending between 0800 and 0900 are grouped under the heading of **0800**. No individual End Times appear.

5. To specify how a group is ordered, click the group name, and then, in the **Order by** box, click the down arrow and select an option: **Group**, **Average Utilization**, or **Peak Utilization**.

   For example, if you group by **Channel** and order by **Average Utilization** in **Descending** order, data for the channel with the highest average utilization appears first, followed by the channel with the second highest average utilization, and so on.

6. To specify how many members of a group appear in the report, in the **Display** area, do one of the following:

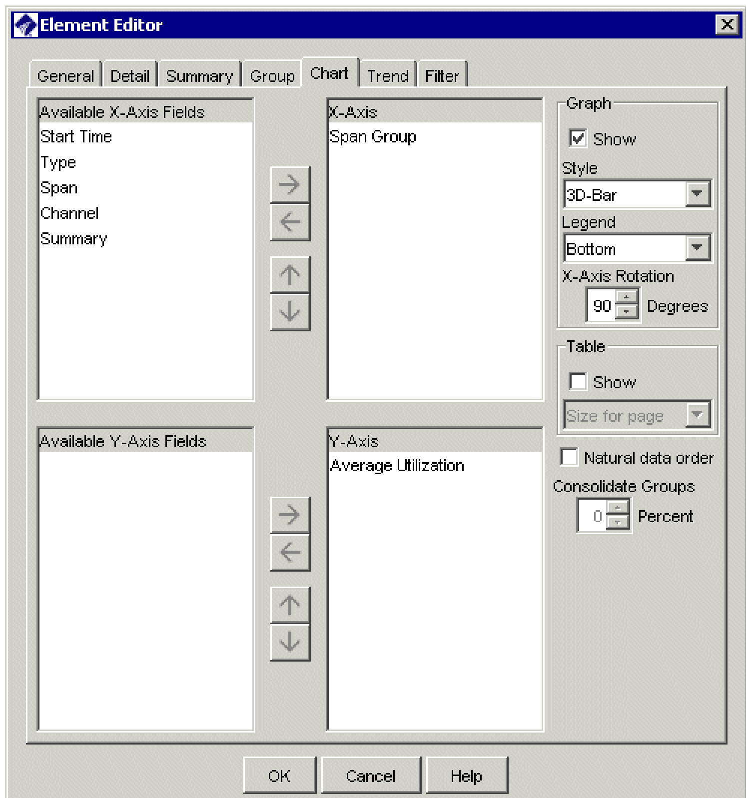
   - To show all of the members of the group, select **All** (the default).
   - To limit the number of members of the group displayed to the top *n*, click the group name, select **Top**, and then type or select a number. For example, if you want to see only the five channels with the highest average utilization, type or select **5** in the top box.

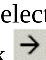
Charting Resource Utilization

The fields in the **Group** tab provide the available X-axis values for charts. Either **Peak Utilization** or **Average Utilization** (depending on what you selected in the **Summary** tab) can be selected as the Y-axis value.

To chart resource utilization

1. In the **Resource Utilization Report Element Editor**, click the **Chart** tab.



2. In the **Available X-Axis Fields** box, select each data field for which you want to see utilization data and click  to move it to the **X-Axis** box.

   The group fields specified on the **Group** tab are available for X-axis values. The grouping criteria selected for the group (e.g., **by second**, **by minute**, **by first letter**) determines the discrete points on the X-axis.

3. In the **Available Y-Axis Fields** box, select **Average Utilization** or **Peak Utilization** (or both) as the chart's Y-axis and click !GRAPHIC!. The option(s) selected in the **Summary** tab are available.

4. To display the chart in the report, select **Show**. If this check box is not selected, no chart will appear in the report, even if one is defined.
5. If you want to include a legend for the chart, select the **Legend** check box, and then select an option for where you want the legend placed in relation to the chart: **Top**, **Bottom**, **Left**, or **Right**.
6. In the **Style** box, click the down arrow and select a chart type. See "Available Graph Styles" on page 113 for a description of each.
7. To rotate the labels on the X-axis, type or select a value in the **X-Axis Rotation** box. If the number of data values is large, this is recommended for readability.
8. To include a summary table beneath the chart, select the **Table** check box. If the number of X-values is large, this option is not recommended. If you do select it when a large number of X-axis values are present, be sure to select the **Size for Content** display option.
9. If you selected to include a table, click one of the choices for displaying the information, or leave the default selection, **Size for page**.
   - **Size for Content**—Each column is sized to the optimal width for the data it contains, even if the data wraps to the next line.
   - **Size for Page**—Table row or column widths are determined by the settings in the **Page Setup** dialog box and by the available space on the page.
   - **Equal Width**—Table columns are of equal width, which are determined by the available space on the page.

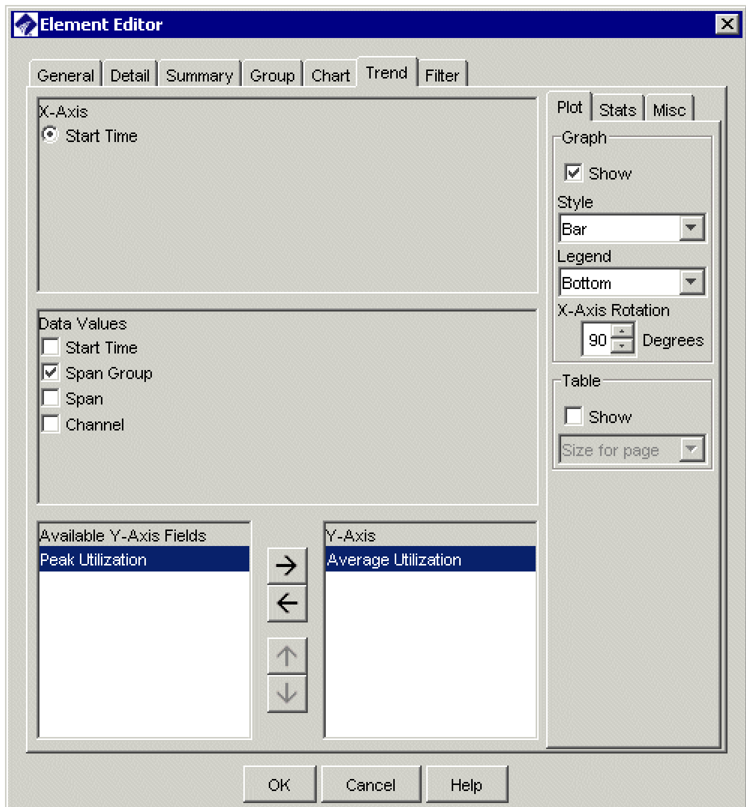
The **Consolidate Groups** box is unavailable for Resource Utilization Elements and is grayed out, because it only applies to counts.

Define a Trend

Trends depict utilization over time and can also provide projections of future utilization based on current values. The X-axis for a trend is a time-related value. Each group subordinate to the time-related group you choose as the X-axis (or that field itself) is available as a data value.

To create a trend

1. In the **Element Editor** dialog box, click the **Trend** tab.



2. In the **X-Axis** area, select the field to use as the X-axis.

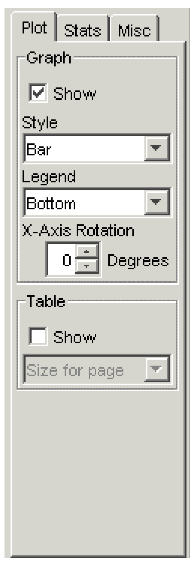
   All time-related Group fields in the **Group** tab appear as **X-Axis** choices. The selected Group field determines the meaning of the X-axis, and the time units specified as the sort order for that group determine the time intervals on the X-axis. Only one of the available selections in the X-axis area can be chosen.

3. In the **Data Values** area, select the data field(s) for which you want to calculate a trend over time. This field is grayed out until you select the X-axis. The field chosen as the X-axis and the Groups subordinate to it on the **Group** tab are available as **Data Values** selections.

4. In the **Y-Axis** area, click the summary data you want to use for the Y-axis values and click → to move it to the **Y-Axis** box. The utilization calculation option(s) you selected in the **Summary** tab (Peak and/or Average) are available as Y-axis values.

5. To include a plot of the trend, click the **Plot** subtab, if not already selected:

   a. In the **Graph** area:



      i. Select **Show** if you want the trend to appear in the report.

      ii. In the **Style** box, click the down arrow and click a graph style. See "Available Graph Styles" on page 113 for a description of each graph style.

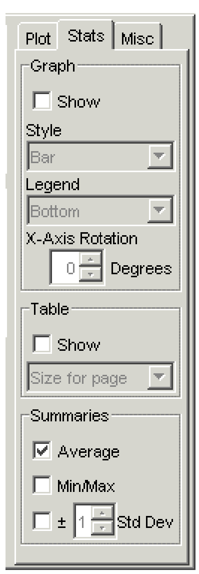
      iii. In the **Legend** box, click the down arrow and click where you want the legend placed in relation to the graph: **Top**, **Bottom**, **Left**, **Right**, or **None** (no legend is shown).

      iv. (*Optional*) Specify the orientation of the labels along the X-axis by typing or selecting a value from 0 to 90 degrees in the **X-Axis Rotation** box. If many data points are to be graphed, this is recommended, or not all labels can be shown.

   b. In the **Table** area:

      i. To include a table describing the data beneath the graph, select **Show**.

      ii. If you include a table, click one of the following display choices:



         - **Size for Content**—Each column is sized to the width of the data it contains. Data wraps to the next line if necessary.
         - **Size for Page**—(*the default*) Table row or column widths are determined by the settings in the **Page Setup** dialog box and by the available space on the page.
         - **Equal Width**—Table columns are of equal width, which is determined by the available space on the page.

7. To graph one or more collective aggregations, click the **Stats** subtab. This produces a separate graph for each data series, with the selected summaries overlaying the graph of the base data series. Values of 0 are included in calculating the collective aggregation.

   a. In the **Summaries** area, select one or more of the following collective aggregations (the other options on this tab are unavailable until you select a summary type):

      i. **Average**—The average of the aggregate values on the X-axis.

ii. **Min/Max**—The minimum and maximum of the aggregate values on the X-axis.

iii. **Std Dev**—The standard deviation of the aggregate values on the X-axis. If you select **Std Dev**, specify a value from +/- 1 to 3 standard deviations to show. Standard deviation can be useful in determining appropriate thresholds to set in IPS Policies. For example, you might consider values within +1 standard deviation to represent acceptable variation but write IPS Rules for values that fall above the +2 standard deviation line.

b. In the **Graph** area:

i. Select **Show** if you want the graph to appear in the report.

ii. In the **Style** box, click the down arrow and click a graph style.

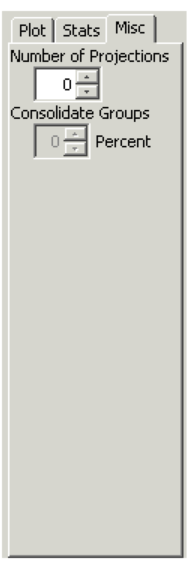
iii. In the **Legend** box, click the down arrow and select where you want the legend placed in relation to the graph: **Top**, **Bottom**, **Left**, **Right**, or **None** (no legend is shown).

iv. *(Optional*) Specify the orientation of the labels along the X-axis by typing or selecting a value from 0 to 90 degrees in the **X-Axis Rotation** box. If many data points are to be graphed, this is recommended, or not all labels can be shown.

c. In the **Table** area:

i. To include a table beneath the graph describing the data, select **Show**.

ii. If you include a table, click one of the following display choices:



- **Size for Content**—Each column is sized to the width of the data it contains. Data wraps to the next line if necessary.
- **Size for Page**—(*the default*) Table row or column widths are determined by the settings in the **Page Setup** dialog box and by the available space on the page.
- **Equal Width**—Table columns are of equal width, which is determined by the available space on the page.

d. Click the **Misc** tab.

i. In the **Number of Projections** box, type or select a number (greater than zero) for the number of projections for the trend. If you type 0, the trend simply provides a graph of the current call data values. It does not provide projections for future calls.

Generally, a greater base of data more accurately depicts the actual linear trend of the data. For example, depicting a trend based on the number of calls a company receives in a week, including weekends, might produce a wildly fluctuating trend. However, if the trend were based on an entire month's worth of data, the fluctuation caused by the lack of call traffic on weekends would tend to smooth out and become more insignificant in the overall trend.

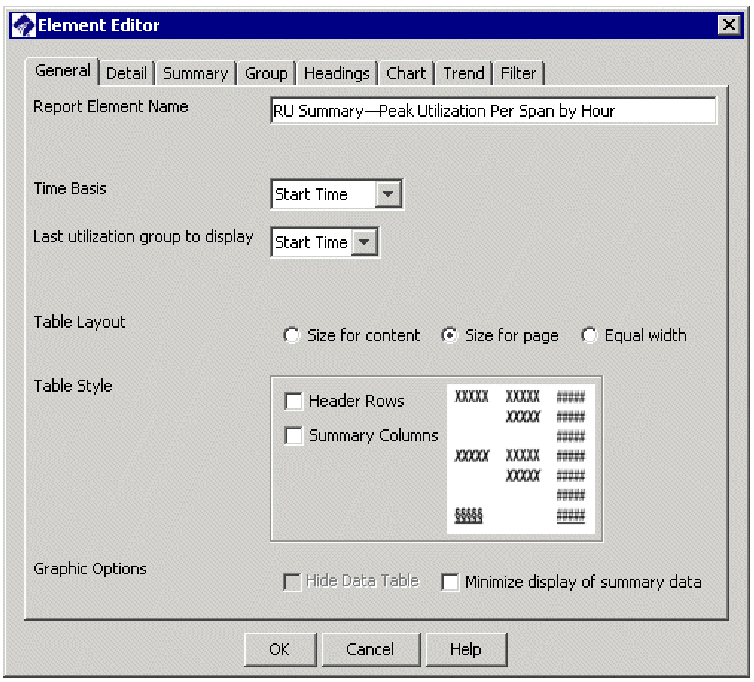
ii. The **Consolidate Groups** box does not apply to Resource Utilization Elements.

Choose Time Basis, Last Group to Display, and Table Layout and Graphic Options

Finalize the Resource Utilization Element by selecting the time basis, last utilization group to display, and table layout and graphic options.

To finalize the Element

1. Click the **General** tab.



2. In the **Time Basis** box, specify whether you want to use **Start Time** or **Connect Time** as the unit for calculating resource utilization. The selection in this box applies to all tabs in the dialog box.

- **Start Time**—For outbound calls, the time at which the phone was uncradled; for inbound calls, the time the phone began to ring.
- **Connect Time**—The time at which the call connection was established, i.e., the time the called phone was answered.

3. In the **Last utilization group to display** box, select the last Group field you want displayed in the report. Options are: the Group just before Span, **Channel**, and **Span**.

   Channel, **Span**, and the **Time Basis** field must always be included as utilization groups on the **Group** tab for utilization processing to occur. The **Time Basis** field is always the first Group and **Span** and **Channel** are always the last two Groups. However, you may not want the **Channel** and/or **Span** fields to appear in the report. The **Last utilization group to display** field provides a means to exclude them.

4. Select a **Table Layout** option:

   - **Size for Content**—Each column is sized to the width of the data it contains. Data wraps to the next line if necessary.
   - **Size for Page**—Table row or column widths are determined by the settings in the **Page Setup** dialog box and by the available space on the page.
   - **Equal Width**—Table columns are of equal width, which is determined by the available space on the page.

5. The **Table Style** area shows a representation of the current organization of the report data table. The following options are available:

   - **Header Rows**—By default, the group headings are aligned with the first row of data for that group. For example, if data is grouped by Source phone number, each Source phone number is aligned with the data for the first call for that source. To offset the group heading (that is, raise it to the line above the first row of data), select **Header Rows**. Note that this setting applies to all groups and subgroups.
   - **Summary Columns**—By default, each group heading appears only at the beginning of the associated data and is not repeated for each line. To cause the group headings to be repeated for each line of data, select **Summary Columns**.

6. If you have selected either **Display Chart** or **Display Trend**, you may choose to hide the data table in the report. To hide the data table, click **Hide Data Table**.

7. To prevent redundant display of summary data for groups with a single subgroup, select **Minimize display of summary data**. Since the summary for the subgroup and group are identical, the summary is only shown at the group level.

8. Click **OK** to save the Element and close the **Element Editor**. The Element appears in the Usage Manager tree pane.

Diagnostic Elements

Diagnostic Elements enable you to print reports of **Diagnostic Log** information. You define a Diagnostic Element in exactly the same way as you define a General Report Element. Only the available fields differ.

Defining a Diagnostic Element

To define a Diagnostic Element

1. In the Usage Manager tree pane, right-click the Template or Folder under which you want to create the Element, and then click **New | Diagnostic Element**. The **Element Editor** appears.
2. Click the **Detail** tab. Notice that only fields in the **Diagnostic Log** appear. No call data fields are available. The **Diagnostic Log** fields are:
   - **Time Stamp**—The date and time at which the Server received the message.
   - **Error Type**—The category of system event, as described in the table below.

Category	Description
Error	Indicate elevated cabinet temperature, AAA Server modem failure, missed Span heartbeats, or call traffic errors.
Panic	Represent potentially severe events, such as a hardware failure or a software exception.
Policy	Associated with Firewall Policy enforcement.
Security	Include authorized and unauthorized access, connection, and configuration events.
Telco	Provide information about telephony events and errors
Start/Stop	Occur when a Card or the ETM Server is shut down or initialized, or when the Server enters Standby mode.
VoIP	Occur in response to such events as SIP anomalies and exceeded call thresholds.
Warning	Occur in response to such events as unavailable expected files, lost Card/Server communication, excessive failed SMDR resolutions, or fail safe mode.

   - **Event Time**—The date and time the event occurred.
   - **Resource**—The system component at which the event occurred (for example, the ETM Server or a specific Span managed by that Server).
   - **Reported By**—The system component that sent the message to the Server. (For example, the ETM Server or a hardware component).
   - **Description**—The description of the event that triggered the notification. See "Appendix: System Event Descriptions" in *ETM® System User Guide* for a list and description of each system event.

3. Complete the Element as you would a General Element. See "Defining a General Element" on page 66 for complete, step-by-step instructions.

Directory Elements

Directory Elements enable you to print reports of Directory Listings. All of the fields in a Directory Listing are available for the Element. You can combine Directory Elements with any other type(s) of Element in a Report Template.

You can use Directory Elements to report on the Listings in your Directory for management review and planning, to generate a more complex CSV-formatted file for PBX import of Access Codes than that provided by the Access Code Set export function, or to provide an import file of Listings for import into another ETM Server.

If you include the **Access Code** field in a Directory Element, the user permissions of the user running the Report are checked for the View Access Codes permission. If the user running the Report does not have this permission, a string of asterisks (*******) appears in lieu of the actual Access Code. Values for other Access Code-related Listing fields, such as Last Name, First Name, Access Code Set, and so forth, are shown.

Retrieval Ranges in Reports that Contain Directory Elements

When you run a Report, the Retrieval Range is ignored for Directory Elements. All matching Listings in the Directory are retrieved. If the Report also contains other Element types, the Retrieval Range applies as usual to those Elements.

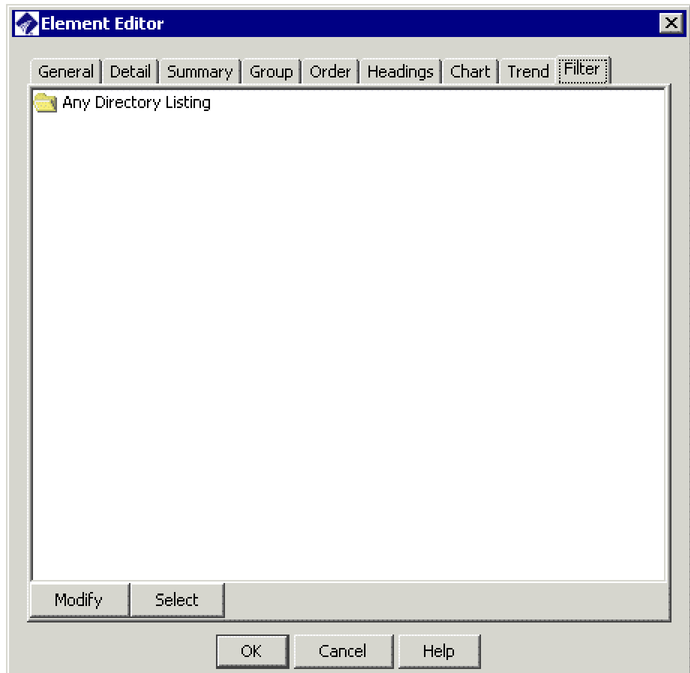
Defining a Directory Element

To define a Directory Element

1. In the Usage Manager tree pane, right-click the folder or Template under which you want to create the Directory Element, and then click **New | Directory Element**. The **Element Editor** appears.

   All of the tabs except the **Filter** tab are used exactly like those in a General Element; only the available fields differ. All of the fields available in a Directory Listing are available.

2. To filter the Directory Element, click the **Filter** tab.



3. Do one of the following.

- To define the filter from scratch exactly as you would for a General Element, click **Modify**.

  IMPORTANT You cannot add the criteria from an existing Directory Filter to manually defined filter criteria. If you click **Select** and choose a Directory Filter, any criteria you have defined are discarded and replaced with the Directory Filter. If you want to base your filter on criteria from an existing Directory Filter and then add to or modify it, select the Directory Filter first using the instructions in the next bullet.

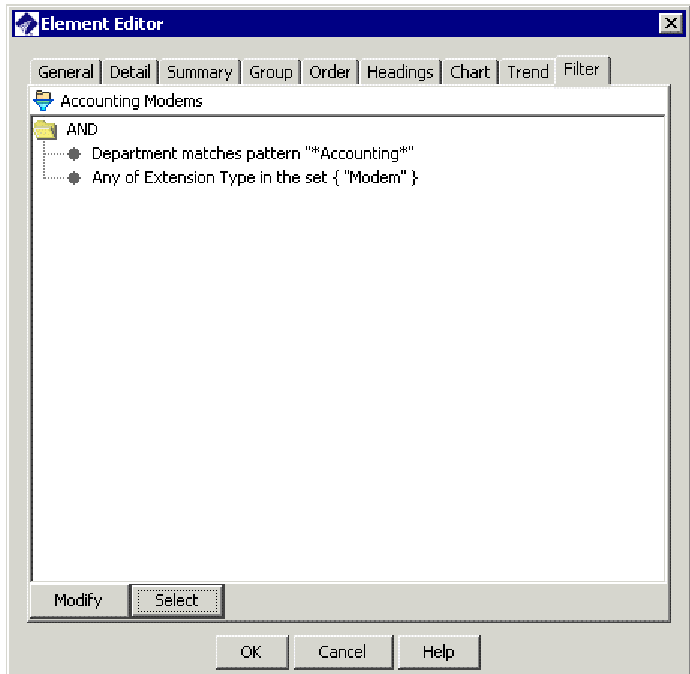
IMPORTANT You cannot define or modify Directory Filters from the Usage Manager. You can simply select them for use in reports. Use the Directory Manager to define Directory Filters.

- Click **Select** to select an existing Directory Filter for the filter criteria. **IMPORTANT** Any changes made to the Directory Filter in the Directory Manager automatically apply to the Report Element.

  The **Select Predefined Filter** dialog box appears, listing all of the defined Directory Filters.

  a. Click the Directory Filter you want to use to filter the Report Element. You can only select one Directory Filter per Element.

b. Click **OK**. The Directory Filter appears on the **Filter** tab. The criteria that the Directory Filter contains are displayed below the Filter name for reference. You cannot modify the Directory Filter from the Usage Manager.



WARNING If you click **Select** when criteria are already defined on the **Filter** tab, the Directory Filter you select replaces all criteria on the tab.

c. If you want to add to or modify the criteria represented by the Directory Filter, click **Modify**. Note that this does <u>not</u> modify the Directory Filter in the Directory Manager. Rather, it breaks the link to that Directory Filter and embeds the criteria in the Report Element. The criteria become manual filter criteria that you can edit as desired for this Element. Since the link is broken, no changes made to the Directory Filter in the Directory Manager apply to the Element.

4. When you have defined all criteria, click **OK** to save the Element. No changes to any tab are saved until you click **OK**.

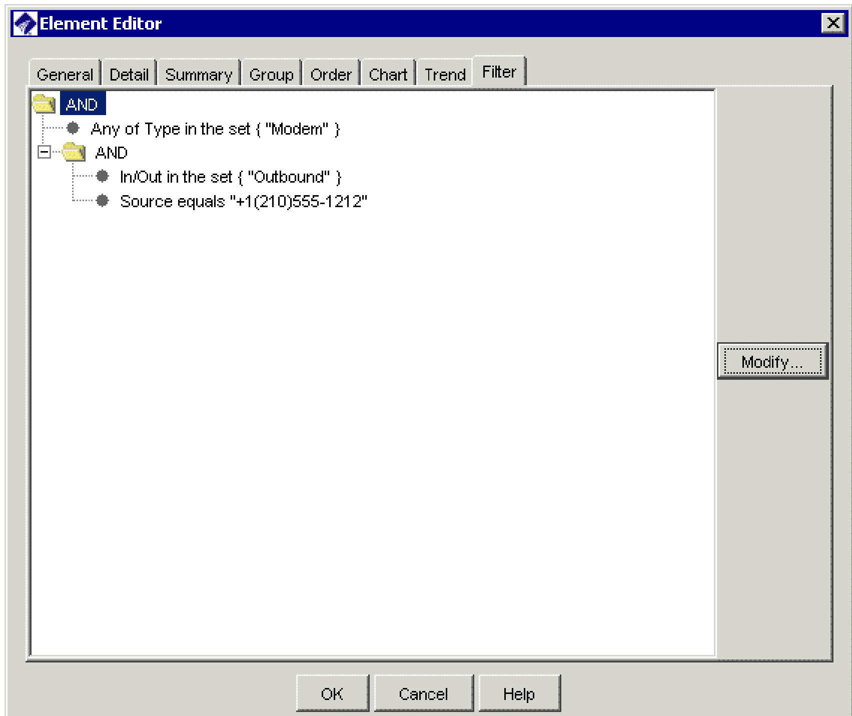
Filters

The same filters used for filtering the **Call**, **Diagnostic**, and **Policy Logs** are used to filter report data. Each of the filters available in the ETM® System is described in "Filters" in the *ETM® System User Guide*. The topics below provide instructions for modifying an existing filter in an Element and for defining *subfilters. Subfilters* enable you to define more narrowly the type of data you want to see in the Report. Each instance of the **Filter** dialog box allows you to define one filter per data field for up to two data fields. To define more filter criteria or to apply filters to more than two data fields, you use subfilters.

Modifying a Filter

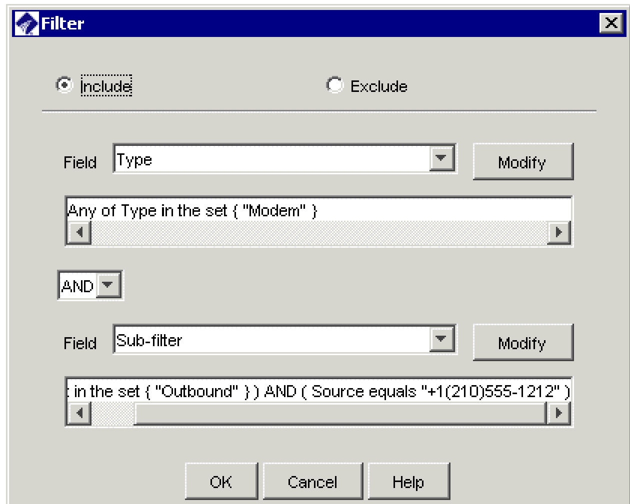
To modify a filter

1. In the **Element Editor** dialog box, click the **Filter** tab.



2. Do one of the following:

   - Double-click the filter criteria you want to edit. The applicable filter dialog box appears. For example, in the illustration above, if you double-click **Any of Type in the set ("Modem")**, the **Call Type Filter** dialog box appears.
   - Click **Modify**. The **Filter** dialog box appears.



3. Do one of the following:

   - In the **Field** box, click the down arrow to select a new data field to which you want to apply a filter.

     -or-

   - If the correct field appears in the **Filter** box, click **Modify**.

4. See "Filters for Monitoring Tools" in the *ETM® System User Guide* for a description of each filter.

   - After you define a filter, you can choose **Subfilter** in the **Field** box to filter within the data represented by the first filter and more narrowly tailor the data. See "Defining Subfilters" on page 109 for an example of how subfilters are used.

5. To specify more than one filter criterion, select a logical operator:

   - **OR**—Data containing either or both of the specified filter criteria is included.

   - **AND**—Only data containing both of the specified filter criteria is included.

   - **XOR**—Data containing either, but not both, of the specified filter criteria is included.

6. If you select a logical operator, the second **Field** box becomes editable. Repeat step 4 to specify the second filter.

   Notice that both the filter dialog box for the selected field and the **Filter** dialog box have exclude/include check boxes. These fields work together. For example:

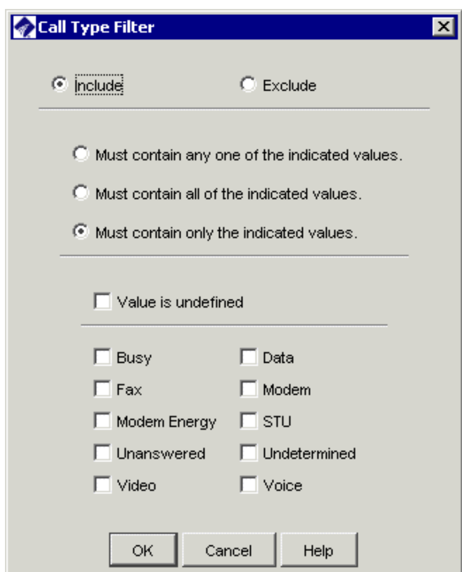
Filter Dialog Box	Extension Filter Dialog Box	Result
Include	Include Modem	Includes Listings with extension type Modem
Include	Exclude Modem	Exclude Listings that contain extension type Modem
Exclude	Exclude Modem	Exclude Listings that do not contain Modem.

Defining Subfilters

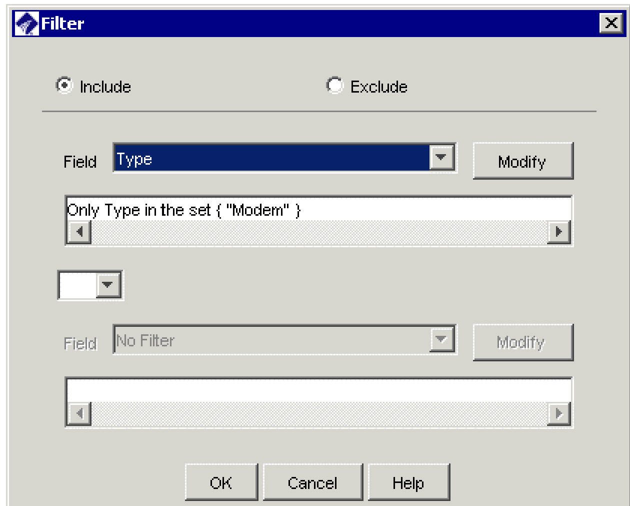
Subfilters enable you to define more narrowly the type of data that matches the filter criteria. Each instance of the **Filter** dialog box allows you to define up to two filter criteria. To define more filter criteria, you use subfilters. For example, perhaps you want to see all outbound modem calls from the Source number +1(210) 555-5555. In this case, you want to see calls that match three criteria: **Direction** is outbound, **Type** is modem, and **Source** is +1(210) 555-5555. To accomplish this, you need to apply filters to three separate data fields.

To create this filter

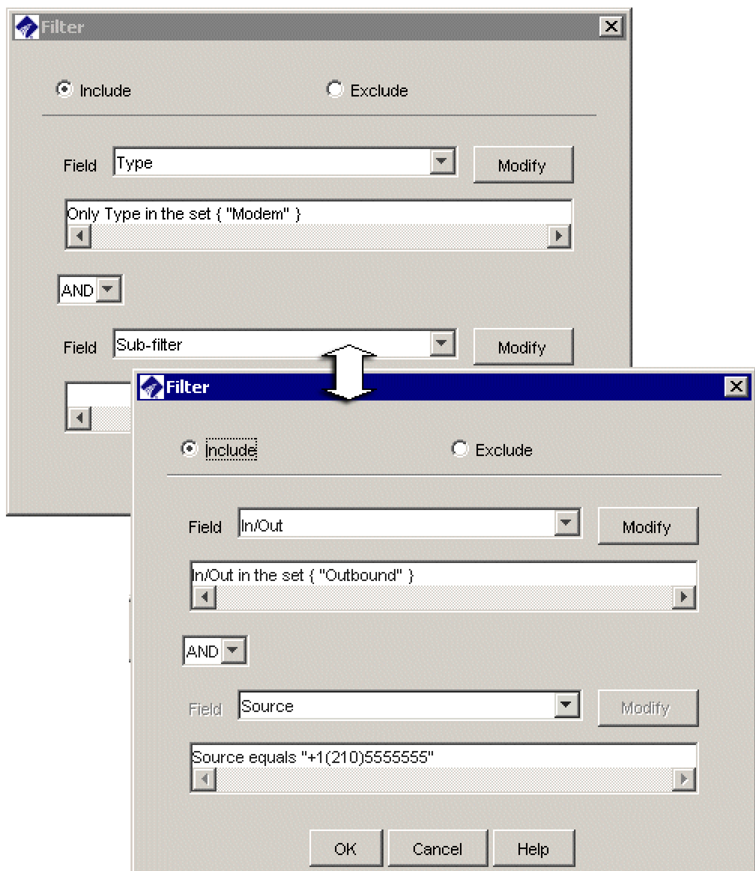
1. On the **Filter** tab of the **Element Editor**, click **Modify**. The **Filter** dialog box appears.
2. In the first **Field** box, select **Type**. The **Call Type Filter** dialog box appears.



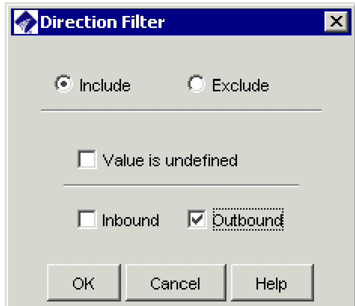
3. Select **Modem** and **Must contain only the indicated values**, and then click **OK** to return to the **Filter** dialog box.



4. In the logical operator box, click **AND**.
5. In the second **Field** box, select **Subfilter**. A second **Filter** dialog box appears.



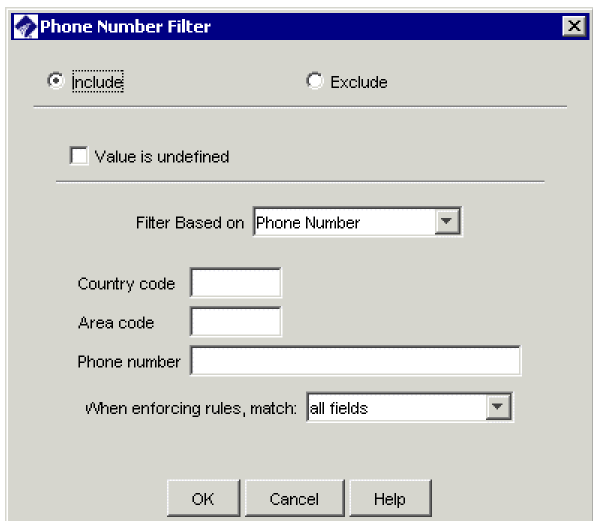
6. In the first **Field** box on the second **Filter** dialog box, select **In/Out**. The **Direction Filter** dialog box appears.



7. Select **Outbound** and click **OK**. You are returned to the second **Filter** dialog box.

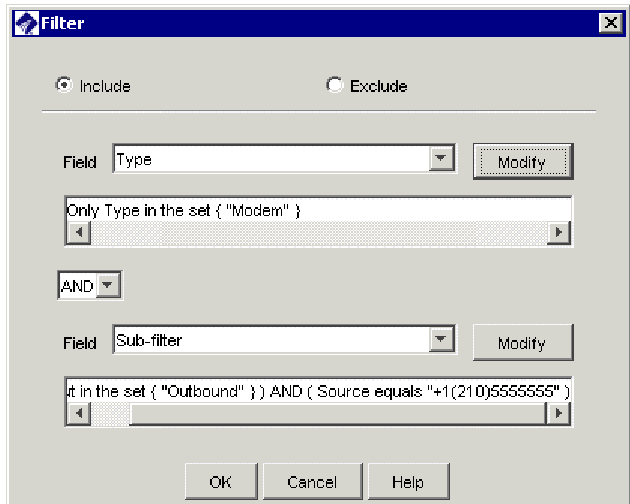
8. In the logical operator box, select **AND**.

9. In the second **Field** box, select **Source**. The **Phone Number Filter** dialog box appears.

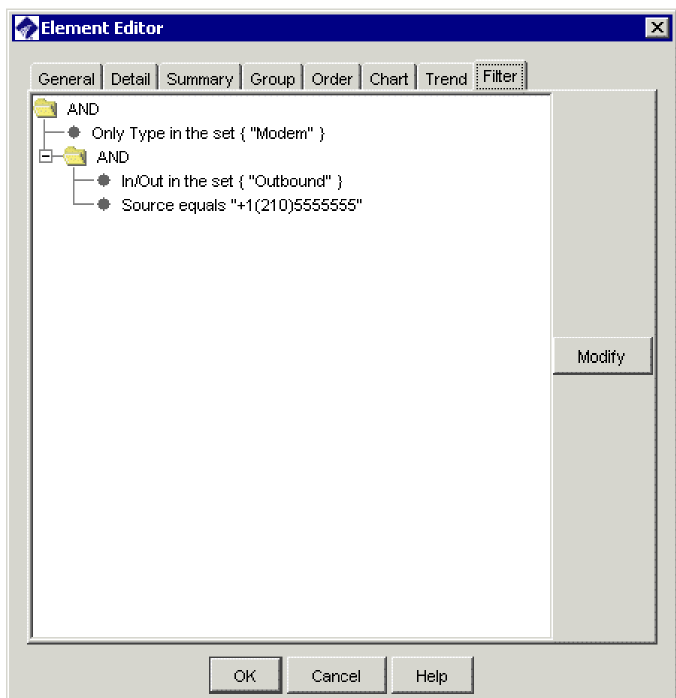


10. Select **Filter Based on Phone Number**, type the phone number into the **Country Code**, **Area Code**, and **Phone Number** boxes, and then click **OK**.

11. Click **OK** in the **Filter** dialog box. The second **Filter** dialog box closes and the subfilter appears in the second **Field** box on the first **Filter** dialog box, as shown below.



12. Click **OK** in the **Filter** dialog box. All of the filter criteria appear on the **Filter** tab of the **Element Editor**.



Available Graph Styles

When you are defining an Element that includes a chart or trend, you can choose from a number of graph style options. The table below lists and describes the available graph styles.

Graph Styles	Definition
Line	Displays a line with markers at each data value.
Area	Identical to line, except that the area below the line is filled in a solid color.
Stacked Area	Similar to Area, but displays multiple data sets, showing the comparison of the parts to the whole.
Pie or 3D-Pie	Displays the comparison of data group proportions to the whole.
Point	Displays the numeric values in data groups as markers; useful for revealing clustered data or uneven intervals in data.
Stick	Similar to Bar; the comparison of data values across time or data groups is displayed as a vertical line, one pixel wide; useful when there are a large number of data groups.
Bar or 3D-Bar	Displays the comparison of data values across time or data groups; useful when there are a small number of data groups.
Stacked Bar or 3D-Stacked Bar	Similar to Bar, but displays multiple data sets, showing the comparison of the parts to the whole.
3D-Series Bar	Similar to Bar, but compares values of data groups across multiple data sets with a 3D-visual effect.

Folders

Folders are used to organize the items in the Usage Manager tree pane and are also used for importing and exporting Report components.

Three top-level folder exist that cannot be deleted or moved:

- **SecureLogix** is a read-only folder that contains the predefined reports. No one can create, modify, or delete items in the **SecureLogix** folder; however, you can copy these items to your user folder or the **PUBLIC** folder to customize them. You can also make shortcuts to items in the **SecureLogix** folder. For example, a number of predefined Date Ranges are provided that you can reuse in your custom reports by copying or creating shortcuts to them.
- **PUBLIC** contains shared user-defined items. All users can create, edit, and delete items in the PUBLIC folder.
- ***<user>*** is a folder that bears your username. Only you can see, use, edit, create, or delete items in your user folder, unless you make Shortcuts to them in the **PUBLIC** folder.

In addition to these predefined folders, you can create folders inside of any folder you have write access to.

Creating Folders

You can create Folders inside of any folder you have write access to. All report components can be created within any writeable Folder. Folders are also used for exporting Report components. See “Exporting and Importing Templates, Elements, and Date Ranges” on page 116 for more information.

To create a folder

1. Right-click any Folder to which you have write access, and then click **New | Folder**. The **Folder Editor** appears.

2. In the **Name** box, type a name for the folder, and then click **OK**. The folder appears in the tree pane, as a subfolder to the folder you clicked to create it.

Managing Report Components

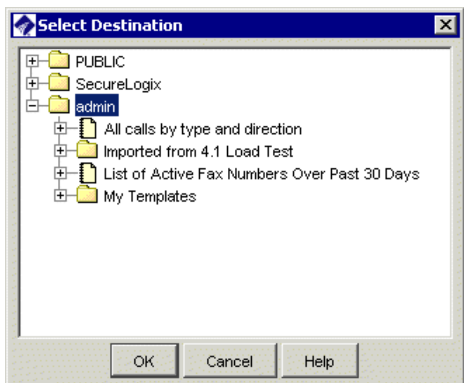
The procedures for copying, moving, deleting, importing, and exporting are the same for each type of report component. These procedure are explained below.

Copying a Report Component

Tip You can copy and paste items under Shortcuts if you have write access to the Shortcut's target location. When you do this, you are actually pasting the item into the tree below the target, not creating a shortcut.

To copy and paste a Report Component

1. In the tree pane, right-click the item and click **Copy**. The **Select Destination** dialog box appears.



2. Click the folder to which you want to copy the item, and then click **OK**. A copy of the selected item is pasted in the selected location. Allowable locations depend on the item selected. For example, an Element can be copied to a Template or a Folder, while a Template can only be copied to a Folder.

Moving an Item

To move an item

1. In the tree pane, right-click the item and click **Move**. The **Select Destination** dialog box appears.
2. Click the location to which you want to move the item, and then click **OK**. Allowable locations depend on the item selected. For example, an Element can be moved to a Template or a Folder, while a Template can only be moved to a Folder.

   The item is removed from its original location and transferred to the selected location.

Deleting an Item

To delete an item

- In the tree pane, right-click the item and click **Delete**. You are prompted to confirm the deletion.

IMPORTANT If you delete a Report Element that is used in a Report Template, the next time you attempt to use that Template, a **Reconciliation Errors** message appears and the report does not run.

Click **OK**. You must open and save the Template before you can run the report.

Exporting and Importing Templates, Elements, and Date Ranges

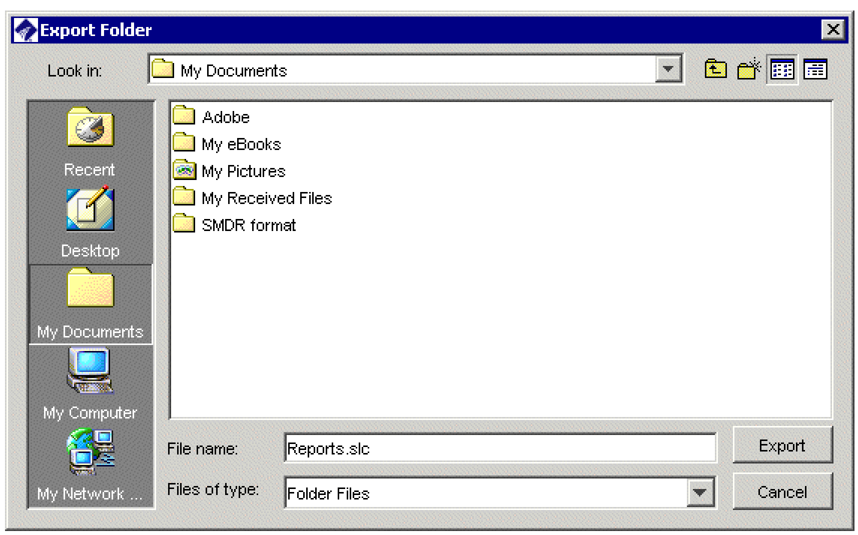
You can export Templates, Elements, Folders, and Date Ranges to a file to maintain an archival copy, to import these components from one Usage Manager to another, or for assistance from SecureLogix Customer Support. To export an item, it must be contained in a Folder, since only Folders can be directly exported.

You can export and import items from any of the default folders, including the **SecureLogix** folder, and any user-defined folders.

Exporting Usage Manager Components

To export Usage Manager components

1. In the tree pane, right-click the Folder containing the items you want to export, and then click **Export**. The **Export Folder** dialog box appears.



2. The default Save location is your user folder (for example, **My Documents** on Windows). You can select any other folder to which you have write access. The file name defaults to the name of the Folder you are exporting, with an **.slc** extension. You can type an alternate

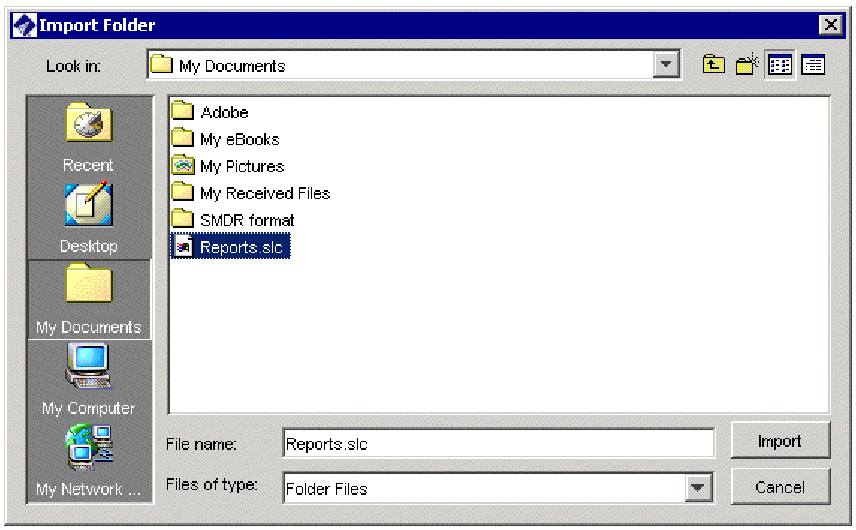
name if you like, but it must have an **.slc** extension to be recognized for import.

3. Navigate to the directory where you want to save the exported data, and then click **Export**. Note that if you export a Shortcut but do not export its target, the Shortcut no longer points to a target.

Importing Usage Manager Components

To import Usage Manager components

1. In the tree pane, right-click the Folder into which you want to import the exported Folder, and then click **Import**. The **Import Folder** dialog box appears.



2. Navigate to and select the file you want to import. Exported Folder files have an **.slc** extension.

3. Click **Import**. The Folder containing the imported components appears in the Usage Manager tree pane.

   If the imported Folder contains any Shortcuts to components that were not included in the export, a  icon appears indicating that the target of the shortcut is now unknown.

Scheduling Automated Reports

About Scheduled Reports

You can schedule automated Usage Manager Reports. They can be scheduled to run only once at a given date and time, or to run periodically on the dates and times you specify. You can configure the report task to save the report to a hard drive location and/or the Usage Manager tree, and/or email the generated report in a variety of formats (PDF, CSV, RTF, PS, or HTML). You can also have specified people automatically notified via email when the report completes.

Templates in Scheduled Reports

When you schedule a report, you choose the Report Template that is to be used to generate the report. It is important to protect the scheduled Template from unintended changes, or your Scheduled Reports will not be as you intended.

Items in the **SecureLogix** folder are read-only. You can schedule them without concern for changing Retrieval Ranges or Elements, but the content of those that use default user-definable Objects, such as the **Business Hours** Interval, can be affected by changes to those Objects.

When you schedule Reports from your **user** folder or the **PUBLIC** folder, it is recommended that you locate them in a folder that indicates they are used in Scheduled Reports. If you schedule them from your **user** folder, you are assured that no one else can modify them. If you want them to be available to other users, you can publish them using Shortcuts.

If the Template is deleted, the **Report** field for the task shows "Missing Report" and an identification number.

Retrieval Ranges in Scheduled Reports

When selecting a Retrieval Range for a Scheduled Report:

- If you are scheduling a recurring report, use a Relative Date Range (e.g., the first of every month at 7 AM).
- If you are scheduling a report to run only once, you can use either a Relative Date Range (e.g., the first of next month at 7 AM) or an absolute Retrieval Range (e.g. July 8, 2003 at 7 AM).

For instructions for defining a Retrieval Range, see "Retrieval Ranges" on page 48.

When you schedule a Report, you can either use the Retrieval Range saved with the Report, or specify one unique to the Scheduled Report Task. By default, the Retrieval Range saved with the Report is used when the Scheduled Report is generated. But recall that the Retrieval Range is saved with a Report Template each time the report is generated (previewed, printed, emailed as an attachment, or saved), except for Reports in the SecureLogix folder, which are read-only. If you use the Retrieval Range that is saved with the Report and you or another user modify that Retrieval Range, your generated Reports will not contain the expected data. However, if you specify a Retrieval Range specific to the Scheduled Report, this issue is prevented.

For example, suppose you create a Template in the **PUBLIC** folder that specifies a Relative Date Range requesting the prior month's data and you schedule that Report to use the Retrieval Range saved with the Report. Later, you or someone else use that same template to manually generate a report, but specify a Retrieval Range of January 1, 2002 to January 15, 2002.

Now, each time the Scheduled Report Task generates a report, it gathers data for January 1, 2002 to January 15, 2002 instead of the prior month's data. For this reason, it is recommended that for recurring Scheduled Reports, you use a Retrieval Range unique to the Scheduled Report Task.

Scheduled Report Retry Settings

Two user-configurable settings allow you to specify whether Scheduled Report Tasks that fail should be retried, and if so, the length of time between retries and the number of times to retry. These settings are located in the **ETM Server Properties Tool** accessed from the ETM System Console: These settings are not dynamic; you must restart the Server for changes to take effect.

SchRptRetryCount specifies the number of retry attempts for a failed Scheduled Report Task. If this property is set to 0, Retry is disabled (the default).

SchRptRetryDelay specifies the amount of time the scheduler waits after a failed attempt before retrying. This allows time to correct the issue that caused the failure. The default is 30 minutes.

Scope of Setting

The Retry setting applies to any report task that generates errors, from fatal errors such as unavailability of the Report Server to minor database errors that still allow the report to be generated but with errors.

To illustrate, suppose you have a report scheduled to run at 12:00 AM each day and your system is configured to retry a failed report task twice, with a 30 minute delay between tries. A temporary network outage occurs on Thursday while the report task is executing that renders the Report Server temporarily unavailable, so the task fails. The report is automatically rescheduled to run again 30 minutes from the time of the failure, or about 12:30 AM. If it fails again at 12:30, it is retried at about 1:00 AM.

If that second retry fails, no further retries are attempted. The task next runs at its next scheduled time, in this case, 12:00 AM Friday.

The Retry setting attempts to run all failed reports since the last successful run of the task. For example, suppose a daily report is scheduled, but a database issue causes the ETM Server to remain in Standby mode for 3 days. When the Server is again available, each scheduled instance of that task is attempted, not just the most recently missed one.

How Retry Affects Paused Tasks

If you restart a paused Report Task, the Retry settings apply and any scheduled runs that were missed while the task was paused are attempted. This can be useful, for example, if you know that scheduled maintenance will render the system unavailable for a period of time when one or more Scheduled Reports are to run, and the system will be down longer than the time accounted for by the normal Retry settings. Pause each affected Report Task before beginning maintenance, and then unpause them after the system is back up. Each missed Report execution will then be generated. If Report Retry is enabled and you do not want Reports to be generated for a period of time, stop the task instead. See "How Retry Affects Cancelled Tasks" below.

How Retry Affects Cancelled Tasks

When you stop a task, its status is shown as **Cancelled**. Retry does not apply to cancelled tasks. If you restart a cancelled task, it is treated as a new task and the schedule starts from the time it was restarted. For this reason, if you have Report Retry enabled, use **Stop** any time you do not want a Report Task to generate Reports for a period of time.

Scheduling a Report from the Usage Manager GUI

The procedures below explain how to open the **Scheduled Reports Tool** and how to schedule and manage Scheduled Reports from the Usage Manager GUI. For instructions for scheduling a report from the Web Portal, see “Scheduling a Report via the Web Portal” on page 140.

Opening the Scheduled Reports Tool

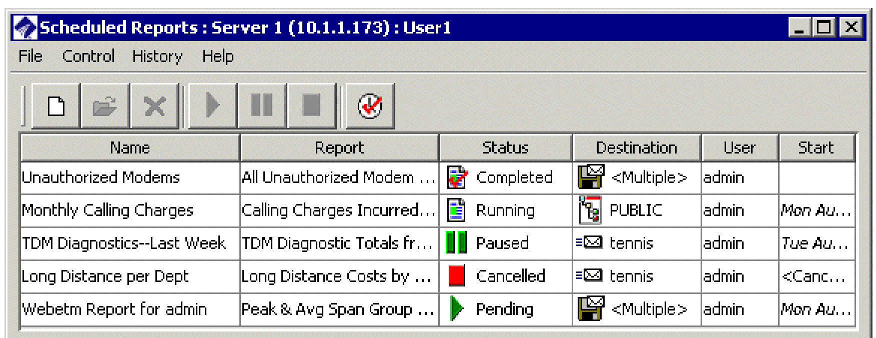
To launch the Scheduled Reports Tool

- On the Usage Manager toolbar, click the !GRAPHIC! **Manage Scheduled Report Tasks** icon.

  -or-

- On the Usage Manager main menu, click **File | Scheduled Reports**.

  The **Scheduled Reports Tool** appears.



Each row represents one Scheduled Report *Task*. Tasks scheduled from the Web Portal and those scheduled through the Usage Manager appear in this list. The following information appears for each Scheduled Report Task:

- **Name**—The name of the task.
- **Report**—The Report Template that is to be used each time the report is generated
- **Status**—The status of the task: **Running** means the report defined by the task is currently being generated; **Completed** means all scheduled recurrences have executed. **Pending** means waiting for the next scheduled execution; **Paused** means the task is on hold and scheduled executions are not performed until it is unpaused; **Cancelled** means the task is cancelled and no longer scheduled.
- **Destination**—What is to be done with the generated report: email as attachment, save to tree, and/or save to disk. When multiple destinations are specified, **<Multiple>** appears in this field.

- **User**—The user who scheduled the report.
- **Start**—The start date for the report task.

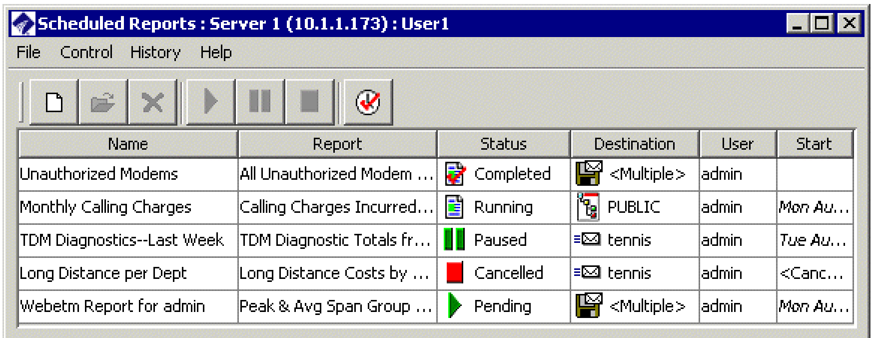
The toolbar and main menu provide options for defining new tasks, opening saved tasks, deleting the selected task; pausing, stopping, and restarting a selected task; and viewing completed tasks. Procedures for these options are provided in the following sections.

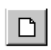
Scheduling a Report

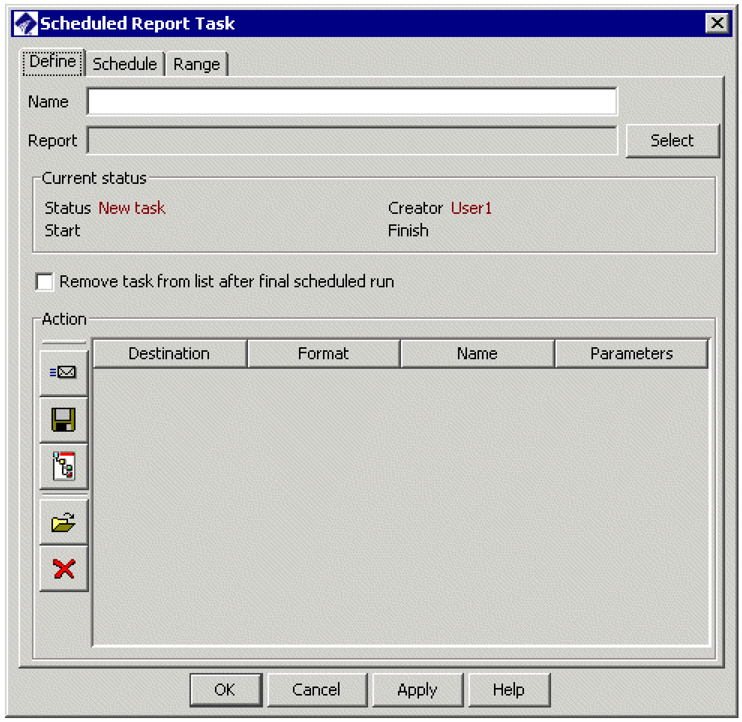
Tip You can also quickly schedule a Report for immediate execution using **Run Now** on the main Usage Manager GUI. See "Using "Run Now" to Generate a Report" on page 30 for details.

To schedule a report

1. On the Usage Manager toolbar, click the !GRAPHIC! **Manage Scheduled Report Tasks** icon. The **Scheduled Reports Tool** appears.



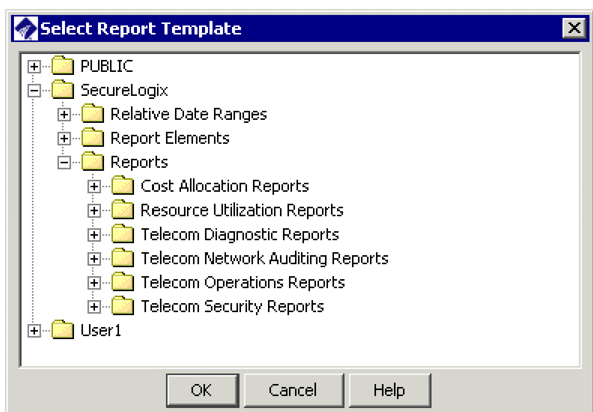
2. Click the  **New Task** icon. The **Scheduled Report Task** dialog box appears.
3. Click the **Define** tab, if not already selected.



4. In the **Name** box, type the name (up to 40 characters) by which this Scheduled Report Task is to be identified in the **Scheduled Reports** dialog boxes.

5. Click **Select**. The **Select Report Template** dialog box appears.

If changes are made to the Template used in a Scheduled Report, those changes are reflected the next time the Scheduled Report is generated. If you schedule reports using Templates in the **PUBLIC** folder, be aware that other users can modify those Templates and affect your report. Therefore, it is recommended that you schedule reports from your user folder.



6. Browse for and select the Template you want to schedule, and then click **OK**.

7. If you want the task to be removed from the **Scheduled Tasks** list when all of its scheduled recurrences have completed, select **Remove task from list after final scheduled run**. The task is still retained

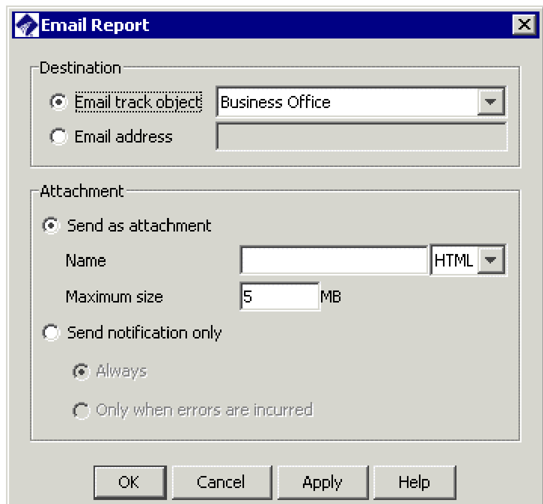
in the **Completed Tasks** list. (**Note:** This is selected by default for reports run from the Web Portal.)

For instructions for defining Email Tracks, see "Defining an Email Track" in *ETM*® *System User Guide*.

8. The **Action** area is used to specify the destination(s) for the generated report: save to a file, save to the Usage Manager tree, and/or email as an attachment. You can also have an email notification sent when the report is complete. Multiple actions can be specified, one at a time.

   - **To email as an attachment**, click the **Email** icon.

     The **Email Report** dialog box appears.

     a. In the **Destination** area, select one of the following:

        - **Email track object**—Select an Email Track to which the report is to be sent. Email Tracks can contain multiple email addresses and are defined via the **Manage** menu in the Performance Manager. If the Email Track you want to use does not appear in the list, see "Defining an Email Track" in the *ETM*® *System User Guide* for instructions, if necessary.

        - **Email address**—Type the single email address to which the report is to be sent.

     b. In the **Attachment** area:

        - In the **Attachment Name** box, type the name by which the attachment is to be identified in the email.

        - In the drop-down list box adjacent to the **Attachment Name** box, select the file format for the attachment (PDF, CSV, RTF, PS, HTML).

        - In the **Max attachment size** box, type the largest allowable attachment size in MB. If a generated report exceeds the specified maximum, the report is not attached and an email is sent to the specified email address(es) stating that the report size exceeded the limit.

c. Click **OK**. The Email action appears in the **Action** list.

- **To send an email notification** when the report has completed:

    a. Specify one or more **Save** and/or **Email as Attachment** actions for the report task.

    b. Click the !GRAPHIC! **Email** icon. The **Email Report** dialog box appears.

    !GRAPHIC!

    c. In the **Destination** area, select one of the following:

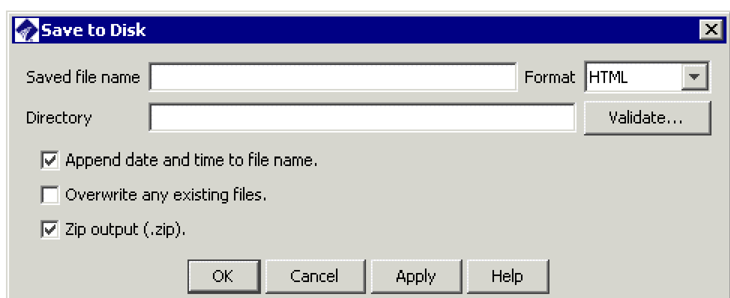
    - **Email track object**—Select an Email Track to which the completion notification is to be sent. Email Tracks can contain multiple email addresses and are defined via the **Manage** menu in the Performance Manager. If the Email Track you want to use does not appear in the list, see "Defining an Email Track" in the *ETM® System User Guide* for instructions, if necessary.

    - **Email address**—Type the single email address to which the completion notification is to be sent.

    d. Select **Send notification only**.

    e. Click **OK**.

- **To save the generated report to a file**, click the  **Save to Disk** icon. The **Save to Disk** dialog box appears.



a. In the **Saved file name** box, type the name (40 characters or less) under which you want the report to be saved.

b. In the **Format** box, select the file format (PDF, CSV, RTF, PS, HTML) in which the report is to be saved. The default is HTML.

c. If you want existing files of the same name to be overwritten by recurring instances of the same report task, select the **Overwrite any existing files** check box. Note that files are not overwritten with subsequent reports if you clear the **Overwrite any existing files** check box. Unless either **Overwrite existing files** or **Append date and time to filename** is selected for recurring reports, the name of the new report is appended with a number to make it unique..

d. If you want the date/time at which the report was generated to be appended to the filename, select the **Append date and time to filename** check box.

e. If you want the report output saved in a compressed format, selected the **Zip output (.zip)** check box. This is useful for archiving call data. See "Archiving Call Data with the Usage Manager" on page 31 for details.

f. The **Directory** box specifies the path where the report is to be saved. If you leave it blank, it defaults to the ETM System installation directory on the ETM Server computer. If you want to save the report in a different location, type the path. To verify that the path you typed is valid, click **Validate**.

g. Click **OK**. The **Save to Disk** action appears in the **Action** list.

- **To save the generated Report to the Usage Manager tree**, click the **Save to Tree** icon. The **Save to Report Tree** dialog box appears.

  a. In the **Saved Name** box, type the name that is to identify the report in the tree.

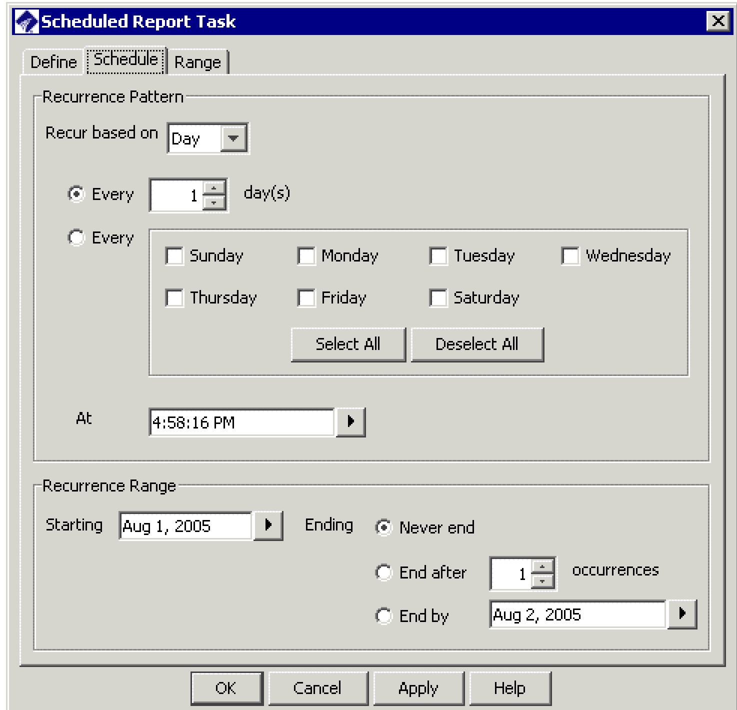
  b. The save location defaults to **PUBLIC**. To select a different folder, click **Select** and click the writeable folder in which you want to save the report, and then click **OK**.

  c. Optionally, select one or both of the following: **Append Date and time to saved filename** and/or **Overwrite any existing results** (causes existing reports with the same filename to be overwritten). If you do not select either and an existing report bears the same filename, the name of the new report is appended with a number to make it unique.

  d. Click **OK**. The **Save to Tree** action appears in the **Action** list.

9. Click the **Schedule** tab.

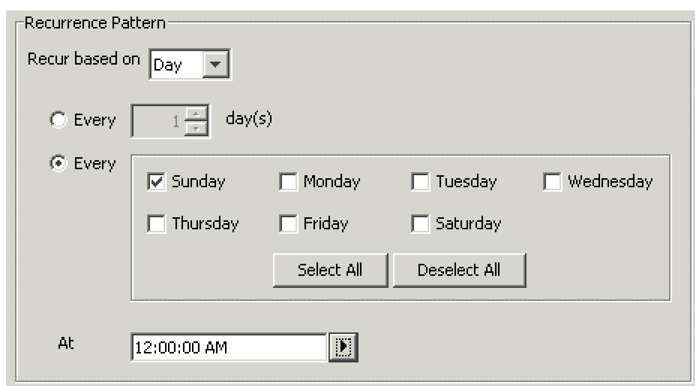
IMPORTANT On Windows, the ETM Server service runs by default as *local administrator* on the computer on which it is installed. Typically, this account does not have privileges to write to a network drive. If you want scheduled reports to be saved to a network drive, see "Enabling the ETM Management Service to Write to a Network Drive" in the *ETM® System Technical Reference*.



10. In the **Recur based on** box, select **Day**, **Week**, or **Month**.

    The selections in the **Recurrence Pattern** area change to reflect your selection, as shown on the next page.

Day



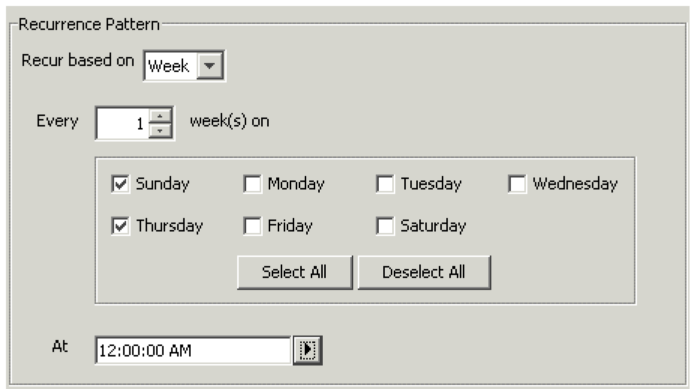
a. Select one of the following:

   Every n day(s)—Type or select how often you want the report to run. For example, if you want the report to run every 3 days, type or select `3`.

Every <*select a day of week*>—Select one or more of the days of the week. To select all days, click **Select All**. To clear all of the day of week selections, click **Deselect All**.

b. In the **At <*time of day*>** box, type or select the time of day at which you want the report to run. It is recommended that you schedule reports for times when network and call activity is minimal.

<u>Week</u>

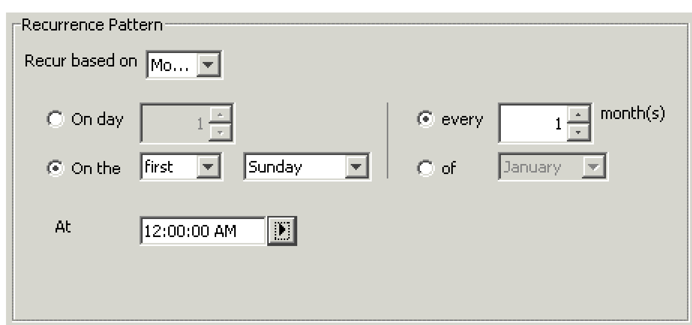


a. In the **Every n week(s) on** box, type or select how often you want the report to run. (For example, every 2 weeks.)

b. Select the day(s) of the week on which the report is to run. (For example, Thursday and Sunday.) To select all days, click **Select All**. To clear all of the day-of-week selections, click **Deselect All**.

c. In the **At <*time of day*>** box, type or select the time of day at which you want the report to run. It is recommended that you schedule reports for times when network and call activity is minimal.

<u>Month</u>



a. Select one of the following:

On Day *n*—Type or select the day of the month the report is to run.

On the <*ordinal*> <*unit*>—Specify the ordinal number (**1**st, **2**nd, **3**rd, **4**th, **last**) and the unit (**day**, **weekday**, **weekend day**, or a specific day of the week). For example, you might specify the 1st Sunday.

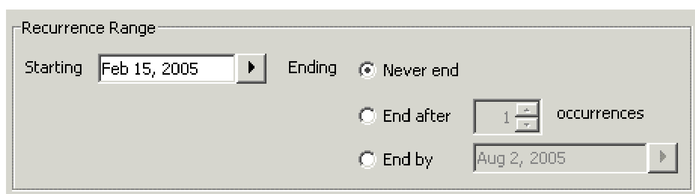
b. Select one of the following:

Every *n* months—Type or select how often you want the report to run. For example, if you want the report to run every 3 months, type or select `3`.

Of <*name of month*>—If you want the report to run annually in a given month, select the name of the month in this list. For example, if you selected **On day 1** and you select **January** in this box, the report will run on the first of January each year. Or, if you select **On the 1st weekend day** and you select **March** in this box, the report will run on the first weekend day in March.

c. In the **At <*time of day*>** box, type or select the time of day at which you want the report to run. It is recommended that you schedule reports for times when network and call activity is minimal.

11. In the **Recurrence Range** area, specify when the scheduled report task is to start and end.

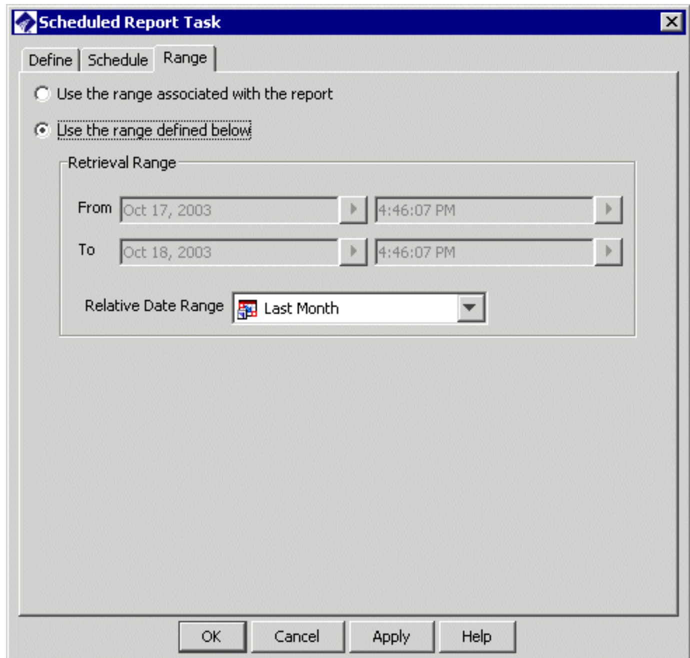


a. In the **Starting** box, type or select the start date of the report task. Note that this does not cause the report task to run on that date. It simply provides the reference date from which the report is scheduled. The report task runs on or after the **Starting** date according to the schedule specified in the **Recurrence Pattern** area.

b. In the **Ending** area, select one of the following:

- **Never End**—Select this option if you want the report task to remain scheduled indefinitely.
- **End After *n* occurrences**—Select this option if you want the report to run a specified number of times. Type or select the number of occurrences.
- **End by**—Select this option to define a specific date on which the scheduling of the report task is to end. Type or select the end date.

12. Click the **Range** tab.



13. Select one of the following:

    - **Use range associated with the report**—The Retrieval Range saved with the Report Template determines the period for which data is retrieved.

    - **Use range defined below**—The Retrieval Range saved with the Template is ignored and the period you specify here applies. This field is automatically populated with the Retrieval Range in the Report. You can select a different one. To select a different Retrieval Range, do one of the following:

        - To use a Relative Date Range, select it in the **Relative Date Range** box. This option is recommended for all but Run Once schedules.

        - To run the report for an absolute Retrieval Range, first select **None** in the **Relative Date Range** box to clear the Relative Date Range selection, and then click the arrows next to the **From** and **To** boxes to select the time period for which you want to run the report. If you have scheduled a recurring task, an absolute date range is not recommended, since the same data will be retrieved each time the task runs.

14. Click **OK** to save the task and close the dialog box; click **Apply** to save the task and leave the dialog box open.

Starting, Stopping, and Pausing a Scheduled Report

Stopping and pausing provide a means for you to retain a Scheduled Report Task definition, while preventing it from executing.

IMPORTANT Starting, stopping, and pausing a scheduled report applies to the scheduled task, not to the actual report generation. That is, you can stop a task so that it does not recur, but you cannot stop the generation of a report in progress using these buttons.

To start, stop, or pause a scheduled report

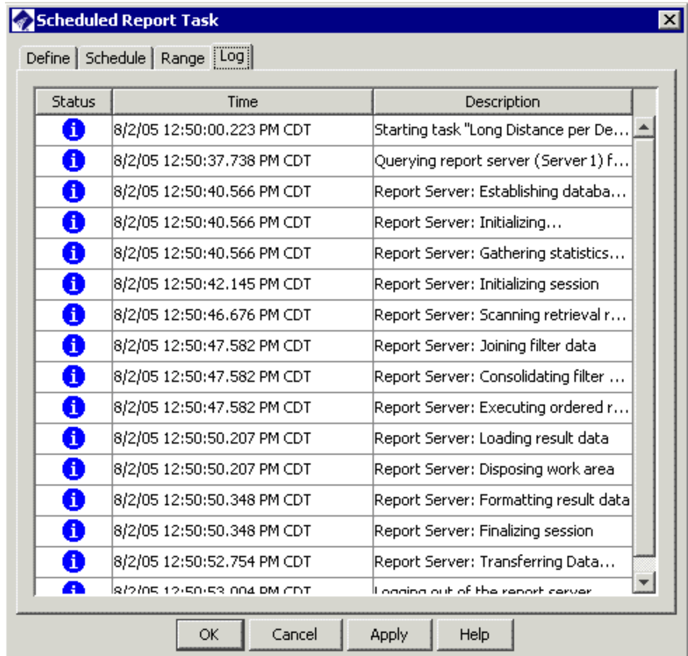
- In the **Scheduled Reports** dialog box, do one of the following:
    - To stop a task, click the task and then click **Stop** . The **Status** changes to **Canceled**.
    - To pause a task, click **Pause** . The **Status** changes to **Paused**. If Scheduled Report Retry is enabled, see “How Retry Affects Paused Tasks” on page 120 for important information.
    - To start a stopped or paused task, click **Start** . The **Status** changes to **Pending**.

Viewing Progress of a Running Report Task

When a Scheduled Report task is running (that is, the report is being generated), a **Log** tab appears in the **Scheduled Report Task** dialog box that shows the progress of the task execution. When the task completes, the **Log** tab disappears from the **Scheduled Report Task** dialog box. You can view logs of completed tasks in the **Completed Tasks** dialog box.

To view progress of a running report task

1. On the Usage Manager main menu, click the **Scheduled Reports** icon. The **Scheduled Reports** dialog box appears.
2. Double-click a Scheduled Report Task with a status of "Running." The **Scheduled Report Task** dialog box for the selected task appears.
3. Click the **Log** tab. This tab only appears if the report task is currently running. For a log of completed scheduled report tasks, see "Viewing Details of a Completed Report Task" on page 134.



The following information is provided for the selected report task:

- **Status**—Displays an icon indicating the type of information in the log entry: information, error, or warning.
- **Time**—The date/time the log entry was generated.
- **Description**—Contains the reason for the log entry, such as "Starting task," or "Scanning retrieval range."

Completed Scheduled Reports

Each time a Scheduled Report runs, a "snapshot" recording the configuration of the task at the time it ran and its outcome are stored for reference. You can view, edit, delete, and configure the history storage for these completed reports. You can also reschedule these reports.

Note that these are not the actual reports, but rather a record of the outcome and configuration each time a Scheduled Report Task runs. The actual reports are available from whatever destinations you chose when you scheduled them. For example, if you chose Save to Tree, the report is available from the Usage Manager tree pane.

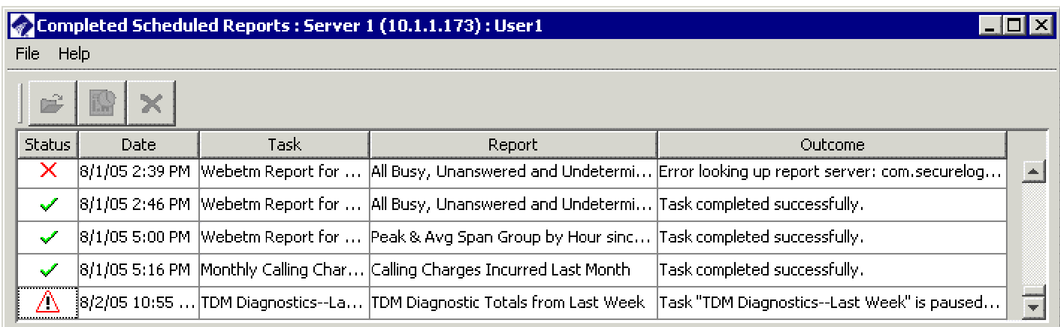
Viewing a Summary of Completed Scheduled Report Tasks

This procedure explains how to view a summary of completed Scheduled Report Tasks. To view detailed information about a specific Report Task, see "Viewing Details of a Completed Report Task" on page 134.

To view a summary of all completed Scheduled Report tasks

1. On the Usage Manager main menu, click **File | Scheduled Reports**. The **Scheduled Reports** dialog box appears.
2. Click **History | Finished Tasks**.

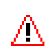
   The **Completed Scheduled Reports** dialog box appears.



3. For each completed Scheduled Report Task, the following summary information is provided:

   - **Status**—Indicates one of the following:

      The report was generated successfully and the no errors were encountered during completion of the report task.

      The report was generated successfully but one or more nonfatal errors occurred during the report task (for example, an email action was specified but the email server was unavailable).

      The report was not generated due to fatal errors (for example, the Report Server was unavailable).

   - **Date**—Indicates the date the report task was completed.
   - **Task**—Displays the name assigned to the Scheduled Report when it was defined.
   - **Report**—Displays the name of the report.
   - **Outcome**—Indicates whether the report task ran successfully; also indicates if the generated report contains errors.. If the task failed, indicates the reason for failure (e.g., Report Server not running).

Rescheduling a Report Task

You can reschedule completed Report Tasks. When you reschedule a task, you create a new task that is a copy of the old task. You can then modify the new task as needed. If the task you are rescheduling is still scheduled in the **Scheduled Reports** dialog box, rescheduling does not affect that task. It simply creates a new task.

To reschedule a Report Task

1. On the Usage Manager main menu, click **File | Scheduled Reports**.

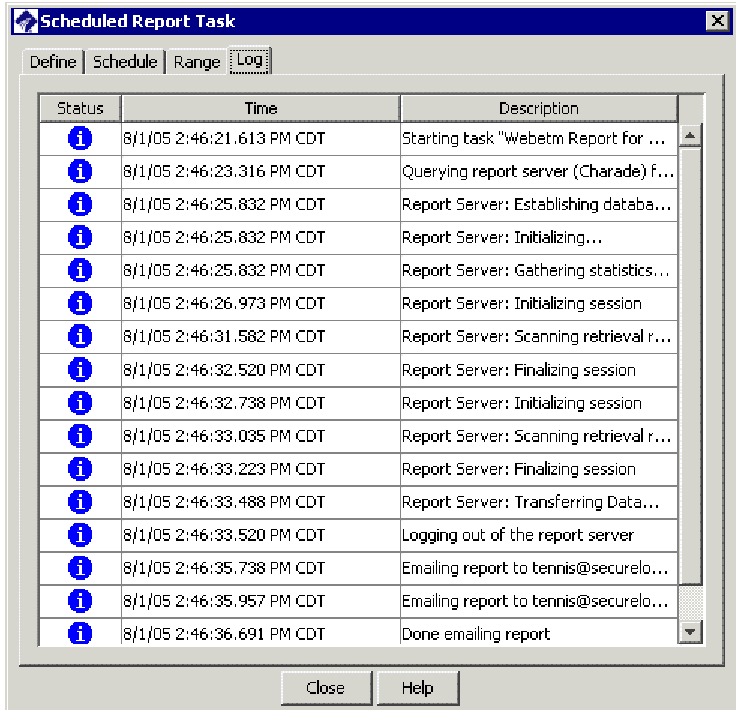
   The **Scheduled Reports** dialog box appears.

2. Click **History | Finished Tasks**. The **Completed Scheduled Tasks** dialog box appears. This dialog box shows a history list of each time a Scheduled Report task has executed.
3. Right-click the task you want to reschedule and click **Reschedule**.
4. The task opens in the **Scheduled Report Task** dialog box. Set the scheduling options as desired. See "Scheduling a Report" on page 122 for instructions, if necessary. Click **Apply** to save the changes and leave the dialog box open or **OK** to save the changes and close the dialog box.
5. A new task appears in the **Scheduled Reports** dialog box.

Viewing Details of a Completed Report Task

To view details of a completed report task

1. On the Usage Manager main menu, click **File | Scheduled Reports**. The **Scheduled Reports** dialog box appears.
2. Click **History | Finished Tasks**. The **Completed Scheduled Reports** dialog box appears.
3. Double-click the completed Report Task for which you want to view details. The **Scheduled Report Task** dialog box for the selected instance of the report task appears.
4. The **Define** and **Schedule** tabs contain a snapshot of the configuration of the Scheduled Report Task at the time this instance was run.
5. Click the **Log** tab. The **Log** tab provides a detailed account of the actions that occurred when the report was generated.



6. The following information is provided:

   - **Status**—Displays an icon indicating the type of information in the log entry: information, error, or warning.
   - **Time**—Indicates the date/time the log entry was generated.
   - **Description**—Contains the reason for the log entry, such as "Starting task," "Copying files," or "Can't find date range."

Configuring History Storage

By default, completed scheduled report tasks are discarded from the ETM® Database after 30 days or when the number of entries reaches 1000. You can change these defaults or disable automatic purging.

Note that these are not the actual reports, but rather the record of the outcome and configuration each time a scheduled report task runs, as shown in the **Completed Scheduled Reports** dialog box.

To configure data storage options for completed Scheduled Report Tasks

1. On the Usage Manager main menu, click **File | Scheduled Reports**. The **Scheduled Reports** dialog box appears.
2. Click **History | Finished Tasks**. The **Completed Scheduled Reports** dialog box appears.

3. Click **File | Configure**. The **Configure History Storage** dialog box appears.

4. Modify the following as applicable:

   - **Discard data older than**—Check the box and type the number of days after which to remove task records from the database. For example, if you type 30, records of report tasks older than 30 days are discarded.
     - Clear the check box if you do not want to discard older data.
   - **Limit number of entries to**—Type the number of report task records to maintain in the database. When the number of records is greater than the number typed in this box, the oldest records are deleted.
     - Clear the check box if you do not want to limit the number of records stored.

5. Click **OK** to close the dialog box and apply changes.

Web-Based Reporting

Using the Web Interface for Reporting

The ETM® System provides a browser-based interface called the Web Portal that enables you to view and schedule Usage Manager reports using the Internet Explorer web browser. The Web Portal does not support Solaris. Note that you cannot create or edit Report components from the Web Portal; it is used only to view and schedule Reports and retrieve call recordings. To edit Report Components, you must use the Usage Manager GUI. For information about using the Web Portal to retrieve call recordings, see the *Call Recorder User Guide*.

Logging in to the Web Portal

Tip Your login times out after 30 minutes of inactivity.

To log in to the Web Portal

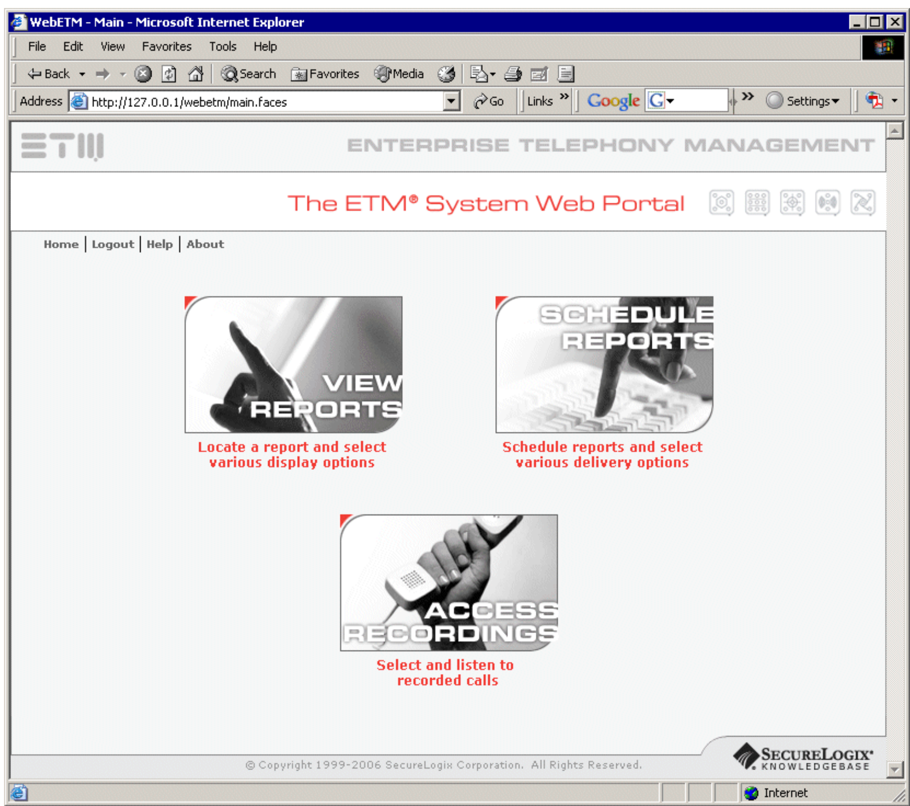
1. Open Internet Explorer, and then type the URL for your ETM Web Portal server in the address bar and press ENTER. The browser connects to the ETM Web Portal.
2. One of the following occurs:
   - If more than one ETM Server is available, the **Server Selection** page appears. Click the ETM Server you want to log into.
   - If a single ETM Server is available, see the next step.
3. Two login options are available, depending on the configuration at your site.
   - If your Web Portal is configured for anonymous login and you used the anonymous login URL, the Web Portal logs into the ETM Server. See the next step.
   - If you must use your ETM System login to access the Web Portal, the **Login** page appears. Type your username and password, and then click **Submit**.

Tip To return to the **Server Selection** page, click **Select Server**.

4. A login banner page appears if one is configured for the ETM Server.

   - If a login banner appears, click **OK**.

   The **Main** page appears.



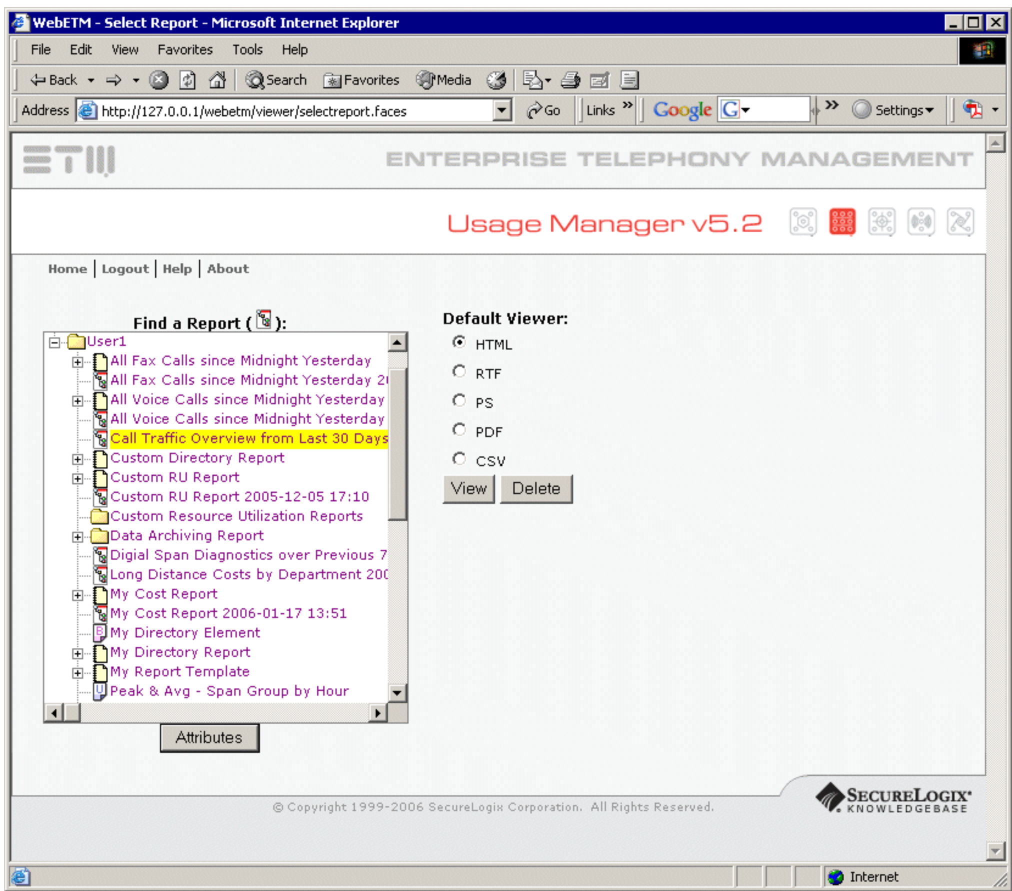
The links available on this page depend on your user permissions. The reporting links appear only if you have **Access Usage Manager** permission; the call recording link appears only if you have **View & Reinstall Recording Policies** permission.

Viewing Reports via the Web Portal

You can use the Web Portal to view reports that are saved in the Usage Manager tree in either your user folder or the **Public** folder.

To view reports

1. On the Main Web Portal page, click **View Reports**. The **Select Report** page appears.



2. In the **Find a Report** box, click the **PLUS SIGN** next to the top-level folder that contains the report you want to view. The folder expands.

Acrobat Reader is available for free download from **Adobe.com**.

3. Locate the report, and then click it to select it. Generated reports are identified with the icon.

Tip To return to the Main Web Portal page, click **Home**.

4. Under **Default Viewer**, select the format in which you want to view the report: HTML (default), RTF, PS, PDF, or CSV. To view reports in PDF format, you must have Acrobat Reader v5.0 or later installed on the computer where you are viewing the report.

   IMPORTANT If you are using pop-up blocking software on the browser computer, ensure that pop-ups from the ETM Server's IP address are allowed or the report cannot display.

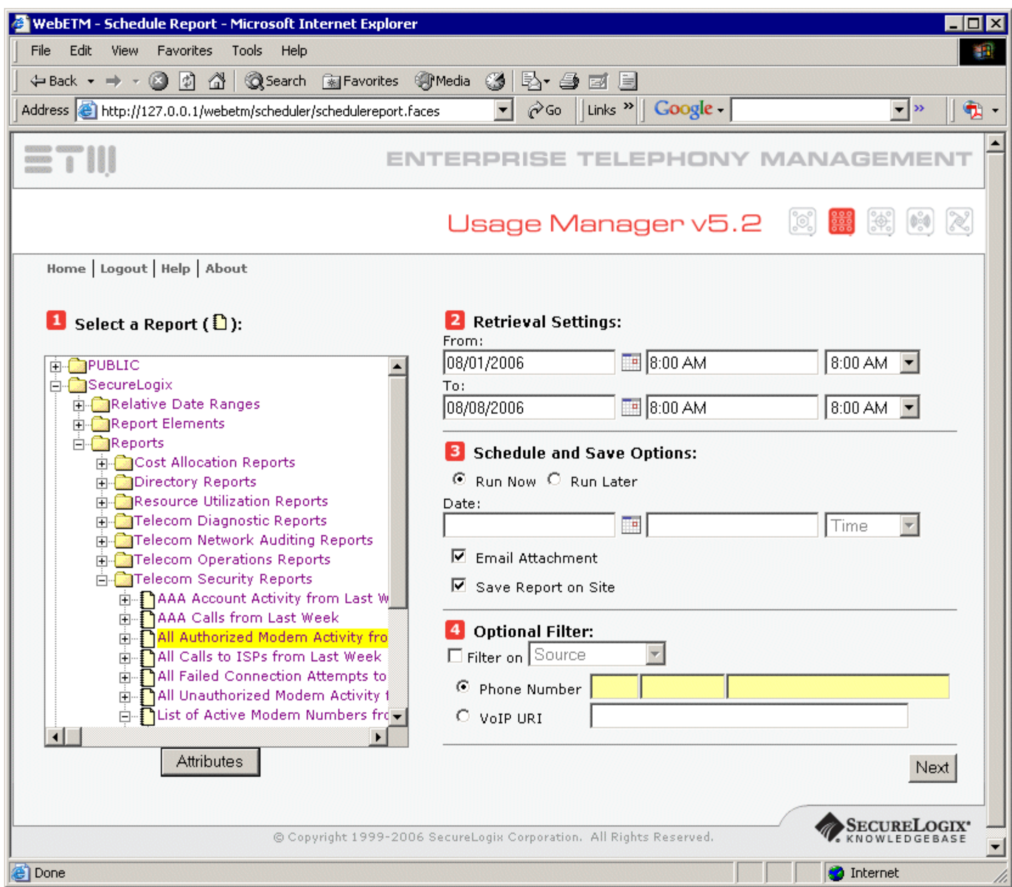
5. Click **View**. The following message appears while the report is retrieved: "Your report will be displayed shortly. If it is not, click here."

6. The report appears in the default viewer for the selected format. Use the functions available in that viewer to save or print the report.

Scheduling a Report via the Web Portal

To schedule a report via the Web Portal

1. On the Main Web Portal page, click **Schedule Reports**. The **Schedule Reports** page appears.



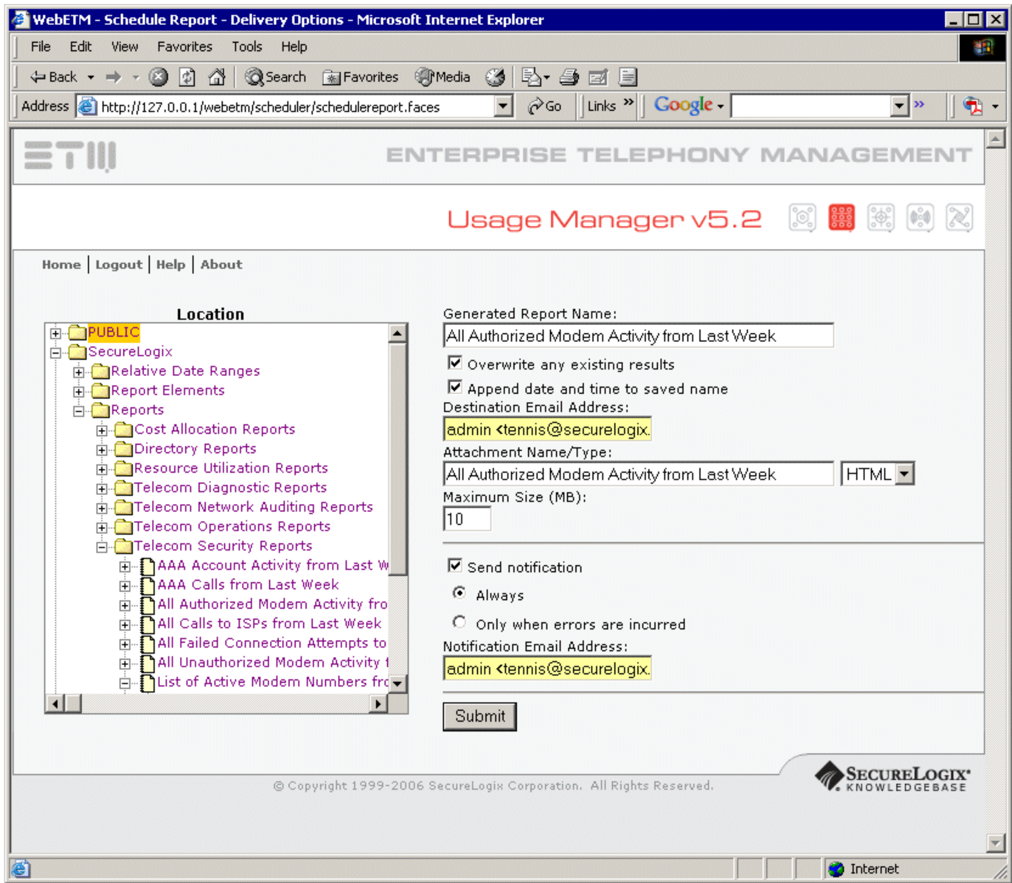
Tip To return to the Main web reports page, click **Home**.

2. In the **Select a Report** box, browse for and click the Report Template you want to schedule.
3. In the **Retrieval Settings** boxes, type or select the starting and ending dates and times for which data is to be retrieved. The **From** time must precede the **To** time.
4. In the **Schedule and Save Options** area:
   a. Select one of the following:
      - **Run Now** causes the report generation to begin as soon as you finish configuring it.
      - **Run Later** allows you to schedule a start time for the report generation, such as off-peak hours. If you select **Run Later**, type or select the start date and time in the **Date** boxes.

   b. Select one or both of the following delivery methods:
      - **Email attachment** causes the generated report to be emailed to the contact(s) you specify on the next page.
      - **Save report on site** causes the generated report to be saved in the Usage Manager tree in the folder you specify on the next page, where it can be accessed from both the Web Portal and the Usage Manager GUI.
5. Optionally, specify filter criteria to limit results to data for only a specific phone number or VoIP URI.
   a. Under **Optional Filter**, select **Filter on**.

   b. Select the number to which the filter applies:
      - **Source**—The calling number
      - **Destination**—The called number
      - **Internal**—The outbound source or inbound destination
      - **External**—The inbound source or outbound destination

   c. Select one of the following:
      - **Phone number**—Select the radio button, and then type the fully qualified phone number in the boxes.
      - **VoIP URI**—Select the radio button, and then type the VoIP URI in the box.
6. Click **Next**.



7. If you specified that the report is to be saved to the Usage Manager tree:

   a. In the **Location** box, browse for and click the folder in which the report is to be saved. Generated reports cannot be saved in the **SecureLogix** folder.

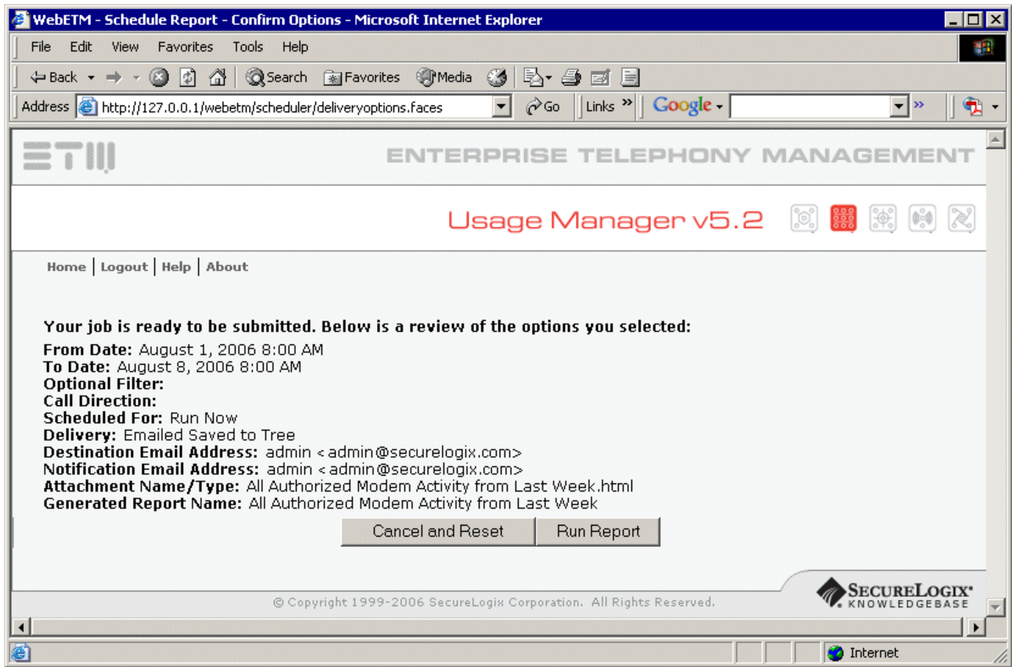
   b. The **Generated Report Name** box shows the name for the saved report, which defaults to the name of the template. If you want the report to have a different name in the tree, type the new name.

   c. Optionally, select one or both of the following:

      - **Overwrite any existing results** means the new report is to replace any reports of the same name that have been previously saved.

      - **Append date and time to saved name** causes the date and time at which the report is generated to be included in the saved report name. Generally, this prevents existing reports from being overwritten.

8. If you specified delivery as an email attachment:
   a. In the **Destination Email Address** box, the email address provided in the user profile of the account you used to access the Web Portal is supplied by default. To send the email to a different email address, type the address.
   b. The **Attachment Name/Type** box specifies the name and file format for the attachment. The defaults are the name of the template and HTML format. To select a different file type, click the down arrow and select an option. To use a different attachment name, type the name in the box.
   c. In the **Maximum size (MB)** box, type the size limit in megabytes for the attachment. The default is 10 MB. If the generated report exceeds this size, the email is sent containing an error message; the report is not attached. You must specify a value greater than 0.
9. If you want someone to be notified via email when the report task completes, select **Send Notification** and then:
   a. Select one of the following:
      - **Always** if a notification is to be sent each time the Report task completes.
      - **Only when errors are incurred** if a notification is to be sent only if the Report Task experiences errors.
   b. The email address provided in the user profile you used to access the Web Portal is supplied by default. To send the email to a different email address, type the email address in the **Notification Email Address** box.
10. Click **Submit**.



11. Verify your settings. If they look correct, click **Run Report**.
    - To discard the job, reset all settings, and return to the **Schedule Report** page, click **Cancel and Reset**.

Deleting a Report via the Web Portal

CAUTION Since the report is permanently deleted from the Usage Manager and no delete confirmation is provided, ensure that you have selected the intended report before clicking **Delete**.

To delete a report via the Web Portal

1. While logged in via the Web Portal, click **View Reports**. The **Select Report** page appears.
2. In the **Find a Report** box, browse for and select the generated report you want to delete.
3. Click **Delete**. The message "Deleting Report" appears while the report is deleted. When the report has been deleted, the page refreshes.

Viewing Attributes via the Web Portal

To view attributes

- In the **Find a Report** (viewing reports) or **Select a Report** (scheduling reports) box, click the item for which you want to view attributes, and then click **Attributes**.

Installing and Configuring the Web Portal

You can deploy the ETM Web Portal on your existing web server, or you can use the bundled Apache Tomcat web server/Java Servlet Container on Windows.

The ETM Web Portal is a Java Servlet/JavaServer Pages (JSP) Web Application. It is self-contained in a Web Archive (WAR) file called **webetm.war**. The application runs in any Java Servlet Container that follows the Java Servlet/JSP Specifications.

The Apache Software Foundation provides a free Java Servlet Container that also functions as a simple web server—Apache Jakarta Tomcat (also known as Apache Tomcat, or just Tomcat). This application is bundled in the ETM Web Portal Installer. If you do not have an existing web server or do not want to deploy ETM Web Portal on your existing web server, you can use Tomcat. Note that Tomcat is not the same as the Apache HTTP Server.

How you install the Web Portal depends on whether you are planning to use the bundled Tomcat web server or your existing web server. See the applicable section below.

Integrating the Web Portal with an Existing Web Server

To integrate the ETM Web Portal application into an existing web server, do not use the InstallShield Installer. You only require the ETM Web Portal WAR file, **webetm.war**. This file is available on the ETM System Software CD in the following directory:

<CDROOT>\Software\WebETM

Since proper incorporation of a WAR file depends on the web server you use, consult the documentation for your web server and the IT personnel responsible for your web server.

ETM® Web Portal Log Files

The location of the WebETM log files depends on your installation and web server configuration. Consult your web server administrator. By default, a **logs** directory is created in the location from which the application is run. For the bundled installation, Tomcat is run as a service and the log files are placed in **..\WINDOWS\system32\logs** by default. When Tomcat is run this way, the working path can be configured via the Tomcat configuration utility to place the log files in a different location. Tomcat also creates a **\webetm\logs** directory.

Installing Apache Tomcat and ETM® Web Reporting

(*Windows only*) A Windows InstallShield Installer is included on the ETM System Software CD that installs Apache Jakarta Tomcat Version 5.5.9, an embedded JRE required for running Tomcat, and the ETM Web Reporting Application. The Tomcat installation is identical to that performed by the standalone Tomcat installation that Apache provides.

By default, Apache Tomcat for ETM Web Reporting is installed at **<WINROOT>\WebETM**, where **<WINROOT>** is the root drive on which the Windows operating system is installed (typically, **C:**). In the following instructions, the WebETM installation location is referred to as **<INSTALL_DIR>**.

IMPORTANT For the ETM Web Reporting application to work correctly with the Java Runtime Environment, Apache Tomcat must be installed into a directory that does not contain spaces. To ensure this, the installer verifies any user-entered install location to ensure that it contains no spaces. If it does, a warning appears and you must enter a different path that contains no spaces to continue the installation.

The installer is located on the Windows ETM System Software CD at **<CDROOT>\Software\WebETM\Installer**.

To install Web Reporting with Apache Tomcat

1. Run the InstallShield Installer and follow the onscreen prompts.
2. When installation is complete, start the Tomcat Monitor Utility as follows:
    a. Click **Start | Programs | SecureLogix | ETM Web Reporting | Apache Tomcat 5.5 | Monitor Tomcat.**
    b. Verify that the **Tomcat Monitor** System Tray icon appears.
3. Start the **Apache Tomcat** Service as follows:
    - Right-click the **Tomcat Monitor** System Tray icon and click **Start Service**.
4. Verify that Tomcat is running correctly by navigating to the Tomcat **Welcome** page as follows:
    - Click **Start | Programs | SecureLogix | ETM Web Reporting | Apache Tomcat 5.5 | Welcome**.
5. Specify the location of the ETM Management Server(s) with which Web Reports is to be used, if Web Reports is installed on a different host computer from the ETM Server. See "Specifying Management Servers" on page 153 for instructions.
6. Optionally, configure SSL See "Configuring the Web Portal for SSL" on page 149 for instructions.
7. Verify that ETM Web Reporting is running by navigating to the login page on the computer where you installed it:
    - Click **Start | Programs | SecureLogix | ETM Web Reporting | ETM Web Reporting**.

See "Logging in to the Web Portal" on page 137 for instructions for logging in.

Files and Folders Installed

The following files and folders are created when you install Apache Tomcat for ETM Web Reporting:

- Apache Tomcat—Installed under **<INSTALL_DIR>\jakarta-tomcat-5.5.9.**

  The files and directory structures beneath this directory are essentially that of a normal Tomcat installation, with the exception of the **JRE** and **WebETM** folders (see below).

- The Java Runtime Environment—Version 1.5.0_02-b09 is required to run Tomcat and is installed under **<INSTALL_DIR>\jakarta-tomcat-5.5.9\bin\jre1.5.0_02**.
- WebETM—The ETM Web Reporting Application; installed as a WAR file under **<INSTALL_DIR>\jakarta-tomcat-5.5.9\webapps**.
- SecureLogix Documentation is installed under **<INSTALL_DIR>\Documentation**.

Tomcat Web Server Service

The installer creates a service called **Apache Tomcat** that represents the web server portion of Tomcat. By default, this service is set to autostart at system startup. The service does not start automatically at the end of the installation process. Be sure to start the service before attempting to run Web Reports.

Apache Tomcat Monitor Autostart

The installer installs a registry key that causes the Apache Tomcat Monitor program to automatically start when you log into a desktop session. This mimics the behavior of the normal Apache Tomcat installer. For reference, the registry key is:

HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\Windows\CurrentVersion\Run\ApacheTomcatMonitor

Application Shortcuts

The following shortcuts are created by the installer (the Tomcat specific shortcuts mimic those created by the default Tomcat installer):

- **Start | Programs | SecureLogix | ETM Web Reporting | ETM Web Reporting**—Opens a web browser and navigates to the ETM Web Reporting login page of the ETM Web Reporting application when it is running on the local Apache Tomcat service (**http://127.0.0.1/webetm**). This shortcut assumes the HTTP port is the default of 80. If not, edit the file **<INSTALL_DIR>\ETM Web Reporting.url** in a text editor and change the port. Note that if you are running with SSL, you are by default redirected to the SSL port.
- **Start | Programs | SecureLogix | ETM Web Reporting | Apache Tomcat 5.5 | Configure Tomcat**—Launches the configuration utility for the **Apache Tomcat** service.

- **Start | Programs | SecureLogix | ETM Web Reporting | Apache Tomcat 5.5 | Monitor Tomcat**—Places a monitor utility in the system tray for display the status of the **Apache Tomcat** service. The system tray icon also provides access to startup and shutdown commands and the configuration utility.
- **Start | Programs | SecureLogix | ETM Web Reporting | Apache Tomcat 5.5 | Tomcat 5.5 Program Directory**—Opens a Windows Explorer window to the Apache Tomcat 5.5 Program Directory. (**By default C:\WebETM\jakarta-tomcat-5.5.9**).
- **Start | Programs | SecureLogix | ETM Web Reporting | Apache Tomcat 5.5 | Tomcat Home Page**—Opens a web browser and navigates to the Apache Tomcat home page at the Apache Software Foundation web site.
- **Start | Programs | SecureLogix | ETM Web Reporting | Apache Tomcat 5.5 | Tomcat Manager**—If configured for operation, opens a web browser and navigates to the Tomcat Manager web application running on the local Apache Tomcat service. (See the "Tomcat Manager" section below). This shortcut assumes the HTTP port is the default of 80. If not, edit the file **<INSTALL_DIR>\jakarta-tomcat-5.5.9\bin\Tomcat Manager.url** in a text editor and change the port.
- **Start | Programs | SecureLogix | ETM Web Reporting | Apache Tomcat 5.5 | Welcome—**Opens a web browser and navigates to the Apache Tomcat Welcome page running on the local Apache Tomcat service. Useful for testing to see if the local Apache Tomcat is operating correctly. This shortcut assumes the HTTP port is the default of 80. If not, edit the file **<INSTALL_DIR>\jakarta-tomcat-5.5.9\bin\Welcome.url** in a text editor and change the port.
- **Start | Programs | SecureLogix | ETM Web Reporting | Documentation | License Agreement**—Displays the SecureLogix Corporation license agreement.
- **Start | Programs | SecureLogix | ETM Web Reporting | Documentation | Usage Manager User Guide**—SecureLogix PDF documentation for the Usage Manager, including the ETM Web Reporting application:

More about the Web Applications Installed

Web applications are the various applications that can be "served" to users by the Apache Tomcat service. The Apache Tomcat application with the ETM Web Portal installs with four web applications:

- **ROOT**—The root Apache Tomcat web application accessed by navigating to **http://*<hostname or IP address>*/** This is just a **Welcome** page that provides links to various things, including the Tomcat documentation mentioned below. (A shortcut is provided on the Start menu of the Tomcat host computer for accessing this URL).

- **tomcat-docs**—The Tomcat documentation. Access the documentation by navigating to **http://<*hostname or IP address*>/** and clicking the **Tomcat Documentation** link. Alternatively, you can access the documentation directly by using the URL: **http://<*hostname or IP address*>/tomcat-docs**
- **manager—**A management application that provides an interface for managing the various web applications running on the Apache Tomcat service. Access the Tomcat Web Application Manager by navigating to **http://<*hostname or IP address*>/** and clicking the **Tomcat Manager** link, or use the Start menu shortcut on the Tomcat host computer. (For details, see "Configuring the Tomcat Web Application Manager" on page 152.)
- **webetm—**The ETM Web Portal application. (A shortcut is provided on the **Start** menu of the Tomcat host computer for accessing this URL).

Configuring the Web Portal for SSL

By default, Apache Tomcat is not configured to provide an SSL connection to the ETM Web Reporting application. The following procedure explains how to enable SSL support for the ETM Web Reporting Application.

Prior to proceeding, it is strongly recommended that you review the "Apache Jakarta Tomcat 5.5 Servlet/JSP Container—SSL Configuration HOW-TO" at:

http://jakarta.apache.org/tomcat/tomcat-5.5-doc/ssl-howto.html

Follow this sequence of steps to configure Apache Tomcat for ETM Web Reports to use SSL:

1. Create a Certificate Keystore.
2. Configure an SSL Port in the Apache Tomcat Configuration.
3. Configure the ETM Web Reporting Application for use over SSL.
4. Restart the Apache Tomcat Service.

To configure SSL support for the ETM Web Portal Application

1. Create a Certificate Keystore as follows:
   a. Open a command prompt window.
   b. Change to the directory **<INSTALL_DIR>\jakarta-tomcat-5.5.9\conf**.
   c. Run the keytool utility using the following command:
   ```
   <INSTALL_DIR>\jakarta-tomcat-5.5.9\bin\
   jre1.5.0_02\bin\keytool.exe -genkey -alias
   tomcat -keyalg RSA -keystore keystore.jks
   ```
   d. You are prompted for the following information:

TIP When text appears in brackets, you can press ENTER to accept it as the default value.

`Enter keystore password:`

This is the password used to protect the keystore. The default for use with Apache Tomcat is **changeit** but you can type a custom password.

`What is your first and last name? [Unknown]:`

Type the "Common Name" (CN) for the issuer, which can be either your name, the server domain name, or an email address. For example, if the server's domain is **SecureLogix.com**, you would type: `SecureLogix.com`

`What is the name of your organizational unit? [Unknown]:`

Enter your organizational unit, if applicable. For example: `Information Technology`

`What is the name of your organization? [Unknown]:`

Enter your organization name. For example: `SecureLogix Corporation`

`What is the name of your City or Locality? [Unknown]:`

Enter the city or locality for the server, if applicable. For example, type: `San Antonio`

`What is the name of your State or Province? [Unknown]:`

Enter the state or province for the server, if applicable. For example: `TX`

`What is the two-letter country code for this unit? [Unknown]:`

Enter the country code for the server. For example: `US`

`Is CN=SecureLogix.com, OU=Information Technology, O=SecureLogix Corporation, L=San Antonio, ST=TX, C=US correct?  [no]:`

Verify the information and type `yes` to accept.

`Enter key password for <tomcat>  (RETURN if same as keystore password):`

To work correctly, the key password must be the same as the keystore password, so just press ENTER.

2. Configure an SSL Port in the Apache Tomcat Configuration
   a. In a text editor, open the following file:

      <INSTALL_DIR>\jakarta-tomcat-5.5.9\conf\server.xml

b. Locate the following section:

Delete this leading comment designator

Type the correct keystore password, if different from the default

Delete this trailing comment designator

```
<!-- Define a SSL HTTP/1.1 Connector on port 8443 -->
<!--
<Connector port="8443"
           maxHttpHeaderSize="8192"
           maxThreads="150"
           minSpareThreads="25"
           maxSpareThreads="75"
           enableLookups="false"
           disableUploadTimeout="true"
           acceptCount="100"
           scheme="https"
           secure="true"
           clientAuth="false"
           sslProtocol="TLS"
           keystoreFile="conf\keystore.jks"
           keystorePass="changeit"
           keystoreType="JKS" />
-->
```

c. Uncomment the **Connector port** section by deleting the leading `<!--` and trailing `-->`.

d. If you specified a custom password when generating the Certificate Keystore, change the text `changeit` to the specified password in the line:

```
keystorePass="changeit"
```

e. Save the changes to the file.

For additional configuration options, refer to the "Apache Jakarta Tomcat 5.5 Servlet/JSP Container - SSL Configuration HOW-TO" at

http://jakarta.apache.org/tomcat/tomcat-5.5-doc/ssl-howto.html

3. To configure Web Reports to operate via SSL:

a. Open the following file in a text editor (*Tomcat must have been started at least once before this file is available)*.

`<INSTALL_DIR>\jakarta-tomcat-5.5.9\webapps\webetm\WEB-INF\web.xml`

b. Locate the following section at the end of the file:

```
    <user-data-constraint>
```

```
        <!--
        To configure WebETM for operation through SSL, change
        the text below from "NONE" to "CONFIDENTIAL"
    -->
    <transport-guarantee>NONE</transport-guarantee>
   </user-data-constraint>
```

   c. In place of NONE, type CONFIDENTIAL.
   d. Save the file.
4. If Tomcat is running, restart it for the change to take effect.

Log File Locations

Log files associated with the Apache Tomcat and ETM Web Reports are stored at the following locations:

- Apache Jakarta Tomcat's log files are created in the following directory:

  <INSTALL_DIR>\jakarta-tomcat-5.5.9\logs

- The ETM Web Reporting Application's log file is created in the following directory by default:

  ..\WINDOWS\system32\logs

Configuring the Tomcat Web Application Manager

The Tomcat Web Application Manager is a web application that comes by default with Apache Tomcat. It displays general server information and lists the web applications currently available and their status. The manager can be used to start, stop, reload, and "undeploy" (delete) the web applications. This tool can be useful for troubleshooting.

You can access the Tomcat Web Application Manager by navigating to the Tomcat **Welcome** page and clicking the **Tomcat Manager** link, or by using the shortcut on the Start menu of the Tomcat host computer.

A username and password are required to access to the Tomcat Manager web application. By default, no user exists to access the application and must be added.

To add a user

1. Open the following file in a text editor:

   <INSTALL_DIR>jakarta-tomcat-5.5.9\conf\tomcat-users.xml

2. Locate the following line:

```
<user username="role1" password="tomcat" roles="role1"/>
```

3. After that line, add the line:

```
<user username="<USERNAME>" password="<PASSWORD>" roles="manager"/>
```

replacing <USERNAME> with the username you are assigning and <PASSWORD> with the password you are assigning. For example:

```
<user username="tomcat-man" password="8&2Rten" roles="manager"/>
```

4. Save the changes to the file.
5. Restart the Apache Tomcat Service.

   Now you can navigate to the Tomcat Manager web application and use the above username and password to access the application.

Additional References

Useful reference information is available at the links listed below.

- Apache Jakarta Tomcat 5.5 Servlet/JSP Container - Documentation Index

  http://jakarta.apache.org/tomcat/tomcat-5.5-doc/index.html

- Apache Jakarta Tomcat 5.5 Servlet/JSP Container - SSL Configuration HOW-TO

http://jakarta.apache.org/tomcat/tomcat-5.5-doc/ssl-howto.html

- Java Runtime Environment 1.5.0 - keytool - Key and Certification Management Tool

http://java.sun.com/j2se/1.5.0/docs/tooldocs/windows/keytool.html

Specifying Management Servers

By default, the ETM Web Portal application attempts to connect to a local ETM Management Server (127.0.0.1) using the default client port (6990) and default DES passphrase. If the ETM Management Server is on another host or uses a different port or passphrase, you must edit the configuration to enable the Web Portal to connect. You can also change the Server name displayed in the Server Selection GUI and specify additional Servers.

To edit the configuration

1. Open the following file in a text editor:

   \webetm\WEB-INF\server-defn.xml

   - If you are using Tomcat, this file is located at

<INSTALL_DIR>\jakarta-tomcat-5.5.9\webapps\webetm\WEB-INF\server-defn.xml

     Note that Apache Tomcat must have been started at least once before this file is be available.

   - If you integrated the Web Portal with your existing web server, ask your web server administrator to locate the **webetm** folder. This file is compressed inside the WAR file and the web server extracts it the WAR file is executed.

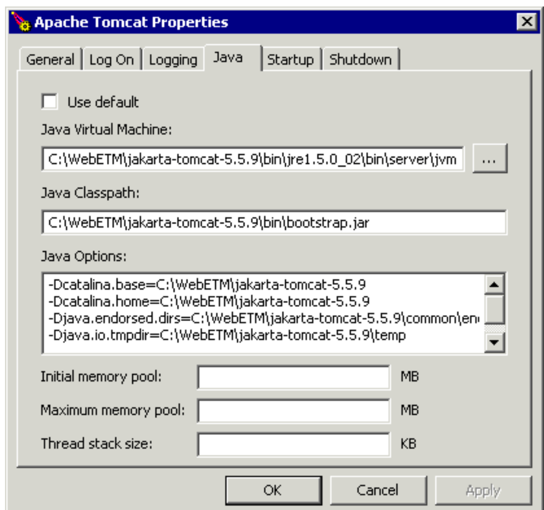
2. Follow the instructions in the file for setting the appropriate configuration.

Increasing the Available Memory Pool for the Web Portal

By default, the Tomcat server allocates a maximum memory pool of 64 MB. In environments where many users are expected to simultaneously access the Web Portal, increase the maximum memory pool to 256 MB or greater to avoid out of memory errors.

To increase the maximum memory pool

1. Stop the Tomcat service, if running.
2. From the **SecureLogix** shortcut on the Windows **Start** menu, point to **ETM Web Portal | Apache Tomcat 5.5 | Configure Tomcat**. The **Apache Tomcat Properties** dialog box appears.
3. Click the **Java** tab.



4. In the **Maximum memory pool** box, type a value of 256 or greater.
5. Click **OK**.
6. Restart the service.

Accessing the ETM® Web Portal

If the Web Portal is integrated with your existing web server, ask your web server administrator for the URL to access the application.

If you installed the Tomcat implementation, use the following information to access the Web Portal. For convenience, a shortcut is also provided in the **Start** menu of the computer where the Web Portal is installed for accessing the local ETM Web Portal application.

By default, Apache Tomcat serves the application on the default http port: 80. The correct URL to use to access the Web Portal depends on whether you have enabled Anonymous Login:

- If login is required, use the following URL:

  http://<*hostname or IP address*>/webetm

For example, if Apache Tomcat is running on a host computer with the hostname **www.abc-corp.com**, then the URL would be:

http://www.abc-corp.com/webetm

- If anonymous login is enabled, use the following URL:

  http://<hostname or IP address/webetm/anonymouslogin

If SSL has been configured, you are automatically redirected from the above address to the secure connection when accessing the ETM Web Portal. To access the SSL connection directly, however, the following URL works for the default SSL port of 8443:

https://<*hostname or IP address*>:8443/webetm

Appendix A: Fields that Can Appear in Reports

Data in Reports

The data that appears in a report depends on the Report Elements included in the Report Template that you use to generate the report. To assist you in defining Elements and understanding report results, this section describes the type of data that can appear in reports.

What "Undefined" Means in Reports

When any data field has no value, that field is said to be *undefined*. You may see **Undefined** as a category in any report. A large number of undefined results may indicate misconfiguration of an ETM® System component or your telecommunications equipment.

If you believe you are seeing an excessive number of undefined results, contact SecureLogix Customer Support for assistance in determining the cause:

Telephone: 1-877-SLC-4HELP *or* Email: *support@securelogix.com*

About Call Type Changes

If the call type changed during a call, each call type is recorded in the call data for that call. The call may also have triggered multiple Rules, because call type-based Policy processing is performed when the call type is initially determined and each time the call type changes. A single call can therefore generate multiple alerts, emails, pages, and SNMP traps. All of this call progress and Policy enforcement data is stored in the call log for the call and can appear in reports.

Setting the Span's **Call Type Timeout** too low (the default is 60 seconds) can cause an excessive number of call type changes.

For example, suppose someone in your organization makes an international, operator-assisted fax call. Policy processing performed at the start of the call verifies that calls to the destination country are permitted. When the operator begins talking, the Span determines a call type of voice and processes the call against the Policy again, this time considering the call type to which each Rule applies. When the fax transmission starts and the Span detects the call-type change from voice to fax, Policy processing is performed a third time. Each of these call types is recorded in the call record for the call and can appear in reports that show call type.

For details about Policy processing, see "Policy Processing Phases" in the *Voice Firewall User Guide*.

Fields Available in Call Elements

Call Elements include General, Resource Utilization, and Cost Elements (a subtype of General Elements). Call Elements use report data from the individual call records stored in the Database. This is in contrast with IPS Elements, which report cumulative calling pattern data, Directory Elements, which report on the Listings in the Directory Manager, and Diagnostic Elements, which report on the Diagnostic Log data in the Database.

For each call, complete call progress information is stored in the ETM Database. If a call triggers a Firewall Policy Rule, information about the associated Policy and the Rule that fired is also included for that call. Additional information about the Source and Destination phone numbers and the call as a whole is obtained from the Directory Manager, the Dialing Plan, and CCMI data. All of this information is available in Reports.

The table below lists the data fields available in a Call Element and describes the meaning of each field.

Column Heading	Information Displayed
AAA User	AAA Service User information.
Access Code Authorization Number	The Authorization Number in the Directory Listing that matches the SMDR Access Code.
Access Code Comments	The Comments, if any, in the Directory Listing that matches the SMDR Access Code.
Access Code Configurable 1, 2, 3	Fields you can configure with Directory data tokens to streamline your report for grouping. The specified data value matching the Access Code is retrieved. See "Configurable Grouping Fields" on page 59 for details.
Access Code Custom 1, 2, 3	The Custom fields in the Directory Listing that matches the SMDR Access Code.
Access Code Department	The Department in the Directory Listing that matches the SMDR Access Code.
Access Code Email	The Email Address in the Directory Listing that matches the SMDR Access Code.
Access Code Extension Type	The Extension Type(s) for the Directory Listing that matches the SMDR Access Code.
Access Code First Name	The First Name in the Directory Listing that matches the SMDR Access Code.
Access Code Last Name	The Last Name in the Directory Listing that matches the SMDR Access Code.
Access Code Mail Code	The Mail Code in the Directory Listing that matches the SMDR Access Code.
Access Code Site	The Site in the Directory Listing that matches the SMDR Access Code.

(Fields Available in Call Elements, continued)

Column Heading	Information Displayed
Appliance	Name of the Appliance through which the call passed.
Call Details	Call classification information (i.e., local, long distance, toll-free). See "Call Classification Labels in Reports" on page 169 for descriptions of the labels.
Call ID	Unique key that is assigned by the ETM Server to every call. (Do not confuse with Caller ID.)
Caller ID	Caller ID information and error messages.
Card	Name of the Card containing the Span through which the call passed.
Channel	Channel number that carried the call.
Connect Time	Time at which the call was answered, local to the Report Server. See also *Local Connect Time*.
Destination	Destination telephone number or its associated name, depending on selection.
Destination Configurable 1, 2, 3	Fields you can configure with Directory and CCMI data tokens to streamline your report for grouping. The specified data values matching the called number is retrieved. See "Configurable Grouping Fields" on page 59 for details.
Destination Country	The country where the call originated, provided by the CCMI data.
Destination Details	Phone number classification information about the called phone number; e.g., 800,PN indicates that it was a toll free call. See "Phone Number Labels " for descriptions of the labels.
Destination Directory Authorization Number	If the Destination number of a call is found in a Directory Listing, the Authorization Number associated with the Listing.
Destination Directory Custom 1, 2, 3	If the Destination number of a call is found in a Directory Listing, the Custom fields associated with the Listing.
Destination Directory Comments	If the Destination number of a call is found in a Directory Listing, the Comments associated with the Listing.
Destination Directory Department	If the Destination number of a call is found in a Directory Listing, the Department associated with the Listing.
Destination Directory Email	If the Destination number of a call is found in a Directory Listing, the Email address associated with the Listing.
Destination Directory Extension Type	If the Destination Phone number for a call is found as a Directory Listing, the Extension type(s) associated with that Listing.

(Fields Available in Call Elements, continued)

Column Heading	Information Displayed
Destination Directory First Name	If the Destination number of a call is found in a Directory Listing, the First Name associated with the Listing.
Destination Directory Last Name	If the Destination number of a call is found in a Directory Listing, the Last Name associated with the Listing.
Destination Directory Location	If the Destination number of a call is found in a Directory Listing, the Location associated with the Listing.
Destination Directory Mail Code	If the Destination number of a call is found in a Directory Listing, the Mail Code associated with the Listing.
Destination Directory Site	If the Destination number of a call is found in a Directory Listing, the Site associated with the Listing.
Destination Exchange Type	The exchange type of the called number, provided by the CCMI data. Possible exchange types are the following: Standard, Cellular, Paging, Centroid, Miscellaneous, Intl Non-Wireless, Intl Wireless
Destination Locale	The locale of the called number, provided by the CCMI data.
Destination Metro	The metro area designation of the called number, provided by the CCMI data.
Destination Rating Area	The rating area designation of the called number, provided by the CCMI data. Possible Rating Areas are the following: U.S. Mainland, Canada, Mexico, Alaska, U.S. Pacific, Non U.S. Caribbean, Information and Dial-It, U.S. Caribbean, Overseas.
Destination State/Province	The state or province associated with the called number, provided by the CCMI data.
Destination World Zone	The world zone designation of the called number, provided by the CCMI data. Possible world zones are the following: North America Africa, Europe, Central/South America, South Pacific, Former U.S.S.R., East Asia, West/South Asia and Middle East.
Duration	The length of the call. Configurable via Duration Properties to calculate from Off Hook or Answered.
End Time	End date and time of the call (the same as Log Time) at the Report Server location. See also *Local End Time*.
External Number	The Inbound Source or Outbound Destination number of the call.
External Number Configurable 1, 2, 3	Fields you can configure with Directory and CCMI data tokens to streamline your report for grouping. The specified data values matching the External (inbound source or outbound destination) number is retrieved. See "Configurable Grouping Fields" on page 59 for details.

(Fields Available in Call Elements, continued)

Column Heading	Information Displayed
External Number Country	The country associated with the external number (Inbound Source or Outbound Destination). Provided by the CCMI data.
External Number Directory Authorization Number	If the external number (Inbound Source or Outbound Destination) of a call is found in a Directory Listing, the Authorization Number associated with the Listing.
External Number Directory Comments	The external number for a call is the Inbound Source or Outbound Destination number. If this number is found in a Directory Listing, the Comments associated with the Listing.
External Number Directory Custom 1, 2, 3	The external number for a call is the Inbound Source or Outbound Destination number. If this number is found in a Directory Listing, the Custom fields associated with the Listing.
External Number Directory Department	The external number for a call is the Inbound Source or Outbound Destination number. If this number is found in a Directory Listing, the Department associated with the Listing.
External Number Directory Email	The external number for a call is the Inbound Source or Outbound Destination number. If this number is found in a Directory Listing, the Email address associated with the Listing.
External Number Directory Extension Type	If the External Phone number for a call (Inbound Source or Outbound Destination) is found as a Directory Listing, the Extension type(s) associated with that Listing.
External Number Directory First Name	The external number for a call is the Inbound Source or Outbound Destination number. If this number is found in a Directory Listing, the First Name associated with the Listing.
External Number Directory Last Name	The external number for a call is the Inbound Source or Outbound Destination number. If this number is found in a Directory Listing, the Last Name associated with the Listing.
External Number Directory Location	The external number for a call is the Inbound Source or Outbound Destination number. If this number is found in a Directory Listing, the Location associated with the Listing.
External Number Directory Mail Code	The external number for a call is the Inbound Source or Outbound Destination number. If this number is found in a Directory Listing, the Mail Code associated with the Listing.
External Number Directory Site	The external number for a call is the Inbound Source or Outbound Destination number. If this number is found in a Directory Listing, the Site associated with the Listing.
External Number Exchange Type	The exchange type of the external number (Inbound Source or Outbound Destination). Provided by the CCMI data. Possible exchange types are the following: Standard, Cellular, Paging, Centroid, Miscellaneous, Intl Non-Wireless, Intl Wireless

(Fields Available in Call Elements, continued)

Column Heading	Information Displayed
External Number Locale	The locale of the external number (Outbound Source or Inbound Destination). Provided by the CCMI data.
External Number Metro	The metro area designation of the external number (Outbound Source or Inbound Destination). Provided by the CCMI data.
External Number Rating Area	The rating area designation of the external number (Outbound Source or Inbound Destination). Provided by the CCMI data. Possible Rating Areas are the following: U.S. Mainland, Canada, Mexico, Alaska, U.S. Pacific, Non U.S. Caribbean, Information and Dial-It, U.S. Caribbean, Overseas.
External Number State/Province	The state or province associated with the external number (Outbound Source or Inbound Destination). Provided by the CCMI data.
External Number World Zone	The world zone designation of the external number (Outbound Source or Inbound Destination). Provided by the CCMI data. Possible world zones are North America, Africa, Europe, Central/South America, South Pacific, Former U.S.S.R., East Asia, West/South Asia and Middle East.
Firewall Comment	Comments associated with the Firewall Policy Rule that fired (or **Ambiguous** if the call was ambiguous with respect to the Rule).
Firewall Policy ID	System-generated Policy ID number.
Firewall Policy	Name of the Firewall Policy containing the Rule.
Firewall Rule #	Number of the Firewall Policy Rule that fired (Implied Rules are numbered 0 and 9999).
Firewall Rule Ambiguity	Whether the call was ambiguous with respect to a Firewall Policy Rule, either **Yes** or **No**. If the call matched multiple Rules, values are stored in the order in which the Rules were matched. Correlate them with the Rule #s in the **Firewall Rule** field for the call.
Firewall Tracks	Track actions (Log, Alert, Email, SNMP) triggered by the Firewall Policy.
In/Out	Whether the call was inbound or outbound.
Internal Number	The Outbound Source or Inbound Destination of a call.
Internal Number Configurable 1, 2, 3	Fields you can configure with Directory and CCMI data tokens to streamline your report for grouping. The specified data values matching the internal number (outbound source or inbound destination) is retrieved. See "Configurable Grouping Fields" on page 59 for details.

(Fields Available in Call Elements, continued)

Column Heading	Information Displayed
Internal Number Country	The country associated with the internal number (Outbound Source or Inbound Destination). Provided by the CCMI data.
Internal Number Directory Authorization Number	The internal number for a call is the Outbound Source or Inbound Destination number. If this number is found in a Directory Listing, the Authorization Number associated with the Listing.
Internal Number Directory Comments	The internal number for a call is the Outbound Source or Inbound Destination number. If this number is found in a Directory Listing, the Comments associated with the Listing.
Internal Number Directory Custom 1, 2, 3	The internal number for a call is the Outbound Source or Inbound Destination number. If this number is found in a Directory Listing, the Custom fields associated with the Listing.
Internal Number Directory Department	The internal number for a call is the Outbound Source or Inbound Destination number. If this number is found in a Directory Listing, the Department associated with the Listing.
Internal Number Directory Email	The internal number for a call is the Outbound Source or Inbound Destination number. If this number is found in a Directory Listing, the Email address associated with the Listing.
Internal Number Directory Extension Type	If the Internal Phone number for a call (Outbound Source or Inbound Destination) is found as a Directory Listing, the Extension type(s) associated with that Listing.
Internal Number Directory First Name	The internal number for a call is the Outbound Source or Inbound Destination number. If this number is found in a Directory Listing, the First Name associated with the Listing.
Internal Number Directory Last Name	The internal number for a call is the Outbound Source or Inbound Destination number. If this number is found in a Directory Listing, the Last Name associated with the Listing.
Internal Number Directory Location	The internal number for a call is the Outbound Source or Inbound Destination number. If this number is found in a Directory Listing, the Location associated with the Listing.
Internal Number Directory Mail Code	The internal number for a call is the Outbound Source or Inbound Destination number. If this number is found in a Directory Listing, the Mail Code associated with the Listing.
Internal Number Directory Site	The internal number for a call is the Outbound Source or Inbound Destination number. If this number is found in a Directory Listing, the Site associated with the Listing.
Internal Number Exchange Type	The exchange type of the internal number (Outbound Source or Inbound Destination). Provided by the CCMI data. Possible exchange types are the following: Standard, Cellular, Paging, Centroid, Miscellaneous, Intl Non-Wireless, Intl Wireless.

(Fields Available in Call Elements, continued)

Column Heading	Information Displayed
Internal Number Locale	The locale of the internal number (Outbound Source or Inbound Destination). Provided by the CCMI data.
Internal Number Metro	The metro area designation of the internal number (Outbound Source or Inbound Destination). Provided by the CCMI data.
Internal Number Rating Area	The rating area designation of the internal number (Outbound Source or Inbound Destination). Provided by the CCMI data. Possible Rating Areas are the following: U.S. Mainland, Canada, Mexico, Alaska, U.S. Pacific, Non U.S. Caribbean, Information and Dial-It, U.S. Caribbean, Overseas.
Internal Number State/Province	The state or province associated with the internal number (Outbound Source or Inbound Destination). Provided by the CCMI data.
Internal Number World Zone	The world zone designation of the internal number (Outbound Source or Inbound Destination). Provided by the CCMI data. Possible world zones are North America, Africa, Europe, Central/South America, South Pacific, Former U.S.S.R., East Asia, West/South Asia and Middle East.
Local Connect Time	The connect time of the call, local to the Span.
Local End Time	The end time of the call, local to the Span.
Local Start Time	The start time of the call, local to the Span. For outgoing calls, this is the time at which the trunk was seized. For incoming calls, it is the time at which the phone began to ring.
Local Time Zone	The time zone of the Span.
Log Time	Date and time an entry was made in the log (same as End Time), local to the Report Server.
Prefix	Digits dialed before the phone number, such as outside access number or long distance access code.
Raw Destination	Actual digits dialed.
SMDR #1 **SMDR #2** **SMDR #3**	These columns are user-configurable to display portions of SMDR data. The SMDR definition file must be edited to capture the requested data. See "Final Fields" in the *ETM® System Technical Reference* for instructions for defining these fields.
SMDR Access Code	The Access Code extracted from SMDR for the call.
Source	Originating telephone number.

(Fields Available in Call Elements, continued)

Column Heading	Information Displayed
Source Configurable 1, 2, 3	Fields you can configure with Directory and CCMI data tokens to streamline your report for grouping. The specified data values matching the calling number is retrieved. See "Configurable Grouping Fields" on page 59 for details.
Source Country	The country associated with the calling number, provided by the CCMI data.
Source Details	Phone number classification information about the calling phone number; e.g., PN, MAP indicates that the Extension Map was used for Source. See "Phone Number Labels" for descriptions of the labels.
Source Directory Custom 1, 2, 3	If the Source number of a call is found in a Directory Listing, the Custom fields associated with the Listing.
Source Directory Extension Type	If the Source number of a call is found as a Directory Listing, the Extension type(s) associated with that Listing.
Source Directory Authorization Number	If the Source number of a call is found in a Directory Listing, the Authorization Number associated with the Listing.
Source Directory Comments	If the Source number of a call is found in a Directory Listing, the Comments associated with the Listing.
Source Directory Department	If the Source number of a call is found in a Directory Listing, the Department associated with the Listing.
Source Directory Email	If the Source number of a call is found in a Directory Listing, the Email address associated with the Listing.
Source Directory Extension Type	If the Source number for a call is found as a Directory Listing, the Extension type(s) associated with that Listing.
Source Directory First Name	If the Source number of a call is found in a Directory Listing, the First Name associated with the Listing.
Source Directory Last Name	If the Source number of a call is found in a Directory Listing, the Last Name associated with the Listing.
Source Directory Location	If the Source number of a call is found in a Directory Listing, the Location associated with the Listing.
Source Directory Mail Code	If the Source number of a call is found in a Directory Listing, the Mail Code associated with the Listing.
Source Directory Site	If the Source number of a call is found in a Directory Listing, the Site associated with the Listing.
Source Exchange Type	The exchange type of the calling number, provided by the CCMI data. Possible exchange types are the following: Standard, Cellular, Paging, Centroid, Miscellaneous, Intl Non-Wireless, Intl Wireless.
Source IP	On VoIP calls, the IP address of the caller.

(Fields Available in Call Elements, continued)

Column Heading	Information Displayed
Source Locale	The locale of the calling number, provided by the CCMI data.
Source Metro	The metro area designation of the calling number, provided by the CCMI data.
Source Rating Area	The rating area designation of the calling number, provided by the CCMI data. Possible Rating Areas are the following: U.S. Mainland, Canada, Mexico, Alaska, U.S. Pacific, Non U.S. Caribbean, Information and Dial-It, U.S. Caribbean, Overseas.
Source State/Province	The state or province associated with the calling number, provided by the CCMI data.
Source World Zone	The world zone designation of the calling number, provided by the CCMI data. Possible world zones are North America, Africa, Europe, Central/South America, South Pacific, Former U.S.S.R., East Asia, West/South Asia and Middle East.
Span	Name of the Span that monitored the call.
Span #	Number of the Span that monitored the call.
Span Group	Name of the Span Group to which the Span that monitored the call belongs.
Start Time	Start date and time of the call, local to the Report Server. For outgoing calls, this is the time at which the trunk was seized. For incoming calls, it is the time at which the phone began to ring.
Suffix	Digits dialed after the phone number, such as PINs and calling card number.
Switch	Name of the Switch through which the call passed.
Termination Status	If the call triggered a Rule that specified termination or a user attempted to terminate the call, the status of the termination attempt: **Call Ended Before Termination**; **Terminate Attempted, but Disabled**; **Terminate Disabled, Emergency Number**; or **Terminated**. See "Call Termination Status Filter" in the *ETM® System User Guide* for more information about each status.
Terminator	If an ETM System entity disconnected the call, the entity that disconnected the call: Firewall Rule, IPS Rule, or User.
Trunk Group	Trunk group through which the call was processed.
Type	Type(s) of call (Fax, Modem, Modem Energy, Voice, Video, STU, Data Call, Busy, Unanswered, Undetermined). If the call type changed during the call, multiple types are listed.
Type Count	The count of call type changes during the call.

(Fields Available in Call Elements, continued)

Column Heading	Information Displayed
VoIP Bytes-Inbound	On VoIP calls, the number of inbound payload bytes transmitted.
VoIP Bytes-Outbound	On VoIP calls, the number of outbound payload bytes transmitted.
VoIP Codec-Inbound	On VoIP calls, the codec used for the inbound call data.
VoIP Codec-Outbound	On VoIP calls, the codec used for the outbound call data.
VoIP Data Rate-Inbound	On VoIP calls, the inbound media rate.
VoIP Data Rate-Outbound	On VoIP calls, the outbound media rate.
VoIP Destination IP	On VoIP calls, the IP address of the callee.
VoIP External IP	On VoIP calls, the external IP address (Inbound Source or Outbound Destination).
VoIP Internal IP	On VoIP calls, the internal IP address (Outbound Source or Inbound Destination).
VoIP Packetloss-Inbound-	On VoIP calls, inbound loss of packets (relates to call quality; a measure of the loss of packets).
VoIP Packetloss-Outbound	On VoIP calls, outbound loss of packets (relates to call quality; a measure of the loss of packets).
VoIP Packets-Inbound	On VoIP calls, the count of inbound packets.
VoIP Packets-Outbound	On VoIP calls, the count of outbound packets.
VoIP Jitter-Inbound	On VoIP calls, inbound jitter (relates to call quality; a measure of the variability of packet arrival).
VoIP Jitter-Outbound	On VoIP calls, outbound jitter (relates to call quality; a measure of the variability of packet arrival).
VoIP Source IP	On VoIP calls, the IP address of the caller.

Fields Available in Diagnostic Elements

The **Diagnostic Log** contains the following fields, all of which are available in Diagnostic Reports:

- **Time Stamp**—The date and time at which the Server received the message.
- **Error Type**—The category of system event. System event categories include:
  - **Error**—Error events indicate elevated cabinet temperature, AAA Server modem failure, or missed Span heartbeats, or call traffic errors.
  - **Panic**—Panic events represent potentially severe events, such as a hardware failure or an Appliance software exception.
  - **Policy**—Policy events are associated with Firewall Policy enforcement.
  - **Security**—Security events include authorized and unauthorized access, connection, and configuration events.
  - **Telco**—Telco events provide information about telephony events and errors.
  - **Start/Stop**—Start/Stop events occur when a Card or the ETM® Server is shut down or initialized, or when the Server enters Standby mode.
  - **Warning**—Warning events occur in response to such events as unavailable expected files, lost Card/Server communication, excessive failed SMDR resolutions, or failsafe mode.
  - **VoIP**—VoIP events occur in response to such events as SIP anomalies and exceeded call thresholds
- **Event Time**—The date and time the event actually occurred.
- **Resource**—The system component at which the event occurred (for example, the ETM Server or a specific Span managed by that Server).
- **Reported By**—The system component that sent the message to the Server. (For example, the ETM Server or a hardware component).
- **Description**—The description of the event that triggered the notification. See "Appendix: System Event Descriptions" in the *ETM® System Administration and Maintenance Guide* for a list and description of each system event.

Fields Available in Directory Elements

All of the fields in a Directory Listing are available in Directory Reports, plus Access Code, Import Set, and configurable fields. This includes the following fields: Access Code, Access Code Sets, Area Code, Authorization Number, Comments, Configurable 1, Configurable 2, Configurable 3, Country Code, Custom1, Custom2, Custom3, Department, Email, Extension Type, First Name, Import Set, Last Name, Local Number, Location, Mail Code, Site, URI.

Fields Available in IPS Elements

The fields available in an IPS Element are identical to those in the IPS Policy Log. This includes the following fields: Action, Comments, Complete Time, Completed Cost, Completed Count, Completed Duration, Create Time, Current Cost, Current Count, Current Duration, Disposition, End Time, IPS Policy, IPS Policy ID, IPS Rule #, Prevented Count, Start Time, Threshold Cost, Threshold Count, Threshold Duration, Tracks.

See “IPS Policy Log” in the *Voice IPS User Guide* for a description of each field.

Call Classification Labels in Reports

The **Call Details**, **Source Details**, and **Destination Details** fields of the call log provide call and phone number classification of calls, using labels that are defined in the Span's Dialing Plan. You can filter for these values in reports to tailor the data. For example, by default, the Call Label denoting a long-distance call is LD. To produce a report providing information about long-distance calls, you would filter the **Call Details** field for the string LD. Multiple labels can appear in each field, separated by commas. Note that these labels are user-definable, so those in your ETM® System may differ from the defaults.

Two types of labels are available:

- **Call labels** classify the call as a whole and indicate whether the call was local, long distance, international, and so forth.
- **Phone number labels** classify the Source and Destination phone numbers.

In the example below, the call from [1](440)6473201 to [1](900)6478801 contains the following labels:

- **LD** indicates that it was a long-distance call.
- **PN, MAP** indicates that the Source phone number was obtained from the **Extension** column of the **Channel Map** tab on the **Span Configuration** dialog box.
- **TOLL, PN** indicates that it was a toll call.

Start Time - By Hour	Source	Destination	Details	Source Details	Destination Details
06/19/2002 12 AM	[1](440)6473224	[1](900)6478824	LD	PN,MAP	TOLL,PN
06/19/2002 1 AM	[1](440)6473201	[1](900)6478801	LD	PN,MAP	TOLL,PN
			LD	PN,MAP	TOLL,PN
			LD	PN,MAP	TOLL,PN
	[1](440)6473202	[1](900)6478802	LD	PN,MAP	TOLL,PN

The sections that follow list the default labels and describe their meanings. Since the Dialing Plan labels are user-definable and are also used to define Service Types, your data may include other labels. Check with your ETM System administrator.

Call Labels

Call labels classify the call as a whole and appear in the **Call Details** field of the call log. These labels are also used to define Service Types. See "Service Types" in the *ETM® System User Guide* for more information about defining and using Service Types.

- On inbound calls, the call label applied is based on the Source. If Source is unavailable, UNK appears in the **Call Details** field.
- On outbound calls, the call label is based on the Destination. If Destination is unavailable, UNK appears in the **Call Details** field.

For details about Dialing Plans, see "Dialing Plans" in the *ETM®* System *Technical Reference*.

- If no call label is explicitly defined for a call by the matched section(s), the call is labeled “LD” if the NPA (region/city/area code) of either the inbound source or outbound destination differs from the Span’s local NPA; otherwise, it is labeled “LOC.”
- Call labels for DSN calls are preceded by DSN.

The table below lists default labels used in the Dialing Plans.

Call Labels	Meaning
DSN	DSN #
FREE	Toll-free call
LOC	Local call
LD	Long distance call
INTL	International call
UNK	Unknown relationship between Source and Destination number. Usually caused when inbound source or outbound destination number is unavailable (NOPN appears in the applicable PN label field).

Phone Number Labels

Phone number labels classify a called or calling number.

- The Phone Number Label for the calling number appears in the **Source Details** field of the call log.
- The Phone Number Label for the called number appears in the **Destination Details** field of the call log.

The table below lists the default Phone Number Labels.

PN Labels	Meaning
ACI	(Italy) Roadside assistance.
CLI	The phone number is prefixed with a code to suppress calling line identification (CLI).
CLOCK	(Italy, UK) Speaking clock number.
FORESTALE	(Italy)
GUARDIA	(Italy) Guardia di Finanza
MAP	The phone number was obtained from the Extension column of the **Channel Map** tab on the **Span Configuration** dialog box.
MARE	(Italy)
SMDR	The phone number was obtained from SMDR data.
DID	The phone number was provided by Direct Inward Dialing service.
METRO	The phone number is a local number in a foreign numbering plan area (FNPA).
NONEMRG	The phone number is a nonemergency assistance number (e.g., 311 in the USA).
INFO	The phone number is an Information number (i.e., 411 or 555-1212 in the USA).
INTLINFO	(UK) International directory inquiry.
INTLOP	(UK) International operator assistance.
TOLL	The phone number represents a toll call (e.g., a 1-900 call in the USA).
800	The phone number represents a toll-free call (such as a 1-800 call in the USA).
OPER	The phone number was dialed with operator assistance.
TOLLX	The phone number is a toll exchange number.
EMRG	The phone number is an Emergency number (i.e., 911 in the USA).
SERV	The phone number is a Service number.
PN	The phone number is a normal phone number.

(Default phone number labels, cont'd)

PN Labels	Meaning
NOPN	The phone number is unavailable (for example, a user blocked CPN).
NOSRC	The calling side had no source available, except if CPN was blocked.
VSC	The phone number is prefixed with a vertical service code (*70, etc.).
101x	The phone number is a 101x carrier service number (such as 1010220+).

If the DSN Dialing Plan is used, any of the following access or route codes may be added to the PN label field:

DSN Access Codes	Meaning
FO	Flash Override
I	Immediate
F	Flash
R	Routine
P	Priority
LTN	Local Telephone Network

DSN Route Codes	Meaning
VDAT	Voice Data
DGD	Data Grade
HOTV	Hot Voice
HOTD	Hot Data
FTS	FTS line type
DDD	DDD line type

Caller ID Messages

The table below describes Caller ID messages that can appear in the **Caller ID** data field. You can filter Report Elements to for calls in which the **Caller ID** field contains any of the error messages listed in the table. For example, to report only on calls for which the caller blocked use of Caller ID, you would create a filter to include calls with **CID Restricted** in the **Caller ID** data field.

Message	Meaning
CID Data Error	An error was detected in the Caller ID data (for example, there was a checksum error or data is corrupt), or Caller ID is turned on in the Span's Channel Map, but not provided by the CO.
CID Ring 1 Answer	The phone was answered too quickly (i.e., before, during, or immediately after the first ring). CID is sent between the first and second rings.
CID Unavailable	The calling number was not available to the CO (usually on out-of-area calls), and so was not passed on to the PBX.
CID Restricted	The caller blocked use of Caller ID.
ANI Not Enabled	The Span is not configured to receive ANI. (This does not indicate whether the CO is sending ANI.)
PRI CPN Restricted	The calling number was either blocked by the caller or not available to the CO. (The Span cannot distinguish which of the two was the cause, but being blocked is more common than being unavailable.)
Name Restricted	Caller ID name was private.
Name Unavailable	Caller ID name was not available to the CO and so was not passed on to the PBX.

Appendix B: Predefined Reports

Predefined Reports

This section describes the predefined Reports available in the **SecureLogix** Folder and lists the Report Elements and Date Range used in each Report.

To edit a predefined Report, copy the Template to the **PUBLIC** or your user Folder.

For a description of each of the predefined Report Elements, see "Predefined Report Elements" on page 195.

For a description of each of the predefined Date Ranges, see “Relative Date Ranges" on page 305.

In the Report Element Filters, you can define a Date Filter to filter based on a date/time range (mm/dd/yyy hh:mm:ss), a defined Time, or a defined Interval. The predefined Elements that use a Date Filter are filtered based on predefined Intervals. For more about Intervals, see "Intervals" in the *ETM® System User Guide*.

IMPORTANT

- You must add Directory Listings to the default Groups before generating Reports that use these Groups. See "Editing a Directory Group" in the *ETM® System User Guide* for the procedure for adding Listings to a Group.
- You must supply rates in the Default Billing Plan, which is used in these reports. See “Billing Plans” in the *ETM® System User Guide* for instructions.
- For those Reports that use the Directory Listing fields (such as **Site** and **Department**), you must define the Listings before generating Reports that use those fields. See "Directory Listings" in the *ETM® System User Guide* for the procedure for defining Listings.
- You can edit the predefined Intervals used in the Elements to match the times in your organization. See "Intervals" in the *ETM® System User Guide* for the definitions of the default Intervals and the procedure for editing them.

The Report descriptions below indicate when an external Object that must/may be modified is used in the Report.

Cost Allocation Reports

Cost Allocation Reports associate a Billing Rule with each Dialing Plan call label. The Billing Rules are contained in a Billing Plan, which specifies cost per minute, rounding criteria, and duration method (whether the cost begins to accrue when the call goes off-hook or when it is answered). On the **Detail** tab of the Cost Element, the **Cost** field uses the default Billing Plan and the **Duration** method is Off Hook. For the procedure for specifying a different Billing Plan or Duration Type, see “Cost Elements" on page 196.

Each of the Reports is described below, including which Elements and entities are used in the Report. For details about these Reports, see the descriptions for each Element in "Cost Elements" on page 196.

Calling Charges Incurred from Non-Fax Calls on Fax Lines Last Month

This Report gathers Cost data for all non-fax calls on defined fax lines in the previous month.

Element:	Summary of Charges for All Non-Fax Calls on Known Fax Lines
Relative Date Range:	Last Month
Object(s) Used:	Internal Number Directory Site
	Fax Numbers Group

Calling Charges Incurred Last Month

This Report gathers Cost data for all calls last month, grouped by Internal Number Site and Department.

Elements Used:	Summary of Charges by Site and Dept
	Summary of Charges by Site and Dept - after Business Hours
	Summary of Charges by Site and Dept - Business Hours
Relative Date Range:	Last Month
Object(s) Used:	Internal Number Directory Site
	Internal Number Directory Department
	Fax Numbers Group
	Business Hours Interval

Daily Call Cost Thresholds by Hour after Business Hours Last Week

This Report gathers Cost data for all calls that occurred the previous week, Sunday through Saturday, at times other than those defined in the Business Hours Interval.

Elements Used:	Daily Cost Summary by Hour after Business Hours
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	Business Hours Interval

Daily Call Cost Thresholds by Hour during Business Hours Last Week

This Report gathers Cost data for all calls that occurred the previous week, Sunday through Saturday, during the times defined in the Business Hours Interval.

Elements Used:	Daily Cost Summary by Hour during Business Hours
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	Business Hours Interval

Daily Call Cost Thresholds by Hour over the Weekend Last Week

This Report gathers Cost data for all calls that occurred the previous week, Sunday through Saturday, during the times defined in the Weekend Interval.

Elements Used:	Daily Cost Summary by Hour over the Weekend
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	Weekend Interval

End of Month Overview by Department for Current Month

This Report gathers Cost data for all calls that occurred from the first day of the previous month to the date and time at which the Report is generated, sorted by Internal Number Directory Department.

Elements Used:	End of Month Summary by Department
Relative Date Range:	First Day of the Current Month to Now
Object(s) Used:	Business Hours Interval
	Internal Number Directory Department

End of Month Overview by Extension per Department

This Report gathers Cost data for all calls that occurred from the first day of the previous month to the date and time at which the Report is generated, sorted by Internal Number Directory Department and Phone Number.

Elements Used:	End of Month Summary by Dept and Ext
Relative Date Range:	First Day of the Current Month to Now
Object(s) Used:	Business Hours Interval
	Internal Number Directory Department

Most Expensive Calls from Last Month

This Report gathers Cost data for all calls that occurred from the first day of the previous month to the last day of the previous month, sorted by Internal Number Directory Department and Site.

Elements Used:	Most Expensive Calls by Site and Dept
	Most Expensive Calls by Site and Dept - after Business Hours
	Most Expensive Calls by Site and Dept - Business Hours
Relative Date Range:	Last Month
Object(s) Used:	Business Hours Interval
	Internal Number Directory Department
	Internal Number Directory Site

Directory Reports

Directory Reports enable you to print reports of Directory Listings and their associated Access Codes, Access Code Sets, and Import Sets.

Current Private Directory Listing by Site

This Report provides

Elements Used:	Detailed Directory Listing by Site & Dept, Sorted by Last Name
Relative Date Range:	Midnight Yesterday to Now (Date Range has no effect on reports that contain only Directory Elements)
Object(s) Used:	None

Current Private Directory Listing by Site Sorted by Dept and Access Code

This Report provides

Elements Used:	Detailed Directory Listing by Site Sorted by Dept and Access Code
Relative Date Range:	Midnight Yesterday to Now (Date Range has no effect on reports that contain only Directory Elements)
Object(s) Used:	None

Current Private Directory Listing by Site Sorted by Dept and Number

This Report provides

Elements Used:	Detailed Directory Listing by Site Sorted by Dept and Number
Relative Date Range:	Midnight Yesterday to Now (Date Range has no effect on reports that contain only Directory Elements)
Object(s) Used:	None

Current Public Directory Listing by Site

This Report provides

Elements Used:	Detailed Public Directory Listing by Site & Dept, Sorted by Last Name
Relative Date Range:	Midnight Yesterday to Now (Date Range has no effect on reports that contain only Directory Elements)
Object(s) Used:	None

Directory Manager Export

Use this report to back up the contents of your ETM Directory. If you select CSV format for the report, you can reimport the file into the Directory Manager if you need to restore from a backup.

Elements Used:	Directory Manager Export for Backup/Later Reimportation
Relative Date Range:	Midnight Yesterday to Now (Date Range has no effect on reports that contain only Directory Elements)
Object(s) Used:	None

ETM® System Operations and Status

These reports provide visibility into Appliance status and access attempts, user activity, and scheduled database maintenance.

All Failed Connection Attempts to Appliances

This Report provides tables of **Diagnostic Log** events triggered by failed login attempts to the Appliances and AAA Servers during the previous day.

Elements Used:	All Failed Login Attempts to Appliances by Resource All Failed Network Connection Attempts to AAA Servers
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

Appliance Access Attempts since Midnight Yesterday

This Report provides a table of both Telnet and serial port logins to the ETM® Appliances.

Elements Used:	All Console or Telnet Access to Appliances by Resource
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

Status of Appliances since Midnight Yesterday

This Report provides a table of cabinet, battery, cooling fan, and power supply errors, panic events, and restart/reboot events for each Appliance for the previous day.

Elements Used:	Appliance Operational Status by Resource Appliance Panic Events by Resource Appliance Restarts by Resource
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

User Account Activity since Midnight Yesterday

This Report provides a record of user logins and login attempts for the previous day.

Elements Used:	All Logged User Account Activity by Resource
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

Migration and Purging Activity over Previous 7 Days

This Report provides detailed information about data migration from the active to historical database tables and log purging.

Elements Used:	Migration Activity - Move to Historical Tables
	Migration Activity - Delete from Active Tables
	Diagnost6ic Log Purging Activity
	Call Record Purging Activity
	IPS Record Purging Activity
	Error Log Purging Activity
Relative Date Range:	Previous 7 Days (Including Today)
Object(s) Used:	None

Remote Access Attempts to Appliances Last Week

This Report provides tables of **Diagnostic Log** entries of attempts to connect to Appliances during the previous week.

Elements Used:	All Console or Telnet Access to Appliances by Resource
	All Failed Login Attempts to Appliances by Resource
	All Failed Network Connection Attempts to AAA Servers
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	None

Scheduled Task Activity over Previous 7 Days

This Report provides detailed information about database scheduled task activity for the previous seven days.

Elements Used:	Index Maintenance Activity
	Partitioning Activity
	Statistics Computation Activity
Relative Date Range:	Previous 7 Days (Including Today)
Object(s) Used:	None

Resource Utilization Reports

Resource Utilization Reports generate Reports of current and projected utilization of your telco network. The Templates are named per their function.

Aggregate Call Types since Midnight Yesterday

This Report provides a chart of average utilization per call type by minute for the previous day.

Elements Used:	Aggregate Call Types by Minute
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

Aggregate Span by Minute since Midnight Yesterday

This Report provides a chart of average utilization per Span by minute for the previous day.

Elements Used:	Aggregate Span by Minute
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

Peak & Avg Call Types by Hour since Midnight Yesterday

This Report provides a table and chart of peak and average utilization per call type by hour for the previous day.

Elements Used:	Peak & Avg Call Types by Hour
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

Peak & Avg Span Group by Day over Last Week

This Report provides a table and chart of peak and average utilization per Span Group by day for the previous week.

Elements Used:	Peak & Avg Span Group by Day
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	None

Peak & Avg Span Group by Hour since Midnight Yesterday

This Report provides a chart and tables of average utilization per Span Group by minute for the previous day.

Elements Used:	Peak & Avg Span Group by Hour
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

Peak & Avg Span by Day over Last Week

This Report provides a table and chart of peak and average utilization per Span by day for the previous week.

Elements Used:	Peak & Avg Span by Day
Relative Date Range:	Previous Work Week - Last Sunday through Saturday
Object(s) Used:	None

Peak & Avg Span by Hour since Midnight Yesterday

This Report provides a chart of average utilization per call type by minute for the previous day.

Elements Used:	Peak & Avg Span by Hour
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

Peak & Avg Trunk Group by Day over Past Week

This Report provides a table and chart of peak and average utilization per trunk group by day for the previous week.

Elements Used:	Peak & Avg Trunk Group by Day
Relative Date Range:	Previous Work Week - Last Sunday through Saturday
Object(s) Used:	None

Peak & Avg Trunk Group by Hour since Midnight Yesterday

This Report provides a chart and table of peak and average utilization per trunk group by hour for the previous day.

Elements Used:	Peak & Avg Trunk Group by Hour
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

Telecom Diagnostic Reports

The **Telecom Diagnostic Reports** provide information about telecom activities, such as logins to the appliances and telco alarms. The telecom Diagnostic Reports use the Diagnostic Elements, which gather the type of data that appears in the **Diagnostic Log**.

Digital Span Diagnostics over Previous 7 Days

This Report provides tables showing Span alarms and D-channel errors for each TDM Appliance for the previous week.

Elements Used:	PRI D-Channel Status by Resource
	Span Alarms by Resource
Relative Date Range:	Previous 7 Days (Including Today)
Object(s) Used:	None

TDM Diagnostic Totals from Last Week

This Report provides detailed information about alarms and telco errors for each Appliance for the previous week.

Elements Used:	Diagnostic Detail Elements
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	None

VoIP Diagnostic Totals from Last Week

This Report provides tables showing H.323, RTP, and SIP Service errors reported by VoIP Spans for the previous week.

Elements Used:	H.323 Service Errors by Resource
	RTP Service Errors by Resource
	SIP Service Errors by Resource
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	None

Telecom Network Auditing Reports

The **Telecom Network Auditing Reports** provide a list of all of the numbers in your telecom network that placed and received calls during the previous 30 days. These Reports can be useful in base lining the telephony infrastructure and determining the type of equipment required at each location (e.g., faxes, modems).

IMPORTANT

- You can edit the predefined Intervals used in the Elements to match the times in your organization. See "Intervals" in the *ETM® System User Guide* for the definitions of the default Intervals and the procedure for editing them.
- For those Reports that use the Directory Listing fields (such as Site and Department), you must define the Listings before generating Reports that use those fields. See "Directory Listings" in the *ETM® System User Guide* for the procedure for defining Listings.

Daily Call Count Thresholds by Hour after Business Hours Last Week

This Report provides a count of all calls that occurred the previous week, Sunday through Saturday, at times other than those defined in the Business Hours Interval.

Elements Used:	Daily Call Counts by Hour after Business Hours
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	Business Hours Interval

Daily Call Count Thresholds by Hour during Business Hours Last Week

This Report provides a count of all calls that occurred the previous week, Sunday through Saturday, during the times defined in the Business Hours Interval.

Elements Used:	Daily Call Counts by Hour during Business Hours
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	Business Hours Interval

Daily Call Count Thresholds by Hour over the Weekend Last Week

This Report provides a count of all calls that occurred the previous week, Sunday through Saturday, during the times defined in the Weekend Interval.

Elements Used:	Daily Call Counts by Hour over the Weekend
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	Weekend Interval

Telecom Network Baseline by Call Type over Past 30 Days

This Report provides a table of all of the numbers in your telecom network that placed and received calls during the previous 30 days, sorted by **Site**.

Elements Used:	Unique Numbers within the Enterprise by Call Type
Relative Date Range:	Last 30 Days From Today
Object(s) Used:	Internal Number
	Internal Number Directory Site

Telecom Network Baseline over Past 30 Days

This Report provides a table of all of the numbers in your telecom network that placed and received calls during the previous 30 days, sorted by **Site**.

Elements Used:	Unique Numbers within the Enterprise
Relative Date Range:	Last 30 Days From Today
Object(s) Used:	Internal Number
	Internal Number Directory Site

Telecom Operations Reports

The **Telecom Operations Reports** provide information about telecom activities. For example, you can generate a Report of all modem calls during the previous day.

IMPORTANT

- You must add Directory Listings to the default Groups before generating Reports that use these Groups. See "Editing a Directory Group" in the *ETM® System User Guide* for the procedure for adding Listings to a Group.
- For those Reports that use the Directory Listing fields (such as Site and Department), you must define the Listings before generating Reports that use those fields. See "Directory Listings" in the *ETM® System User Guide* for the procedure for defining Listings.
- You can edit the predefined Intervals used in the Elements to match the times in your organization. See "Intervals" in the *ETM® System User Guide* for the definitions of the default Intervals and the procedure for editing them.

All Busy, Unanswered, and Undetermined Calls Since Midnight Yesterday

This Report provides a table of the Start Time and duration of Busy, Unanswered, and Undetermined calls for the previous day.

Elements Used:	All Busy, Unanswered and Undetermined Calls by Day
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

All Calls to Emergency Services since Midnight Yesterday

This Report provides a table of the Start Time and duration of Busy, Unanswered, and Undetermined calls for the previous day.

Elements Used:	All Calls to Emergency Services by Source Number
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

All Data Calls Since Midnight Yesterday

This Report provides a table of the Start Time and duration of Data calls for the previous day.

Elements Used:	All Data Calls by Day
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

All Fax Calls Since Midnight Yesterday

This Report provides a table of the Start Time and duration of Fax calls for the previous day.

Elements Used:	All Fax Calls by Day
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

All Modem Calls Since Midnight Yesterday

This Report provides a table of the Start Time and duration of modem and modem energy calls for the previous day.

Elements Used:	All Modem Calls by Day
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

All Outbound Non-Fax Calls on Known Fax Lines

This Report provides a table of all outbound calls made during the previous week on designated fax lines that were not Fax calls.

Elements Used:	All Outbound Non-Fax Calls on Known Fax Lines
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	None

All STU Calls Since Midnight Yesterday

This Report provides a table of the Start Time and duration of STU calls for the previous day.

Elements Used:	All STU Calls by Day
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

All Voice Calls Since Midnight Yesterday

This Report provides a table of the Start Time and duration of Voice calls for the previous day.

Elements Used:	All Voice Calls by Day
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

Call Counts over All Circuits since the Beginning of the Month

This Report provides a table of all calls, grouped by Span, during the current month.

Elements Used:	Count of All Calls over All Circuits
Relative Date Range:	First Day of the Current Month to Now.
Object(s) Used:	None

Call Counts by Site per Channel over the Last 30 Days

This Report provides a count and Summary of call duration for each Span and Channel, grouped by Site, for the previous 30 days.

Elements Used:	Call Counts by Site per Channel
Relative Date Range:	Last 30 Days From Today
Object(s) Used:	None

Call Record Archive for the Previous Month

This Report can be used to archive call data in compressed CSV format for future reference. See “Archiving Call Data with the Usage Manager” on page 31 for more information.

Elements Used:	Generic Call Archive Set
Relative Date Range:	Last Month
Object(s) Used:	None

Call Traffic Overview from Last 30 Days

This Report provides a count and Summary of call duration for each call, grouped by Site and Call Type, for the previous 30 days.

Elements Used:	Count of All Calls by Site by Call Type \Count of Calls by Destination Details
Relative Date Range:	Last 30 Days From Today
Object(s) Used:	None

List of Active Busy, Unanswered and Undetermined Numbers over Past 30 Days

This Report provides a table showing the total time spent on Busy, Unanswered, or Undetermined calls for each number at each Site, for the previous 30 days.

Elements Used:	Unique Busy, Unanswered and Undetermined Numbers
Relative Date Range:	Last 30 Days From Today
Object(s) Used:	None

List of Active Data Numbers over Past 30 Days

This Report provides a table showing the total time spent on Data calls for each number at each Site, for the previous 30 days.

Elements Used:	Unique Data Numbers
Relative Date Range:	Last 30 Days From Today
Object(s) Used:	None

List of Active Fax Numbers over Past 30 Days

This Report provides a table showing the total time spent on Fax calls for each number at each Site, for the previous 30 days.

Elements Used:	Unique Fax Numbers
Relative Date Range:	Last 30 Days From Today
Object(s) Used:	None

List of Active Modem Numbers over Past 30 Days

This Report provides a table showing the total time spent on Modem or Modem Energy calls for each number at each Site, for the previous 30 days.

Elements Used:	Unique Modem Numbers
Relative Date Range:	Last 30 Days From Today
Object(s) Used:	None

List of Active STU Numbers over Past 30 Days

This Report provides a table showing the total time spent on STU calls for each number at each Site, for the previous 30 days.

Elements Used:	Unique STU Numbers
Relative Date Range:	Last 30 Days From Today
Object(s) Used:	None

List of Active Voice Numbers over Past 30 Days

This Report provides a table showing the total time spent on Voice calls for each number at each Site, for the previous 30 days.

Elements Used:	Unique Voice Numbers
Relative Date Range:	Last 30 Days From Today
Object(s) Used:	None

List of All Active Numbers over Past 30 Days

This Report provides a table showing the total of calls and call type for each number at each Site, for the previous 30 days.

Elements Used:	Unique Numbers with Call Activity
Relative Date Range:	Last 30 Days From Today.
Object(s) Used:	None

SMDR Data Gathered on Outbound Calls

The table includes Start Time, Source, Destination, Raw Destination, Duration, and Span name.

Elements Used:	SMDR Data Gathered on All Outbound Calls
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	None

Second Dial Tone Detection - Calls from Last Week

This Report provides a table of all calls during the previous week for which a second dial tone was detected.

Elements Used:	All Calls with Detected Second Dial Tone
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	None

Summary of Call Activity per Site

This Report provides tables of all call activity and total time spent per call type for each number at each Site during the previous 30 days.

Elements Used:	Count of All Calls per Site by Direction
	Unique Numbers Listing by Call Direction and Type
Relative Date Range:	Last 30 Days From Today
Object(s) Used:	None

Totals by Call Direction over Last 30 Days

This Report provides a total of all inbound and outbound calls during the previous 30 days.

Elements Used:	Count of All Calls per Site by Direction
Relative Date Range:	Last 30 Days From Today
Object(s) Used:	None

Weekly Executive Call Summary Report

This report provides a high-level summary of call activity during the past week.

Elements Used:	Total Calls by Direction
	ISP Call Graph by Day
	Total Calls to ISPs by Week
	Total Modem Calls by Day
	911 Summary by Day
	LD Call Graph by Cost
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	Emergency Group Directory Group
	ISP Access Numbers Directory Group
	Long Distance Calls Service Type

Telecom Security Reports

The **Telecom Security Reports** provide information about ETM® System and telecom network access attempts and user activities.

IMPORTANT

- You must add Directory Listings to the default Groups before generating Reports that use these Groups See "Editing a Directory Group" in the *ETM® System User Guide* for the procedure for adding Listings to a Group.
- For those Reports that use the Directory Listing fields (such as Site and Department), you must define the Listings before generating Reports that use those fields. See "Directory Listings" in the *ETM® System User Guide* for the procedure for defining Listings.
- You can edit the predefined Intervals used in the Elements to match the times in your organization. See "Intervals" in the *ETM® System User Guide* for the definitions of the default Intervals and the procedure for editing them.
- You must define AAA Users in the Performance Manager before generating Reports that use those objects. See "Defining a AAA Services User" in the *Voice Firewall User Guide*.

AAA Account Activity from Last Week

This Report provides a table of all AAA User account activities that appear in the **Diagnostic Log**.

Elements Used:	All AAA Account Activity
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	AAA Users

AAA Calls from Last Week

This Report provides call details of all calls made by authenticated AAA Services Users during the previous week.

Elements Used:	All Calls permitted by AAA Authentication by Day
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	AAA Users

All Authorized Modem Activity from Last Week

This Report provides a table of all calls from numbers in the **Authorized Modems** Directory Group during the previous week.

Elements Used:	All Authorized Modem Calls by Day
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	Authorized Modems Group

All Calls to ISPs from Last Week

This Report provides a total of all calls to numbers in the **ISP Access Numbers** Directory Group during the previous week.

Elements Used:	All Calls to ISPs after Business Hours
	All Calls to ISPs during Business Hours
	All Calls to ISPs
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	ISP Access Numbers Group

All Unauthorized Modem Activity from Last Week

This Report provides a table of modem and modem energy calls made from numbers other than those in the **Authorized Modems** Directory Group during the previous week.

Elements Used:	All Unauthorized Modem Activity after Business Hours
	All Unauthorized Modem Activity during Business Hours
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	None

List of Active Modem Numbers from Last Week

This Report provides a table of all modem and modem energy calls during the previous week.

Elements Used:	Unique Modem Numbers by Call Direction
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	None

Possible War Dialing Attempts from Last Week

This Report provides a table of inbound modem and modem energy calls that lasted less than a minute during the previous week, including Source and Destination numbers.

Elements Used:	All Inbound Modem Calls with Duration Under One Minute
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	None

Summary of Modem Activity from Last Week

This Report provides a total of all inbound and outbound calls during the previous 30 days.

Elements Used:	Count of All Authorized Modem Calls
	Count of All Modem Activity, Count of Unauthorized Modem Activity after Business Hours
	Count of Unauthorized Modem Activity during Business Hours
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	Business Hours Interval

Total Duration of Calls to ISPs from Last Week

This Report provides tables showing the total number of and time spent on calls to numbers in the **ISP Access Numbers** Directory Group during the previous week

Elements Used:	Total Calls to ISPs
	Duration of Calls to ISPs after Business Hours
	Duration of Calls to ISPs during Business Hours
Relative Date Range:	Previous Full Week - Last Sunday through Saturday
Object(s) Used:	Business Hours Interval

User Activity on ETM® System since Midnight Yesterday

This Report provides a table of **Diagnostic Log** events triggered by the account activities of users logged in to the ETM® Server.

Elements Used:	All Logged User Account Activities by Resource
Relative Date Range:	Midnight Yesterday to Now
Object(s) Used:	None

Predefined Report Elements

Report Elements are the building blocks of Reports. A Report Template contains one or more Report Elements to define the content of a Report. Report Elements determine:

- **Which records are to be included.** For example, you may want to see only outbound modem calls, or you may be interested in unanswered calls to your customer support phone lines.
- **Which information from the specified records is to be included.** For example, you might want to see the source and destination of outbound modem calls, but not the duration of each call.
- **How the information is presented.** For example, you may need a detailed list of data for each call for your telco manager, but only a high-level summary in chart form for presentation to upper management.

Numerous predefined Report Elements are available in the **SecureLogix** folder in the Usage Manager tree pane. Under the **SecureLogix** Folder, the Report Elements are organized in the **Report Elements** folder by function. For example, Elements used to gather data for **Diagnostic Log** Reports are in the **Diagnostic Elements** Folder.

The default Directory Groups **Voice Mail**, **Fax Numbers**, **Numbers of Interest**, **ISP Access Numbers**, and **Authorized Modems** are used in some predefined Report Elements. The Report Elements that filter on these default groups are not valid until you populate the groups with phone numbers specific to your organization. If you delete any of these default Groups, the Elements that used them cannot be used unless you copy and edit the Elements.

This section describes each Report Element. The settings on each tab are provided as a guide to identify the type of information you can expect in a Report using the Element.

Cost Elements

Cost Elements associate Billing Plans with Service Types. The Billing Plan specifies cost per minute, rounding criteria, Duration Type (whether the cost begins to accrue when the call goes off-hook or when it is answered) and the billing rate.

IMPORTANT

See “Billing Plans” in the *ETM® System User Guide* for more information.

- On the **Detail** tab of predefined Elements, the **Cost** field uses the default Billing Plan. You must assign rates to the Rules in the Default Billing Plan before using it. If you copy the Element to a folder in which you can edit it, you can specify a different Billing Plan by right-clicking **Cost**, and then clicking **Properties**.
- On the **Detail** tab of the predefined Elements, the **Duration** type used is **Off Hook**. If you copy the Element to a folder in which you can edit it, you can specify a **Duration** type of **Answered** by right-clicking **Duration**, and then clicking **Properties**.
- You must add Directory Listings to the default Groups before generating Reports that use these Groups. See "Editing a Directory Group" in the *ETM® System User Guide* for the procedure for adding Listings to a Group.
- For Reports that use the Directory Listing fields (such as **Site** and **Department**), you must define the Listings before generating Reports that use those fields. See "Directory Listings" in the *ETM® System User Guide* for the procedure for defining Listings.
- You can edit the predefined Intervals used in the Elements to match the times in your organization. See "Intervals" in the *ETM® System User Guide* for the definitions of the default Intervals and the procedure for editing them.

Daily Call Cost Summary by Hour after Business Hours

This Element provides a trend showing the number of calls, sum of duration, and cost for each type of call detail (e.g., FREE, LD) for calls that occurred at times other than those defined in the Business Hours Interval, sorted by hour and call details. No projections are provided.

Tab	**Settings**
General	Data Specification: Summary Only Table Layout: Size for page Graphic Options: Minimize display of summary data
Detail	Start Time Call Details Duration: Off Hook by Time and Day Cost: Default Billing Plan Call ID
Summary	Call ID: Count Duration: Sum Cost: Sum
Group	Start Time: Ascending, by Hour; Ordered by Group, Display All Call Details: Ascending, Normal; Ordered by Group, Display All
Order	None
Headings	Default
Chart	None
Trend	X-Axis: Start Time Data Values: Start Time, Call Details Y-Axis: Sum of Cost **Plot** subtab: None **Stats** subtab: • Graph: Show • Style: Bar • Legend: Bottom • X-Axis Rotation: none • Table: Show, Size for page • Summaries: Average, +/- 3 Std Dev **Misc** subtab: No projections, no consolidation of groups.
Filter	Exclude Start Time in the set "Business Hours - By Hour"

Daily Call Cost Summary by Hour during Business Hours

This Element provides charts and a table that display the number of calls, sum of duration, and cost for each type of call detail (e.g. FREE, LD) for calls that occurred during the time defined in the Business Hours Interval, sorted by hour and call details.

Tab	**Settings**
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Start Time Call Details Duration: Off Hook Cost: Default Billing Plan Call ID
Summary	Call ID: Count Duration: Sum Cost: Sum
Group	Start Time: Ascending, by Hour Call Details: Ascending, Normal
Order	None
Chart	None
Trend	X-Axis: Start Time Data Values: Start Time, Call Details Y-Axis: Sum of Cost **Stats** tab: • Graph: Show • Style: Bar • Legend: Bottom • Table: Show, Size for page • Summaries: Average, +/- 3 Std Dev
Filter	Include Start Time in the set "Business Hours - By Hour"

Daily Call Cost Summary by Hour over the Weekend

This Element provides charts and a table that display the number of calls, sum of duration, and cost for each type of call detail (e.g. FREE, LD) for calls that occurred during the time defined in the Weekend Interval, sorted by hour and call details.

Tab	**Settings**
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Start Time Call Details Duration: Off Hook Cost: Default Billing Plan Call ID
Summary	Call ID: Count Duration: Sum Cost: Sum
Group	Start Time: Ascending, by Hour Call Details: Ascending, Normal
Order	None
Chart	None
Trend	X-Axis: Start Time Data Values: Start Time, Call Details Y-Axis: Sum of Cost **Stats** tab: • Graph: Show • Style: Bar • Legend: Bottom • Table: Show, Size for page • Summaries: Average, +/- 3 Std Dev
Filter	Include Start Time in the set "Weekend - By Hour"

End of Month Summary by Department

This Element provides a table of the call details (e.g., FREE, LD) of outbound calls and the average and total Duration and Cost for each call detail, sorted by department.

Tab	**Settings**
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Department Call Details Call ID Duration: Off Hook Cost: Default Billing Plan
Summary	Call ID: Count Duration**:** Sum and Average Cost**:** Sum and Average
Group	Internal Number Directory Department Internal Number Call Details
Order	None
Chart	None
Trend	None
Filter	In/Out in the set "Outbound"

End of Month Summary by Department and Extension

This Element provides a table of the call details (e.g., FREE, LD) of outbound calls and the average and total Duration and Cost for each call detail, sorted by department and Internal Number.

Tab	**Settings**
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Department Internal Number Call Details Call ID Duration: Off Hook Cost: Default Billing Plan
Summary	Call ID: Count Duration**:** Sum and Average Cost**:** Sum and Average
Group	Internal Number Directory Department Internal Number Call Details
Order	None
Chart	None
Trend	None
Filter	In/Out in the set "Outbound"

Most Expensive Calls by Site and Dept

This Element provides a table of the total time spent and total cost of the top 5 outbound calls by cost, grouped by **Site** and **Department**.

Tab	**Settings**
General	Data Specification: Both Table Layout: Size for page
Detail	Source Directory Site Source Directory Department Source Source Directory Last Name Duration Cost: Default Billing Plan
Summary	Duration: Sum Cost: Sum
Group	Source Directory Site: Ascending, Normal Source Directory Department: Ascending, Normal
Order	Cost: Descending, Top 5
Chart	None
Trend	None
Filter	In/Out in the set "Outbound"

Most Expensive Calls by Site and Dept - after Business Hours

This Element provides a table of the total time spent and total cost of the top 5 outbound calls after business hours by cost, grouped by **Site** and **Department**.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page
Detail	Source Directory Site Source Directory Department Source Source Directory Last Name Duration Cost: Default Billing Plan
Summary	Duration: Sum Cost: Sum
Group	Source Directory Site: Ascending, Normal Source Directory Department: Ascending, Normal
Order	Cost: Descending, Top 5
Chart	None
Trend	None
Filter	In/Out in the set "Outbound" AND Exclude Start Time in the set "Business Hours - By Hour"

Most Expensive Calls by Site and Dept - Business Hours

This Element provides a table of the total time spent and total cost of the top 5 outbound calls by cost during business hours, grouped by **Site** and **Department**.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page
Detail	Cost: Default Billing Plan Duration Source Directory Site Source Directory Department Source Source Directory Last Name
Summary	Duration: Sum Cost: Sum
Group	Source Directory Site: Ascending, Normal Source Directory Department: Ascending, Normal
Order	Cost: Descending, Top 5
Chart	None
Trend	None
Filter	In/Out in the set "Outbound" AND Start Time in the set "Business Hours - By Hour"

Summary of Charges by Site and Dept

This Element provides a table of the total number of and time spent on outbound calls, grouped by **Site** and **Department**.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page Table Style: Header Rows
Detail	Internal Number Directory Site Call Details Internal Number Directory Department Duration Cost: Default Billing Plan
Summary	Duration: Sum and Count Cost: Sum
Group	Internal Number Directory Site: Ascending, Normal Call Details: Ascending, Normal Internal Number Directory Department: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	In/Out in the set "Outbound"

Summary of Charges by Site and Dept - after Business Hours

This Element provides a table of the total number of and time spent on outbound calls, grouped by **Site** and **Department** after business hours.

Tab	**Settings**
General	Data Specification: Summary Only Table Layout: Size for page Table Style: Header Rows, Summary Columns
Detail	Internal Number Directory Site Call Details Cost: Default Billing Plan Internal Number Directory Department Duration
Summary	Duration: Sum and Count Sum Cost
Group	Internal Number Directory Site: Ascending, Normal Call Details Ascending, Normal Internal Number Directory Department Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	In/Out in the set "Outbound" AND Exclude Start Time in the set "Business Hours - By Hour"

Summary of Charges by Site and Dept - Business Hours

This Element provides a table of the total number of and time spent on outbound calls, grouped by **Site** and **Department** during business hours.

Tab	**Settings**
General	Data Specification: Summary Only Table Layout: Size for page Table Style: Header Rows, Summary Columns
Detail	Internal Number Directory Site Call Details Internal Number Directory Department Duration Cost: Default Billing Plan
Summary	Duration: Sum and Count Cost: Sum
Group	Call Details: Ascending, Normal Internal Number Directory Site: Ascending, Normal Internal Number Directory Department: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	In/Out in the set "Outbound" AND Start Time in the set "Business Hours - By Hour"

Summary of Charges for All Non-Fax Calls on Known Fax Lines

This Element provides a table of the total number of and time spent on outbound calls, grouped by **Site** and **Department** during business hours.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page Table Style: Header Rows
Detail	Internal Number Directory Site Call Details Internal Number External Number External Number Locale External Number State/ Province Duration: Answered Cost: Default Billing Plan
Summary	Duration: Sum and Count Cost: Sum
Group	Internal Number Directory Site: Ascending, Normal Call Details Ascending, Normal Internal Number Directory Department Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Exclude Any of Type in the set "Fax" AND Source in the set "Fax Numbers" AND In/Out in the set "Outbound"

Diagnostic Elements

Diagnostic Elements enable you to generate Reports of **Diagnostic Log** information. The available fields differ from general Elements in that only the **Diagnostic Log** fields (Time Stamp, Error Type, Event Time, Resource, Reported By, and Description) are available for the Report. Diagnostic Elements are used in predefined **Telecom Diagnostic** and **Telecom Security** Report Templates.

All AAA Account Activity

This Element provides a table of information and system events related to AAA Service operation. This information appears in the **Description** field of the **Diagnostic Log** and includes AAA card connection attempts; name, IP address, and configuration changes; AAA Service login attempts; and AAA Service User and account lockout expiration date changes.

Tab	Settings
General	Data Specification: Details Only Table Layout: Size for page
Detail	Description Event Time
Summary	None
Group	None
Order	Event Time, Ascending
Chart	None
Trend	None
Filter	Description matches pattern "AAA User Account"

All Console or Telnet Access to Appliances by Resource

This Element provides a table of Telnet or serial login attempts to the ETM® Appliances. The table lists the time the appliance was accessed, the name of the appliance, which ETM System component Reported the access attempt, and whether it was a Telnet or a serial login.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page Table Style: Header Rows, Summary Columns
Detail	Resource Event Time Reported by Description
Summary	Event Time: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "login" AND "Telnet" OR "Serial"

All Failed Login Attempts to Appliances by Resource

This Element provides a table of system events that were triggered by failed login attempts to ETM® Appliances, grouped by the system component that triggered the event (Resource).

Tab	**Settings**
General	Data Specification: Both Table Layout: Size for page Table Style: Header Rows Summary Columns
Detail	Resource Event Time Reported by Description
Summary	Event Time: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "login" AND "failed"

All Failed Network Connection Attempts to AAA Servers

This Element provides a table of system events that were triggered by failed connections attempts to AAA servers, grouped by the system component that triggered the event (Resource).

Tab	**Settings**
General	Data Specification: Both Table Layout: Size for page Table Style: Header Rows, Summary Columns
Detail	Resource Event Time Reported by Description
Summary	Event Time: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All, All
Chart	None
Trend	None
Filter	Description matches pattern "AAA server connection"

All Logged User Account Activities by Resource

This Element provides a table of system events that were triggered by logged-n user account activities, such as creating a new user, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Details Only Table Layout: Size for page
Detail	Resource Description Event Time Reported by
Summary	None
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "user"

All Calls with Detected Second Dial Tone

This Element provides a table of any calls for which a second dial tone was detected. The ETM® Command `SECOND DIAL TONE <value>` determines whether to trigger the **Security** system event "Dialtone after answer" when a second dial tone after answer is detected on an inbound call.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page Table Style: Header Rows, Summary Columns
Detail	Resource Event Time Reported by Description
Summary	Event Time: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "Second dialtone"

Appliance Operational Status by Resource

This Element provides a table of system events that were triggered by ETM platform appliance status alerts, such as high cabinet temperature, or bad battery, cooling fan, or power supply, grouped by the system component that triggered the system event (Resource).

Tab	Settings
General	Data Specification: Both Table Layout: Size for page Table Style: Header Rows, Summary Columns
Detail	Resource Event Time Reported by Description
Summary	Event Time: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "Cabinet" OR "battery" OR "cooling fan" OR "power supply"

Appliance Panic Events by Resource

This Element provides a table of system events that were triggered by ETM® Appliance panic events, grouped by the system component that triggered the system event (Resource).

Tab	Settings
General	Data Specification: Both Table Layout: Size for page Table Style: Header Rows, Summary Columns
Detail	Resource Event Time Reported by Description
Summary	Event Time: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Error Type in the set "Panic"

Appliance Restarts by Resource

This Element provides a table of system events that were triggered by the ETM® Appliance restarting or rebooting, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Details Only Table Layout: Size for page
Detail	Resource Event Time Error Type Reported by Description
Summary	None
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "restart" OR "reboot"

Bipolar Violations by Resource

This Element provides a table of telco system events that were triggered by bipolar violations, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "Bipolar Violation" AND Error Type in the set "Telco"

Bit/CRC Errors by Resource

This Element provides a table of telco system events that were triggered by bit/CRC errors, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "Bit/CRC Error" AND Error Type in the set "Telco"

Blue Alarms from CO by Resource

This Element provides a table of telco system events that were triggered by blue CO alarms, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "Blue" AND "alarm" AND "CO"

Blue Alarms from PBX by Resource

This Element provides a table of telco system events that were triggered by blue PBX alarms, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "Blue" AND "alarm" AND "PBX"

CO Alarms by Resource

This Element provides a table of telco system events that were triggered by CO alarms, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Error Type in the set "Telco" AND Description matches pattern "CO" AND "Alarm"

Call Record Purging Activity

This Element provides a list of call record purging activity.

Tab	Settings
General	Data Specification: Detail Only Table Layout: Size for page
Detail	Event Time Error Type Description
Summary	None
Group	None
Order	Event Time, ascending
Chart	None
Trend	None
Filter	Description matches pattern "Call Records".

Diagnostic Log Purging Activity

This Element provides a list of diagnostic log purging activity.

Tab	Settings
General	Data Specification: Detail Only Table Layout: Size for page
Detail	Event Time Error Type Description
Summary	None
Group	None
Order	Event Time, ascending
Chart	None
Trend	None
Filter	Description matches pattern "Diagnostic Records".

Error Log Purging Activity

This Element provides a list of error log purging activity.

Tab	Settings
General	Data Specification: Detail Only Table Layout: Size for page
Detail	Event Time Error Type Description
Summary	None
Group	None
Order	Event Time, ascending
Chart	None
Trend	None
Filter	Description matches pattern "Error Logs".

Frame Slip Errors by Resource

This Element provides a table of telco system events that were triggered by frame slip errors, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "Frame Slip" AND Error Type in the set "Telco"

Framing Bit Errors by Resource

This Element provides a table of telco system events that were triggered by framing bit errors, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description by Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "Framing Bit" AND Error Type in the set "Telco"

Index Maintenance Activity

This Element provides a list of database index maintenance activity.

Tab	Settings
General	Data Specification: Detail Only Table Layout: Size for page
Detail	Event Time Error Type Description
Summary	None
Group	None
Order	Event Time, ascending
Chart	None
Trend	None
Filter	Description matches pattern "Index Maintenance".

IPS Record Purging Activity

This Element provides a list of IPS record purging activity.

Tab	Settings
General	Data Specification: Detail Only Table Layout: Size for page
Detail	Event Time Error Type Description
Summary	None
Group	None
Order	Event Time, ascending
Chart	None
Trend	None
Filter	Description matches pattern "IPS Records".

Jitter Errors by Resource

This Element provides a table of telco system events that were triggered by jitter errors, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "Jitter" AND Error Type in the set "Telco"

Loopback Test Detection by Resource

This Element provides a table of telco system events that were triggered by loopback errors, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "Loopback" AND Error Type in the set "Telco"

Migration Activity - Move to Historical Tables

This Element provides a list of database active-to-historical data migration activity, ordered by Event Time.

Tab	Settings
General	Data Specification: Detail Only Table Layout: Size for page
Detail	Event Time Error Type Description
Summary	None
Group	None
Order	Event Time
Chart	None
Trend	None
Filter	Description matches pattern "InsertActions".

Migration Activity - Delete from Active Tables

This Element provides a list of database active table data deletion after migration to the historical tables, ordered by Event Time.

Tab	Settings
General	Data Specification: Detail Only Table Layout: Size for page
Detail	Event Time Error Type Description
Summary	None
Group	None
Order	Event Time
Chart	None
Trend	None
Filter	Description matches pattern "DeleteActions".

Out of Frame Errors by Resource

This Element provides a table of telco system events that were triggered by out of frame errors, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description by Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "Out of Frame" AND Error Type in the set "Telco"

Partitioning Activity

This Element provides a list of database partitioning activity.

Tab	Settings
General	Data Specification: Detail Only Table Layout: Size for page
Detail	Event Time Error Type Description
Summary	None
Group	None
Order	Event Time, ascending
Chart	None
Trend	None
Filter	Description matches pattern "Partition Split".

PBX Alarms by Resource

This Element provides a table of telco system events that were triggered by PBX alarms, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Both Table Layout: Size for page Table Style: Header Rows, Summary Columns
Detail	Resource Event Time Description
Summary	Description: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Error Type in the set "Telco" AND Description matches pattern "PBX" AND "Alarm"

PRI D-Channel Status by Resource

This Element provides a table of telco system events that were triggered by Layer 2 on PRI Span, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Event Time: Count
Group	Resource: Ascending, Normal, by Group Description: Ascending, Normal, by Group
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "PRI Layer 2" AND Error Type in the set "Telco"; excluding those that include “up”.

PRI Layer 2 Status by Resource

This Element provides a table of telco system events that were triggered by Layer 2 on PRI Span, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Details Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "PRI Layer 2" AND Error Type in the set "Telco"

RTP Service Errors by Resource

This Element provides a table of RTP service errors, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "RTP SRVC" AND Error Type in the set "VoIP"

Red Alarms from CO by Resource

This Element provides a table of system events that were triggered by a red alarm at the CO, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description by Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "Red" AND "Alarm" AND "CO"

Red Alarms from PBX by Resource

This Element provides a table of system events that were triggered by a red alarm at the PBX, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "Red" AND "Alarm" AND "PBX"

SIP Service Errors by Resource

This Element provides a table of SIP service errors, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "SIP SRVC" AND Error type in the set "VoIP"

Span Alarms by Resource

This Element provides a count of Span alarms, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Description Event Time
Summary	Event Time: Count
Group	Resource: Ascending, Normal, by Group Description: Ascending, Normal, by Group
Order	None
Chart	None
Trend	None
Filter	The Description field matches pattern "Alarm" AND "Yellow" OR "Red" OR “Blue”, excluding “Telco” or “Cleared”. (These are excluded to exclude “Telco Delay Exceeded” messages and the like from the alarm count.)

Statistics Computation Activity

This Element provides a list of database statistics computation activity.

Tab	Settings
General	Data Specification: Detail Only Table Layout: Size for page
Detail	Event Time Error Type Description
Summary	None
Group	None
Order	Event Time, ascending
Chart	None
Trend	None
Filter	Description matches pattern "Statistics Computation".

Yellow Alarms from CO by Resource

This Element provides a table of system events that were triggered by a yellow alarm at the CO, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "Yellow" AND "Alarm" AND "CO"

Yellow Alarms from PBX by Resource

This Element provides a table of system events that were triggered by a yellow alarm at the PBX, grouped by the system component that triggered the event (Resource).

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Resource Event Time Description
Summary	Description: Count
Group	Resource: Ascending, Normal
Order	Event Time: Ascending, All
Chart	None
Trend	None
Filter	Description matches pattern "Yellow" AND "Alarm" AND "PBX"

Directory Elements

Directory Elements are used to report on the Directory Listings in the ETM Directory.

Detailed Directory Listing by Site & Dept Sorted by Last Name

This Element lists Access Codes by site and department.

Tab	**Settings**
General	Data Specification: Details Only Table Layout: Size for page Graphic Options: Minimize Display of Summary Data
Detail	Site Department Last Name First Name Access Codes Access Code Sets
Summary	None
Group	Site: Ascending, Normal Department: Ascending, Normal
Order	Last Name: Ascending, All
Chart	None
Trend	None
Filter	None

Detailed Public Directory Listing by Site & Dept Sorted by Last Name

This Element lists phone numbers and URIs and their locations by site and department.

Tab	Settings
General	Data Specification: Details Only Table Layout: Size for page Graphic Options: Minimize Display of Summary Data
Detail	Site Department Configurable 1 (Country Code, Area Code, Local Number-Merged) Configurable 2 (Country Code, Area Code, Local Number-Distinct) URI Location
Summary	None
Group	Site: Ascending, Normal Department: Ascending, Normal
Order	Configurable 2
Chart	None
Trend	None
Filter	None

Directory Manager Export for Backup/Later Reimportation

This Element provides content for a Directory backup report.

Tab	Settings
General	Data Specification: Details Only Table Layout: Size for page
Detail	Last Name First Name Country Code Area Code Local Number Site Department Location Authorization Number Email Mail Code Comments Extension Type Custom 1 Custom 2 Custom 3 URI
Summary	None
Group	None
Order	None
Chart	None
Trend	None
Filter	None

Resource Utilization Elements

Resource Utilization Elements provide insight into current and projected utilization of your telecommunication circuits.

Aggregate Call Types by Minute

This Element calculates the average utilization per call type at each minute and provides a line chart of the results.

Tab	Settings
General	Time basis: Start Time Last utilization group to display: Span Group Table layout: Size for page
Detail	Start Time Type Span Group Span Channel Call ID
Summary	Average Utilization
Group	Start Time, Ascending, By Minute Type, Ascending, Normal Span Group, Ascending, Normal Span, Ascending, Normal Channel, Ascending, Normal
Chart	None
Trend	X-Axis: Start Time Data Values: Type Y-Axis: Average Utilization **Plot** tab: • Graph: Show • Style: Line • Legend: Bottom • Table: Show, Size for page
Filter	Any Call Record

Aggregate Spans by Minute

This Element calculates average utilization of each Span at each minute and provides a line chart of the results.

Tab	Settings
General	Time basis: Start Time Last utilization group to display: Switch Table layout: Size for page
Detail	Start Time Switch Span Channel Call ID
Summary	Average Utilization
Group	Start Time: Ascending, By Minute Switch: Ascending, Normal Span: Ascending, Normal Channel: Ascending, Normal
Chart	None
Trend	X-Axis: Start Time Data Values: Span Y-Axis: Average Utilization X-Axis: Start Time Data Values: Type Y-Axis: Average Utilization **Plot** tab: • Graph: Show • Style: Line • Legend: Bottom • Table: Show, Size for page
Filter	Any Call Record

Peak & Avg - Call Types by Hour

This Element calculates peak and average utilization per call type for each Span and provides a line chart of the results.

Tab	Settings
General	Time basis: Start Time Last utilization group to display: Span Group Table layout: Size for page
Detail	Start Time Type Span Group Span Channel Call ID
Summary	Average Utilization Peak Utilization: By Minute
Group	Start Time: Ascending, By Hour Type: Ascending, Normal Span Group: Ascending, Normal Span: Ascending, Normal Channel: Ascending, Normal
Chart	None
Trend	X-Axis: Start Time Data Values: Type Y-Axis: Average Utilization, Peak Utilization **Plot** tab: • Graph: Show • Style: Line • Legend: Bottom • Table: Show, Size for page
Filter	Any Call Record

Peak & Avg - Span Group by Day

This Element calculates peak and average utilization of each Span Group at each hour and provides a line chart of the results.

Tab	**Settings**
General	Time basis: Start Time Last utilization group to display: Span Group Table layout: Size for page
Detail	Start Time Span Group Span Channel Call ID
Summary	Average Utilization Peak Utilization: By Hour
Group	Start Time: Ascending, By Day of Year Span Group: Ascending, Normal Span: Ascending, Normal Channel: Ascending, Normal
Chart	None
Trend	X-Axis: Start Time Data Values: Span Group Y-Axis: Average Utilization, Peak Utilization **Plot** tab: • Graph: Show • Style: Line • Legend: Bottom • Table: Show, Size for page
Filter	Any Call Record

Peak & Avg - Span Group by Hour

This Element calculates peak and average utilization of each Span Group at each hour and provides a line chart of the results.

Tab	Settings
General	Time basis: Start Time Last utilization group to display: Span Group Table layout: Size for page
Detail	Start Time Span Group Span Channel Call ID
Summary	Average Utilization Peak Utilization: By Minute
Group	Start Time: Ascending, By Hour Span Group: Ascending, Normal Span: Ascending, Normal Channel: Ascending, Normal
Chart	None
Trend	X-Axis: Start Time Data Values: Span Group Y-Axis: Average Utilization, Peak Utilization **Plot** tab: • Graph: Show • Style: Line • Legend: Bottom • Table: Show, Size for page
Filter	Any Call Record

Peak & Avg - Span by Day

This Element calculates peak and average utilization of each Span at each hour and provides a line chart of the results.

Tab	Settings
General	Time basis: Start Time Last utilization group to display: Span Graphic Options: Hide Data Table
Detail	Start Time Switch Span Channel Call ID
Summary	Average Utilization Peak Utilization: By Hour
Group	Start Time: Ascending, By Day of Year Switch: Ascending, Normal Span: Ascending, Normal Channel: Ascending, Normal
Chart	None
Trend	X-Axis: Start Time Data Values: Span Y-Axis: Average Utilization, Peak Utilization **Plot** tab: • Graph: Show • Style: Line • Legend: Bottom • Table: Show, Size for page
Filter	Any Call Record

Peak & Avg - Span by Hour

This Element calculates peak and average utilization of each Span at each minute and provides a line chart of the results.

Tab	Settings
General	Time basis: Start Time Last utilization group to display: Span Table layout: Size for page
Detail	Start Time Switch Span Channel Call ID
Summary	Average Utilization Peak Utilization: By Minute
Group	Start Time: Ascending, By Hour Switch: Ascending, Normal Span: Ascending, Normal Channel: Ascending, Normal
Chart	None
Trend	X-Axis: Start Time Data Values: Span Y-Axis: Average Utilization, Peak Utilization **Plot** tab: • Graph: Show • Style: Line • Legend: Bottom • Table: Show, Size for page
Filter	Any Call Record

Peak & Avg - Trunk Group by Day

This Element calculates peak and average utilization of each trunk group at each hour and provides a line chart of the results.

Tab	**Settings**
General	Time basis: Start Time Last utilization group to display: Trunk Group Table layout: Size for page
Detail	Start Time Trunk Group Span Channel Call ID
Summary	Average Utilization Peak Utilization: By Hour
Group	Start Time: Ascending, By Day of Year Trunk Group: Ascending, Normal Span: Ascending, Normal Channel: Ascending, Normal
Chart	None
Trend	X-Axis: Start Time Data Values: Trunk Group Y-Axis: Average Utilization, Peak Utilization **Plot** tab: • Graph: Show • Style: Line • Legend: Bottom • Table: Show, Size for page
Filter	Any Call Record

Peak & Avg - Trunk Group by Hour

This Element calculates peak and average utilization of each trunk group at each minute and provides a line chart of the results.

Tab	Settings
General	Time basis: Start Time Last utilization group to display: Trunk Group Table layout: Size for page
Detail	Start Time Trunk Group Span Channel Call ID
Summary	Average Utilization Peak Utilization: By Minute
Group	Start Time: Ascending, By Hour Trunk Group: Ascending, Normal Span: Ascending, Normal Channel: Ascending, Normal
Chart	None
Trend	X-Axis: Start Time Data Values: Trunk Group Y-Axis: Average Utilization **Plot** tab: • Graph: Show • Style: Line • Legend: Bottom • Table: Show, Size for page
Filter	Any Call Record

Peak Resource Utilization by Span Group

This Element calculates peak utilization of each Span Group per minute, grouped by day, and provides an area graph of the results.

Tab	**Settings**
General	Time basis: Start Time Last utilization group to display: Span Group Table layout: Size for page
Detail	Start Time Span Group Span Channel Call ID
Summary	Peak Utilization: By Minute
Group	Start Time: Ascending, By Day of Year Span Group: Ascending, Normal Span: Ascending, Normal Channel: Ascending, Normal
Chart	None
Trend	X-Axis: Start Time Data Values: Span Group Y-Axis: Peak Utilization **Plot** tab: • Graph: Show • Style: Area • Legend: Bottom
Filter	Any Call Record

Security Elements

Security Elements enable you to generate Reports of ETM System and telecom network access attempts and user activities.

All Authorized Modem Calls by Day

This Element provides a table of time spent on all calls from numbers in the **Authorized Modems** Directory Group.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page
Detail	Start Time Internal Number Internal Number Directory Last Name In/Out Duration
Summary	Duration: Sum and Count
Group	Start Time: Ascending, By Day of Year Internal Number: Ascending, Normal Internal Number Directory Last Name: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Internal Number in the set "Authorized Modems"AND Any of Type in the set "Modem", and "Modem Energy"

All Calls Permitted by AAA Authentication by Day

This Element provides a table of the number of and total time spent on all calls made by authorized AAA service users.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page
Detail	Start Time In/Out Source Destination Duration Type
Summary	Duration: Sum and Count
Group	Start Time: Ascending, By Day of Year In/Out: Ascending, Normal
Order	Source Ascending
Chart	None
Trend	None
Filter	Exclude "AAA User is undefined"

All Calls to ISPs after Business Hours

This Element provides a table of all calls after business hours to numbers in the **ISP Access Numbers** Directory Group.

Tab	Settings
General	Data Specification: Both Table Layout: Equal width Table Style: Header Rows
Detail	External Number Directory Last Name Internal Number Directory Last Name Internal Number Start Time Duration
Summary	Duration: Count and Sum
Group	External Number Directory Last Name: Ascending, Normal Internal Number Directory Last Name: Ascending, Normal
Order	Internal Number: Ascending
Chart	None
Trend	None
Filter	Exclude Start Time in the set "Business Hours - By Hour" AND Destination in the set "ISP Access Numbers"

All Calls to ISPs during Business Hours

This Element provides a table of all calls during business hours to numbers in the **ISP Access Numbers** Directory Group.

Tab	**Settings**
General	Data Specification: Both Table Layout-Equal width Table Style: Header Rows
Detail	External Number Directory Last Name Internal Number Directory Last Name Internal Number Start Time Duration
Summary	Duration: Count and Sum
Group	External Number Directory Last Name: Ascending, Normal Internal Number Directory Last Name: Ascending, Normal
Order	Internal Numbers: Ascending, Normal
Chart	None
Trend	None
Filter	Start Time in the set "Business Hours - By Hour" AND Destination in the set "ISP Access Numbers"

All Inbound Modem Calls with Duration Under One Minute

This Element provides a table of the total number of all inbound modem and modem energy calls that lasted less than one minute.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page Table Style: Header Rows
Detail	External Number Internal Number Start Time Duration
Summary	Duration: Count
Group	External Number Ascending, Normal
Order	Start Time: Ascending
Chart	None
Trend	None
Filter	In/Out in the set "Inbound" AND Duration between "0:00:00" and "0:00:59" AND Any of Type in the set "Modem", and "Modem Energy" AND Exclude Type Count between "0" and "1"

All Unauthorized Modem Calls Made after Business Hours

This Element provides a table of the total number of and time spent on all modem calls made after business hours to numbers other than those defined in the **Authorized Modems** Directory Group.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page
Detail	In/Out Internal Number Duration
Summary	Duration**:** Sum and Count
Group	In/Out: Ascending, Normal Internal Number: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Exclude Start Time in the set "Business Hours - By Hour" AND Exclude Internal Number in the set "Authorized Modems" AND Any of Type in the set "Modem", and "Modem Energy"

All Unauthorized Modem Calls Made during Business Hours

This Element provides a table of the total number of and time spent on all modem calls made during business hours to numbers other than those defined in the **Authorized Modems** Directory Group.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page
Detail	In/Out Internal Number Duration
Summary	Duration: Sum and Count
Group	In/Out: Ascending, Normal Internal Number Ascending: Normal
Order	None
Chart	None
Trend	None
Filter	Start Time in the set "Business Hours - By Hour" AND Exclude Internal Number in the set "Authorized Modems" AND Any of Type in the set "Modem", and "Modem Energy"

Count of All Authorized Modem Calls

This Element provides a table of the total number of and time spent on all modem calls made/received to/from numbers defined in the **Authorized Modems** Directory Group.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number In/Out Duration
Summary	Duration: Sum and Count
Group	Internal Number: Ascending, Normal In/Out: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Internal Number in the set "Authorized Modems" AND Any of Type in the set "Modem", and "Modem Energy"

Count of All Modem Activity

This Element provides a table of the total number of and time spent on all modem calls.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number In/Out Duration
Summary	Duration: Sum and Count
Group	None
Order	Internal Number Ascending, Normal In/Out Ascending, Normal
Chart	None
Trend	None
Filter	Any of Type in the set "Modem" and "Modem Energy"

Count of Unauthorized Modem Calls after Business Hours

This Element provides a table of the total number of and time spent on all modem calls after business hours from/to numbers other than those defined in the **Authorized Modems** Directory Group.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	In/Out Internal Number Duration
Summary	Duration: Sum and Count
Group	In/Out: Ascending, Normal Internal Number Ascending: Normal
Order	None
Chart	None
Trend	None
Filter	Exclude Start Time in the set "Business Hours - By Hour" AND Exclude Internal Number in the set "Authorized Modems" AND Any of Type in the set "Modem", and "Modem Energy"

Count of Unauthorized Modem Calls during Business Hours

This Element provides a table of the total number of and time spent on all modem calls during business hours from/to numbers other than those defined in the **Authorized Modems** Directory Group.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	In/Out Internal Number Duration
Summary	Duration: Sum and Count
Group	In/Out: Ascending, Normal Internal Number: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Start Time in the set "Business Hours - By Hour" AND Exclude Internal Number in the set "Authorized Modems" AND Any of Type in the set "Modem", and "Modem Energy"

Duration of Calls to ISPs after Business Hours

This Element provides a table of the total number of and time spent on all calls after business hours to numbers defined in the **ISP Access Numbers** Directory Group.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page Table Style: Header Rows
Detail	External Number Directory Last Name Internal Number Directory Last Name Internal Number Duration
Summary	Duration: Count and Sum
Group	External Number Directory Last Name Ascending, Normal Internal Number Directory Last Name Ascending, Normal Internal Number Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Exclude Start Time in the set "Business Hours - By Hour" AND Destination in the set "ISP Access Numbers"

Duration of Calls to ISPs during Business Hours

This Element provides a table of the total number of and time spent on all calls during business hours to numbers defined in the **ISP Access Numbers** Directory Group.

Tab	**Settings**
General	Data Specification: Summary Only Table Layout: Equal width Table Style: Header Rows
Detail	External Number Directory Last Name Internal Number Directory Last Name Internal Number Duration
Summary	Duration: Count and Sum
Group	External Number Directory Last Name Ascending, Normal Internal Number Directory Last Name Ascending, Normal Internal Number Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Start Time in the set "Business Hours - By Hour" AND Destination in the set "ISP Access Numbers"

ISP Calls Graph by Day

This Element provides a graphical summary of calls to ISPs per day.

Tab	Settings
General	Data Specification: Summary Only Graphic Options: Hide Data Table
Detail	Start Time External Number Directory Last Name Duration Call ID
Summary	Call ID: Count Duration: Sum
Group	Start Time: ascending by day, ordered by Group
Order	None
Headings	Duration shown as “Total Duration”
Chart	3D Bar. X-Axis: Start Time; Y-Axis: Count
Trend	None
Filter	Destination in the set "ISP Access Numbers"

Total Calls to ISPs by Week

This Element provides a summary of calls to ISPs per week.

Tab	**Settings**
General	Data Specification: Summary Only Graphic Options: Hide Data Table
Detail	Start Time Internal Number Internal Number Directory Last Name External Number Directory Last Name Duration Call ID
Summary	Call ID: Count Duration: Sum
Group	Start Time: ascending by week, ordered by Group Internal Number, ascending, ordered by Group Internal Number Directory Last Name, ascending, ordered by Group
Order	None
Headings	Duration shown as “Total Duration”
Chart	None
Trend	None
Filter	Destination in the set "ISP Access Numbers"

Total Modem Calls by Day

This Element provides a graphical summary of modem calls per day.

Tab	Settings
General	Data Specification: Summary Only Graphic Options: Hide Data Table
Detail	Start Time In/Out Internal Number Duration Call ID
Summary	Call ID: Count Duration: Sum
Group	Start Time: ascending by day, ordered by Group In/Out, ascending, ordered by Group
Order	None
Headings	Duration shown as “Total Duration”
Chart	3D Bar. X-Axis: Start Time; Y-Axis: Count
Trend	None
Filter	Any of Type in the set “Modem, and Modem Energy”.

List of External Numbers Called by a Modem

This Element provides a table of the total number of and time spent on all modem and modem energy calls to/from external numbers.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	External Number Duration
Summary	Duration: Count and Sum
Group	External Number: Ascending, Normal, by Count
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Modem", and "Modem Energy"

List of Internal Numbers Called by a Modem

This Element provides a table of the total number of and time spent on all modem and modem energy calls to/from internal numbers.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Duration: Off Hook
Summary	Duration: Count and Sum
Group	Internal Number Ascending, Normal, by Count
Order	None
Chart	None
Trend	None
Filter	Any Call Record

Total Calls by Direction

This Element provides a table of the count and total duration of all calls, by direction.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	In/Out Internal Number Directory Site Duration: Off hook, show as Time/Day Call ID
Summary	Call ID: Sum Duration: Count
Group	In/Out, ascending by Group
Order	None
Chart	None
Trend	None
Filter	None

Total Calls to ISPs

This Element provides a table of the total number of and time spent on all calls to numbers defined in the **ISP Access Numbers** Directory Group and a chart of the total number of calls to numbers defined in the **ISP Access Numbers** Directory Group.

Tab	**Settings**
General	Data Specification: Summary Only Table Layout: Size for page
Detail	External Number Directory Last Name Internal Number Start Time Duration
Summary	Duration: Count and Sum
Group	External Number Directory Last Name Ascending, Normal Internal Number Ascending, Normal
Order	None
Chart	X-Axis: External Number Directory Last Name Y-Axis: Count Chart Style: 3D-Bar Table: Size for page Legend: Bottom
Trend	None
Filter	Destination in the set "ISP Access Numbers"

Telecom Network Auditing Elements

Telecom Network Auditing Elements enable you to generate Reports of all of the numbers in your telecom network that placed and received calls during the previous 30 days. These Reports can be useful in base lining the telephony infrastructure and determining the type of equipment required at each location (e.g., faxes, modems).

Daily Call Counts by Hour after Business Hours

This Element provides a table of the number of calls per day after Business Hours.

Tab	**Settings**
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Start Time Call Details Call ID
Summary	Call ID: Count
Group	Start Time: Ascending, by Hour, by Group Call Details: Ascending, Normal, by Count
Order	None
Chart	None
Trend	X-Axis: Start Time Data Values: Start Time, Call Details Y-Axis: Count **Stats** tab: Graph: Show Style: Bar Legend: Bottom Table: Show, Size for page Summaries: Average, +/- 3 Std Dev
Filter	Exclude Start Time in the set "Business Hours - By Hour"

Daily Call Counts by Hour during Business Hours

This Element provides a table of the number of calls per day during Business Hours.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Start Time Call Details Call ID
Summary	Call ID: Count
Group	Start Time: Ascending, by Hour, by Group Call Details: Ascending, Normal, by Count
Order	None
Chart	None
Trend	X-Axis: Start Time Data Values: Start Time, Call Details Y-Axis: Count **Stats** tab: Graph: Show Style: Bar Legend: Bottom Table: Show, Size for page Summaries: Average, +/- 3 Std Dev
Filter	Include Start Time in the set "Business Hours - By Hour"

Daily Call Counts by Hour over the Weekend

This Element provides a table of the number of calls per day over the weekend.

Tab	**Settings**
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Start Time Call Details Call ID
Summary	Call ID: Count
Group	Start Time: Ascending, by Hour, by Group Call Details: Ascending, Normal, by Count
Order	None
Chart	None
Trend	X-Axis: Start Time Data Values: Start Time, Call Details Y-Axis: Count **Stats** tab: Graph: Show Style: Bar Legend: Bottom Table: Show, Size for page Summaries: Average, +/- 3 Std Dev
Filter	Include Start Time in the set "Weekend"

Unique Numbers within the Enterprise

This Element provides a table of the number of calls for each internal number at each site.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site Internal Number Type Call Details
Summary	Call Details: Count
Group	Internal Number Directory Site: Ascending, Normal Internal Number: Ascending, Normal Type: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any Call Record

Unique Numbers within the Enterprise by Call Type

This Element provides a table of the number of calls of each call type for each internal number at each site.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site Internal Number Type Call Details
Summary	Call Details: Count
Group	Internal Number Directory Site: Ascending, Normal Type Internal Number: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any Call Record

Telecom Operation Elements

Telecom Operations Elements enable you to generate Reports of telecommunication activities monitored by the ETM System.

411/555 1212 Summary

This Element provides a summary by day of all calls to the 411 and 555-1212 directory assistance numbers.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page
Detail	Start Time Destination Internal Number Directory Site Internal Number Internal Number Directory Last Name Call ID
Summary	Call ID: Count
Group	Start Time: By Day of Year, by Group, Display All Destination: Normal, by Group, Display All
Order	None
Chart	None
Trend	None
Filter	Destination Details matches pattern “*info*”

911 Summary by Day

This Element provides a summary by day of all calls to the 911 Emergency number.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Start Time Connect Time Internal Number Internal Number Directory Last Name Call ID
Summary	Call ID: Count
Group	Start Time: By Day of Year, by Group, Display All
Order	None
Heading	Start Time displayed as “Date”
Chart	None
Trend	None
Filter	Destination in the default Emergency Group AND Destination Details matches the string “*EMRG*”, excluding “*NOEMRG*”.

All Busy, Unanswered/ and Undetermined Calls by Day

This Element provides a table of total number of and time spent on busy, unanswered and undetermined calls.

Tab	**Settings**
General	Data Specification: Both Table Layout: Size for page
Detail	Start Time Internal Number In/Out Duration: Off Hook
Summary	Duration: Sum and Count
Group	Start Time: By Day of Year, by Group Internal Number In/Out
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Undetermined", "Busy", and "Unanswered"

All Calls to Emergency Services by Source Number

This Element provides a table of all calls to numbers in the emergency group.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page
Detail	Internal Number Directory Site Start Time Internal Number Internal Number Directory Last Name
Summary	Internal Number: Count
Group	None
Order	None
Chart	None
Trend	None
Filter	Destination in the set "Emergency Group" AND Destination Details matches pattern "EMRG" AND Exclude Destination Details matches pattern "NOEMRG"

All Call Types by Day

This Element provides a table of the total number of and time spent on calls of each call type.

Tab	**Settings**
General	Data Specification: Both Table Layout: Size for page
Detail	Type Start Time Internal Number In/Out Duration
Summary	Duration**:** Sum and Count
Group	Type Start Time: by Day of Year Internal Number
Order	None
Chart	None
Trend	None
Filter	Any Call Record

All Data Calls by Day

This Element provides a table of the total number of and time spent on data calls.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page
Detail	Start Time Internal Number In/Out Duration
Summary	Duration: Sum and Count
Group	Start Time: By Day of Year Internal Number In/Out
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Data"

All Fax Calls by Day

This Element provides a table of the total number of and time spent on fax calls.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page
Detail	Start Time Internal Number In/Out Duration: Off Hook
Summary	Duration**:** Sum and Count
Group	Start Time: By Day of Year Internal Number In/Out
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Fax"

All Modem Calls by Day

This Element provides a table of the total number of and time spent on modem and modem energy calls.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page
Detail	Start Time Internal Number In/Out Duration: Off Hook
Summary	Duration: Sum and Count
Group	Start Time By Day of Year Internal Number In/Out
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Modem" and "Modem Energy"

All International Calls by Destination Location with Cost

This Element provides a summary of the count and cost of international calls per Destination Country.

Tab	Settings
General	Data Specification: Summary Table Layout: Size for page
Detail	Destination Country Start Time Destination Source Directory Department Source Directory Last Name Source Directory First Name Duration: Off hook, shown as Time/Day Cost: Default Billing Plan Call ID
Summary	Call ID: Count Cost: Sum Duration: Sum
Group	Destination Country: Normal, ordered by Sum, Display All
Order	None
Headings	Duration shown as “Total Duration”; Cost shown as “Total Cost”; Source Directory Last Name shown as “Last Name”; Source Directory First Name shown as “First Name”; Source Directory Department shown as “Department”.
Chart	None
Trend	None
Filter	In/Out in the set “Outbound” AND Call Details in the “International Calls” Service Type.

All LD Calls by Destination Location with Cost

This Element provides a summary of the count and cost of long-distance calls per state/province.

Tab	Settings
General	Data Specification: Summary Table Layout: Size for page
Detail	Destination Configurable 1: State/Province Start Time Destination Source Directory Department Source Directory Last Name Source Directory First Name Duration: Off hook, shown as Time/Day Cost: Default Billing Plan Call ID
Summary	Call ID: Count Cost: Sum Duration: Sum
Group	Destination Configurable 1: Normal, ordered by Sum, Display All
Order	None
Headings	Duration shown as “Total Duration”; Cost shown as “Total Cost”; Source Directory Last Name shown as “Last Name”; Source Directory First Name shown as “First Name”; Source Directory Department shown as “Department”; Destination Configurable 1 shown as “State”.
Chart	None
Trend	None
Filter	In/Out in the set “Outbound” AND Call Details in the “Long Distance Calls” Service Type.

All Outbound Non-Fax Calls on Known Fax Lines

This Element provides a table of all outbound non-fax calls from numbers in the **Fax Numbers** Directory Group.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page Table Style: Header Rows
Detail	Internal Number Directory Site Call Details Internal Number External Number Duration: Off Hook
Summary	Duration: Sum and Count
Group	None
Order	Internal Number Directory Site Call Details Internal Number
Chart	None
Trend	None
Filter	Exclude Any of Type in the set "Fax" AND Source in the set "Fax Numbers" AND In/Out in the set "Outbound"

All STU Calls by Day

This Element provides a table of the total number of and time spent on STU calls.

Tab	Settings
General	Data Specification: Both Table Layout: Size for page
Detail	Start Time Internal Number In/Out Duration: Off Hook
Summary	Duration: Sum and Count
Group	Start Time: By Day of Year Internal Number In/Out
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "STU"

All Voice Calls by Day

This Element provides a table of the total number of and time spent on voice calls.

Tab	**Settings**
General	Data Specification: Both Table Layout: Size for page
Detail	Start Time Internal Number In/Out Duration: Off Hook
Summary	Duration: Sum and Count
Group	Start Time: By Day of Year Internal Number In/Out
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Voice"

Call Counts per Site by Channel

This Element provides a table of the total number of and time spent on calls on each channel of each Span at each site.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Source Directory Site Span Channel Duration: Off Hook
Summary	Duration: Count and Sum
Group	Source Directory Site Span Channel
Order	None
Chart	None
Trend	None
Filter	Any Call Record

Count of All Calls per Site by Call Type

This Element provides a table of the total number of and time spent on calls of each call type at each site.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site Type Duration
Summary	Duration: Sum and Count
Group	Internal Number Directory Site: Ascending, Normal Type: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any Call Record

Count of All Calls per Site by Direction

This Element provides a table of the total number of and time spent on calls at each site, sorted by call direction.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site In/Out Duration
Summary	Duration: Sum and Count
Group	Internal Number Directory Site: Ascending, Normal In/Out: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any Call Record

Count of All Calls over All Circuits

This Element provides a table of the total number of calls on each Span.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Span In/Out Source Destination Start Time Duration: Off Hook Type Channel
Summary	In/Out: Count
Group	Span
Order	Source Destination
Chart	None
Trend	None
Filter	Any Call Record

Count of Calls by Destination Details

This Element provides a table of the total number of and time spent on outbound calls at each site, sorted by the call flags in the **Destination Details** field (LD, TOLL, 800, etc.).

Tab	**Settings**
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Source Directory Site Destination Details Type Destination Duration
Summary	Duration: Count and Sum
Group	Source Directory Site: Ascending, Normal Destination Details: Ascending, Normal Type: Ascending, Normal Destination: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	In/Out in the set "Outbound"

Count of ETM® Firewall Violations by Rules Fired

Tab	Settings
General	Data Specification: Both Table Layout: Size for page
Detail	Firewall Policy Firewall Rule # Firewall Comment Call ID
Summary	Call ID: Count
Group	Firewall Policy: Normal, by Group, Display All Firewall Rule #: Normal, by Group, Display All Firewall Comment: Normal, by Group, Display All
Order	None
Chart	X-Axis: Firewall Rule #, Y-Axis: Count, Graph not shown
Trend	None
Filter	Any of Firewall Rule # between 1 and 50

International Call Graph by Cost

This Element provides a graphical summary of the cost of international calls per day.

Tab	Settings
General	Data Specification: Summary Table Layout: Size for page Graphic Options: Hide Data Table
Detail	Destination Country Start Time Destination Source Directory Department Source Directory Last Name Source Directory First Name Duration: Off hook, shown as Time/Day Cost: Default Billing Plan Call ID
Summary	Call ID: Count Cost: Sum Duration: Sum
Group	Start Time: By Day, ordered by Group, Display All Destination Country: Normal, ordered by Sum, Display All
Order	None
Headings	Duration shown as “Total Duration”; Cost shown as “Total Cost”; Source Directory Last Name shown as “Last Name”; Source Directory First Name shown as “First Name”; Source Directory Department shown as “Department”.
Chart	3-D bar chart; X-Axis: Start Time; Y-Axis: Sum of Cost
Trend	None
Filter	In/Out in the set “Outbound” AND Call Details in the “International Calls” Service Type.

LD Calls Graph by Cost

This Element provides a graphical summary of the cost of long-distance calls by day per state/province.

Tab	Settings
General	Data Specification: Summary Table Layout: Size for page Graphic options: Hide Data Table
Detail	Destination Configurable 1: Merged State/Province Start Time Destination Source Directory Department Source Directory Last Name Source Directory First Name Duration: Off hook, shown as Time/Day Cost: Default Billing Plan Call ID
Summary	Call ID: Count Cost: Sum Duration: Sum
Group	Start Time: By Day, order by Group, Display All Destination Configurable 1: Normal, ordered by Group, Display All
Order	None
Headings	Duration shown as “Total Duration”; Cost shown as “Total Cost”; Source Directory Last Name shown as “Last Name”; Source Directory First Name shown as “First Name”; Source Directory Department shown as “Department”; Destination Configurable 1 shown as “State”.
Chart	3D Bar, Legend bottom; X-Axis: Start Time. Y-Axis: Sum of Cost
Trend	None
Filter	In/Out in the set “Outbound” AND Call Details in the “Long Distance Calls” Service Type.

SMDR Data Gathered on All Outbound Calls

This Element provides a table of SMDR data from outbound calls on non-PRI Span.

Tab	**Settings**
General	Data Specification: Details Only Table Layout: Size for page
Detail	Switch Start Time Source Destination Raw Destination Duration: Off Hook Span
Summary	None
Group	Switch
Order	Destination
Chart	None
Trend	None
Filter	Exclude Span matches pattern "PRI" AND In/Out in the set "Outbound" AND Source Details matches pattern "SMDR"

Unique Busy, Unanswered, and Undetermined Numbers

This Element provides a table of the total duration of busy, unanswered, and undermined calls at each site, sorted by the internal number.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site Internal Number Duration
Summary	Duration: Sum
Group	Internal Number Directory Site: Ascending, Normal Internal Number: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Undetermined", "Busy", and "Unanswered"

Unique Busy, Unanswered, and Undermined Numbers by Call Direction

This Element provides a table of the total duration of busy, unanswered, and undermined calls at each site, sorted by call direction.

Tab	**Settings**
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site In/Out Internal Number Duration
Summary	Duration: Sum
Group	Internal Number Directory Site: Ascending, Normal In/Out: Ascending, Normal Internal Number: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Undetermined", "Busy", and "Unanswered"

Unique Data Numbers

This Element provides a table of the total duration of data calls at each site, sorted by the internal number.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site Internal Number Duration
Summary	Duration: Sum
Group	Internal Number Directory Site: Ascending, Normal Internal Number: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Data"

Unique Data Numbers by Call Direction

This Element provides a table of the total duration of data calls at each site, sorted by call direction.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site In/Out Internal Number Duration
Summary	Duration: Sum
Group	Internal Number Directory Site: Ascending, Normal In/Out: Ascending, Normal Internal Number: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Data"

Unique Fax Numbers

This Element provides a table of the total duration of fax calls at each site, sorted by the internal number.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site Internal Number Duration
Summary	Duration: Sum
Group	Internal Number Directory Site: Ascending, Normal Internal Number: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Fax"

Unique Fax Numbers by Call Direction

This Element provides a table of the total duration of fax calls at each site, sorted by call direction.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site In/Out Internal Number Duration
Summary	Duration: Sum
Group	Internal Number Directory Site: Ascending, Normal In/Out: Ascending, Normal Internal Number: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Fax"

Unique Modem Numbers

This Element provides a table of the total duration of modem and modem energy calls at each site, sorted by the internal number.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site Internal Number Duration
Summary	Duration: Sum
Group	Internal Number Directory Site: Ascending, Normal Internal Number: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Modem", and "Modem Energy"

Unique Modem Numbers by Call Direction

This Element provides a table of the total duration of modem and modem energy calls at each site, sorted by call direction.

Tab	**Settings**
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site In/Out Internal Number Duration
Summary	Duration: Sum
Group	Internal Number Directory Site: Ascending, Normal In/Out: Ascending, Normal Internal Number: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Modem", and "Modem Energy"

Unique Numbers Listing by Call Direction and Type

This Element provides a table of the total duration of calls at each site, sorted by the internal number.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site In/Out Type Internal Number Duration
Summary	Duration: Sum
Group	Internal Number Directory Site: Ascending, Normal In/Out Ascending, Normal Type
Order	None
Chart	None
Trend	None
Filter	Any Call Record

Unique Numbers Listing by Type

This Element provides a table of the total duration of calls at each site, sorted by the internal number and call type.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site Type Internal Number Duration
Summary	Duration: Sum
Group	Internal Number Directory Site: Ascending, Normal Type Internal Number Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any Call Record

Unique Numbers with Call Activity

This Element provides a table of the total number of calls of each call type for each internal number at each site.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site Internal Number Type Call Details
Summary	Call Details: Count
Group	Internal Number Directory Site: Ascending, Normal Internal Number: Ascending, Normal Type: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any Call Record

Unique STU Numbers

This Element provides a table of the total time spent on STU calls for each internal number at each site.

Tab	**Settings**
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site Internal Number Duration
Summary	Duration: Sum
Group	Internal Number Directory Site: Ascending, Normal Internal Number: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "STU"

Unique STU Numbers by Call Direction

This Element provides a table of the total time spent on STU calls for each internal number at each site, sorted by call direction.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site In/Out Internal Number Duration
Summary	Duration: Sum
Group	Internal Number Directory Site: Ascending, Normal In/Out: Ascending, Normal Internal Number: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "STU"

Unique Voice Numbers

This Element provides a table of the total time spent on voice calls for each internal number at each site.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site Internal Number Duration
Summary	Duration: Sum
Group	Internal Number Directory Site: Ascending, Normal Internal Number: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Voice"

Unique Voice Numbers by Call Direction

This Element provides a table of the total time spent on voice calls for each internal number at each site, sorted by call direction.

Tab	Settings
General	Data Specification: Summary Only Table Layout: Size for page
Detail	Internal Number Directory Site In/Out Internal Number Duration
Summary	Duration: Sum
Group	Internal Number Directory Site: Ascending, Normal In/Out: Ascending, Normal Internal Number: Ascending, Normal
Order	None
Chart	None
Trend	None
Filter	Any of Type in the set "Voice"

Relative Date Ranges

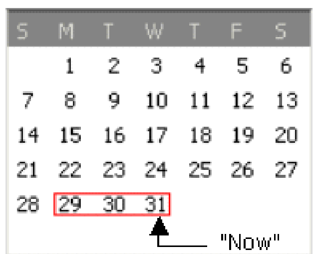
The Usage Manager provides several predefined Relative Date Ranges.

The Relative Date Ranges are stored in the **Relative Date Ranges** Folder, and each of the predefined Report Templates contains a Shortcut to a predefined Relative Date Range.

You can add the predefined Relative Date Ranges to your custom Report Templates as is or copy them to the **PUBLIC** or your user Folder, and then edit them to suit your needs. A description of each of the predefined Relative Date Ranges is provided below.

Current Week - Monday to Now

The Relative Date Range **Current Week - Monday to Now** gathers data from 12 AM on Monday of the current week to the current date and time.

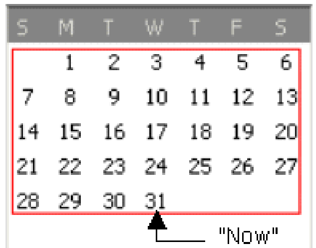


Current Week - Sunday to Now

The Relative Date Range **Current Week - Sunday to Now** gathers data from 12 AM on Sunday of the current week to the current date and time.

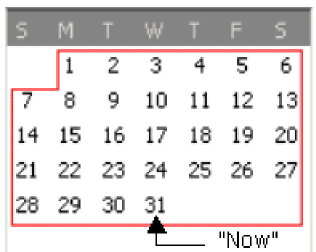
First Day of the Current Month to Now

The Relative Date Range **First Day of the Current Month to Now** gathers data from 12 AM of the first day of the current month to the current date and time.



Last 30 Days from Today

The Relative Date Range **Last 30 Days from Today** gathers data from 12 AM on the day 30 days prior to today, through the current date and time.



Last Month

The Relative Date Range **Last Month** gathers data from 12 AM on the first day of the previous month through 12 AM on the first day of the current month.

Midnight Yesterday to Now

The Relative Date Range **Midnight Yesterday to Now** gathers data from 12 AM of the previous day to the current date and time.

Previous 7 Days (Including Today)

The Relative Date Range **Previous 7 Days (Including Today)** gathers data from 12 AM of the day seven days prior to today, through the current date and time.

Previous Full Week - Last Sunday through Saturday

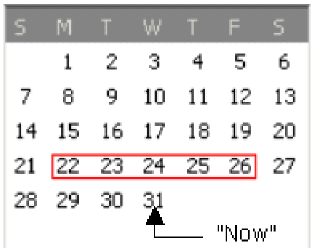
The Relative Date Range **Previous Full Week - Last Sunday through Saturday** gathers data from the previous week starting Sunday at 12 AM until Sunday at 12 AM.

Previous Weekend

The Relative Date Range **Previous Weekend** gathers data from the previous Friday at 5 PM through Monday at 12 AM.

Previous Work Week - Last Monday through Friday

The Relative Date Range **Previous Work Week - Last Monday through Friday** gathers data from the previous workweek starting Monday at 12 AM and ending Saturday at 12 AM.



Index