

User Guide Prospect® 8.0



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1 About This Documentation

The *User Guide* provides instructions and general information on how to use Prospect® software (Release 8.0.4) to create documents for performance and trending analysis. This guide was last updated 7 August, 2007.

Please see the current release notes on this product for a list of revision dates for all Prospect publications.

Audience

This guide is intended for technicians and engineers who use the Prospect software to manage and analyze the performance of a telecommunication network. In general, the reader of this guide is referred to as "*you*." By contrast, "*we*" refers to the Prospect development and technical staff who support this product.

Required Skills & Knowledge

This guide is intended for users who have knowledge and skills in the following:

- Basics of Windows
- Features and functions of Microsoft Excel
- High school level mathematics
- Basic statistics
- The network from which Prospect software receives data

Document Conventions

This document uses the typographical conventions shown in the following table:

Table 1: General Document Conventions

Format	Examples	Description
ALL UPPERCASE	<ul style="list-style-type: none">• GPS• NULL• MYWEBSERVER	Acronyms, device names, logical operators, registry keys, and some data structures.
<u>Underscore</u>	See Document Conventions	For links within a document or to the Internet. Note that TOC and index links are not underscored. Color of text is determined by browser settings.
Bold	<ul style="list-style-type: none">• Note: The busy hour determiner is...	Heading text for Notes, Tips, and Warnings.
SMALL CAPS	<ul style="list-style-type: none">• The STORED SQL dialog box...• ...click VIEW...• In the main GUI window, select the FILE menu, point to NEW, and then select TRAFFIC TEMPLATE.	Any text that appears on the GUI.
<i>Italic</i>	<ul style="list-style-type: none">• A <i>busy hour</i> is...• A web server <i>must</i> be installed...• See the <i>User Guide</i>	New terms, emphasis, and book titles.
Monospace	<ul style="list-style-type: none">• <code>./wminstall</code>• <code>\$ cd /cdrom/cdrom0</code>• <code>/xml/dict</code>• <code>http://java.sun.com/products/</code>• <code>addmsc.sh</code>• <code>core.spec</code>• Type OK to continue.	Code text, command line text, paths, scripts, and file names. Text written in the body of a paragraph that the user is expected to enter.
Monospace Bold	<pre>[root] # pkginfo grep -i perl system Perl5 On-Line Manual Pages system Perl 5.6.1 (POD Documenta- tion) system Perl 5.6.1</pre>	For contrast in a code example to show lines the user is expected to enter.
<Mono- space italics>	<pre># cd <oracle_setup></pre>	Used in code examples: command-line variables that you replace with a real name or value. These are always marked with arrow brackets.
[square bracket]	<pre>log-archiver.sh [-i] [-w] [-t]</pre>	Used in code examples: indicates options.

User Publications

Prospect software provides the following user publications in HTML or Adobe Portable Document Format (PDF) formats.

Table 2: Prospect User Documentation

Document	Description
<i>Administration Guide</i>	Helps an administrator configure and support Prospect core server software to analyze network performance and perform other network or database management tasks.
<i>Administrator's Quick Reference Card</i>	Presents the principal tasks of a Prospect core server administrator in an easy-to-use format.
<i>Expressions Technical Reference</i>	Provides detailed information about expressions used in special calculations for reports.
<i>Installation Guide</i>	Instructions for installing and configuring the Prospect software.
<i>Open Interface API Guide</i>	Describes how the Open Interface tool enhances your access to information about database peg counts and scenarios.
<i>Performance Data Reference</i>	Provides detailed information including entity hierarchies, peg counts, primitive calculations, and forecast expressions specific to your organization.
<i>Release Notes</i>	Provides technology-specific and late-breaking information about a given Prospect release and important details about installation and operation.
<i>Server Preparation Guide</i>	Provides instructions for installing and setting up Solaris and Oracle software before you install Prospect software.
<i>Server Sizing Tool Guide</i>	Helps an administrator use the sizing tool to calculate the system space needed for the Prospect software and database.
<i>User Guide</i>	Provides conceptual information and procedures for using Prospect software for performance and trending analysis.

Viewing the Desktop Client Help Publications

To view the desktop client Help publications, select a guide from the HELP menu of the Prospect graphical user interface or press F1 for context-sensitive Help. To update the Help files, click the HELP menu on the Prospect Explorer, and select UPDATE ALL HELP FILES.

When Help files are updated, they are downloaded automatically from the Prospect server to the Prospect client. A message box notifies you when this download occurs.

Viewing the Publications in PDF

All of the user publications are available in Adobe Portable Document Format (PDF). To open a PDF, you need the Adobe Acrobat Reader. You can download Adobe Acrobat Reader free of charge from the Adobe Web site. For more details about the Acrobat Reader, see the Adobe Web site <http://www.adobe.com/>.

Training and Technical Support

Both training and technical support are available for Prospect software. For technical support, contact us at wmcustomersupport@vallent.com. For training, contact us at training@vallent.com.

2 Getting Started

Prospect software is a tool for network performance management. You can use the system to do the following:

- Help monitor, maintain, and improve system performance
- Troubleshoot system problems
- Plan capacity
- Engineer a wireless system to provide peak quality of service

This chapter provides general information about Prospect. This chapter contains the following sections:

- [Prospect System Architecture](#)
- [User Permission Levels](#)
- [Prospect Explorer Basics](#)
- [General Tasks Using Prospect Explorer](#)
- [Prospect Documents](#)
- [Time Definitions](#)

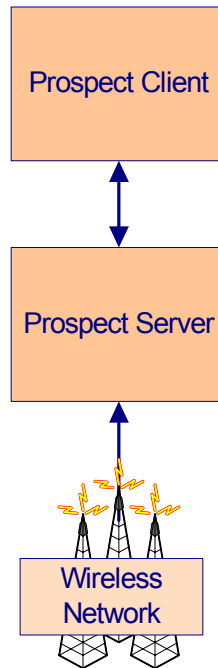
After reading this chapter, you will have information to understand:

- The tasks necessary to generate a report, which provides information about the performance of a wireless network
- The different user permissions
- How to use Prospect Explorer

Prospect System Architecture

The Prospect software uses a client-server configuration as shown in the following figure.

Figure 1: Prospect System Architecture



The Prospect system architecture components are described in the following sections:

- [Prospect Server](#)
- [Prospect Client](#)

Prospect Server

The Prospect server collects statistical and configuration data from switches, cell sites, and other network equipment at regular intervals. Most commonly, the data is transferred from one or more managed network elements to a mediation server across the network. The data can then be moved to appropriate staging directories to be loaded in the database.

Prospect Client

The Prospect client includes a number of programs that are described in the following table.

Table 3: Prospect Client Programs

Program	Description
Prospect Explorer	The primary program that allows you to work with documents and schedule report generation. See Prospect Explorer Basics for more information.
Status Monitor	The program used to monitor report generation. See Monitoring Report Generation Status for more information.
Auto Downloader	Allows you to automatically download reports. See Monitoring Report Generation Status for more information.
Connection Manager	A program used to specify connections to one or more Prospect servers. See a Prospect administrator for information about the Connection Manager.
Other third-party programs	Programs licensed by other companies like Microsoft Excel are used by the Prospect client.

The Prospect client interacts with the Prospect server to configure report generation parameters, download reports, and monitor the report generation process.

Tip: To determine the version of the client you are running, select ABOUT PROSPECT <version #> from the Prospect Explorer HELP menu. This displays both the version of the Prospect server you are connected to and the client version you are running. The version of the Prospect release varies depending on which version of the Prospect server the client is connected to.

Related Topics

[Prospect Explorer Basics](#)
[Monitoring Report Generation Status](#)
[Prospect Server](#)

User Permission Levels

Prospect user profiles allow you to connect a Prospect client to the Prospect server. Use Prospect Explorer to add, edit, and delete users. Use the Connection Manager to connect a Prospect client to the Prospect server with a user profile.

When you create a user for Prospect software, you create an entry in the database that defines the user as owner for a set of folders. The following is a list of the available user permission levels:

- [Users](#)
- [Data Administrators](#)

- [System Administrators](#)
- [Enterprise Users](#)

Users

Prospect users have the permission to do the following to folders and documents that they own:

- Create subfolders
- Create, edit, and delete documents
- Move documents between folders

Prospect users can do the following to folders and documents that Prospect users do not own:

- Browse folders
- Copy documents into a folder that they do own

Prospect users can also do the following:

- Create, edit, and delete user-defined calculations (UDCs) that they own
- Create, edit, and delete User Scenarios
- Create, edit, and delete Excel macros that they own
- Create, edit, and delete Report Groups

Note: Use of a common user ID by two or more people is not recommended, since it allows them to overwrite one another's work.

Data Administrators

In addition to that which Prospect users can do, Prospect data administrators have permission can do the following:

- Create, edit, and delete system-defined calculations
- Create, edit, and delete stored busy hour determiners
- Create, edit, and delete Active and Complete Scenarios
- Create, edit, and delete Soft Alarm Groups
- Define holidays

See the *Administration Guide* for information about how to use Prospect software as a Prospect data administrator.

Related Topics

[Users](#)

System Administrators

In addition to everything that a Prospect user and Prospect data administrator can do, Prospect system administrators can do the following:

- Create, edit, and delete user profiles
- Create, edit, and delete folders owned by other users
- Change ownership of documents
- Manage the Message of the Day feature

See the *Administration Guide* for information about how to use Prospect software as a Prospect system administrator.

Related Topics

[Data Administrators](#)
[Users](#)

Enterprise Users

Prospect Enterprise Users are used to connect a Prospect Enterprise server to a standard Prospect server. Prospect Enterprise Users have limited permissions and can only view documents.

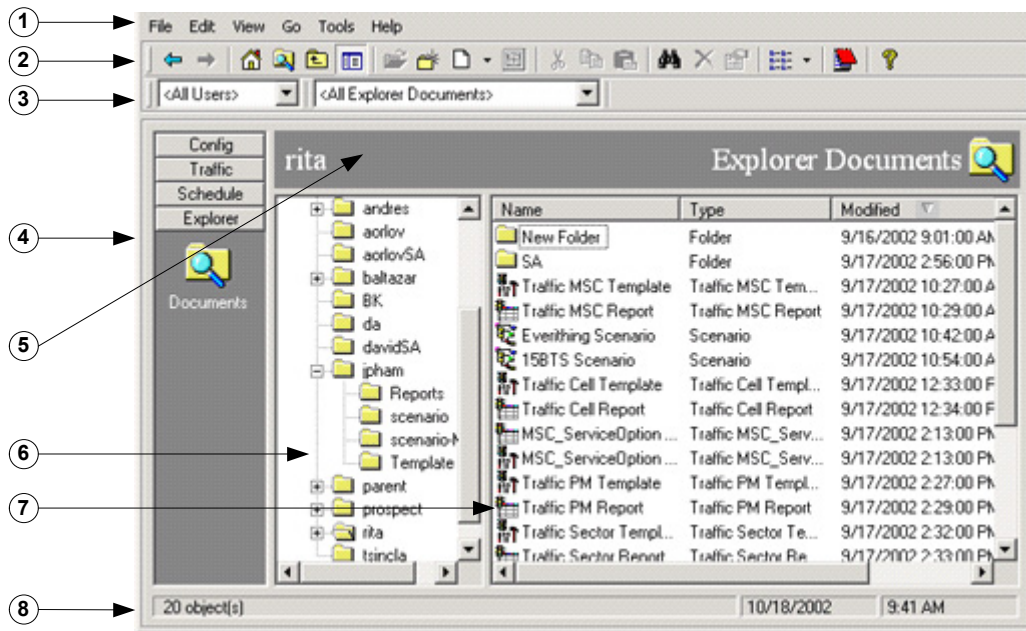
Note: The Prospect Enterprise Users are only applicable if your company uses Prospect Enterprise software.

Prospect Explorer Basics

Prospect Explorer is the primary means by which you use Prospect software. Use it to organize and access your documents. This section covers the way Prospect Explorer organizes its components and how to organize your own work within Prospect Explorer's structure.

The following figure shows an example of Prospect Explorer.

Figure 2: Prospect Explorer Example



Legend:

No.	Name	Description
1	Menu bar	For more information, see Prospect Explorer Menu Bar .
2	Toolbar	For more information, see Prospect Explorer Toolbar .
3	Filter bar	You can use the filter bar to limit the documents that are displayed in the list pane. You can filter by document owner, by document type, or both (see the above figure). When you have filtered the display, all the documents that do not match the condition of the filter are hidden.
4	Button bar	By default, the buttons on the Prospect Explorer button bar are set to display the document category of the group you click (for most groups) or all categories (such as the DOCUMENTS category button of the EXPLORER group). You can also set Prospect Explorer to jump to a specific folder when you click a button.
5	Banner	Shows the type of document displayed in the list pane.

No.	Name	Description
6	Folder pane	Prospect Explorer allows you to organize, find, and access the components of your Prospect document definitions. You build a folder tree to organize your documents, which you create, delete, move, name, rename, open, and close just as you would in Windows Explorer.
7	List pane	The list pane shows all the documents in a selected folder according to the filter settings in the filter bar.
8	Status bar	Shows information about the List pane.

Related Topics

[Prospect Explorer Menu Bar](#)

[Prospect Explorer Toolbar](#)

Opening Prospect Explorer

Before you can start Prospect Explorer, you need to set up a connection profile using the Connection Manager. See your Prospect system administrator for profile names and passwords.

To open Prospect Explorer

1. From the Windows START menu, point to PROGRAMS, and then PROSPECT. The LOGIN dialog box opens.
2. Select the profile you want to use and enter the password as necessary. The PROSPECT EXPLORER window opens. An example of this window might look like is shown in the above figure.

Note: To display all information appropriately, the Prospect client requires the small-fonts setting.

Prospect Explorer Menu Bar

This section provides an overview of Prospect Explorer's menus (above figure), which are described in the following sections.

- [File Menu](#)
- [Edit Menu](#)
- [View Menu](#)
- [Go Menu](#)
- [Tools Menu](#)
- [Window Menu](#)

- [Help Menu](#)

File Menu

The commands on the Prospect Explorer FILE menu change depending on the item selected in the window. The common commands are listed in the following table.

Table 4: File Menu Commands

Command	Description
New	The NEW command allows you to create new Prospect documents and folders. More information is available in the User Guide sections on each document type.
Delete	The DELETE command deletes the active element in the Prospect Explorer window. You are warned of the consequences of deleting.
Rename	The RENAME command changes the name of the selected document or folder.
Change Password	Allows you to change your Prospect password at any time. See Changing Your Password for details.
References	The Prospect client keeps track of references to one document in another because, for example, if you change the network elements in a scenario, it changes every report that includes that scenario. See Document References for details.
Properties	<p>The PROPERTIES dialog box has two tabs:</p> <ul style="list-style-type: none">• GENERAL tab This page lists several attributes of a folder.• CATEGORY tab If you set any category other than Explorer Documents or <No Associated Category>, Prospect filters the contents of the list pane—it shows only the documents that are in the category you choose. <p>When you select a document from the DOCUMENT CATEGORY drop-down list box, such as a Scenarios or Traffic Reports, then click OK, the list pane contains the filtered list.</p>
\<document 3> \<document 2> \<document 1>	<p>This area of the File menu lists recently used documents, with the most recent documents listed first.</p> <p>Click a document to open it.</p> <p>The number of listed documents allowed is controlled by the RECENTLY USED DOCUMENT LIST option on the ADVANCED tab of the TOOLS / OPTION dialog box (see Advanced Options on page 203.)</p>
Close All Documents/Tools	Before you exit the Prospect client, you must close all open documents and tools so that all running processes are stopped. Use the CLOSE ALL DOCUMENTS/TOOLS command as an easy way to be sure they are closed.

Table 4: File Menu Commands (Continued)

Command	Description
Close	The CLOSE command closes exits the application only if no windows or tools are open.

Edit Menu

The commands in the Prospect Explorer EDIT menu function the same as those in Windows Explorer.

View Menu

The commands in the Prospect Explorer VIEW menu function the same as those in Windows Explorer.

Go Menu

The GO menu gives you the ability to jump to several defined folders in Prospect Explorer as described in the following table

Table 5: Go Menu Commands

Command	Description
Back	Makes the last folder you clicked in the Prospect Explorer window current.
Forward	Moves the current focus forward one folder if you have moved it back.
Home	Makes the default folder current. The default folder is always the same as your user name and is located under the USERS folder.
Up One Level	Moves the current focus up one level in the folder hierarchy.
Go to Folder	To move to a folder you want to open 1. From the GO menu, select GO TO FOLDER. The GO TO FOLDER dialog box opens. 2. Move through the folder tree until the folder you want is showing. 3. Click the folder name you want. 4. Click the OK button. The GO TO FOLDER dialog box closes and the list pane displays the contents of the folder you chose.
Go to Category	Functions the same as the button bar in navigating to categories. To move to a particular category 1. From the GO menu, highlight GO TO CATEGORY. The category list appears. 2. Click the category you want.

Tools Menu

The Prospect tools are discussed in detail in the [Tools](#) chapter.

Window Menu

The commands in the Prospect Explorer WINDOW menu allow you to minimize or restore the windows of open Prospect documents and tools quickly. The WINDOW commands are listed in the following table

Table 6: Window Menu Commands

Command	Description
Minimize All	Minimizes all Prospect windows except the Prospect Explorer
Restore All	Restores all Prospect minimized windows
\<document 1> \<tool 1> \<document 2> \<document 3> \<tool 2>	<p>This area of the WINDOW menu lists all open Prospect documents and tools. The list contains up to 9 windows in the order that they were opened.</p> <p>Select a window from the list. This action brings the window to the foreground, restoring it from a minimized state if necessary. You can also use the shortcut ALT+W, then the number of the window to open it.</p> <p>If there are more than 9 windows open, the MORE WINDOWS option becomes available. Selecting the MORE WINDOWS command opens a separate box from which you can select a window.</p>

Help Menu

The Prospect Explorer HELP menu gives you direct access to context-sensitive Help for the active window. It also gives you access to other guides and information about the Prospect system.

Updating All Help Files

The Prospect Explorer HELP menu allows you to update the Help files on your computer as required.

To update all Help files

1. From the HELP menu, select UPDATE ALL HELP FILES.
 - If the Help files on your computer need to be updated, then a COPYING graphic shows that the appropriate files are being downloaded to your computer. When the downloading process is complete, the COPYING graphic disappears.
 - If the Help files on your computer are current, a message box informs you: ALL HELP FILES ARE CURRENT.

Viewing Software Installation History

The Prospect Explorer HELP menu allows you to view the installation history for software installations on the Prospect server.

To view the installation history

1. From the HELP menu, select ABOUT PROSPECT <version>, where VERSION is the client version number.
2. Select the INSTALLATION HISTORY option button.








Note: Clicking the column heading allows you to sort the installation information in ascending and descending order.

Prospect Explorer Toolbar

You use the Prospect Explorer toolbar buttons (as shown in the Prospect Explorer Example) much as you would in Windows Explorer.

The following table describes the buttons that have unique functions in Prospect Explorer.

Table 7: Prospect Explorer Toolbar Buttons

Button	Name	Description
	Home	Click to navigate to the default folder. The default folder is usually the same as your user name and is located under the USERS folder.
	Explorer Documents	Click to show all the document categories that are in a folder.
	Folder List	Click to open and close the folder pane.
	New Document	Click to create new Prospect documents and folders. Click the arrow to the right of the button to select the document type. More information is available in the sections on each document type.
	Run	Becomes active when you select a report or report group. Click to run a report for output. See Immediately Running Reports for details.
	Find	Click to find a document. See Find Documents Tool for details.
	Status Monitor	Click to launch the Status Monitor tool. See Monitoring Report Generation Status for details.

Related Topics

[Immediately Running Reports](#)

[Find Documents Tool](#)

[Monitoring Report Generation Status](#)

Case Sensitivity in the Prospect Client

The Prospect client has some features that are not case sensitive, but others (in particular, the Find tool) that are. Case sensitivity results from the Prospect software's interaction with Oracle, which is case sensitive. It is to your benefit to establish a convention for assigning document names (which are database records, not Windows files) to make it easier to remember exact spellings.

Related Topics

[Find Documents Tool](#)

System Folders

System folders are defined at the top of the folder pane and cannot be deleted or moved, even by a Prospect system administrator. The following table describes the primary system folders.

Table 8: System Folders

Folder	Description
Scenarios	A folder containing scenarios that is managed by a Prospect data administrator or Prospect system administrator. See Scenarios for more information on scenarios.
Schedule	A folder containing all of the schedule entries for Prospect software. See Scheduling Report Generation for more information on schedule entries.
Temp	<p>A folder containing all of the temporary documents required to immediately run a report, such as temporary report groups and temporary schedule entries.</p> <p>Note: Do not use the Temp folder to store documents that you want to keep. By default, documents in the Temp folder are automatically deleted each time the Prospect client exists if the following conditions are met:</p> <ul style="list-style-type: none">• The document is not a schedule entry.• The document is not referenced by any other document. <p>Use the Options tool to set whether the Temp folder is cleaned up when the Prospect client exists (Advanced Options).</p> <p>Temporary schedule entries are automatically deleted after a report is downloaded or during Prospect server maintenance.</p>
Templates	A folder containing pre-defined templates and templates that are created by a Prospect data administrator or Prospect system administrator. See Templates for more information.
Users	A parent folder containing folders for each user.

Folder Categories

System folders are associated with a category that matches the type of documents the folder contains. For example, the Traffic Template folder is associated with the Traffic Template category. You cannot change the folder category for a system folder.

Your folders are associated with the category that you set using the folder PROPERTIES dialog box. When you associate a category with a folder, the folder only displays the document type that matches the folder category.

To set the folder category

1. In the folder pane of the PROSPECT EXPLORER window, move to the folder that you want to associate with a document category.
2. Right-click the folder. A shortcut menu appears.
3. Click PROPERTIES. The PROPERTIES dialog box opens.
4. Click the CATEGORY tab. The CATEGORY page opens.
5. Select the document category from the DOCUMENT CATEGORY drop-down list box.
6. Click OK.

Related Topic

[Filtering the List Pane](#)

General Tasks Using Prospect Explorer

This section provides information on the general tasks you can perform with Prospect Explorer as described in the following sections:

- [Changing Your Password](#)
- [Managing Your Folder Tree](#)
- [Sharing Folders](#)
- [Displaying All Document Types](#)
- [Filtering the List Pane](#)

Changing Your Password

The first time you log on to the Prospect client, the system requires that you choose a new password, which cannot be “password” or an empty password.

You can also change your password at any time.

To change your password

1. In the PROSPECT EXPLORER window, click the FILE menu and select CHANGE PASSWORD. The CHANGE PASSWORD dialog box opens.
2. In the OLD PASSWORD text box, enter your old password.
3. In the PASSWORD text box, enter your new password.
4. In the CONFIRM PASSWORD text box, reenter your new password.

5. Click the OK button. The dialog box closes, and your new password is active the next time you log on to the Prospect client.

Managing Your Folder Tree

You are free to organize and name your folders, and put documents in them, in an arrangement that best suits your needs, with some exceptions:

- A Prospect system administrator controls the location of the System-defined scenarios.
- You must store schedule entries in the Schedule folder, which is one of the folders in the top level of the hierarchy.
- Predefined Traffic templates must remain in the Traffic Templates folder.

To create a folder

1. In the PROSPECT EXPLORER window, move through the folder tree and select the folder to which you want to add a subfolder.
2. On the menu bar, click the FILE menu, point to NEW, and then select FOLDER. A new folder appears in the folder tree, with its name, NEW FOLDER, highlighted in Rename mode.
3. Enter a name for the new folder.

To delete a folder

1. In the folder pane of PROSPECT EXPLORER window, select the folder you want to delete.
2. Click the FILE menu and select DELETE. Two warning dialog boxes help you evaluate the effects of deleting the selected folder. If you answer YES to both, the folder is deleted.

To sort the documents in a folder

1. In the folder pane of the PROSPECT EXPLORER window, move to the folder that contains the document you want.
2. In the list pane, click the heading of the file attribute you want to sort by. The documents are sorted using the selected attribute.

Sharing Folders

The Prospect client lets you share folders similarly to the way Windows Explorer does. If a folder is not shared, only its owner can create or delete documents or subfolders in it. If it is shared:

- Other users can create documents and subfolders in the shared folder.
- They can delete documents and subfolders that they own from the shared folder.
- They cannot delete documents or subfolders owned by others.

If you remove sharing permissions from a folder, other users can edit or delete documents they own that are already in the folder, but cannot add documents or subfolders.

To share a folder

1. In the folder pane of the PROSPECT EXPLORER window, select the folder you want to share.
2. From the FILE menu, select PROPERTIES. A properties dialog box opens.
3. Select the SHARED checkbox.
4. Click OK. The selected folder is now shared.

To remove a folder from shared status

1. In the folder pane of the PROSPECT EXPLORER window, select the folder you no longer want to share.
2. On the FILE menu, click PROPERTIES. A properties dialog box opens.
3. Clear the SHARED check box.
4. Click the OK button. The folder is no longer shared.

Displaying All Document Types

You can set a folder to display a single category of the documents it contains, or all categories. It is recommended that you display all categories until you are thoroughly familiar with the Prospect client.

To temporarily display all document categories that a folder contains

1. On the button bar, click the Explorer group.
2. Click the DOCUMENTS category button. The list pane displays all documents in the selected folder.

To permanently display all document categories when a folder opens

1. In the folder pane of the PROSPECT EXPLORER window, move to the folder that you want to associate with a document category.
2. Right-click the folder. A shortcut menu appears.
3. Click PROPERTIES. The PROPERTIES dialog box opens.
4. Click the CATEGORY tab. The CATEGORY page opens.
5. On the DOCUMENT CATEGORY drop-down list box, click EXPLORER DOCUMENTS.
6. Click OK. All categories are displayed in the list pane.

Filtering the List Pane

You can filter the list pane to display only certain types of documents by using the filter bar or button bar. The filter bar allows you to filter the list pane by owner or by document type.

To filter the list pane by using the button bar

1. On the button bar of the PROSPECT EXPLORER window, click the group that contains the document category you want to display in the list pane. The group opens to display category buttons.
2. Click the category button for the category you want to display. The list pane refreshes to show only documents in the category you select.

To filter the list pane by owner or by document type

1. On the filter bar of the PROSPECT EXPLORER window, click the menu on the left to display owner filters, or the menu on the right to display document type filters.
2. Select an owner or a document type. The menu disappears, and the list pane is updated to display the new filter settings.

To filter the list pane by category

1. In the folder pane of the PROSPECT EXPLORER window, select the folder you want to filter.
2. Select the document category from the GO TO CATEGORY option on the GO menu.

Prospect Documents

A *document* for Prospect software refers to the building blocks for creating and generating reports, such as scenarios, templates, report definitions, and schedule entries. Although you handle documents in the Prospect client just as you handle files in Windows Explorer, documents are actually records in the database.

The Prospect client allows you to design customized documents that focus on the specific data that you want. Each chapter in this guide covers the specific document types you should use to complete a task.

Document References

The Prospect client keeps track of the relationship between documents—for instance, a scenario and a template can both be referenced by a particular report definition. This means the Prospect client uses that scenario and that template when it creates that report output. Note that the report is not referenced by the scenario or template.

You can review the impact of changing or deleting a document by using the References feature. This feature displays a list of inter-document dependencies—instances where another document refers to the document you specify. You can transfer the reference lists to Excel, for record keeping or to sort them more easily.

To review the documents that reference a selected document

1. In the list pane of the PROSPECT EXPLORER window, select the included document(s) for which you want to check associations. For example, select a scenario if you want a list of

report definitions that include it, or a report definition if you want to know which document groups include it.

2. Click the FILE menu, point to REFERENCES, and select SHOW REFERENCE WINDOW(S). The SNAPSHOT OF REFERENCES window opens, displaying a list of documents that refer to the document you selected. A second window opens if there are any referenced objects that are not documents (such as busy hour definitions).

Note: The SNAPSHOT OF REFERENCES window displays only documents that directly reference the document you selected in step 1. To list “second generation” references, select a document in the SNAPSHOT OF REFERENCES window and follow the preceding procedure.

To copy references to Excel

1. In the PROSPECT EXPLORER window, open the FILE menu and select SHOW REFERENCE WINDOW(S).
2. Select the reference(s) that you want to copy to Excel.
3. Right-click one of your selected references, then point to REFERENCES on the shortcut menu and click COPY REFERENCES TO CLIPBOARD.
4. Open an Excel document and paste the clipboard contents. The references are listed in the Excel document.

Opening Documents

Most Prospect documents are opened using the following procedure.

To open an existing document

1. In the folder pane of the PROSPECT EXPLORER window, navigate to the folder that contains the document you want to open.
2. Click the folder icon to display its contents in the list pane.
3. In the list pane, double-click the icon of the document you want to open. An editor window opens for the document you selected.

Modifying and Deleting Documents

Most Prospect documents are modified and deleted using the same method. The document that you want to delete might be referenced in another document or a non-document object, such as a busy hour definition. If you delete a document or an object that is referenced by another document, it can cause associated reports to fail.

To modify a document

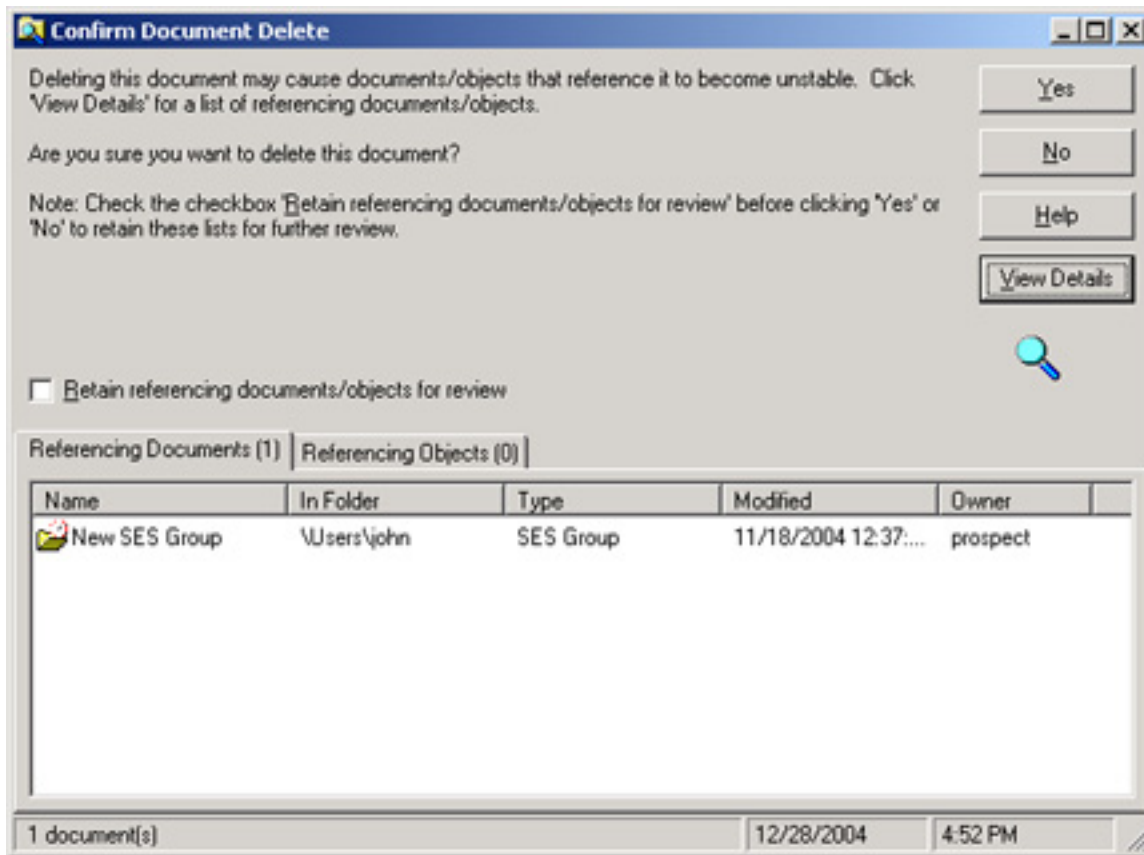
1. Using Prospect Explorer, open the document you want to modify.

2. Modify the desired properties.
3. Save the document by selecting SAVE from the FILE menu.

To delete a document

1. Using Prospect Explorer, select the document that you want to delete.
2. Select DELETE from the FILE menu. The CONFIRM DOCUMENT DELETE dialog box opens.

Figure 3: Confirm Document Delete dialog box



3. Select VIEW DETAILS to review any documents or objects that reference the document that you are deleting.
4. To review the referenced documents or objects, select the RETAIN REFERENCING DOCUMENTS/OBJECTS FOR REVIEW check box and click YES to delete the document. The SNAPSHOT OF REFERENCES window opens.

Time Definitions

Prospect software uses the following standards for time:

- An *hour* is $x:00$ to $x+1:00$. In the Report Editor, you include this hour by checking the $x+1$ check box. In your report output, this same hour is labeled $x:00$.
- A *day* is midnight to midnight.
- A *week* is Sunday through Saturday.
- A *month* is a calendar month.
- A *year* is an ISO standard year.

3 Scenarios

A *scenario* is a hierarchical representation of network elements that you use to specify which elements to include in a report. You can use the scenarios that your data administrator provides for you, or you can build custom scenarios that contain the network elements you want in your reports.

This chapter provides general information about scenarios and contains the following sections:

- [Scenario Types](#)
- [Entity Basics](#)
- [Entity Attributes](#)
- [User Scenarios](#)
- [Scenario Filters](#)
- [Viewing Entity Data](#)

After reading this chapter, you will have information to understand:

- The different types of scenarios
- How entities are represented in scenarios
- How to create User scenarios

Scenario Types

There are three basic scenario types, which are described in the following table.

Table 9: Basic Scenario Types

Type	Description
Complete	<p>The Prospect data administrator maintains the <i>Complete scenario</i>. Prospect users can use the Complete scenario in reports, but cannot edit the Complete scenarios.</p> <p>A complete scenario is a comprehensive overview of all entities in the network, past and present. It shows the current state of both active and inactive entities.</p>
Active	<p>The Prospect data administrator maintains the <i>Active scenario</i>. Prospect users can use Active scenario in reports, but cannot edit them.</p> <p>The active scenario shows the network elements that currently are in service.</p>
User	<p>A <i>User scenario</i> is a scenario that you can customize. For more information on creating customized User scenarios, see User Scenarios.</p>

Complete and Active scenarios are also known as *System-defined scenarios*.

Entity Basics

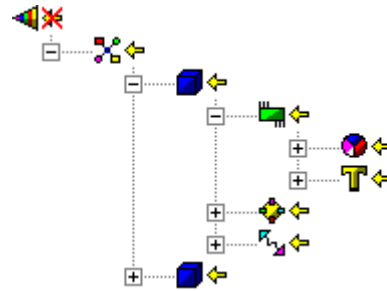
A scenario contains *entities*, which represent network elements. A scenario also shows the hierarchical relationships between entities:

A system or network is composed of parent entities and child entities. The child entities, in turn, can have children of their own, down to the elemental components. This hierarchical arrangement of entities in the scenario represents the vertical communication between network elements.

The following figure shows an example of an entity hierarchy. A scenario uses a nested hierarchy to show the relationships between network entities—child entities are below and to the right of their parent entities.

Note: The discussions that follow use the terms *parent* (one level up) and *ancestor* (one or more levels up) to refer to higher-level entities, and *child* and *descendant* to refer to lower-level entities.

Figure 4: Example Entity Hierarchy



In the Prospect software, the entity hierarchy includes *equipment entities* that represent actual network hardware, and *logical entities* that sort different kinds of hardware. You can distinguish equipment entities from logical entities by the ID number that only appears with equipment entities.

See the *Performance Data Reference* for information about the entities used by Prospect software.

Entity Attributes

There are a number of entity characteristics that show how entity information is represented in a report.

The Attributes column in the Scenario Editor shows the attributes for an entity, which you can use to filter a user-defined scenario.

More information about entity attributes is in the following sections:

- [Active and Inactive Entities](#)
- [Linked and Unlinked Entities](#)
- [Included and Excluded Entities](#)
- [Placeholder Entities](#)

Related Topics



[User Scenarios](#)

Active and Inactive Entities

Active entities are entities that are in service on your network. Inactive entities are no longer in service and may not have any associated data for use in reports.

The most recent data in Prospect determines the active status of an entity. Prospect system administrators also maintain the active status of an entity. Data that fails to load into Prospect does not affect the active status of an entity.

Table 10: Active and Inactive Entities

<i>Icon</i>	<i>Description</i>
	Active entities have colored icons. The Attributes column shows an <i>A</i> if the entity is active.
	Inactive entities are gray.

Linked and Unlinked Entities

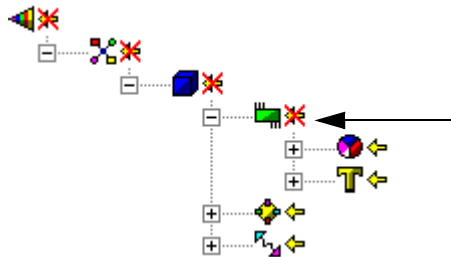
Entities that you get from the Active scenario are linked by default. Entities that you get from the Complete scenario are unlinked by default. Entities that you copy from one user-defined scenario to another keep the link status they had in the original scenario.

When you copy a linked child entity into a user-defined scenario, it remains linked, but its ancestors become unlinked in the new scenario. This prevents the new scenario from becoming cluttered with extra branches in the scenario when the system updates.

Linking only determines whether the scenario stays up to date with respect to the network configuration; data is always current, even for unlinked entities.



The following figure shows an example of unlinked entities. Unlinking an entity automatically unlinks its ancestors.

Figure 5: Unlinked Entities



The following table describes how to distinguish between linked and unlinked entities.

Table 11: Linked and Unlinked Entities

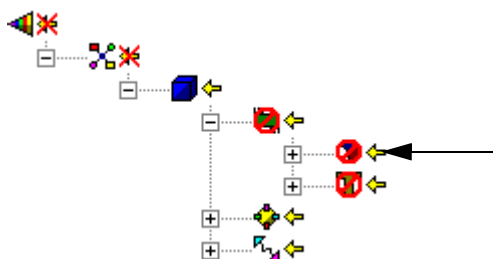
<i>Icon</i>	<i>Description</i>
	Linked entities have yellow arrow icons. The Attributes column shows an L if the entity is linked. If an entity is linked, the configuration of descendant entities below it in the hierarchy stays current with network changes.
	Unlinked entities have arrow icons that are crossed out. If an entity is unlinked: <ul style="list-style-type: none"> You can preserve one or more entities in a snapshot of the present network configuration. The active status of the unlinked entity does not change. The entity's list of children does not change, but a child's active status can change.

Included and Excluded Entities

This status controls whether an entity appears in reports that use a scenario. You can exclude entities, so that they do not appear in your documents, without deleting them from your user-defined scenario. By default, all entities are included (incorporated in the report).



Excluding an entity automatically excludes its descendants, as shown in the following figure.

Figure 6: Included and Excluded Entities



The following table describes how to distinguish between included and excluded entities.

Table 12: Included and Excluded Entities


<i>Icon</i>	<i>Description</i>
	The excluded-entity icon is covered with red circle and bar. The Attributes column shows an E if the entity is excluded.
	The included-entity icon is plain.

Placeholder Entities

Placeholder entities represent entities that are not part of the network, but are planned for the future or are part of a neighboring network. A Prospect system administrator maintains placeholders in the Active and Complete scenarios.

The following table describes how you can recognize a placeholder entity.

Table 13: Placeholder Entities

<i>Icon</i>	<i>Description</i>
	A placeholder entity is represented by an entity symbol followed by this icon. The Attributes column shows a P.

User Scenarios

Every report is based on a scenario. Create a User scenario if you need a different scenario than the existing scenarios.

If you want your User scenario to stay up-to-date as the network changes, build it by copying entities from the Active scenario. You can also copy entities from other scenarios in which the entities you want to monitor are linked. If there are inactive entities on which you need to report, you can copy entities from the Complete scenario as well.

Creating a User Scenario

You can create User scenarios based on entities from an Active or Complete scenario. There are two primary ways to create a User scenario:

- Copy a scenario using Prospect Explorer, then remove entities from the scenario. See [Deleting Entities from a User Scenario](#) for information about removing entities from a scenario.
- Create a new scenario and copy entities from an existing scenario.

Creating an entity by copying a scenario using Prospect Explorer creates a dynamic scenario that changes as network elements are added or removed. If you want to limit a User scenario to specific network elements, and you do not want the list of network elements to change, create a new scenario.

The following procedure lists the steps for creating a new scenario and copying entities from an existing scenario.

To create a User scenario

1. In the PROSPECT EXPLORER window, open the scenario(s) that you are using as the source for your new scenario. The Scenario Editor opens.
2. In the SCENARIO EDITOR window, click the FILE menu, and select NEW. Another SCENARIO EDITOR window opens with a NEW SCENARIO icon at the top of the entities tree pane.
3. Drag the entities you want from the source scenario(s) into the new scenario. Make sure you get all the entities you want into your User scenario.

Note: Each entity brings its ancestors and descendents with it to maintain the structure of the hierarchy.

Tip: You can undo all your actions until you save the scenario.

4. To save the User scenario, click FILE and then select SAVE AS. The SAVE SCENARIO AS dialog box opens. Move to the destination folder in the entity tree, name your scenario in the SCENARIO NAME dialog box, and click SAVE.

Deleting Entities from a User Scenario

Delete entities when you do not want them in your report output. Deleting an active entity unlinks its ancestors. Alternatively, you can exclude entities to keep them out of your report output. See [Included and Excluded Entities](#) for more information.

You can only delete entities from scenarios that you own.

To delete an entity

1. Open your scenario.
2. In the list pane of the SCENARIO EDITOR window, right-click the entity you want to delete. A shortcut menu appears.
3. On the menu, click DELETE.

If you are deleting an inactive or unlinked entity, it simply disappears.

If you are deleting a linked active or placeholder entity, a warning dialog box opens. Click OK to continue.

Tip: You can undo all your actions until you save the scenario.

4. To save, click FILE and then select SAVE.

Linking or Unlinking Entities in a User Scenario

Use linked entities when you want the configuration of entities in your scenario to stay current with the configuration of network elements.

Use unlinked entities when you want your scenario (or a branch of it) to remain as you created it, without updating the structure as the network evolves. Field data and entity data remains current, but the network configuration is frozen.

Note: When you copy a linked entity into a User scenario, the entity and its descendants are linked, but its ancestors are unlinked in the new scenario. This keeps your scenario from becoming cluttered with unexpected high-level entities during system updates.

To place a linked entity in a User scenario

1. In the PROSPECT EXPLORER window, open a scenario in which the desired entity is linked. This can be the Active scenario or another User scenario.
2. Open your scenario.
3. Drag the desired linked entity from this source into the User scenario you are building. The entity then appears as a linked entity, with its ancestors unlinked.
4. Save your scenario.

To link an entity that is currently unlinked

1. Open a scenario that shows the entity you want as linked.
2. Open your scenario.
3. Drag the linked entity into your scenario.
4. Save your scenario.

To unlink an entity

1. Open your scenario.
2. In the entity tree pane of the SCENARIO EDITOR window, select the entity you want to unlink.
3. Click EDIT and UNLINK. The arrow icon has an X through it, indicating it is unlinked. Its ancestors are also unlinked.
4. Save your scenario.

To unlink an entity and all its descendants

1. Open your scenario.
2. In the entity tree pane of the SCENARIO EDITOR window, click the entity that, together with its descendants, you want to unlink.
3. Click EDIT and select UNLINK ENTITY and DESCENDANTS. All descendants *and* ancestors of the entity display the unlinked symbol.
4. Save your scenario.

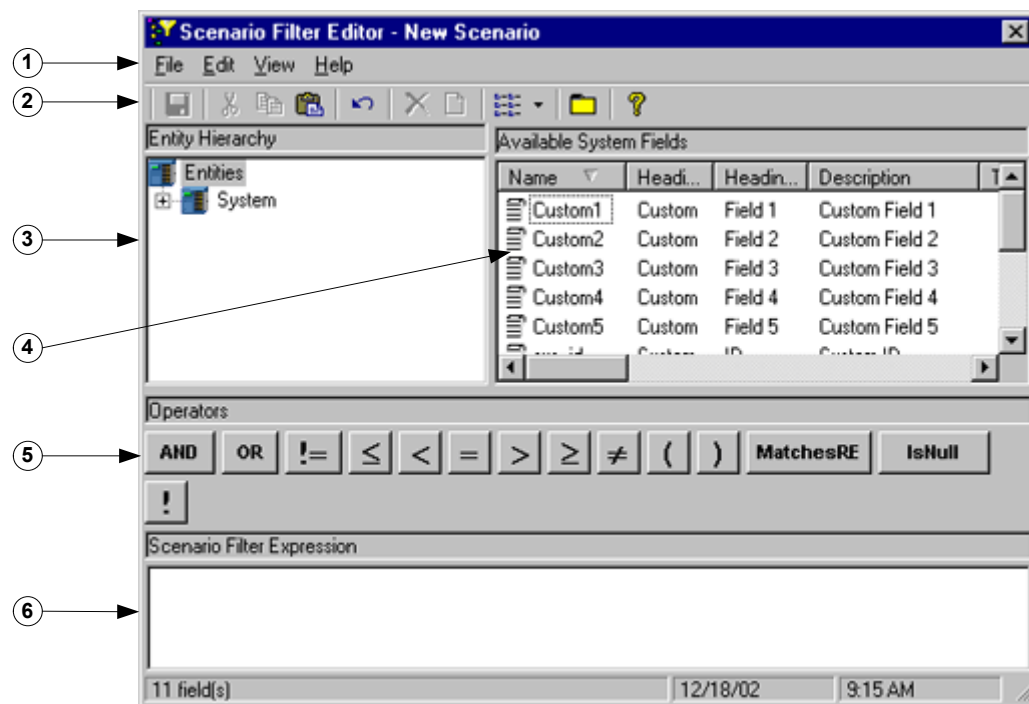
Scenario Filters

A *scenario filter* is a logical expression that you apply to a user-defined scenario. By placing a logical condition on one or more fields of an entity, you create an expression that moderates the way performance data is to be reported for that entity.

Note: You can only apply scenario filters to user-defined scenarios.

Use the Scenario Filter Editor to work with scenario filters, as shown in the following figure.

Figure 7: Scenario Filter Editor






Legend:

No.	Name	Description
1	Menu bar.	See the table named Scenario Filters Menu Items for more information
2	Toolbar	The toolbar buttons function in the same way as other Windows applications.
3	Entity tree	The list of available fields changes based on the selected entity.
4	List pane	List of available fields for the selected entity.

No.	Name	Description
5	Operator buttons	Operators you can use to filter your expression. See Logical Operators and Functions for Scenario Filters for more information.
6	Scenario Filter Expression pane	Shows the scenario filter expressions. See User Scenarios for more information.

The following table describes the menu items related to scenario filtering in the Scenario Editor.

Table 14: Scenario Filters Menu Items

Menu Item	Button	Description
Edit Scenario Filters		From the EDIT menu, select this item to open the Scenario Filter Editor. You can also open the Scenario Filter Editor by clicking the EDIT SCENARIO FILTER button on the SCENARIO EDITOR toolbar.
Scenario Filters (Disabled/Enabled)	 —enabled (green)  —disabled (red)	From the EDIT menu, select this item to switch between enabling and disabling of Scenario filtering for the entity selected. You can also click the ENABLE/DISABLE SCENARIO FILTER button on the SCENARIO EDITOR toolbar. The color of the button changes to indicate whether filters are included (enabled) or excluded (disabled) from the scenario.
Show Filters	None	From the VIEW menu, select this item to show the filters for the current scenario.

Related Topics

[Logical Operators and Functions for Scenario Filters](#)
[Regular Expressions in Scenario Filters](#)

Logical Operators and Functions for Scenario Filters

The logical operators that are used in a Scenario filter are described in the following table:

Table 15: Logical Operators for Scenario Filters

Operator	Description
AND	Logical operator
OR	Logical operator
=	Equal
!=	Not equal
<	Less than
<=	Less than or equal to
>	Greater than
>=	Greater than or equal to
!	Not

The following functions are available for scenario filters:

- `MatchesRE(<field>, "<expression>")`
- `IsNull()`

Regular Expressions in Scenario Filters

Use the `MatchesRE` function to filter a user-defined scenario based on the result of a regular expression. Using regular expressions is a common way to match and process patterns in text.

Tip: Use the equal (=) operator for comparing an entire string, rather than the `MatchesRE` function, to reduce the time it takes to apply a scenario filter.

The `MatchesRE` function applies a regular expression to a field's value and includes the entity in the scenario if a regular expression finds a match.

Note: The `MatchesRE` function processes a field's value as text.

The syntax for the `MatchesRE` function is as follows:

Syntax

`MatchesRE(<field>, "<expression>")`

The parameters for the `MatchesRE` function are described in the following table:

Table 16: Parameters for MatchesRE

<i>Parameter</i>	<i>Description</i>
<i><field></i>	Available field for the entity.
<i><expression></i>	A limited regular expression, enclosed in quotation marks.

The following table lists the special characters that you can use in your regular expression:

Table 17: Special Characters for Regular Expressions

Character	Description	Example
+	Plus sign. A quantifier that matches one or more occurrences of the regular expression.	[a-z] Matches one or more lowercase characters.
*	Asterisk. A quantifier that matches zero or more occurrences of the regular expression.	[a-z]* Matches zero or more lowercase characters
?	Question mark. A quantifier specifying that a preceding regular expression can only occur zero or once in the string.	xy?z Matches either xyz or xz.
.	Period. Matches any character.	.umpty Matches Humpty and Dumpty
[and]	A set of characters enclosed in brackets is a one-character regular expression that matches any of the characters in that set. A range of characters can be indicated with a dash.	[akm] Matches either an a, k, or m. [a-z] Matches any lowercase letter within the range.
^	Carat. If used in brackets, then the regular expression matches any character except those in the set. If used at the beginning of the regular expression, then the matched string must be at the beginning of a string.	[^akm] Matches any character except a, k, or m. ^a* Matches any string that begins with an a, such as a1000a or a1000b.
\$	Dollar sign. If used at the end of the regular expression, then the matched string must be at the end of the string.	*a\$ Matches any string that ends with an a. *21\$ Matches any string that ends with 21, CSF21 for example, but not B21LA.

Note: Regular expressions use a rigid and complex syntax. There are many books and resources available to learn more about the use of these expressions. Prospect software only supports the special characters described in the above table. For detailed information about regular expressions, see the *Expressions Technical Reference*.

Creating a Scenario Filter

A User scenario must exist before you can create a scenario filter (see [Creating a User Scenario](#) for more information).


To create a scenario filter

1. Open a user-defined scenario.
2. From the EDIT menu, select EDIT SCENARIO FILTERS, or click the EDIT SCENARIO FILTER button on the toolbar. The SCENARIO FILTER EDITOR window opens and is similar to the example in the figure entitled Scenario Filter Editor.

Note: The Scenario Filter Editor contains an OPERATORS button bar similar to the one in the User Defined Calculation Editor.

3. Select an entity in the entity tree pane to define the level to which the filter is applied.
4. Build your filtering equations from fields in the list pane and from the logical operators on the OPERATORS button bar.

As you build an equation, it is displayed in the SCENARIO FILTER EXPRESSION pane. Whenever you highlight the entity in the entity tree pane, the equation is displayed in the SCENARIO FILTER EXPRESSION pane.

5. Save the results by selecting SAVE from the FILE menu. The icon for the entity in the tree pane changes to .

Modifying or Deleting a Scenario Filter

The following procedures describe how to modify or delete a scenario filter.

To modify a scenario filter

1. Open the user-defined scenario that contains the filter you want to modify.
2. From the EDIT menu, select EDIT SCENARIO FILTERS, or click the EDIT SCENARIO FILTER button on the toolbar. The SCENARIO FILTER EDITOR window opens.
3. Select the entity in the entity tree pane where the filter is defined.
4. Modify your filtering equations from fields in the field pane and from the logical operators in the OPERATORS button bar.
5. Save the results by selecting SAVE from the FILE menu.

To delete a scenario filter

1. Open the user-defined scenario that contains the filter you want to delete.
2. From the EDIT menu, select EDIT SCENARIO FILTERS, or click the EDIT SCENARIO FILTER button on the toolbar. The SCENARIO FILTER EDITOR window opens.
3. Select the entity in the entity tree pane where the filter is defined.
4. Select DELETE from the EDIT menu. The filter is removed.

Viewing Entity Data

Entity data consists of the attributes of individual entities. In the case of a cellular network, entity data often includes such information as latitude, longitude, and elevation; street address; or compass bearing and distance from some reference point.

The Prospect data administrator maintains entity data. All users can view entity data.

To view entity data

1. In the PROSPECT EXPLORER window, move to the list pane and open a scenario that contains the entity for which you want to view configuration data.
2. In the SCENARIO EDITOR window, select one or more entities, click the FILE menu, and select VIEW ENTITY DATA. The SELECT ENTITY dialog box opens.
3. In the SELECT ENTITY dialog box, click the menu and select the type of entity for which you want to view configuration data.
4. Click OK. The appropriate DATA VIEWER window opens, with data for all entities that are:
 - Of the type you specified in the SELECT ENTITY dialog box
 - Either the entity you selected in the scenario, or one of its descendants
5. Scroll through the Data Viewer to view entity data.

Note: If the data administrator assigns custom data to an entity, the entity data is displayed in the CUSTOM FIELD column in the DATA VIEW window.

4 About Traffic Reports

The primary purpose of Prospect software is to generate Traffic reports, which provide information about the performance of a wireless network.

This chapter discusses Traffic report concepts in the following sections:

- [Traffic Report Basics](#)
- [Process for Creating Traffic Reports](#)
- [Field Types](#)
- [Aggregation of Field Values](#)
- [Busy Hours and Summations](#)
- [Missing Data and Confidence Factors](#)

After reading this chapter, you should be able to understand the following:

- Steps necessary to generate traffic reports
- Common aspects between the various Traffic report types
- General information about stored data

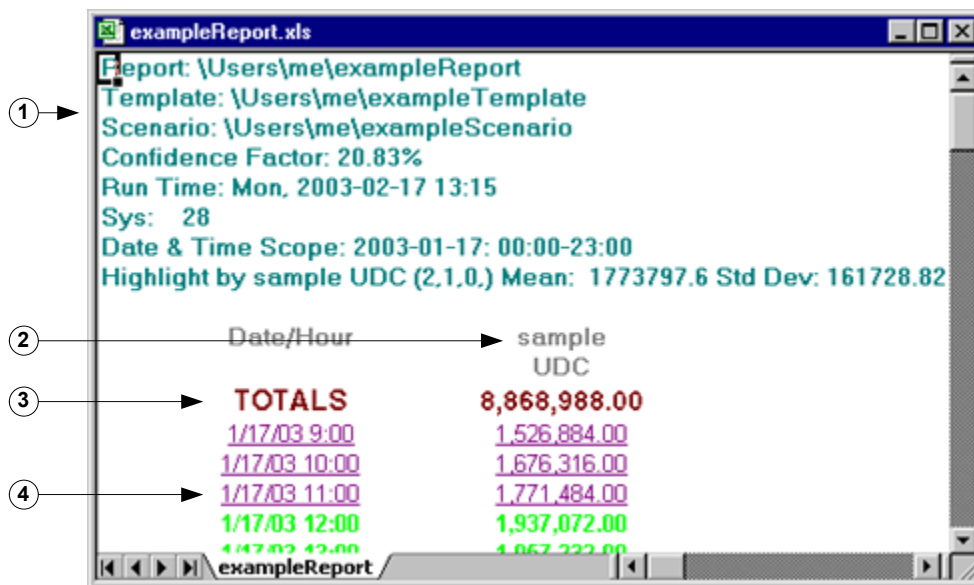
For information on trending analysis for Traffic reports, see [Trending Analysis for Traffic Reports](#).

Traffic Report Basics

Traffic reports provide information about the activity on your network on a per-time-unit basis. The Prospect system can aggregate those incremental values into hourly, daily, weekly, monthly, or yearly totals. It can also pick out busy periods for any field.

The characteristic features of Traffic reports are labeled in the following figure.

Figure 8: Sample Traffic Report



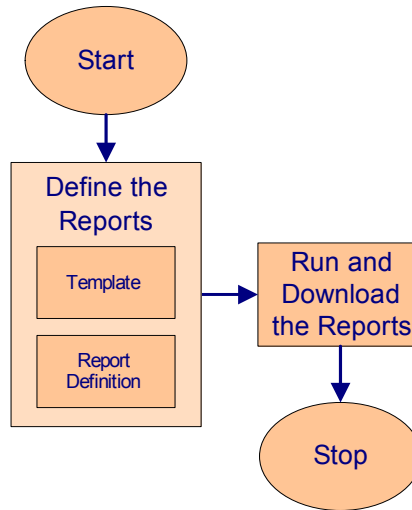
Legend:

No.	Description
1	Report header information that list the report definition properties. For more information on the confidence factor, see Confidence Factors on page 68.
2	Field heading. The first line is the HeadingLine1 value and the second line is the value of HeadingLine2 for a field.
3	Individual section total information. The value of this row is also used in summary sections.
4	Individual information for designated time periods.

Process for Creating Traffic Reports

The general process for creating Traffic report is described in the following figure.

Figure 9: Creating Traffic Reports



The following table lists the tasks from the previous figure, including where you can find more information about them in this guide.

Table 18: Tasks for Creating Reports

Task	For More Information See...
Define the report	Sections in this chapter, Traffic Report Types , and Defining Traffic Reports
Run and download the report	Running and Downloading Reports

Field Types

Reports contain performance data based on the fields that are included in a Template. The Prospect client allows you to include a number of different field types in a Template. The following table lists the different field types.

Table 19: Field Types

Field Type	Description
Data availability	Data availability fields are automatically created for each data file type that is loaded.

Table 19: Field Types (Continued)

Field Type	Description
External	<p>The external field type allows you to include external data in your reports. This data can be managerial in nature, related to fault alarms, involve dropped calls, or whatever is important to you.</p> <p>Using cells as an example, here are some sample scenarios. In addition to performance data:</p> <ul style="list-style-type: none">• A manager wants to know who is currently in charge of a specific cell this week.• An operator wants to know the alarm statistics for a cell.• An engineer wants to see data on dropped-calls per cell.
Primitive calculation	<p>A performance metric whose value is determined by a set of calculations performed at report generation.</p>
Roll-up	<p>Roll-up fields provide aggregated information about a field at a higher level in the traffic hierarchy.</p>

Related Topics

[User-Defined Calculations Tool](#)

Aggregation of Field Values

Each field in a template has an aggregation type. Aggregation types and aggregation of descendants are discussed in the following sections:

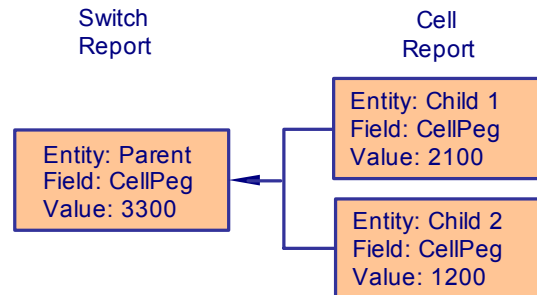
- [Aggregation of Descendants](#)
- [Aggregation Types](#)

Aggregation of Descendants

Aggregation of descendants occurs when a template defined at one entity level includes a field whose value is determined at a lower entity level. The reported value for the field will be an aggregation of all of the field values for each entity at the lower, or child, entity level.

The concept of aggregation, for a summation aggregation type, is illustrated in the following figure.

Figure 10: Aggregation of Descendants Using Summation



Prospect software deals with aggregation in two dimensions:

- By time
- By element

Aggregation by time is the grouping of values from several shorter intervals into a single value representing the entire time interval.

Aggregation by element (entity) is the grouping of values from child elements to a common parent. In most cases, fields are aggregated using the same function for both time and element.

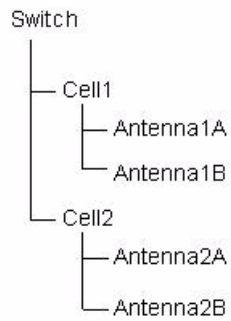
Each field expression must be assigned an aggregation type when created. This aggregation type is the basis for the semantics that will be used in aggregating over time or element.

It should be noted that the Prospect software efficiently uses the Oracle database to provide the time-aggregated data. As a result, all time-series data is aggregated by the Oracle database whenever possible.

Example

The following example illustrates aggregation of data for a simple switch entity hierarchy using the aggregation type `sum`. The hierarchy consists of a switch with two cells, where each cell has two antennas, as shown in the following figure:

Figure 11: Example Hierarchy



Assume we have raw data for a three-hour period, as shown in the following table.

Table 20: Raw Peg Data

Entity	Switch	SwicthPeg.1	CellPeg.2	AntennaPeg.3
Switch	Hour 1	100		
	Hour 2	200		
	Hour 3	300		
Cell1	Hour 1		10	
	Hour 2		20	
	Hour 3		30	
Antenna1a	Hour 1			1
	Hour 2			2
	Hour 3			3
Antenna1b	Hour 1			2
	Hour 2			4
	Hour 3			6
Cell2	Hour 1		50	
	Hour 2		60	
	Hour 3		70	
Antenna2a	Hour 1			7
	Hour 2			8
	Hour 3			9

Table 20: Raw Peg Data

<i>Entity</i>	<i>Switch</i>	<i>SwicthPeg.1</i>	<i>CellPeg.2</i>	<i>AntennaPeg.3</i>
Antenna2b	Hour 1			10
	Hour 2			11
	Hour 3			12

The report template contains fields *SwitchPeg.1*, *CellPeg.2* and *AntennaPeg.3*, representing counters for switch, cell and antenna, respectively. If we run a switch report for the three-hour period, we get the output shown in the following figure.

Figure 12: Switch Report

Switch Report		SwitchPeg.1	CellPeg.2	AntennaPeg.3
	Totals	600	240	75
	hr 1	100	60	20
	hr 2	200	80	25
	hr 3	300	100	30

In the *Totals* row, the pegs have been summed over three hours to produce a total of 600 for the switch, 240 for the cells, and 75 for the antennas. This is called aggregation over time. In the rows *hr 1*, *hr 2* and *hr 3*, the pegs have been summed for each hour over all instances of the element. This is termed aggregation over element (instances).

If we run a cell report of the same kind, we get the output shown in the following figure

Figure 13: Cell Report

Cell Report		SwitchPeg.1	CellPeg.2	AntennaPeg.3
Cell1	Totals	600	60	18
	hr 1	100	10	3
	hr 2	200	20	6
	hr 3	300	30	9
Cell2	Totals	600	180	57
	hr 1	100	50	17
	hr 2	200	60	19
	hr 3	300	70	21

This really consists of two sub-reports, one for *Cell1* and one *Cell2*. Because the field *SwitchPeg.1* is included in the report template, the counts for the switch are shown in the sub-reports for each cell. The peg counts for the cells are now shown separately (unaggregated) and summed only over time to produce separate totals for each cell. The antenna counts are

aggregated both over element and over time (for the total), but they are aggregated by element (that is, by antenna) only within the respective cell.

If we run an antenna report of the same kind, we get the output shown in the following figure

Figure 14: Antenna Report

Antenna Report				
Antenna1A		SwitchPeg.1	CellPeg.2	AntennaPeg.3
	Totals	600	60	6
	hr 1	100	10	1
	hr 2	200	20	2
Antenna1B		SwitchPeg.1	CellPeg.2	AntennaPeg.3
	Totals	600	60	15
	hr 1	100	10	4
	hr 2	200	20	5
Antenna2A		SwitchPeg.1	CellPeg.2	AntennaPeg.3
	Totals	600	180	24
	hr 1	100	50	7
	hr 2	200	60	8
Antenna2B		SwitchPeg.1	CellPeg.2	AntennaPeg.3
	Totals	600	180	33
	hr 1	100	50	10
	hr 2	200	60	11
Antenna2B		SwitchPeg.1	CellPeg.2	AntennaPeg.3
	Totals	600	180	33
	hr 1	100	50	10
	hr 2	200	60	11
Antenna2B		SwitchPeg.1	CellPeg.2	AntennaPeg.3
	Totals	600	180	33
	hr 1	100	50	10
	hr 2	200	60	11
Antenna2B		SwitchPeg.1	CellPeg.2	AntennaPeg.3
	Totals	600	180	33
	hr 1	100	50	10
	hr 2	200	60	11
Antenna2B		SwitchPeg.1	CellPeg.2	AntennaPeg.3
	Totals	600	180	33
	hr 1	100	50	10
	hr 2	200	60	11
Antenna2B		SwitchPeg.1	CellPeg.2	AntennaPeg.3
	Totals	600	180	33
	hr 1	100	50	10
	hr 2	200	60	11
Antenna2B		SwitchPeg.1	CellPeg.2	AntennaPeg.3
	Totals	600	180	33
	hr 1	100	50	10
	hr 2	200	60	11

We now see four sub-reports, one for each antenna, with *SwitchPeg.1* and *CellPeg.2* fields now both appearing as reflections of parent entity data. Within the *AntennaPeg.3* fields for each antenna, the counts are aggregated over time to produce a sum in the Totals column, but they not aggregated over element because only one element instance exists.

Aggregation Types

Aggregation types provide Prospect software with information on how to combine field values. There are separate aggregation types for time and element, as described in the following tables.

Table 21: Aggregation Types

Type	Description
Average	Tells the Prospect software to average values (for example, processor occupancies) over time or element.

Table 21: Aggregation Types (Continued)

<i>Type</i>	<i>Description</i>
Max	Tells the Prospect software to evaluate values and pick the highest value. Used for measures like software version numbers.
Min	Tells the Prospect software to evaluate values over time or by element, and pick the minimum value. Useful for certain quantities that must pass through aggregation unchanged and display the minimum.
Null	Tells the Prospect software that these values are not meaningful to aggregate. Null is used to prevent any kind of aggregation from occurring. As a result, reports will show no summary values for the selected field.
Sum	Tells the Prospect software that the expression represents a sum (for example, lost calls) or a weighted average. This aggregation type sums values over time and element. Used for pegs and weighted averages.

The following table shows the most commonly used combinations of time and element types.

Table 22: Commonly Used Aggregation Types

<i>Time Aggregation Function</i>	<i>Element Aggregation Function</i>	<i>Comment</i>
sum()	sum()	Used for pegs and weighted averages. This combination of aggregation types was known as Sum in previous versions of Prospect.
average()	average()	Used for counters that express some idea of occupancy, load, ratio or usage. This combination of aggregation types was known as Average in previous versions of Prospect.
max()	max()	Useful for certain quantities that display the maximum and pass through aggregation unchanged. This combination of aggregation types was known as Constant in previous versions of Prospect.
max()	null	Used for measures like software version numbers. Maximum values are found over time; however, aggregation to a parent element is meaningless and not supported. This combination of aggregation types was known as Label in previous versions of Prospect.
max()	sum()	Designed for more constant types of return results such as number channels assigned or number of processors. Note the semantics for the two dimensions are different. This combination of aggregation types was known as Quantity in previous versions of Prospect.

Table 22: Commonly Used Aggregation Types (Continued)

<i>Time Aggregation Function</i>	<i>Element Aggregation Function</i>	<i>Comment</i>
null	null	Null is used to prevent any kind of aggregation from occurring. As a result, reports will show no summary values for the selected field. This combination of aggregation types was know as NULL in previous versions of Prospect.
min()	min()	Useful for certain quantities that must pass through aggregation unchanged and display the minimum. This combination of aggregation types was know as Minimum in previous versions of Prospect.
sum()	avg()	The aggregation type allows the Prospect software to provide results summed over time and average over element. This combination of aggregation types was know as SumAvg in previous versions of Prospect.
avg()	sum()	The aggregation type allows the Prospect software to provide results averaged over time and summed over element. This combination of aggregation types was know as AvgSum in previous versions of Prospect.

Busy Hours and Summations

Some report types allow you to specify ways in which to summarize field information using busy hours and summations. Busy hours and summations are described in the following sections:

- [Traffic Summations](#)
- [Traffic Busy Hours](#)

In most cases, use stored busy hours and summations when available, to improve the performance of the report generation process.

Important: In some cases, you cannot generate reports unless you use stored busy hours.

Traffic Summations

A *stored summation* takes every field for an entity, aggregates it per day, week or month, and stores the results in the database. Because one stored summation covers all fields for an entity, there is only one stored summation per equipment entity type and frequency. There is no point in storing summations for logical entity types, because they generate no data.

There are two primary reasons to define stored summations:

- When a report is generated, they save the time involved in aggregating busy-hour criteria, ranking busy periods, and picking busy times while generating the report. This can speed up report generation significantly—and reduce the burden on your computing facilities.
- Performance data might not be available for more than a few months. Stored summations might be your only access to older data.

A Prospect data administrator creates stored summations (for more information, see the *Prospect Administration Guide*). Other users can view and use them in Traffic report definitions.

Note: Stored summations are based on all 24 hours of the day. Prospect software cannot use stored summations to create report output with selected periods.

To create a traffic report using stored summations

1. On the REPORT TYPE page of the TRAFFIC REPORT EDITOR dialog box, click the GROUP BY menu and select an option with a time period of a day or longer. The USE STORED DATA check box appears.
2. Select the USE STORED DATA check box. The list pane at the bottom of the page changes:
 - a. If your GROUP USING selection is SUMMATION, the list pane displays STORED SUMMATIONS.
 - b. If your GROUP USING selection is a busy hour option, the list pane displays STORED BUSY HOUR CRITERION.
3. Click a name in the list pane to select it as the stored summation or stored busy hour criterion. Check the FIRST AVAIL and LAST AVAIL columns to confirm that the stored values cover the entire date-time scope of your report definition.

Traffic Busy Hours

A *busy hour* is the busiest hour of the day for some performance metric. It reflects the peak demands on the network, for that metric, for each day.

Note: An *hour* is not necessarily an hour in the conventional sense (such as, from 10:00 to 11:00). It can start at any part of an hour and extends thereafter for 60 minutes (such as, from 10:20 to 11:20).

Fields used for busy hour determination typically represent a suitable metric for measuring how busy a system is. These fields are generally positive indicators (such as calls attempted or calls completed, usage, or processor load), rather than negative fields (such as failed attempts or calls dropped). However, you can use these negative fields to detect problems in the system. For

example, you could run a report to determine whether the percentage of call failures correlated with the usage busy hour.

Prospect software can compute busy hours for any level in an entity hierarchy. A typical busy hour represents the total usage over an entire system. Another busy hour could represent the total usage for each entity. This capability is useful when different entities serve geographically diverse locations. For instance, *Entity A* might manage cells in a suburban area and *Entity B* might cover a city center. Each entity could be busy at different times of the day because business and private-life calling habits differ.

Note: The data availability calendar, on the Date-Time Scope tab of the Report Editor always displays data availability for the System entity even though data is not collected from the System entity. If you use the System entity in your report definition, your report will succeed only if you include system entity fields. See [Report Definitions](#) for more information about creating a report definition.

When to Use Busy Hours

Traffic engineers often focus on data collected during the busiest hour because that is the time when the system is most stressed and therefore most likely to behave abnormally. The busy hour is the time when most customers are using the system and so problems that arise are experienced by a greater number of customers.

Traffic engineers also use busy hours when determining the necessary network capacity. They need to provide enough capacity during times of peak demand. Busy hours are also used to generate long-term trends, so that you can project traffic growth. Trending is useful for fault management; for example, you can compare busy hours against historical trends to trigger alarms if current values fall outside a reasonable range. (See [Trending Analysis for Traffic Reports](#) for a complete discussion.)

Busy Hour Determiners

The parameters that define how a busy hour is computed are collectively called a *busy hour determiner*. Only the Prospect administrator can create busy hour determiners. Busy hour determiners are used as a part of a stored busy hour definition and for defining a non-stored busy hour.

A busy hour determiner is composed of the following:

- **Cluster entity level** — Defines the level in the entity hierarchy for which the busy hour is computed. The selected cluster entity level defines one busy hour for all of its child entities.
- **Field** — Defines the counter or calculation that is used to compute the busy times for each hour of the day.
- **Scenario** — Determines the set of elements included in the busy hour calculation. It also determines the set of cluster entity level elements for which busy hour results are generated.

- **Data and time** — Defines the hours (or parts of hours) that the calculation includes for the busiest hour.

Scenario-Based Busy Hours

Scenario-based busy hours make it possible to exclude specific elements from the busy hour calculation altogether. This can be important when you want to exclude a particular entity in your busy hour determinations. Scenario-based busy hours also allow you to generate busy hour reports based on a few elements (such as cells), even though the busy hour computation is based on data from a more complete set of elements.

When a busy hour determiner is scenario-based, the busy hour scenario overrides the reporting scenario. If a scenario is not specified in the busy hour determiner, the busy hour is computed by using the same scenario as the report.

Stored Busy Hours

Busy hours calculations are often complex and require great amounts of data for computation. Therefore, the Prospect client enables you to store the results of a busy hour determination. You can then use the stored results when creating a busy hour report. Traffic data for stored busy hours are often stored longer than the complete set of data. Therefore, stored busy hours might be your only option for developing long-term trending analysis.

Using stored busy hours reduces the burden on your computing facilities and increases the amount of time it takes to generate a report. Although you can create reports with either stored or non-stored busy hours, using stored busy hours is the most efficient way to run reports.

If the stored busy hour determiner is designated as a scenario-based busy hour, then the calculation only generates results for cluster entity elements contained within that scenario and data used in any aggregation during that busy hour calculation come solely from elements that are members of that scenario.

However, if a stored busy hour determiner does not have a scenario defined, then the system generates data for each Active scenario and for each cluster entity element contained within those scenarios. An exception is if the cluster entity level is System, no Active scenario is used, and busy hours are computed for all systems (each system might still have its own busiest hour). All elements below System are included in the calculation when counters are aggregated. The aggregation includes results for inactive elements, which can affect totals in certain calculations.

Because stored busy hours are computed before the report runs, you have no control over the busy hour scenario when you define a report.

Important: Note which stored busy hours are scenario-based to ensure that you use a related scenario for the report definition.

To create a traffic report using stored busy hours

1. On the REPORT TYPE page of the TRAFFIC REPORT EDITOR, click the GROUP BY drop-down list box and select a grouping pair. Base your selection according to the following:
 - The time period you select is the time period from which the Prospect system selects the busiest hour. For example, if you choose WEEK AND NETWORK ELEMENT, your report output returns the busiest hour of each week.
 - The first item in the pair defines the content of each page, the second item defines the rows (or columns) of the report output. For instance, a DAY AND NETWORK ELEMENT report has one page for each day, one row for each element (or column, depending on the report format).
2. Select the USE STORED DATA check box and then select one of the busy hour determiners that the administrator has prepared from the GROUP USING drop-down list box. The STORED BUSY HOUR CRITERION list box appears.
3. Select the performance measure you need from the STORED BUSY HOUR CRITERION list box.
4. Save the report.

Non-Stored Busy Hours

You can choose not to use stored busy hours to create a busy hour report. One reason why you would use non-stored busy hours is when none of the stored determiners meet your requirements. Using a non-stored busy hour determiner provides greater flexibility at the cost of greater report generation time.

As with stored busy hours, non-stored busy hour determiners can be scenario-based. Because non-stored busy hours are not created before the report runs, you can assign a different scenario to each report. The busy hour scenario selected overrides the scenario in the report.

Note: Calculating non-stored busy hours can place a heavy burden on your computing facilities, significantly reducing the time it takes to generate a report.

To create a traffic report using non-stored busy hours

1. On the REPORT TYPE page of the TRAFFIC REPORT EDITOR dialog box click the GROUP BY drop-down list box and select a grouping pair.
2. Make sure the USE STORED DATA check box is not selected.
3. Click the GROUP USING drop-down list box and select one of the busy-hour options. The BUSY HOUR CRITERION area appears.
4. In the BUSY HOUR CRITERION area:
 - a. Select an entity
 - b. Select a field

5. Select a scenario. (optional)
6. Save the report.

Missing Data and Confidence Factors

Occasional transmission problems occur between the network elements and the Prospect server, which ultimately can result in missing traffic data in the database. For data availability, the following two actions must occur:

1. The network element must successfully transfer all data files containing the traffic data to the Prospect server, and the Prospect sever must then successfully load the files into the database.
2. All data files must contain 100% of the expected traffic data. (For example, if a cell went offline and did not report data, then the data file with data from that cell would be incomplete.)

If either of the above actions fail, then traffic data is missing and missing data can distort the validity of your reports.

To determine whether your report is impacted by missing data, look at the confidence factor in the report header. To determine which network elements in a report are missing data, run the Missing Data Report. Both of these features are discussed in the following sections.

To determine whether data files have loaded successfully, use the Data Availability tool. See [Data Availability Tool](#) on page 195 for more information.

Topics

[Missing Data Report](#)
[Confidence Factors](#)

Missing Data Report

This section introduces the Missing Data Report, provides directions on how to run a Missing Data Report, and discusses how Prospect software determines missing data.

About the Missing Data Report

The Missing Data Report shows which network elements are missing data for the report date-time scope.

Example report output

```
Report: \Users\prospect
Template: \Templates\Traffic Templates\Demo Cell Report
Scenario: \Scenarios\ACTIVE-48
Run Time: Thu, 2004-04-28 13:41
System/Cell/Name/Label: Missing Data
Date & Time Scope: 2004-04-28: 00:00-23:45
```

Highlight By: Sort By:

System/Cell/Name/Label	Day	Hours
2 48 Cell: 48 Cell148	04/28/2004	17:00, 18:00, 19:00

The above example shows the header of the Missing Data Report. Beneath the header, a single line shows the network element (*Cell48* of *System 2*) and the specific hours that are missing information (17:00 through 19:00).

How to Run a Report

The Missing Data Report is optional. You run it by selecting the MISSING DATA REPORT option on the REPORT EDITOR / REPORT TYPE tab. The missing data information is included in the generated report along with the other selected report options.

How Missing Hours Are Determined

Prospect software takes all the network elements of the scenario focal entity (for example, all the cells in a Cell report) and tests for the existence of data based on time-aggregated values. This is illustrated in the following examples. Both examples discuss Cell reports for a hypothetical system in which cell traffic data is available in 15-minute reporting periods.

Example: 15-minute reporting period

If you are running a 15-minute report for a cell and there is no data for one or more 15-minute periods, then the following occurs:

- The cell and the 15-minute periods for which data is missing are displayed in the Missing Data Report.
- The confidence factor for the report is lowered. (For more information on confidence factors, see [Confidence Factors](#) on page 68.)

Example: Daily reporting period

If you are running a daily cell report and there is no data for the entire day, then that cell and day are displayed in the Missing Data Report, and the confidence factor for the report is lowered.

However, if there are one or more 15-minute periods that do contain data, then the cell is excluded from the Missing Data Report, and the confidence factor remains the same (it is not lowered).

Confidence Factors

This section explains the concept of confidence factors and provides information on how the Prospect software determines the confidence factor for a report.

About Confidence Factors

A confidence factor is a percentage that indicates whether all, most, or only some of the traffic data required for a report is available. A single confidence factor is calculated for the entire report and is included in each section heading for convenience.

Example Report Header

```
Report: \Users\prospect
Template: \Templates\Traffic Templates\Demo Cell Report
Scenario: \Scenarios\ACTIVE-48
Confidence Factor: 95%
Run Time: Thu, 2004-04-28 13:41
```

A confidence factor of 100 percent means that all the data required for the report was available. Conversely, anything under 100 percent means that data was missing. The lower the confidence factor, the more data that is missing, and the higher the likelihood that the validity of your reports is being compromised.

Note: Not all reports include confidence factors.

How Confidence Factors Are Determined

The confidence factor is a summary of the Missing Data Report. The following examples show how the confidence factor would be generated under two different sets of conditions. Both of the following examples discuss hypothetical Cell reports.

Example 1

Conditions: The traffic data is available in 15-minute reporting periods. The report includes one hour of data from 100 cells. Ten (10) of the cells are each missing the two (2) 15-minute periods.

Confidence factor: 95%

$$(1 - (10 \text{ cells} * 2 \text{ 15 minute period}) / (100 \text{ cells} * 4 \text{ 15 minute periods})) * 100$$

Example 2

Conditions: The traffic data is available in hourly reporting periods. The report includes one day (24 hours) of data from 100 cells. Ten (10) of the cells are each missing one (1) hourly period.

Confidence factor: 99.6%

$$(1 - (10 \text{ cells} * 1 \text{ hour}) / (100 \text{ cells} * 24 \text{ hours})) * 100$$

Related Topic

[Missing Data Report](#)

5 Traffic Report Types

This chapter contains information on the individual Traffic report types, and the ways in which the report output can be customized.

There are many different types of Traffic reports, all of which can contain different kinds of information about your network. The information in each Traffic report and the options that you use to specify the information in a report are described in sections for each Traffic report type.

This chapter discusses reports in the following sections:

- [Standard Traffic Reports](#)
- [N High Hours Reports](#)
- [N High Days Reports](#)
- [Forecast Reports](#)
- [Matrix Reports](#)
- [Filtered N-High Reports](#)
- [Percentile Reports](#)

After reading this chapter, you should be able to understand the following:

- Number of available Traffic report types
- Characteristics of each Traffic report type

Standard Traffic Reports

Standard reports include performance data measurements for a given time period and cover the entire date-time scope you specify in your report definition.

Standard Traffic Report Options

Standard Traffic reports have a number of options, which are described in the following table:

Table 23: Standard Report Options

<i>Option</i>	<i>Description</i>
Individual Report	Individual report information lists the performance data measurements for each entity in the report.

Table 23: Standard Report Options (Continued)

Option	Description
Summary Report	Summary report information combines the performance data measurements for each entity and lists the summary values in the report.
Missing Data Report	Selecting this option produces a missing data report. The missing data report shows which network elements are missing data for the report date-time scope. This option is not available when you select USE STORED DATA.
Include Null Rows	Selecting this option enables you to generate reports that show missing information. This option is not available when you select USE STORED DATA.
Use Stored Data	<p>Depending upon the grouping option that you select, you might have the option to create a busy hour report. Reports can only use busy hour determiners that are defined with a cluster entity level at or above the entity level of the report.</p> <p>Define a busy hour report when you want the Prospect system to pick the busiest hour from each day of your date-time scope.</p>
Suppress Page Headers & Subtotals	<p>Selecting this option creates a report that allows easy export of the report contents to a database. By selecting this check box, the report output is affected in the following ways:</p> <ul style="list-style-type: none">• Macros are disabled.• The main header remains, but the other headers are removed.• Items that are normally broken down by individual elements with individual headers are combined under the main header.• You cannot use the graph option.• Subtotals are removed for columns. <p>Note: Suppressing the page headers and subtotals does not remove summary information from a report if the Summary Report option is selected in a report definition.</p>
Check Data Availability	Selecting this option runs a data availability check before the report is run. If no data is available, an error message is printed to the log file, and the report does not run.
Include Re-homed data	<p>Re-homing associates two identification (ID) numbers with a single network element. An element instance is re-homed when it is moved from one parent element to another during a reporting period. When the equipment is moved, the Prospect software normally treats the transported equipment as a new network element and assigns it a new ID number.</p> <p>Select this option if a rehomed entity exists at the entity level of your traffic report, to obtain continuous reporting data for the transported network element.</p>

Table 23: Standard Report Options (Continued)

<i>Option</i>	<i>Description</i>
Group By	<p>Changing the grouping report information option can have a significant impact on the report output. With certain selections, you can also specify the Group Using and Use Stored Busy Hour options.</p> <p>If your server supports sub-hourly reporting periods, you can group report information using the sub-hourly options available from the GROUP BY drop-down list box. For example, if you choose to group report information by element and hour, the report will display element information in hourly intervals. If you choose to group by element and 15-minutes, the report will display information based on the sub-hourly interval. For information on using sub-hourly reporting periods, see Setting Relative Date-Time Scope Options on page 112.</p>
First Day of Week	<p>This value controls which days' values are aggregated for the week. For example, if the first day of the week is defined to be Wednesday, then the report aggregates values for the week from Wednesday through the following Tuesday. This setting is only available when the GROUP BY option includes Network Element and a time period such as Week or Week-Hour.</p>
Group Using	<p>Depending upon the selected option, you can further specify how report information is grouped using the Group By option.</p>
Scenario	<p>If the Group Using option is a busy hour, this option specifies the scenario used to compute the busy hour.</p>
GOS Type	<p>Sets the type of grade of service (GOS) value to return, based on the available types in the GOS Defaults Tool.</p> <p>Note: This option is only available if your system supports GOS defaults.</p>

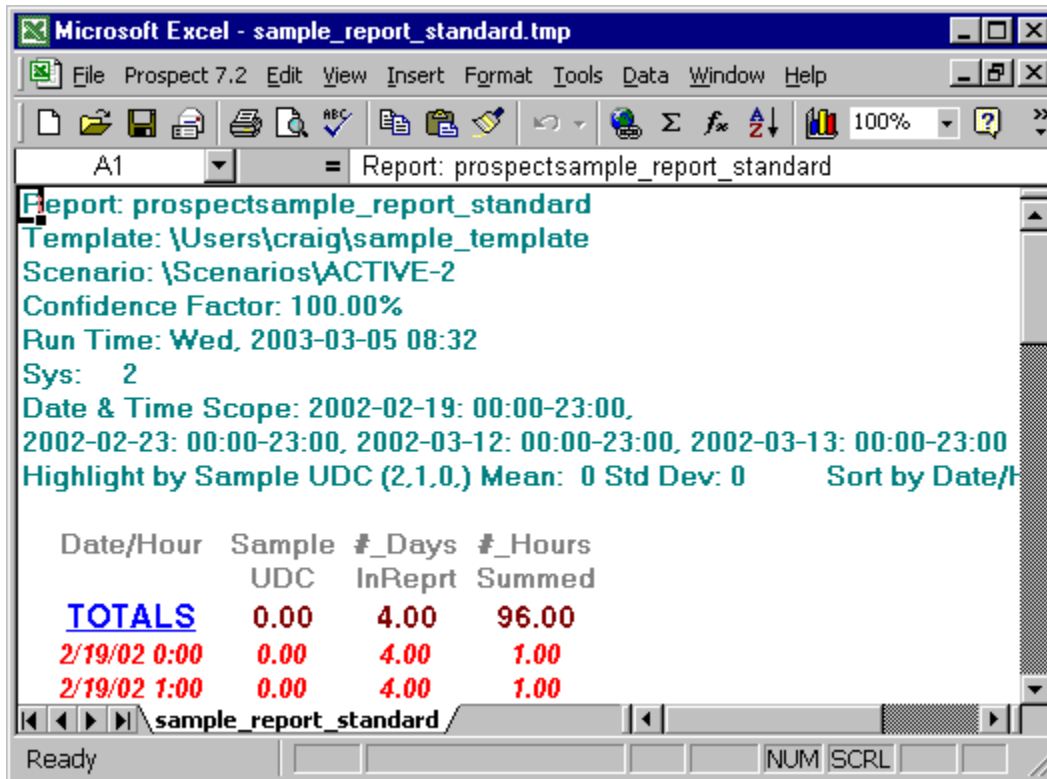
Related Topics

[Example Standard Report](#)

Example Standard Report

The following figure shows an example standard report.

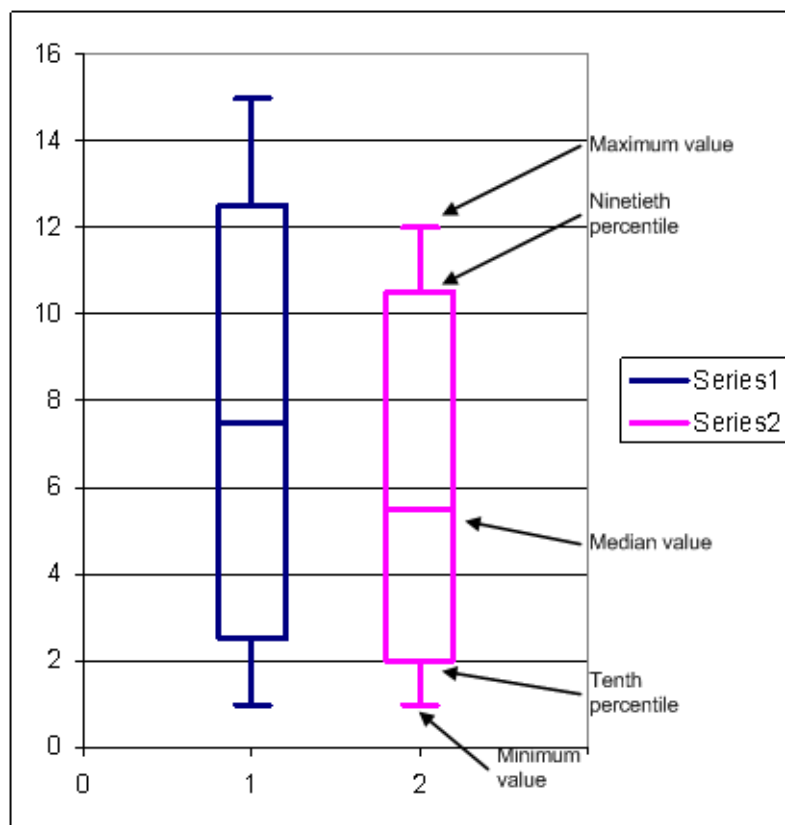
Figure 15: Example Standard Report



10-90 Percentile Graph

The 10-90 Percentile Graph is a special type of graph that you can create with individual traffic reports. This graph creates a box and whisker graph. A box and whisker graph allows you to compare the medians and ranges of data sets. Use the 10-90 Percentile graph to calculate the maximum, minimum, tenth percentile, ninetieth percentile, and average data values for all entities. The following figure shows an example of a box and whisker graph.

Figure 16: Example Box and Whisker Graph



Report Definitions for a 10-90 Percentile Graph

You create a report definition for a 10-90 percentile graph just as you would any other traffic definition, with the following exceptions:

- On the REPORT TYPE page of the REPORT EDITOR, select INDIVIDUAL REPORT.
- Select 10-90 PERCENTILE from the GRAPH drop-down list box.

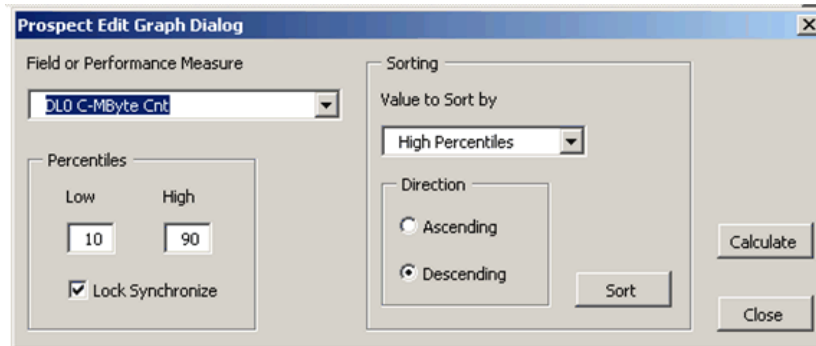
Creating a 10-90 Percentile Graph

In order to view a 10-90 Percentile graph, you must download a Traffic report.

To view a 10-90 percentile graph

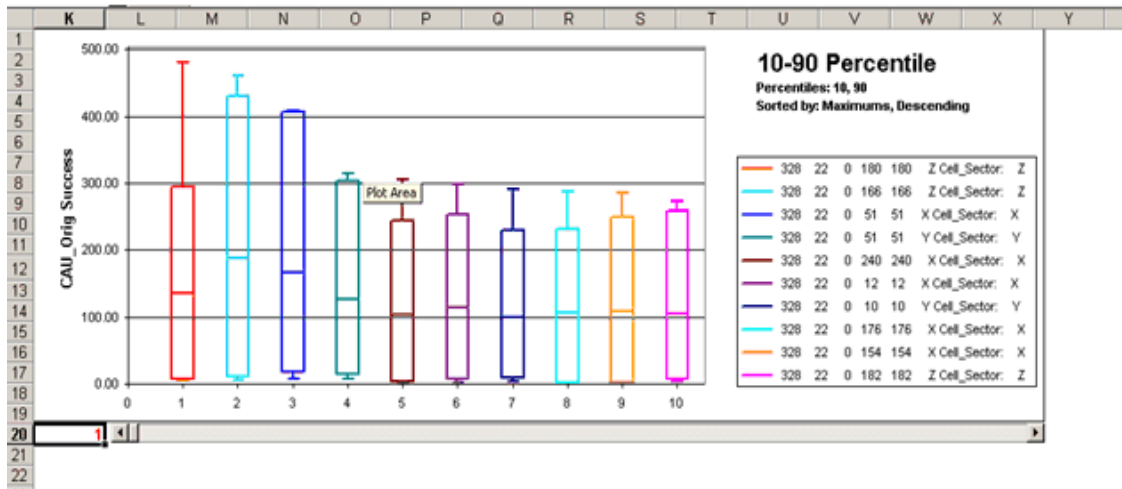
1. In the downloaded Excel report, select EDIT GRAPH... from the PROSPECT menu. The EDIT GRAPH dialog box opens.

Figure 17: Edit Graph dialog box



2. Select the field or performance measurement from the FIELD OR PERFORMANCE MEASURE drop-down list box.
3. Enter the percentiles in the corresponding LOW and HIGH text boxes.
4. Select the data you want to sort by from the VALUE TO SORT BY drop-down list box.
5. In the DIRECTION area, select the display order for your data and click CALCULATE. The corresponding 10-90 Percentile graph opens as shown in the following figure.

Figure 18: 10-90 Percentile Graph



N High Hours Reports

Use N High Hours reports to select the busiest number (N) of hours that occur for a given date-time scope. Unlike Standard reports that use stored busy hours, N High Hours reports do not use stored busy hours because the busy hours are stored as a single hour per day. N High Hours reports show the number of busiest hours from the entire reporting period and must allow more than one busy hour to fall on the same day.

N High Hours Report Options

N High Hours reports have a number of options, which are described in the following table:

Table 24: N High Hours Report Options

<i>Option</i>	<i>Description</i>
Missing Data Report	Missing data information allows you to see the performance data measurements that were not available at the time of report generation.
Summarizer	A summarizer determines the entity level in the system at which the busy periods are evaluated; for example, if you choose Trunk Group Busy Hour, the Prospect system evaluates the traffic through trunk group network elements.
Scenario	Specifies the scenario used to compute the busy hour.
Range	Set the high and low rank of the time periods you want to see in the report output. For example, if high and low ranks are both set at 1, report output is produced that includes only the single busiest hour; high rank set at 2 and low rank at 4 produces report output that includes the second through fourth busiest hours.
Busy hour criterion	The field that you want the Prospect system to rank as its busy period criterion.
Include Null Rows	Selecting this option enables you to generate reports that show missing information.
GOS Type	Sets the type of grade of service (GOS) value to return, based on the available types in the GOS Defaults Tool . Note: This option is only available if your system supports GOS defaults.

Related Topics

[Example N High Hours Report](#)

Example N High Hours Report

The following figure shows an example of an N High Hours Report.

Figure 19: Example N High Hours Report

Microsoft Excel - traffic_n-high-hours.xls

File Prospect 7.2 Edit View Insert Format Tools Data Window Help

A1 = Report: \Users\user\report

Report: \Users\user\report
Template: \Users\user\template
Scenario: \Scenarios\myscenario
Confidence Factor: 100%
Run Time: Thu, 2002-12-19 14:31
Date & Time Scope: 2002-12-17 to 2002-12-18: 00:00-23:00
Item Reported: CDNbmCS

NE	Order	Date	Value	%Av
28 2	1.00	12/18/02 17:00	407,452.00	
28 2	2.00	12/18/02 21:00	402,116.00	
28 2	3.00	12/18/02 10:00	398,716.00	
AVERAGE	-	-	402,761.00	100.00
TOTALS	-	-	402,761.00	100.00

report

Ready NUM SCRL

N High Days Reports

N High Days reports use a single busy hour selected for each day, and then the busiest number (N) of days are calculated over the period defined by the date-time scope. N High Days reports take the data for your busy criterion, aggregate them per day, and include the days that match the busy period rankings that you specify in the report definition.

N High Days Report Options

N High Days reports have a number of options, which are described in the following table:

Table 25: N High Days Report Options

<i>Option</i>	<i>Description</i>
Missing Data Report	Missing data information allows you to see the performance data measurements that were not available at the time of report generation.
Summarizer	A summarizer determines the entity level in the system at which the busy periods are evaluated; for example, if you choose Trunk Group Busy Hour, the Prospect system evaluates the traffic through trunk group network elements.
Scenario	Used if the Summarizer option is a busy hour. Specifies the scenario used to compute the busy hour.
Range	Set the high and low rank of the time periods you want to see in the report output. For example, if high and low ranks are both set at 1, report output is produced that includes only the single busiest hour; high rank set at 2 and low rank at 4 produces report output that includes the second through fourth busiest hours.
Use Stored Busy Hour	Reports can only use busy hour determiners that are defined with a cluster entity level at or above the entity level of the report.
Include Null Rows	Selecting this option generates reports that show missing information.
GOS Type	Sets the type of grade of service (GOS) value to return, based on the available types in the GOS Defaults Tool . Note: This option is only available if your system supports GOS defaults.

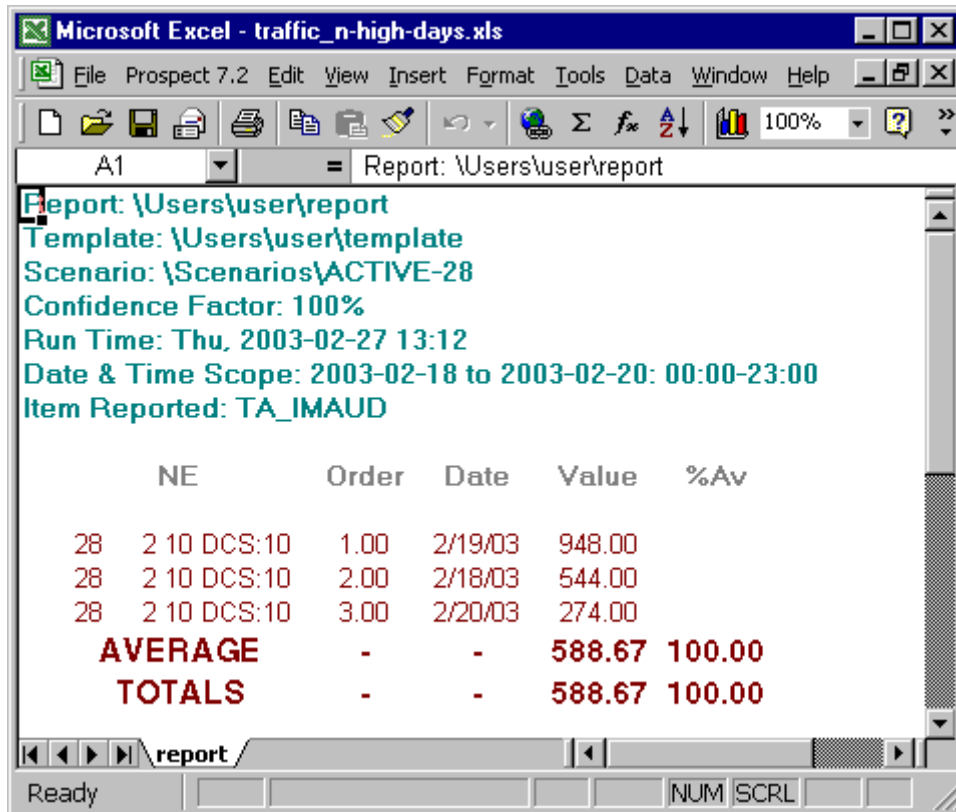
Related Topics

[Example N High Hours Report](#)

Example N High Days Report

The following figure shows an example N High Days report.

Figure 20: Example N High Days Report



Microsoft Excel - traffic_n-high-days.xls

File Prospect 7.2 Edit View Insert Format Tools Data Window Help

A1 = Report: \Users\user\report

Report: \Users\user\report
Template: \Users\user\template
Scenario: \Scenarios\ACTIVE-28
Confidence Factor: 100%
Run Time: Thu, 2003-02-27 13:12
Date & Time Scope: 2003-02-18 to 2003-02-20: 00:00-23:00
Item Reported: TA_IMAUD

NE	Order	Date	Value	%Av
28 2 10 DCS:10	1.00	2/19/03	948.00	
28 2 10 DCS:10	2.00	2/18/03	544.00	
28 2 10 DCS:10	3.00	2/20/03	274.00	
AVERAGE	-	-	588.67	100.00
TOTALS	-	-	588.67	100.00

report

Ready

NUM SCRL

Forecast Reports

Note: This is an optional feature that requires [Forecast Templates](#). To determine whether your installation supports forecast reports, contact your Prospect data administrator or your customer support representative.

Forecast reports analyze a one-week period and track the growth rate of a particular attribute (such as cell site traffic). Forecast reports make traffic projections that help identify the busiest periods on your network and to simplify the task of planning and building out your network.

This section contains the following topics:

- [What are Forecast Reports??](#)
- [Forecast Templates](#)
- [Forecast Report Options](#)
- [Forecast Attributes](#)
- [Regression](#)

What are Forecast Reports?

The trends shown in a forecast report vary, depending on your choice of forecast attribute, busy hour criterion, and correlation coefficient thresholds. Forecast reports can help anticipate when a part of your network will reach its *threshold*; that is, the point at which the network elements attain their full capacity. Predicting the threshold can help detect when short-term capacity problems can appear. This knowledge in turn can help avoid traffic congestion problems in the near future.

The term *forecast report* refers to a class of reports designed to track the growth (in particular, the rate of growth) of a particular attribute. Forecast reports are specialized versions of weekly stored busy hour reports. There are two types of forecast reports: *forecasting* and *historical*. Historical reports provide the key statistical information about existing capacities and utilization. Forecasting reports provide a listing of network elements that could either reach their capacity or remain under-used for a defined time period.

Forecast Templates

Forecast templates are traffic report templates that contain fields specific to forecast reports. As with other traffic report templates, forecast templates contain a list of user-defined fields displayed as columns in the report output.

Forecast templates differ from other traffic report templates in the way the data is used. In forecast templates, some of the fields access forecast expressions and functions that cause the Report Generator to perform additional analysis of the data set on which it is reporting. For example, an expression can compute the linear regression of cell usage to determine its growth rate.

To use the templates, modify the content of the forecast field expressions.

Forecast Fields

Forecast fields are fields that are needed for a forecast report. Forecast fields use special extensions to the regular expression library that access forecast-related data (such as PABH3 and PABH5 values). See Forecast Reports in the *Expressions Technical Reference* for complete discussion and a list of expressions.

Warning: Using forecast fields with traffic reports that are not Forecast reports will produce erratic results.

Forecast Report Options

Forecast reports have a number of options, which are discussed in the following table:

Table 26: Forecast Report Options

Option	Description
Forecast Attribute	Determines the calculation that produces each of the data points plotted on the graph (see Forecast Attributes for discussion).
Forecast N1, N2, and N3	Used in forecasting with linear regression (see Regression for discussion). Each box defines the number of days for which you want a forecast past the last truncated date of collected data. In these boxes you enter the number of days you want to use to calculate projected values. They are typically 60, 90, and 120 days, but can be any integer value. You can access them in the templates by using a field that includes the regular expression WM_FCAST_DAYS (N) , where N is 1, 2, or 3.
Correlation Coeff. Threshold	Defines the acceptable range of data for determining the regression line (see Correlation Coefficient for discussion). It is a function-accessible value, WM_FCAST_CCOTHRESH () , that you can use in Forecast reports to filter out rows whose correlation coefficient is below the threshold. You use the function by specifying a field that makes the comparison and returns a Boolean (integer 0 or 1) value, which can then be included in a template criteria test. See Correlation Coefficient for a description of this value (not shown in the figure entitled Linear Regression Model) .
Current Threshold	Takes an arbitrary value, which you access through the WM_FCAST_CURRTHRESH () function, for field equations. You use this value in historical reports to flag your current exhaustion point (the value when traffic carrying capacity is reached).
Final Threshold	Takes an arbitrary value that you access through the WM_FCAST_FINALTHRESH () function, for field equations. You use this value in forecasting reports to mark the future exhaustion date.
GOS Type	Sets the type of grade of service (GOS) value to return, based on the available types in the GOS Defaults Tool . Note: This option is only available if your system supports GOS defaults.

Related Topics

[Forecast Attributes](#)

[Regression](#)

[Correlation Coefficient](#)

Forecast Attributes

The *forecast attribute* is the algorithm that calculates the data for the week. The data, in turn, is used for establishing trends. You select the appropriate attribute in the report definition in the FORECAST ATTRIBUTE drop-down list box of the TRAFFIC SYSTEM REPORT EDITOR. A busy hour can represent the single busiest hour of the week or it can represent a weekly average. The Busy Hour forecast attributes you use in Forecast reports are:

-
- DABH
 - PABH
 - BDAV5

The Busy Hour forecast attributes are described in the following sections.

Busy Day Busy Hour

Busy Day Busy Hour (BDBH) is a busy hour algorithm that selects the data associated with the time and day of the busiest hour of the week. When the Forecast report is generated, data from all other times of the week are ignored. The only data that the report generation uses is for the single busiest hour of the week.

Note: BDBH is shown in the Report Editor as DABH (Daily Busy Hour).

Profile Average Busy Hour

Profile Average Busy Hour (PABH) is a weekly busy hour algorithm that computes the average busy hour of an entire week. PABH3 and PABH5 refine the data that determines the final PABH value.

To obtain the basic PABH value, the algorithm computes traffic for each hour of each day of the week. Then it computes the average value for each hour's traffic (for example, between 2:15 P.M. and 3:15 P.M.) over seven days. The daily one-hour period with the highest average traffic value for the week is the busy hour of that week. This busy hour has seven traffic values, one for each day of the week. The average of the values is the PABH.

The basic PABH does not give the best results because weekends tend to have less traffic and drive the average to a lower value. For the purpose of forecasting future high loads, it is advisable to concentrate on the days with the highest volume. Because they are selected weekly averages and not just daily busy hours, PABH3 and PABH5 help provide a more accurate view of traffic activity by minimizing the impact that any unusual traffic hour peaks might have.

PABH5, or *Top 5 Average PABH*, excludes the two lowest daily values and only averages the five highest of the busy hour's traffic values for the week. This generally eliminates the effect that lower weekend traffic might have. PABH3, or *Top 3 Average PABH*, is even more selective and bases its average on only the top three values. PABH3 is usually preferred over PABH5 for forecasting because it is the more cautious choice. PABH3 yields a higher average value than PABH5 because it is based on more narrowly selected data. A higher average value results in an earlier prediction for the exhaust rate (the value when traffic carrying capacity is reached).

Average of Top 5 Busy Day Busy Hours

Average of Top 5 Busy Day Busy Hours (BDAV5) produces a report that is more sensitive to unusual spikes in traffic than PABH.

BDAV5 is the average of the top five busy hour values of the week. In this case, the algorithm calculates the busiest hour of each day in the week. It then ranks the values for each of the seven busy hours from lowest to highest, and then averages the highest five values.

Regression

Regression equations predict future traffic levels by fitting observed data to a particular *curve* on a graph and extrapolating beyond the observed data. Two concepts of regression are discussed in this section:

- [Linear Regression](#)—A method commonly used in business to place the “best straight line” through a group of data points (such as weekly busy hour levels)
- [Correlation Coefficient](#)—Determines whether the modeled projection represents a true relationship

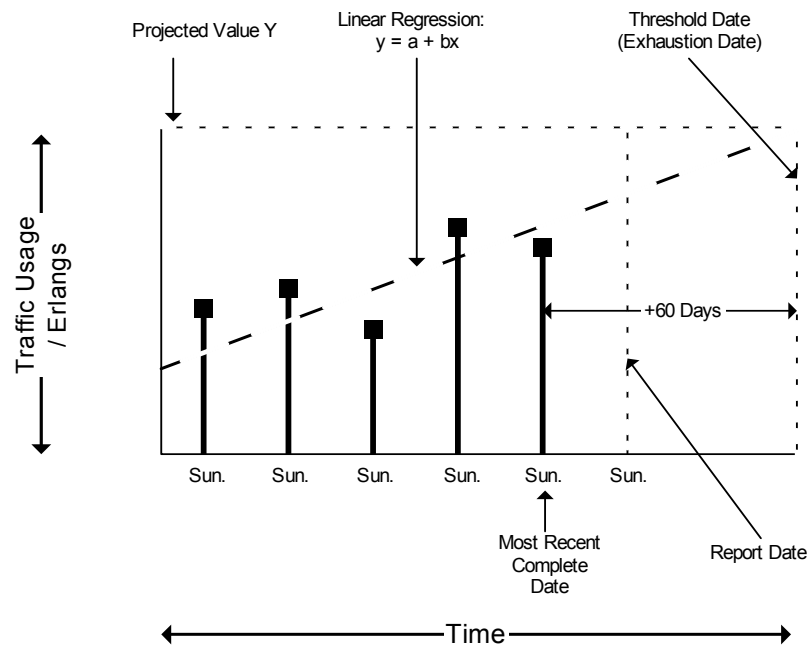
Regression refers to the tendency of related data to follow a basic line on a graph. If there is a true relationship between the data and the line, even though individual data points can stray far from the line, the remainder will return (or regress) toward the line.

Linear Regression

Linear regression is the mathematical algorithm that the Prospect system uses to extrapolate traffic levels into the future. This algorithm fixes a straight line to a distribution of data points graphed on an XY cartesian plane (see the following figure). This line passes statistically closer to every data point on the graph than any other possible straight line. In other words, the calculated result describes the best fit of the line with respect to the data points. The result produces two attributes, a and b, that represent the intercept/slope pair for the line equation $y = a + bx$.

In the following figure, you see a representation of five weekly busy hour values plotted on a graph of *Traffic Usage (in Erlangs)* on one axis by *Time* on the other. The graph is designed to show the projected date when the threshold will be reached. The diagonal linear regression line is therefore extrapolated and ends at the threshold date.

Figure 21: Linear Regression Model



The regression algorithm has limitations. The accuracy of the prediction rests on the assumption that past traffic levels will continue indefinitely into the future. If you have enough data, one way to test this assumption is to split the data in two, fit the regression to the first part, and see how accurately your model predicts the second part. Another method is to use a correlation coefficient.

Correlation Coefficient

A *correlation coefficient* shows how well the regression technique fits the data and consequently can indicate how accurate a future traffic projection is. *Pearson's Correlation Coefficient* is the most commonly used correlation measure in the telecommunications industry.

Pearson's equation computes a correlation coefficient that returns a value (r) in the range between -1.0 and $+1.0$. This value is a measure of how closely the data points in an XY distribution fit to the regression line. A value of -1.0 shows a perfect negative (inverse) correlation, 0.0 shows no correlation, and $+1.0$ is a perfect positive correlation. The closer the correlation coefficient is to a value of $+1.0$ or -1.0 , the better the correlation between the observed data and the projection. An absolute value of the correlation coefficient ≥ 0.8 is generally accepted as representative of a good fit. A coefficient value lower than $+0.8$ indicates either that there was insufficient data for a good fit or that the regression technique being used does not accurately model the data.

Matrix Reports

Define a *Matrix report* when you want to produce one report that includes a number of individual reports, each representing a week, month or year of data. Within a Matrix report, each row represents one day and each column represents an hour (or sub-hour) within that day.

Note: Matrix reports only produce output for the first field selected in the template. Any other fields in the template are ignored.

Matrix Report Options

The Matrix report options are described in the following table:

Table 27: Matrix Report Options

Option	Description
Individual Report	Individual report information lists the performance data measurements for each entity in the report.
Summary Report	Summary report information combines the performance data measurements for each entity and lists the summary values in the report.
Group By	The first item for each option defines the content for each page. For example, if you group by Matrix Week and Day, the report has one worksheet for each week, one row for each day, and one column for each period.
Include Null Rows	Selecting this option enables you to generate reports that show missing information.
Suppress Page Headers & Subtotals	Creates a report that allows easy export of the report contents to a database. By selecting this check box, the report output is affected in the following ways: <ul style="list-style-type: none"> • Macros are disabled. • The main header remains, but the other headers are removed. • Items that are normally broken down by individual elements with individual headers are combined under the main header. • You cannot use the graph option. • Subtotals are removed for columns. <p>Note: Suppressing the page headers and subtotals does not remove summary information from a report if the Summary Report option is selected in a report definition.</p>
GOS Type	Sets the type of grade of service (GOS) value to return, based on the available types in the GOS Defaults Tool . <p>Note: This option is only available if your system supports GOS defaults.</p>

Note: Even if you set the file format on the GENERAL tab to RAW DATA, a matrix report is still saved as an Excel file. The split key option does not affect the report output.

Related Topics

[Example Matrix Report](#)

Example Matrix Report

The following figure shows an example of a Matrix report.

Figure 22: Example Matrix Report

Microsoft Excel - traffic_matrix.xls

File Edit View Insert Format Tools Data Window Help

A1 = MatrixYearAndDays

MatrixYearAndDays

Entity: Cell

Field: Cell_OC_MByt

Year Beginning 2001-01-01

Date	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00
7/20/01	42	250	198	149	367	280	68	9	92	426
7/21/01	280	68	9	92	63	105	503	307	275	545
7/22/01	307	275	545	130	329	42	250	198	149	367
7/23/01	198	149	367	280	68	9	92	63	105	503
7/24/01	63	105	503	307	275	545	130	329	42	250
7/25/01	329	42	250	198	149	367	280	68	9	92
7/26/01	68	9	92	63	105	503	307	275	545	130
Total	1287	898	1964	1219	1356	1851	1630	1249	1217	2313
Average	183.86	128.29	280.57	174.14	193.71	264.43	232.86	178.43	173.86	330.43

Grand Total

Year	0:00	1:00	2:00	3:00	4:00	5:00	6:00	7:00	8:00	9:00
1/1/01	1287	898	1964	1219	1356	1851	1630	1249	1217	2313
Total	1287	898	1964	1219	1356	1851	1630	1249	1217	2313
Average	1287	898	1964	1219	1356	1851	1630	1249	1217	2313

MatrixYearAndDays

Ready

Filtered N-High Reports

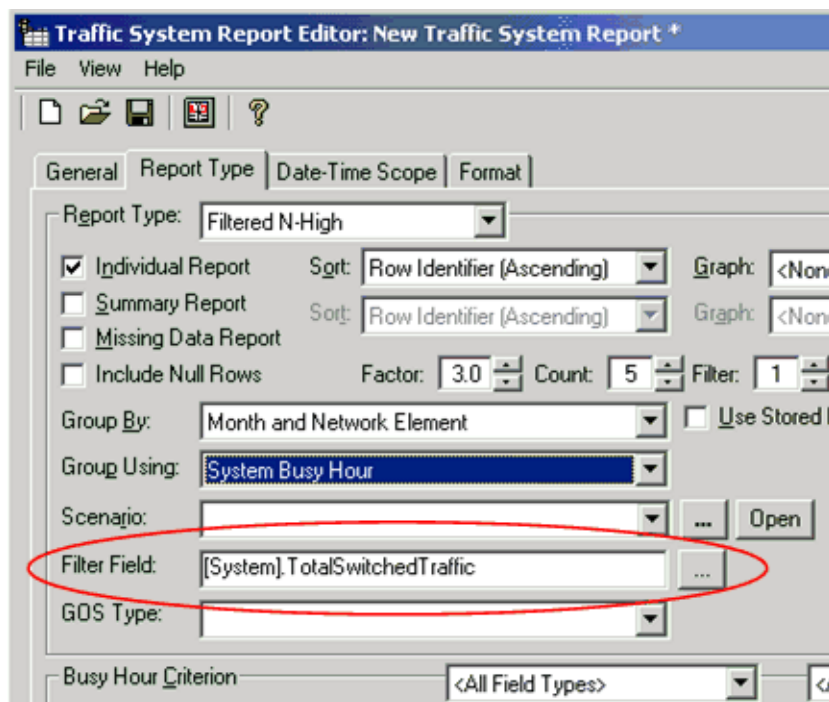
The purpose of a *Filtered N-High* report is to increase the statistical reliability by removing outlier hours. The Filtered N-High report filters busy hour data according to the values of the three variables described in the following table:

Table 28: Filtered N-High Report Variables

<i>Variable</i>	<i>Name</i>	<i>Description</i>
F	Factor	The factor to determine outliers. Recommended values are from 1.0 to 10.0.
x	Count	The number of daily busy hours to include. A daily busy hour includes only one busy hour from the same day. This value must be greater than 2.
N	Filter	A count of the busy hours to filter. Recommended values are integers from 1 to <i>Count</i> -1.

The Filtered N-High report is calculated using busy hours. See [Traffic Busy Hours](#) for more information about busy hours and busy hour determiners. Data from the top daily busy hours are selected based on the busy-hour criterion. According to the reporting interval selected, the busy hours are filtered based on the average value for the FILTER FIELD and the report parameters. The final report is determined using the filtered busy hour values.

Figure 23: Filter Field Option



A Filtered N-High report is created using a four-step process:

1. The daily busy hour is calculated using the busy hour determiner.
2. For each reporting interval, if the number of daily busy hours exceeds the Count value, the lowest busy hours values are removed until the number of busy hours equal the Count value (x).

3. The busy hours are filtered based on the FILTER FIELD and report parameters.
 - a. Calculate x-N hours. The busy hour values are filtered only if there are more than x-N hours.
 - b. The average value for the FILTER FIELD is calculated.
 - c. Using the factor value (F), the remaining busy hours are filtered by dividing each hour's FILTER FIELD value by the average FILTER FIELD value. If the product is greater than the Factor value, the busy hour is filtered from the finished report.
4. The final report is produced using the filtered busy hours.

Example:

If you choose a weekly report with Count = 5, Filter = 2, and Factor = 1.5.

1. Suppose for the first week, the report has seven daily busy hours and the second week has three daily busy hours, as shown below.

Figure 24: Filtered N-High Report Values

Week 1	Hour	Busy Hour	Filter Field	
Jan 4	15:00	115	30	
Jan 5	16:00	105	35	Discarded Busy Hours
Jan 6	17:00	150	40	
Jan 7	16:00	100	45	
Jan 8	15:00	175	50	
Jan 9	16:00	120	60	
Jan 10	17:00	110	80	

Week 2	Hour	Busy Hour	Filter Field	
Jan 11	15:00	140	25	
Jan 12	16:00	120	30	All Hours Displayed
Jan 13	17:00	130	35	

2. In the first week, the five busiest hours are selected (Count = 5) and the remaining two busy hours are discarded. In the second week, all busy hours are selected and are not subject to filtering because there are not more than x-N (that is 5-2=3) busy hours in that week.

Note: If the second week had four daily busy hours, all hours would be selected however the top hour would be subject to filtering.

3. To filter the remaining busy hour values, the average of the reported values for the selected FILTER FIELD is determined. The FILTER FIELD peg values for the busy hour are reported under the *Filter Field* column in the final report (see the figure entitled [Example Filtered N-High Report](#)).
 - a. Of the five busy hours remaining in the first week, filtering is applied to the top two busy hours (N).
 - b. Filtering is then done based on the Factor you entered to compare with the average FILTER FIELD values. If the average value for the three highest busy hours is 40 (that is

$(30 + 40 + 50)/3 = 40$) the remaining filter field values are divided by this value and compared to the Factor value.

- c. Each result that is greater than the factor value is filtered from the final report. In the following figure entitled [Filtered N-High Averages](#), the average FILTER FIELD value is 40 and the second highest FILTER FIELD value is 60. The factor result is 1.5 therefore this value would remain in the report ($60/40 = 1.5$). The highest FILTER FIELD value is 80 therefore this value would be filtered from the final report since the factor result is greater than the Factor value ($80/40 = 2.0$).

Figure 25: Filtered N-High Averages

Week 1	Hour	Busy Hour	Filter Field
Jan 4	15:00	115	30
Jan 6	17:00	150	40
Jan 8	15:00	175	50
Jan 9	16:00	120	60
Jan 10	17:00	110	80

$$\text{Average} = (30 + 40 + 50)/3 = 40$$

Note: The final report does not display all busy hours within the selected reporting interval however all hours are used in the Filtered N-High calculation.

4. The final report is produced using the filtered busy hours for week 1 and all of the busy hours for week 2.

Filtered N-High Report Options

The Filtered N-High report options are described in the following table:

Table 29: Filtered N-High Report Options

Option	Description
Individual Report	Individual report information lists the performance data measurements for each entity in the report.
Summary Report	Summary report information combines the performance data measurements for each entity and lists the summary values in the report.
Group By	The first item in the pair defines the content for each page, the second item defines the rows of the report output. For example: If you group by MONTH AND NETWORK ELEMENT, the report has one worksheet for each month and one row for each network element.
Missing Data Report	Missing data information allows you to see the performance data measurements that were not available at the time of report generation.
Include Null Rows	Selecting this option enables you to generate reports that show missing information.
Group Using	You might have the option to further specify how report information is grouped.
Scenario	Used if the Group Using option is a busy hour. Specifies the scenario used to compute the busy hour.
Filter Field	Specifies the field to use as the filter criterion.
Busy Hour Criterion	The field that you want the Prospect system to rank as its busy period criterion.
Factor	The value to use for the factor variable.
Count	The value to use for the count variable.
Filter	The value to use for the filter variable.
Normalize Detail	<p>If you want the report to contain the detailed information (for example, counts, top busy hours, cell sites) from which the report is created, select the NORMALIZE DETAIL check box.</p> <p>A normalized detail report displays a report row with the timestamp for each hour that is not filtered. A detailed report does not display the same total that a standard Filtered N-High report displays unless the date-time scope correlates with the group-by option in the report. For example, if the report is a weekly report, all date values must fall within the week.</p>
Use Stored Data	Select the USE STORED DATA check box if you are defining the report based on a stored busy hour determiner
GOS Type	<p>Sets the type of grade of service (GOS) value to return, based on the available types in the GOS Defaults Tool.</p> <p>Note: This option is only available if your system supports GOS defaults.</p>

Related Topics

[Normalized Busy Hours](#)
[Example Filtered N High Report](#)

Normalized Busy Hours

You can normalize the data that the Prospect software evaluates for busy hour reports to eliminate abnormally high busy periods. You use a UDC that computes the N-High averages for the sampled period based on a field called `nHighBusyHour`. For example, in the UDC `nHighBusyHour(instance_id, TimeAndElement.timestamp, N, x, F)`, where `N` is the number of busy hours to report for the period, `x` is the number of outliers, and `F` is the outlier factor. In other words, the algorithm employed in this UDC performs the following statistical operations:

1. Calculates the traffic values for the busiest hours of each day in the sample period.
2. Saves the `N` number of highest Erlang values for further calculation.
3. Ranks the saved values from the lowest to highest.
4. Determines the number of outliers.
5. Averages the values for the lowest busy hours.
6. Compares each of the outlier values one at a time.
7. Discards any outlier value that is greater than or equal to the outlier factor times the average.
8. Recalculates the average for all remaining values.

Important: This UDC must be defined at the focal entity. For instance, if you do a Cell report, then the UDC must be defined at the Cell level, and included in a Cell template. The calculation is performed on the busy hour determiner field selected for the report.

You can use this field to calculate N-High values for any reporting period greater than a single day. For instance, an N-High week expression could be `nHighBusyHour(instance_id, TimeAndElement.timestamp, 7, 2, 1.5)`, or over a three-month period you might use `nHighBusyHour(instance_id, TimeAndElement.timestamp, 30, 5, 2)`. See [User-Defined Calculations Tool](#) for detailed instructions on creating and editing UDCs.

Note: If the number of N-High values is less than `N` for any period, then the average will still be computed, but over that smaller set. This number, however, must be greater than the number of outliers, otherwise the result will be null.

Example Filtered N High Report

The following figure shows an example Filtered N High report

Figure 26: Example Filtered N High Report

Report: Filtered N High
 Template: \Users\user\FNH Template
 Scenario: \Scenarios\ACTIVE-28
 Confidence Factor: 100.00%
 Run Time: Mon, 2003-03-03 14:51
 Time: 2003-01-05 09:00:00
 Date & Time Scope: 2003-01-05 to 2003-01-11: 00:00-23:00
 Highlight by Mean Attempts (2.1.0.) Mean: 24.18 Std Dev: 13.82

	Mean Attempts	Filter Field	Busy Hour Criterion	#_Hours Summed
TOTALS	24.18	266.00	58.00	11.00
28 2 19 Cell: 19	16.00	16.00	6.00	1.00
28 2 20 Cell: 20	6.00	6.00	3.00	1.00
28 2 20 Cell: 20	20.00	20.00	4.00	1.00
28 2 23 Cell: 23	15.00	15.00	2.00	1.00
28 2 30 Cell: 30	58.00	58.00	11.00	1.00
28 2 45 Cell: 45	28.00	28.00	3.00	1.00
28 2 50 Cell: 50	18.00	18.00	6.00	1.00
28 2 54 Cell: 54	17.00	17.00	6.00	1.00
28 2 83 Cell: 83	19.00	19.00	12.00	1.00
28 2 183 Cell: 183	42.00	42.00	3.00	1.00
28 2 192 Cell: 192	27.00	27.00	2.00	1.00

Note: The *Mean Attempts* column in the final report is the mean value for the FILTER FIELD option selected in the REPORT EDITOR.

Percentile Reports

You define a *Percentile report* when you want to determine a busy hour value of a peg for an entity instance based on a percentile value rather than the actual busiest period. The report returns the date, hour, and value of a peg representing the Nth percentile value for each entity instance within the selected date/time scope.

Percentile reports are calculated using a busy hour determiner. For each day in the date/time scope, the busy hour of a peg is determined. Based on the reporting period, the busy hour results are then arranged in decreasing value of that peg. The row that corresponds to the lowest value in the desired percentile is selected.

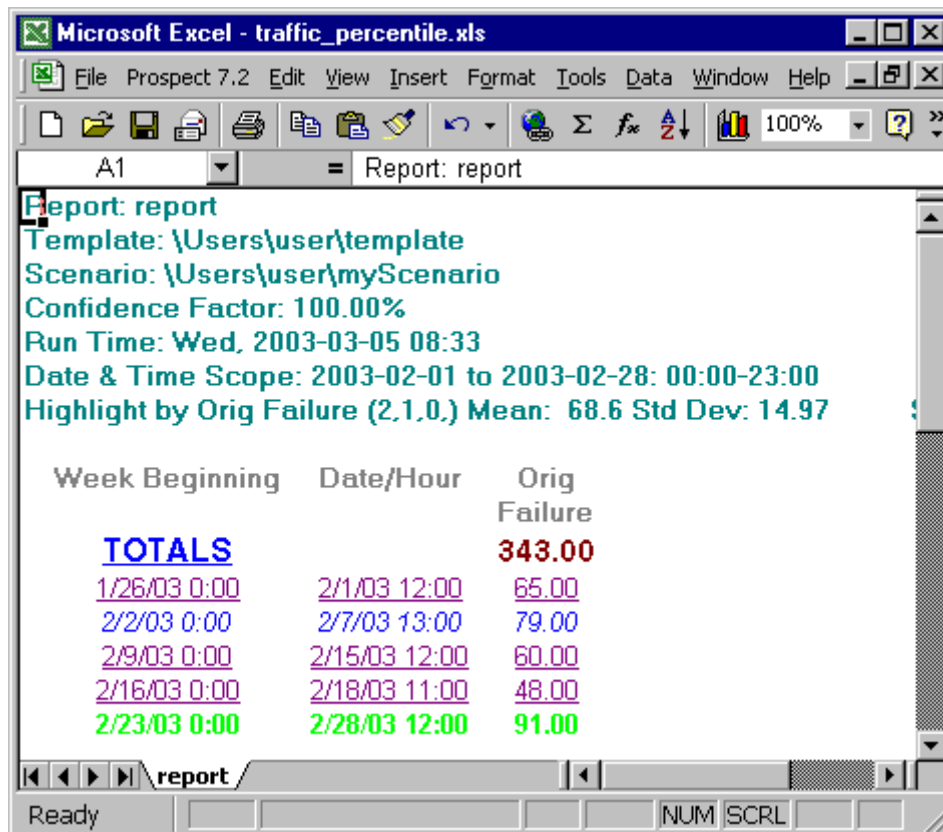
If there is no value in the requested percentile other than the actual busy hour, the percentile calculation selects the highest value that is less the desired percentile value. That is, the percentile value chosen is based on the formula:

$$1 + \text{floor}((x-1) * P/100)$$

where x is the number of days in the reporting period and P is the percentile value (that is 90 for 90%, 80 for 80% and so forth).

For example, the Percentile report in the following figure is based on a weekly reporting period. The report displays the total number of weekly *call origination failures* (using busy hour calculations) that fall within the 90th percentile, during the 4-week period starting January 26, 2003 and ending the week of February 23, 2003.

Figure 27: Example Percentile Report



For the first week, the busy hour data include the following values:

Table 30: Percentile Report Data

Busy Hour	Peg Value	Percentile	Rank
1	85.00	100	5
2	65.00	75	4
3	59.00	50	3
4	35.00	25	2
5	20.00	1	1

Based on the percentile formula, the second busy hour of the week is selected (that is $1 + \text{floor}((5-1) * 90/100) = 4$).

Percentile Report Options

The Percentile report options are described in the following table:

Table 31: Percentile Report Options

<i>Option</i>	<i>Description</i>
Individual Report	Individual report information lists the performance data measurements for each entity in the report.
Summary Report	Summary report information combines the performance data measurements for each entity and lists the summary values in the report.
Missing Data Report	Missing data information allows you to see the performance data measurements that were not available at the time of report generation.
Group By	The time period you select is the time period from which the Prospect system selects the busiest hour. Changing the grouping report information option can significantly impact the report output. Depending on your selection, you might also be able to specify the Group Using and Use Stored Busy Hour options.
Group Using	You might have the option to further specify how report information is grouped.
Use Stored Data	Depending upon the grouping option that you select, you might have the option to create a busy hour report. Reports can only use busy hour determiners that are defined with a cluster entity level at or above the entity level of the report. Define a busy hour report when you want the Prospect system to pick the busiest hour from each day of your date-time scope.
Scenario	Used if the Group Using option is a busy hour. Specifies the scenario used to compute the busy hour.
Percentile	The percentile value. The default is 90.
Busy Hour Criterion	The field that you want the Prospect system to rank as its busy period criterion.
GOS Type	Sets the type of grade of service (GOS) value to return, based on the available types in the GOS Defaults Tool . Note: This option is only available if your system supports GOS defaults.

For information about creating a report, see [Creating Report Definitions](#).

6 Defining Traffic Reports

Defining traffic reports includes creating a number of documents, which are discussed in the following sections:

- [Templates](#)
- [Report Definitions](#)

Note: For information on the general process for defining a Traffic report, see [Process for Creating Traffic Reports](#).

After reading this chapter, you should be able to do the following:

- Work with scenarios, templates, and report definitions to determine the contents of a report
- Prepare reports for generation

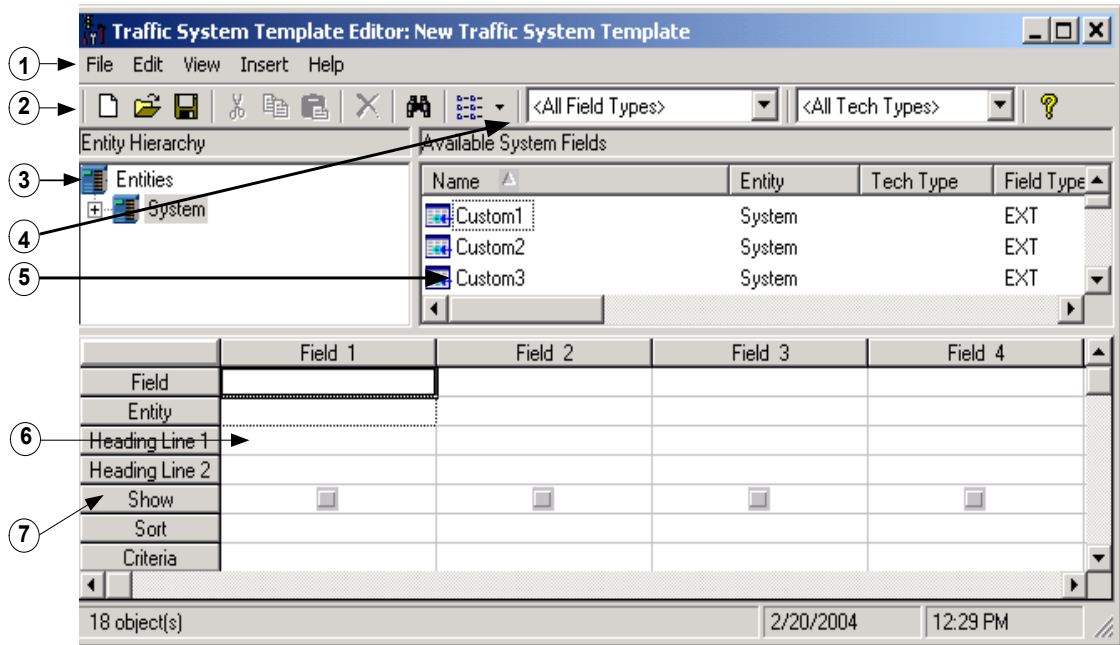
For more information about reports and each report type, see [About Traffic Reports](#).

Templates

Templates allow you to specify which fields are used and how the fields are used in reports.

Use the Template Editor to work with Templates (see the following figure).

Figure 28: Template Editor



Legend:

No.	Name	Description
1	Menu bar	An organized list of commands.
2	Toolbar	The toolbar buttons function in the same way as other Windows applications.
3	Entity tree	Shows a hierarchical list of entities. Selecting a different entity changes the available fields in the list pane.
4	Filter bar	Use the filter bar to limit the fields that are displayed in the list pane. You can filter by field type, technology type, or both. When you have filtered the display, all the fields that do not match the condition of the filter are hidden.
5	List pane	Shows the available fields for the selected entity.
6	Field columns	Each column represents a different field included in a template.
7	Field rows	Shows information about a specific field in the template.

Customizing the List Pane

The list pane displays the available fields for a selected entity. An entity can include a large number of fields and finding the exact field you want to use in a report template can take a large

amount of time. The Prospect software provides several techniques for which you can customize the list pane in order to access the desired entity fields.

Sort Orders

Sorting gives you a way to organize the entity data displayed in the list pane. You can sort columns by an ascending or a descending sort order, and you can define single-column or multiple-column sorts.

A single-column sort enables you to set the ascending and descending sort order of any column by clicking the column heading.

To set a single-column sort

- Right-click the column header and select either SORT ASCENDING or SORT DESCENDING to set the sort to ascending or descending respectively.

A multiple-column sort enables you to sort-within-a-sort on multiple columns. You can designate one column as primary sort, another column as secondary, yet another as tertiary sort, and so on.

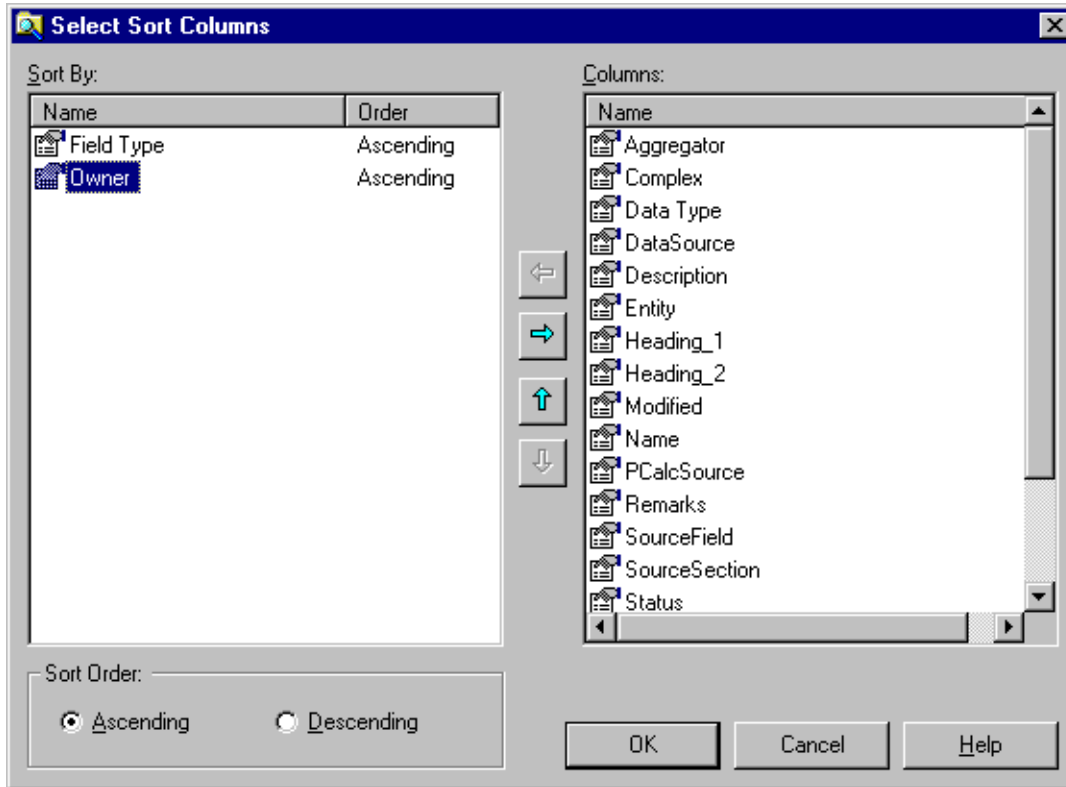
To set a multiple-column sort order

1. Select SORT... from the VIEW menu of the Template Editor. The SELECT SORT COLUMNS dialog box opens (see the following figure).
2. Add an additional sort column to the sort process by selecting the column name from the COLUMNS pane on the right, and then click the left arrow between the two panes. The column name is moved from the COLUMNS pane to the SORT BY pane on the left.
3. To remove an unwanted column from the sort, select the column name from the SORT BY pane, and then click the right arrow. The column name is moved from the SORT BY pane to the COLUMNS pane.
4. To change the ascending or descending sort order of a column, select the desired column in the SORT BY pane. Then, in the SORT ORDER area, click either the ASCENDING or DESCENDING option.
5. To change the order of column sorting, select the column name from the SORT BY pane and click either the up or down arrow as needed to reposition the column in the sort. The column name at the top of the list is the primary sort, followed by the secondary sort, and so on.

For example, the sorting set in the following figure will sort first by FIELD TYPE, and then by OWNER. Both sorts are in ascending order.

6. When you are finished setting sort orders, click OK.

Figure 29: Select Sort Columns dialog box



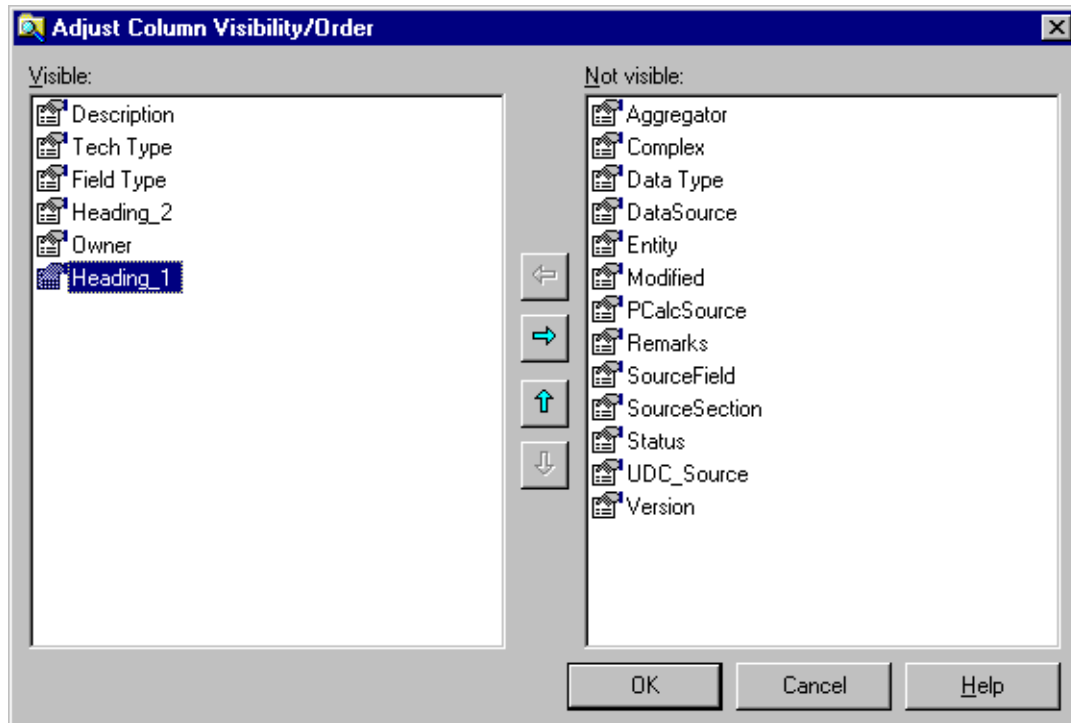
Customize Columns

You can control how many columns to display and the order in which to display them. You can remove a column, adjust the column width, automatically fit information in the column, or allow the Prospect software to determine the best fit for information in the column.

To change the column display

1. Select COLUMNS from the VIEW menu of the Template Editor. The ADJUST COLUMN VISIBILITY/ORDER dialog box opens (see the following figure).
2. To move an item from the NOT VISIBLE list (right pane) to the VISIBLE list (left pane): Click an item in the right pane, then click the left arrow between the two panes.
3. To move an item from the VISIBLE list (left pane) to the NOT VISIBLE list (right pane): Click an item in the right pane, then click the right arrow.
4. To adjust the order of columns, select the item in the VISIBLE pane and then click the up or down arrow in the center column. The higher an item is on the list, the farther to the left the column will appear.
5. When you are finished, click OK. The ADJUST COLUMN VISIBILITY/ORDER dialog box closes.

Figure 30: Adjust Column Visibility/Order dialog box



Template Types

When you initially create a template, you assign a template type that corresponds to a network element or a generic network element.

Field Frame of Reference

This type provides a frame of reference for the report output. The same fields will produce different output for different template types, because the data will be presented from the point of view of the network element that corresponds with the type. For instance, if you put a child entity's fields in a parent entity template, the Prospect software aggregates the child fields.

Default List of Fields

The fields displayed in the field list pane correspond—initially—to the template type. By default, the Prospect software displays the list of fields that correspond to the template type. This filters the list from a few thousand to a few hundred for each template type. But you are not limited to the default list: You can override it and include fields for other network elements, but that data is reported from the point of view of the template type you choose.

Hierarchy Differences Between Templates and Scenarios

The template types are organized into a hierarchy that mimics the parent-child relationships among the network elements and resembles the hierarchy in Scenarios. However, Scenarios

define the network entities that are represented in the report, whereas Templates define the fields and their frame of reference in the report.

Showing and Hiding Fields in Report Output

The Show row in the Template Editor tells the Prospect software whether or not to include the field as in the report output. Here are a few circumstances in which you might not want to show a field in the report output.

- The field is only used as a sorting criterion.
- You want to temporarily remove the field from the report.
- You want to report on entities where a field's data falls within a range of values (using AND logic).

Sorting Report Output

The Sort row in the Template Editor allows you to specify sorting criteria for your report output. It allows you to override the default sorting criteria, row ID (network element ID) and ascending order, which appear in the report definition.

The Template Editor allows you to specify any field as a sorting criterion. You can specify up to three sorting criteria that operate sequentially: the leftmost sorting field in your template determines the primary sort order, the next sorting field keeps identical primary values together but sorts them in order of the secondary sorting field, and so on.

As mentioned in this description of the Show row, you might have a field that you designate as non-show/sort in your template to act as a sorting criterion.

Commenting Report Output

The COMMENT row in the TEMPLATE EDITOR allows you to specify a specific field attribute to display as a comment in your report output. Comments appear in the first header cell for the first individual report and the first header cell for the summary report. Comments are denoted by a red corner in the Excel spreadsheet cell. You can read the comments by resting your mouse over the cell. An appendix sheet is included in the report output. This sheet defines the field names, field headers and field definitions used in the report comments.

Filtering Report Output

The Criteria row in the Template Editor allows you to filter your report output by removing data that falls outside the boundaries you define using basic methods. The only entities that will appear in the report are those that have a value that satisfies the expression.

There are three methods for filtering report output:

- Using operators
- Using the in() function
- Using special characters

Filtering with Operators

The Criteria row syntax requires that you begin with an operator, as shown in the examples in the following table.

Table 32: Criteria Operators

Operator	Description	Example
>	<ul style="list-style-type: none"> Greater than Limit one per table cell Use with a single value or string Cannot use with in(), not in(), ..., comma 	> 90 Returns entities with values greater than 90.
>=	<ul style="list-style-type: none"> Greater than or equal to Limit one per table cell Use with a single value or string 	>= 90 Returns entities with values greater than or equal to 90.
= or ==	<ul style="list-style-type: none"> Equal to Limit one per table cell Use with a single value or string Works with wildcard character (*) for string data type only Cannot use with in(), not in(), ..., comma 	= 90 Returns entities with values equal to 90.
<	<ul style="list-style-type: none"> Less than Limit one per table cell Use with a single value or string Cannot use with in(), not in(), ..., comma 	< 90 Returns entities with values less than 90.
<=	<ul style="list-style-type: none"> Less than or equal to Limit one per table cell Use with a single value or string Cannot use with in(), not in(), ..., comma 	<= 90 Returns entities with values less than or equal to 90.
!= or <>	<ul style="list-style-type: none"> Not equal to Limit one per table cell Use with a single value or string Cannot use with in(), not in(), ..., comma 	!= 90 Returns entities with values that do not equal 90.

Filtering with the in() Function

You can also set the filtering criteria using the in() function. Examples of the in() function are shown in the following table.

Table 33: The in() Function

Usage	Description	Example
in ()	<ul style="list-style-type: none">• Include contents of parentheses• Works with strings or numbers• Works with “...” and commas• in is case insensitive• Cannot use with <, <=, =, ==, >=, >, !=, <>	In ('Seattle') Returns entities where value for this field is Seattle.
not in ()	<ul style="list-style-type: none">• Exclude contents of parentheses• Works with strings or numbers• Works with ... and commas• Requires a space between not and in• not and in are case insensitive• Cannot use with <, <=, =, ==, >=, >, !=, <>	Not in ('Seattle') Returns entities where value for this field is anything but Seattle.
in (...)	<ul style="list-style-type: none">• Range of values, inclusive• Use with in() or not in()• Can use multiple in a table cell• Can use with commas• Cannot use with <, <=, =, ==, >=, >, !=, <>	in (80 ... 90) Returns entities with values 80 to 90, inclusive.
, (comma)	<ul style="list-style-type: none">• Separates list of values• Use with in() or not in()• Can use multiple in a table cell• Can use with ...• Cannot use with <, <=, =, ==, >=, >, !=, <>	in (80, 90) Returns entities where value of this field is 80 or 90.

Filtering Using Special Characters

The special characters, or text characters that have a specific use in the Template Editor, are described in the following table.

Table 34: Special Characters

<i>Character</i>	<i>Description</i>	<i>Example</i>
' (apostrophe)	<ul style="list-style-type: none"> Identifies strings Non-numeric fields only (data type = S) 	= '425-555-1212' Returns string 425-555-1212.
*	<ul style="list-style-type: none"> Wildcard Can use a multiple in a table cell Must be the last character in each string Non-numeric fields only (data type = S) 	CORRECT: in('425-*', '206-*') Returns strings that begin with "425-" and "206-". INCORRECT: = '*-555-1212' Not valid because * is not the last character in the string.
-	Negative values	> -5.0 Returns entities with values greater than negative 5.0.
e	<ul style="list-style-type: none"> Exponent Not case sensitive Exponents are accepted for fields of type float, but not for integer or string 	> 5.0E-2 Returns entities with values greater than 0.05.
spaces	Syntax has no space requirements except for "not in ()" where a space is required between "not" and "in"	> 5 Works the same as >5

Applying Logical Operators

If you want to apply more than one criterion to your report definition (or the same criterion more than once), you do so in the following ways.

You can achieve the effect of AND and OR logic using the in() and not in() functions.

Using AND Logic

If you want to display values of a field only if they fit more than one criterion (AND logic), create multiple columns of the same field in your template with a different criterion in each column, and turn Show off for all but one of the occurrences.

Using OR Logic

If you want to display results that fit any listed criterion (OR logic), list your desired field once in the template, and specify multiple criteria in the OR rows in the single column.

Creating Templates

Complete the following procedure to create a template:

To create a template

1. In the PROSPECT EXPLORER window, select the FILE menu, point to NEW, and then select TRAFFIC TEMPLATE. The CREATE NEW TRAFFIC TEMPLATE dialog box opens.
 2. In the CREATE NEW TRAFFIC TEMPLATE dialog box, select the desired entity level and click OK. The Traffic Template Editor opens.
 3. Build the field list.
 - a. Add the fields you want to add to the template by double-clicking the field in the list pane.
 - b. Add any additional information for determining how the field is displayed in the report. See [Templates](#) for more information.
-

Note: Since most reports are processed using Excel, a traffic template cannot exceed 253 fields. The report header, entity name, and time scope options can add three additional fields that might exceed the Excel limit.

4. Save the template by selecting SAVE from the FILE menu and entering the appropriate information in the SAVE TEMPLATE AS dialog box.

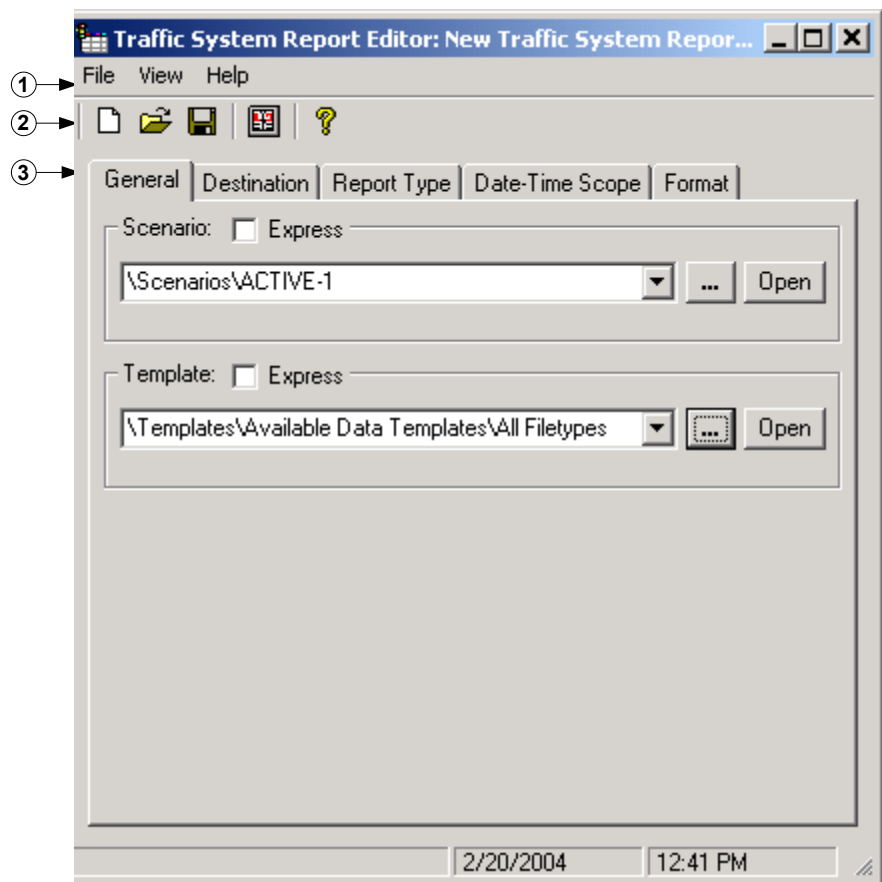
Report Definitions

Report Definitions combine all of the information necessary to generate a report. The following information is necessary to generate a report:

- Scenario — Specifies which network elements to include in the report output.
- Template — Specifies which data to include in the report output.
- [Destination](#) and [format](#) — Specifies where to send the finished report and in what format the report is displayed.
- [Report Types](#)—Specifies various options such as summary or grouping choices, and report type.
- [Date and time scope](#) — Specifies the time period used in the report.

Use the Report Editor to work with report definitions (see the following figure).

Figure 31: Report Editor



Legend:

No.	Name	Description
1	Menu bar	An organized list of commands.
2	Toolbar	The toolbar buttons function the same as other Windows applications.
3	Report definition option tabs	Each tab opens a different page of options, which are described in the following sections.

Report Destinations

When you define a Report Definition, you can specify one or more report destinations. A report can be delivered to the following destinations:

- Printer
- File

A report must be downloaded, manually or automatically, to the Prospect client in order for a report to reach its final destination. See [Running and Downloading Reports](#) for more information.

The following table describes each available destination:

Table 35: Report Destinations

<i>Destination</i>	<i>Description</i>
Printer	The printer destination uses the default printer on the Prospect client to print the report. A report printed from the Prospect client is similar to a report printed from an Excel file destination, but does not include graphics.
File	A report can be saved in a number of file formats, including: <ul style="list-style-type: none">• Excel workbook (xls)• Web page (HTML)• Text (txt)

Note: The download destinations in the above table apply only when the report is downloaded as a *task* using the Status Monitor. If it is downloaded as part of a *job* (report group) that is being downloaded, its destination(s) will be the destination(s) set for the job in the Schedule Editor. Job destinations can also include e-mail. See [Scheduling Report Generation](#) and [Overriding Report Options](#).

Related Topics

[E-mail Options](#)
[Running and Downloading Reports](#)

Report Types

The REPORT TYPE tab of the Report Editor lets you set the following information:

- Type of report (the basic report types are described in [Traffic Report Types](#) on page 71.)
- Sort criteria for reports
- Whether or not to generate Excel graphs
- Report options (the basic report options are described in [Standard Traffic Report Options](#) on page 71.)

For more information about steps necessary to generate traffic reports, common aspects between the various traffic report types, and general information about stored data, see [About Traffic Reports](#) on page 53.

Specifying First Day of Week

The REPORT TYPE tab of the Report Editor allows you to define any day as the first day of the week for reporting purposes. The default first day of the week is system-defined. If you want to change the first day of the week for your report, select a day from the FIRST DAY OF WEEK drop-down list box.

This value controls which days' values are aggregated for the week. For example, if the first day of the week is defined as Wednesday, then the report aggregates values for the week from Wednesday through the following Tuesday. The date stamp output in the report is the date of the first day of the week (in this example, Wednesday).

Note: This setting is only available when the GROUP BY option includes NETWORK ELEMENT and a time period such as WEEK or WEEK-HOUR.

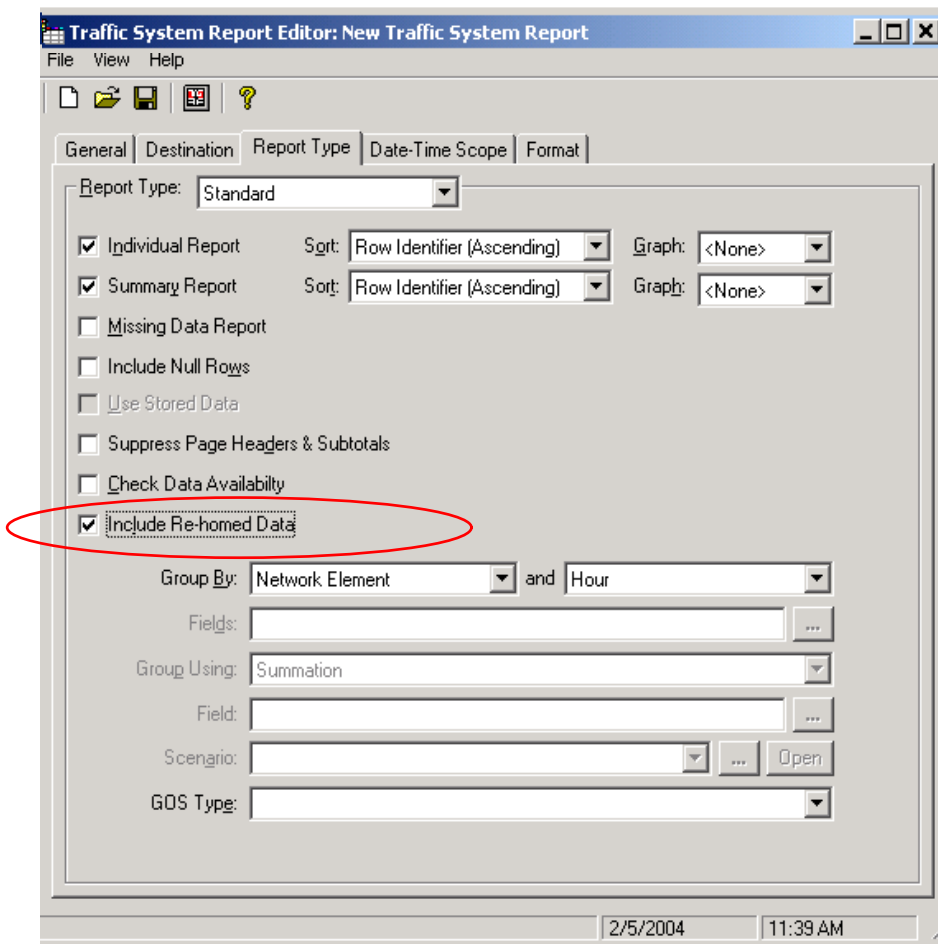
Using Re-Homed Entity Data

Rehoming associates two identification (ID) numbers with a single network element. An element instance is re-homed when it is moved from one parent element to another during a reporting period. When the equipment is moved, the Prospect software normally treats the transported equipment as a new network element and assigns it a new ID number. The Prospect system administrator is responsible for rehoming network elements. For more information, see the *Prospect Administration Guide*.

When an element instance has been rehomed, the Prospect server treats each instance ID independently and will report data availability as if the two instances were separate elements. Therefore, in order to obtain continuous reporting data for the transported network element, you must select the INCLUDE RE-HOMED DATA check box on the REPORT TYPE tab (see the following figure).

Note: The INCLUDE RE-HOMED DATA check box is only available when a rehomed entity exists at the entity level of your traffic report.

Figure 32: Re-homed Entity Data



Example:

If the Prospect administrator rehomes instance ID 100 to ID 200 at 2004-01-15 00:00:00, you could get the following history data:

100	2005-01-14 22:00:00
100	2005-01-14 23:00:00
200	2005-01-15 00:00:00
200	2005-01-15 01:00:00

If you run a normal traffic report that includes the dates 2004-01-14 and 2004-01-15 for instance 200, the data availability check reports that data is missing for 200 on 2004-01-14 22:00:00 and 2004-01-14 23:00:00. Likewise, if you run a normal traffic report that includes the dates 2004-01-14 and 2004-01-15 for instance 100, the data availability check reports that data is missing for 100 on 2004-01-15 00:00:00 and 2004-01-15 01:00:00.

If you select the INCLUDE RE-HOMED DATA check box for the same report the data availability check recognizes the rehomeing instance mapping and will report no missing data for either instance.

Warning! Stored busy hour and summations are calculated and stored without regard to rehomeing configuration information. This can create discrepancies between stored and non-stored reports that use the rehomeing feature.

Although the impact can be minimized by physically rehomeing equipment at midnight (so that the majority of data in a single day is owned by a single instance), we recommend that you do not use stored information if your report includes rehomed data.

Date-Time Scope Options

The date-time scope for a Report Definition specifies the time period used in a report. There are two primary methods for setting the date-time scope for reports, which are described in the following sections:

- [Setting Date-Time Scope Options Using a Calendar](#)
- [Setting Relative Date-Time Scope Options](#)

The holidays used in a Report Definition use the holidays defined by the remote server that generates the report.

Use the [Data Availability Tool](#) to make sure that data is available for a specific date-time scope. If data is not available, the report generation fails.

Note: When a report is run, it collects all data with beginning time stamps falling between the start time and the end time specified in the date-time scope. This is true even when the reporting period is shorter than the period of the data for some fields. As a result, if a fifteen-minute period beginning on the hour is defined, it will retrieve the full hour of data for an hourly field. If the fifteen-minute period begins on the half or quarter hour, it will retrieve no data.

Setting Date-Time Scope Options Using a Calendar

For each day, you can select the periods on which to report. Periods are grouped by whole hours and show subhourly increments. When you use the Calendar option, the available periods are enabled. Each hour ends at the time indicated (with hour 24 ending at midnight).

More information about using the Calendar in the DATE-TIME SCOPE tab of the Report Editor is described in the following table.

Table 36: Using the Calendar Option

<i>If You Want...</i>	<i>Do This...</i>
Same periods for each of your dates	<ol style="list-style-type: none">1. Select the USE SAME HOURS FOR EACH DAY check box.2. Click first date and then select the desired periods for that date. For instructions on selecting a time period, see Selecting a Time Period.3. Click the PLUS button (+) below the calendar to register your selection.4. Click the PLUS button (+) to register subsequent dates.
Different periods for each of your dates	<ol style="list-style-type: none">1. Clear the USE SAME HOURS FOR EACH DAY check box.2. Click desired date and then select the periods for that date. For instructions on selecting a time period, see Selecting a Time Period.3. Repeat step 2 as necessary.

Related Topics

[Setting Relative Date-Time Scope Options](#)

[Data Availability in Report Definitions](#)

[Selecting a Time Period](#)

Setting Relative Date-Time Scope Options

By setting a relative date-time scope, you are setting the date-time scope relative to the time when the report is scheduled to run on the server. Your choice of time unit from the RELATIVE BY drop-down list box dictates how you proceed, as described in the following table.

Table 37: Relative Date-Time Scope Options

<i>If You Choose...</i>	<i>Do This...</i>
Any sub-hourly option	Enter the number of periods in the LAST PERIOD(S) box.
Hours	Enter the number of hours in the LAST HOUR(S) box
Last Hour	Nothing.
Any option other than Hours or Last Hour	Use the PERIODS area to select the periods that you want to include in the report. You can also use the WEEKENDS AND HOLIDAYS area to include weekends and holidays (as set by the Prospect administrator). For instructions on selecting a time period, see Selecting a Time Period .
Days	You can use the EXTEND DATE RANGE check box to exclude specific days from the report. For example, if you run a report on Monday for the past five days, the report will include information for Wednesday through Sunday; however, if you choose to exclude weekends and select the EXTEND DATE RANGE check box, the report includes information for Monday through Friday.

Related Topics

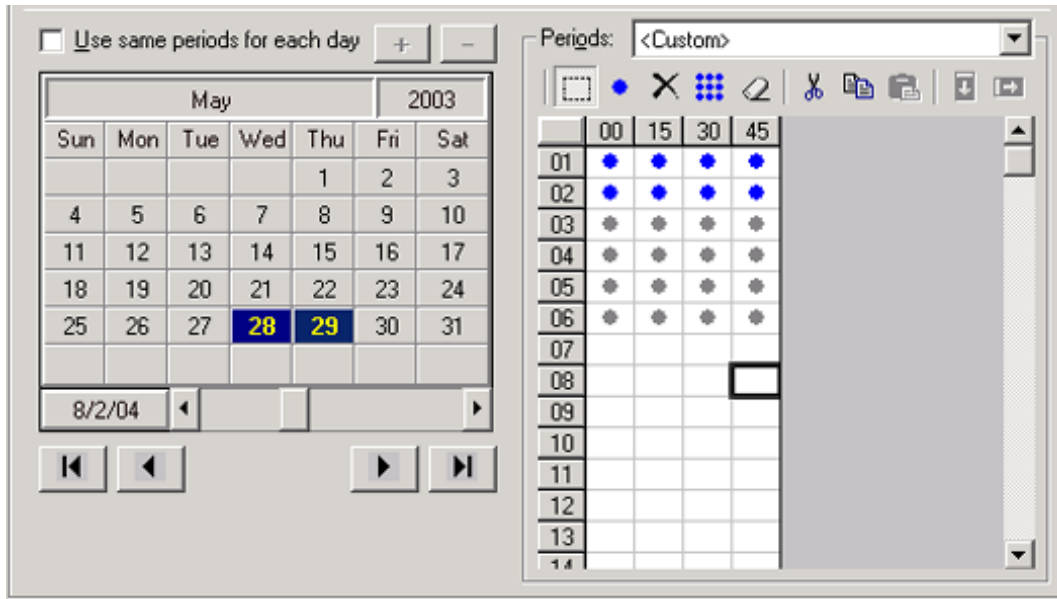
[Setting Date-Time Scope Options Using a Calendar](#)
[Data Availability in Report Definitions](#)
[Selecting a Time Period](#)

Selecting a Time Period

Select the time periods for your report using the PERIODS area. The PERIODS area has a grid structure with each whole hour represented in horizontal rows and each period relative to each hour represented in vertical columns (see the following figure). Each cell in the grid represents a time period and can show one of three states:

- An clear cell means that the time period has not been selected.
- A blue dot in a cell means that the time period has been selected for all the dates in the report.
- A gray dot in a cell means that at least one, but not all, of the dates in the scope have that same time period selected. The gray dot is applicable only to calendar date-time scopes that have multiple selected days with different time periods.

Figure 33: Period Selection Grid





The following figure shows a system with 15-minute interval data. The calendar date-time scope shows that both the 28th and the 29th have the time periods 01 and 02 selected. Only one of the days also has the time periods 03 through 06.


You can select and clear time periods for your report by using the commands on the PERIODS toolbar or the PERIODS short-cut menu. The following sections provide procedures for selecting and clearing time periods using the PERIODS toolbar. The PERIODS toolbar is located beneath the PERIODS drop-down list box (see the the above figure).

Note: You can also create and name predefined time periods that then become available for selection in the PERIODS drop-down list box. For more information, see [Periods Definitions Options](#) on page 212.

To select/clear all time periods

1. On the PERIODS toolbar, click the SET ALL PERIODS icon () to select all time periods for a report.
2. To clear all time period selections, click the CLEAR ALL PERIODS icon ().



To select/clear a block of time periods

1. If necessary, turn on the block selection. Click the BLOCK SELECTION icon ().

2. Select a block of time periods by clicking a single cell in the selection grid and dragging your mouse cursor to encompass the desired block of cells as illustrated in the following graphic.

Figure 34: Selected Block of Time Periods

	00	15	30	45
01				
02				
03				
04				
05				
06				

3. Do one of the following:
 - a. To select the block of time periods for the report, click the SET PERIODS icon ().
 - b. To clear the block of time periods, click the CLEAR PERIODS icon ().

To select/clear rows and columns



1. If necessary, turn on the block selection. Click the BLOCK SELECTION icon ().
2. To either select or clear a column, double-click the header as illustrated in the figure below.

Figure 35: Column Selection

	00	15	30	45
01				
02				
03				
04				
05				
06				
07				
08				
09				
10				
11				

3. To either select or clear a row, double-click the header of the row.

To cut and paste time periods

1. If necessary, turn on the block selection. Click the BLOCK SELECTION icon ().
2. Select a block of time periods and click the COPY PERIODS icon.
3. Select a block of the equal size where you want to paste the time periods, and click the PASTE PERIODS icon.

To select/clear a single time period

1. Click the BLOCK SELECTION icon to turn block selection off if necessary.
2. Click the desired time period in the selection grid.

If the time period is empty, a blue dot appears, indicating time period selection. If the time period has a blue dot, the period is cleared.

Tip: If BLOCK SELECTION is turned on, you can double-click the time period to either select or clear it.

Related Topics

[Setting Relative Date-Time Scope Options](#)
[Setting Date-Time Scope Options Using a Calendar](#)
[Data Availability in Report Definitions](#)

Data Availability in Report Definitions

The Report Editor, used with report definitions, supplies you with information about available data as you define Traffic reports. Before generating the report, you can view the available data using the DATE-TIME SCOPE page of the Report Editor. The data displayed is based on the scenario you chose on the GENERAL page of the Report Editor.

Note: If you are using a user-defined scenario to view available data, and the scenario uses scenario filtering with `MatchesRE` function, you might experience a time-out error. The time out error occurs when the time it takes to process the scenario filter exceeds the client time-out period.

To view available data

1. Go to the DATE-TIME SCOPE page of the Report Editor and select the DATA AVAILABILITY check box. The filter calendar, the DATATYPE drop-down list box, and the PERIODS box are displayed.

Note: By default, you can view four months of available data. To change the number of months of available data to view, use the GENERAL page of the OPTIONS dialog box.

2. Select either a single loaded data type or all data types using the DATATYPE drop-down list box.
3. The calendar displays the amount of data available for each day. To update the PERIODS treePERIODS area with information about data available for each period of the chosen date, click a date on the calendar.

Each period in the PERIOD box is displayed as red, yellow, or green to indicate respectively no data, some data, or all data is available for that period.

Note: For a system-level report, the calendar always displays data availability as green for all days when a system stored busy hour is selected. All other options (non-stored busy hour, summation, and so on) show the actual data availability.

4. Move the cursor over a particular period in the PERIOD box to see a Tool Tip that shows information about data returned for that period, if data exists.

The information includes an entity identifier, date and time the data collection started, data type, and data type frequency.

Note: If you select ALL DATATYPES, and .trx data is loaded for one or more hours in a day, the .trx data is considered complete for that day. Therefore, if SmSmDump data, for example, is loaded for all hours of a day, and .trx data is loaded for one or more hours of that same day, the respective date on the calendar is displayed as green.

Report Format Options

By default, report output is formatted for a portrait page orientation (long axis vertical) and fit to the page.

You can override any of these defaults to create report output in a format that suits your needs by using the FORMAT tab in the Report Editor:

- Change the orientation of the report in the ORIENTATION area.
- Assign a style sheet to the report using the POSTPROCESSING area.
- Apply a macro to the report using the POSTPROCESSING area. For more information about available macros, see [Macros for Excel Report Output](#).
- Apply a header or footer to the report using the REPORT HEADING/FOOTNOTE area.
- Split the key field into separate entity columns using the SPLIT KEY FIELD area. Columns are selected individually, so you can select all of them or any subset for display.

Note: The key field is the field displaying the entity path from system to focal entity.

- Hide the key column using the HIDE KEY COLUMN check box.

Note: The HIDE KEY COLUMN option is enabled only if at least one split key entity has been selected for display.

Creating Report Definitions

You must create a template before you can create a report definition.

To create a Report Definition

1. In the PROSPECT EXPLORER window, select the FILE menu, point to NEW, and then select TRAFFIC REPORT. The CREATE NEW TRAFFIC REPORT dialog box opens.
2. In the CREATE NEW TRAFFIC REPORT dialog box, select the desired entity level and click OK. The Report Editor opens.
3. Select the Template:
 - a. Start selecting the Template to use in the Report Definition by clicking the BROWSE button (...). The BROWSE FOR TEMPLATE dialog box opens.
 - b. Select the Template from which to use in the Report Definition and click OK.
 - c. Set the method by which you want to receive the report by entering the desired information in the REPORT DESTINATION area.

Table 38: Report Destination Options

<i>If You Want...</i>	<i>Do This...</i>
Printer	Select the PRINTER check box. This sends the report to your default printer.
File	<ol style="list-style-type: none"> 1. Select the FILE check box. 2. Select the file format from the FILE FORMAT drop-down list. 3. In the PATH text box, enter the location to where you want to save the report. If you do not know the location, select the browse button (...) and navigate to the desired location. 4. In the FILE NAME text box, type the name you want for your file. If you run this report periodically without overwriting the previous output, you can use variables in the file name. Options are: \$YYYY — four-digit year \$MM — month \$DD — day \$HH24 — hour, military time \$MI — minute \$SS — second \$USER — the schedule entry owner \$ID — task ID: a unique, sequential number that the system assigns \$YESTERDAY — inserts yesterday's date in the file name For example, if Robin wants a report to run at 11:00 P.M. each day and be saved as a file, the file name: \$USER_\$YYYY\$MM\$DD_\$HH24 generates a file with the following name for the report that runs on October 25, 2002: robin_20021025_2300

4. Set the report type properties by clicking the REPORT TYPE tab and entering the desired information.
5. Set the date-time scope for the report by clicking the DATE-TIME SCOPE tab and entering the desired information.
6. Set the format for the report by clicking the FORMAT tab and entering the desired information.
7. Save the Report Definition by selecting SAVE from the FILE menu and entering the appropriate information in the SAVE TRAFFIC REPORT AS dialog box.

Note: Since most reports are processed using Excel, do not use Excel macro names as report names. Excel macro names include *seashom*, *CDFandPDFgraph*, *Enhanced_Graph*, *PCMD_Tree*, *trend_ep*, *trend_lg*, *trend_ln*, *cfig_utl*, *cfigrpt*, *FlexMain*, *FlexPM*, *Graphing*, *trafT-empWC*, *trend*, and *udreport*. Also avoid the names *CSV Styles* and *Default*, as well as the names of any user-defined macros.

Note: You might receive a Lengthy Report Warning message when saving the report definition. See [Lengthy Report Warnings](#) for more information.

Related Topics

[Templates](#)

Guidelines for Traffic Reports

When you create a report, you might want to avoid making selections that:

- Tie up system resources, causing Prospect server delays
- Result in an excessively long report run
- Cause a report to fail

This section discusses the warnings you might receive when you make certain report selections, as well as selections that could result in report failure.

Topics

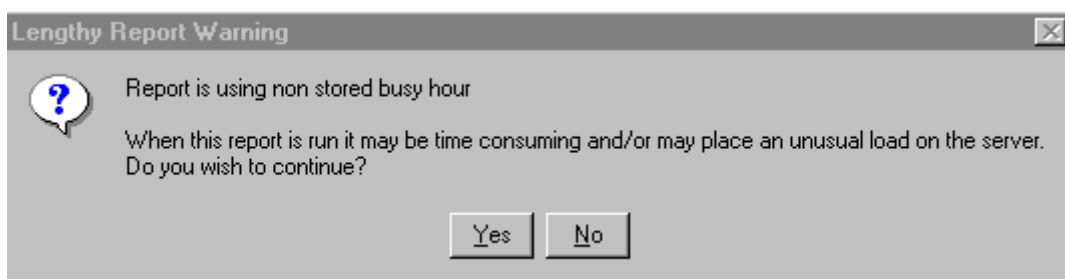
[Lengthy Report Warnings](#)

[System Memory and Report Failure](#)

Lengthy Report Warnings

A lengthy report warning message informs you when the reports you want to run might be time consuming and might tie up system resources. However, you can proceed with the report run, despite receiving the lengthy report warning message. The following figure shows a sample lengthy report warning for a report using a non-stored busy hour.

Figure 36: Lengthy Report Warning Message



You will see a lengthy report warning under the following conditions:

- A report definition that uses a busy hour criterion and *not* a stored busy hour determiner.
- A report definition that references a template that contains a complex UDC (see [Complex UDCs](#)).
- A date-time scope spanning longer than 30 days.

A lengthy report warning opens when you:

- Save the report definition
- Run the report immediately
- Create or run a report group that contains one or more reports that do not use a stored busy hour determiner
- Save a schedule entry that uses a group containing one or more such reports

When you save a report definition, the warning message opens a pop-up window that contains a list of reasons why the report could tie up the system resources.

When you run a report or a report group, the warning message contains a list of possible lengthy report names that might impede the report generation process.

Note: Use the **ADVANCED** tab of the Options tool to configure the lengthy report warning. See [Advanced Options](#) for more information.

System Memory and Report Failure

When you run a report that requires a high number of computations, the memory requirement for the computations could exceed the four (4)-GB memory allocation per report. Exceeding memory allocation size can result in report failure.

A report runs the risk of exceeding the memory allocation size by including a combination of the following: multiple elements, multiple fields (performance metrics), a long reporting period, and smaller time periods (for example, 15-minute periods).

Here are the recommendations for avoiding report failure:

- Increase the time portion of **GROUP BY** option in the report definition from quarter (hours) to hours (days). This action forces some aggregation to occur in the Oracle database, thereby reducing the number of records pulled into memory by the Prospect report generator.
- Reduce the size of the scenario. Use user-defined scenarios to break up the network into smaller sections. Reports can be run using the smaller user-defined scenarios to reduce the report size.
- Reduce the date-time scope. If it is necessary to report on all network elements and group by 15 minutes, you must define a smaller date-time scope.

Express Reporting

Express reporting allows you to create scenarios and templates at the time of report definition. You use the Report Editor to select the entities you want to include in your scenario and the entity fields you want to include in your template (see the following figure).

This is in contrast to the standard report definition method, which requires you to define scenarios and templates. The advantage to the express reporting method is that you do not have to define scenarios and templates before you can run a report. You can also report on many similar entities more easily and quickly through express reporting.

The standard reporting method, however permits multiple users to share the same scenarios and templates, which allows a sophisticated user to develop more complex documents for the benefit of many reports.

Figure 37: Express Report Editor

Traffic ECP Report Editor: New Traffic ECP Report *

File View Help

General Destination Report Type Date-Time Scope Format

Scenario: ☒ Express

Entities from: TrunkGroup Id filter: * - * - * - * ☒ Active only Find

Entities matching criteria above:

Id	Name
28-4-2-17	STG:1
28-4-2-20	STG:2
28-4-2-21	STG:2
28-4-2-28	LTG:2
28-4-2-29	LTG:2

Include these TrunkGroup entities in the

Id	Name
28-4-2-21	STG:21
28-4-2-28	LTG:28
28-4-2-1901	NTG:1901

☐ Include inactive descendants in Scope

Template: ☒ Express

Fields from: TrunkGroup Tech types: <All Tech Type> sld types: <All Field Type> Matching names: Find

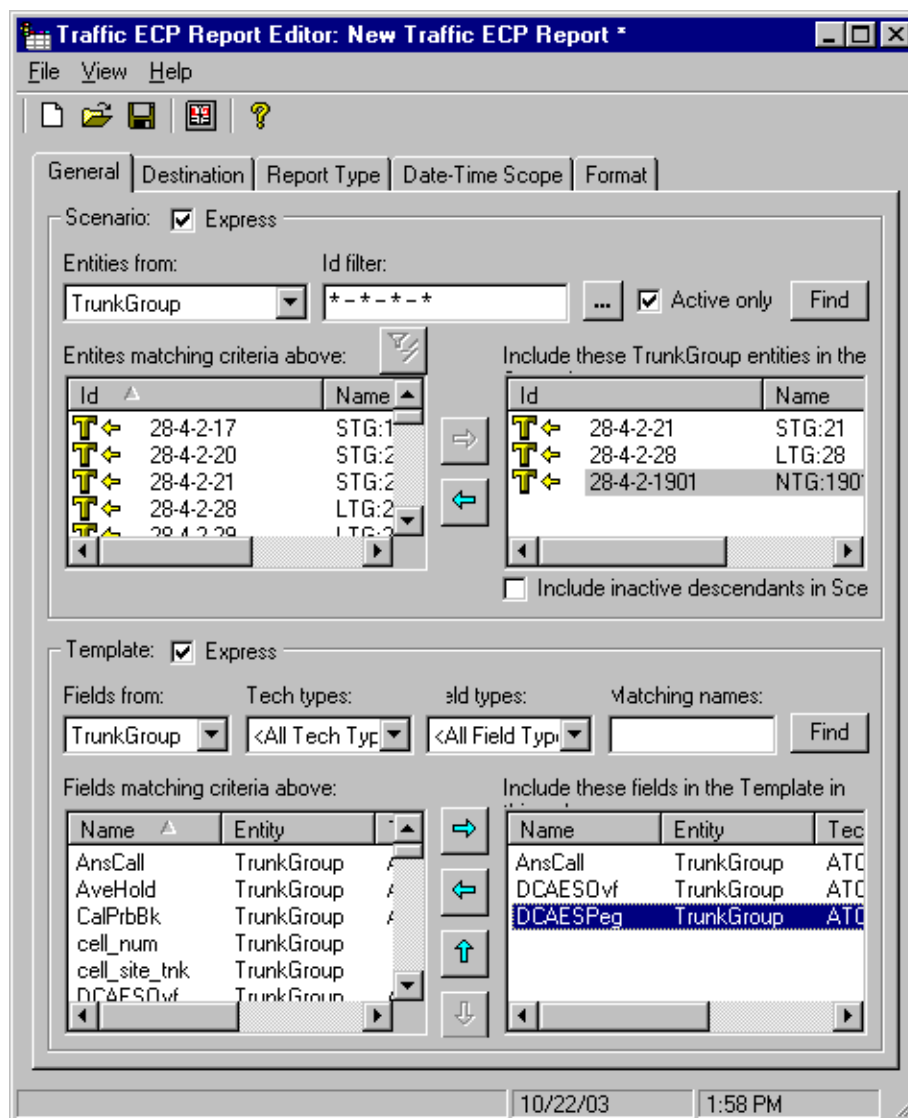
Fields matching criteria above:

Name	Entity
AnsCall	TrunkGroup
AveHold	TrunkGroup
CalPrbBk	TrunkGroup
cell_num	TrunkGroup
cell_site_tnk	TrunkGroup
DCAES0vf	TrunkGroup

Include these fields in the Template in

Name	Entity	Tec
AnsCall	TrunkGroup	ATC
DCAES0vf	TrunkGroup	ATC
DCAESPeg	TrunkGroup	ATC

10/22/03 1:58 PM



Express Report Scenario Options

The scenario for a report definition specifies the entities to use in your report. You can use an existing Complete scenario, Active scenario, or User scenario; or you can create a scenario when you define a report.

To create a scenario when you define a report

1. In the PROSPECT EXPLORER window, select the FILE menu, point to NEW, and then select TRAFFIC REPORT. The CREATE NEW TRAFFIC REPORT dialog box opens.
2. In the CREATE NEW TRAFFIC REPORT dialog box, select the desired entity level and click OK. The Report Editor opens.

Defining Traffic Reports

3. Select the EXPRESS check box. The SCENARIOS area of the Report Editor expands to allow entity selection.
 4. Select the entity you want from the ENTITIES FROM drop-down list box.
 5. To filter the entity list, select your filtering criteria.
 - ID FILTER — Filters the entity list by the entity ID string. The entity ID string must be in the format of x-x-x-x where each x represents the ID of an entity in the hierarchy. By default, entity ID filtering is not active.
-

Note: You can filter using an asterisk (*) as a wildcard character in the ID FILTER text box. For example, if you want to report on all cells under a particular network element with an entity ID of 2, you would enter 1-2-*- in the ID FILTER text box. The 1 represents System=1, the 2 represents the network element, and the symbol * represents a wildcard value.

- MATCHING NAME — Filters the entity list by the entity name. You can use regular expressions as filtering criteria in the MATCHING NAME text box. For more information about regular expressions, see [Regular Expressions in Scenario Filters](#).
 - MATCHING DESCRIPTION — Filters the entity list by the entity description. You can use regular expressions as filtering criteria in the MATCHING DESCRIPTION text box.
6. If you want to report on active entities only, select the ACTIVE ONLY check box and click the FIND button.
-

Note: If your filter returns more than 3000 items, you will receive a warning message to formulate a more specific query. If you continue with the report, the list returned is indeterminate (that is, the 3000 items you will see are not necessarily the first 3000 in any sorted order).

7. Select the entity you want in your scenario and click the right arrow.
 8. Complete the Report Definition by setting the report destination, the report type, the date-time scope, and the report format.
-

Note: Express report scenario options are created at the time of report definition. By default, when a report definition is loaded, the ENTITIES FROM drop-down list is set to SYSTEM, the ID FILTER drop-down list is set to all asterisks (*), and the ACTIVE ONLY check box is selected.

Express Report Template Options

A report template allows you to specify which fields are used in the report. You can use a pre-defined template or create a template at the time of report definition.

To create a template when you define a report

1. In the PROSPECT EXPLORER window, select the FILE menu, point to NEW, and then select TRAFFIC REPORT. The CREATE NEW TRAFFIC REPORT dialog box opens.
2. In the CREATE NEW TRAFFIC REPORT dialog box, select the desired entity level and click OK. The Report Editor opens.
3. Select the EXPRESS check box. The TEMPLATE area of the Report Editor expands to allow template creation.
4. Select the entity level for the template from the FIELDS FROM drop-down list box.
5. Filter the entity fields using the filter options and click the FIND button.
 - TECH TYPES — Filters the entity fields by technology.
 - FIELD TYPES — Filters the entity fields by the type of field.
 - MATCHING NAME — Filters by field name. If you do not know the complete field name, you can filter using an asterisk (*) as a wildcard character in the MATCHING NAME text box.
6. Select the fields to use in your report and click the right arrow.
7. Complete the Report Definition by setting the report destination, the report type, the date-time scope, and the report format.

Note: Express report template options are created at the time of report definition. By default, when a report definition is loaded, the FIELDS FROM drop-down list is set to SYSTEM, the TECH TYPES drop-down list is set to <ALL TECH TYPES>, the FIELD TYPES drop-down list is set to <ALL FIELD TYPES>, and the MATCHING NAME text box is empty.

7 Trending Analysis for Traffic Reports

Trending reports are Traffic reports that include graphs, either of some field over time, or one field relative to another.

This chapter assumes you are familiar with Prospect traffic reports. Suggested reading includes the following:

- [About Traffic Reports](#)
- [Defining Traffic Reports](#)

This chapter contains the following sections:

- [Trending Analysis Basics](#)
- [Capacity Planning](#)
- [Triggers, Margins, and Limits](#)
- [Long-Term Trending with Short-Term Databases](#)
- [Trending Macros](#)
- [Creating a Traffic Report for Trending Analysis](#)

After reading this chapter, you will have information to understand:

- How you can use trending analysis
- The methods for using traffic reports for trending analysis

Trending Analysis Basics

Trending analysis is the calculation of value variation in one variable in comparison to another. Time is often, but not always, one of these variables.

Trending analysis has three primary roles in performance management:

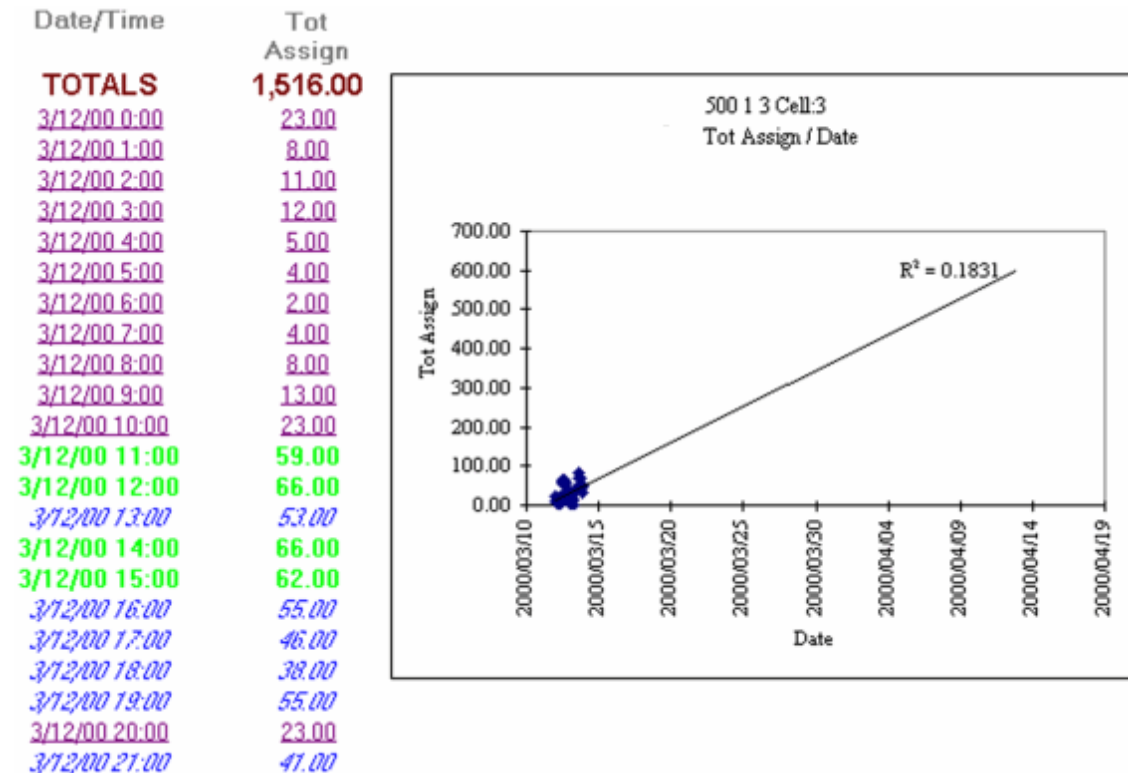
- It summarizes historic traffic patterns.
- It helps you predict when traffic volumes are likely to reach the capacity limits of your network.
- It allows you to factor future technology features into your analyses.

You can analyze trends in two modes:

- Values of a field over time.
- Values of a field in relation to another.

Trending report output differs from other Traffic report output primarily in having diagrams that show the trend of data, as you choose in the postprocessing. An example is shown below.

Figure 38: Example Trending Report



Capacity Planning

One of the most common applications of the trending feature is to plan network capacity. There are two major sets of considerations in your organization's planning decisions:

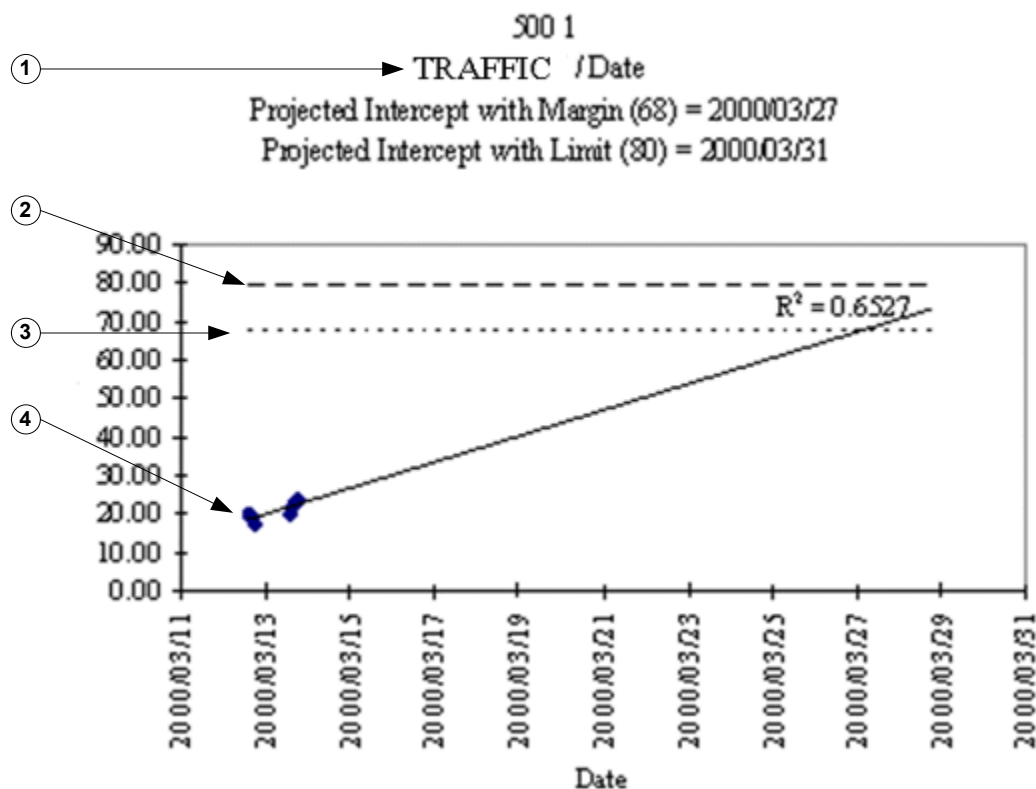
- Equipment manufacturers quantify engineering aspects of their equipment. These translate into technical guidelines that are not flexible.
- Your organization decides to which aspect of network performance to apply these guidelines. For instance, you might decide to trend on the single busiest hour per month, or you might average your high-volume hours and trend the average. In either case, the goal is to plan capacity based on a trend.

Triggers, Margins, and Limits

Many engineering guidelines revolve around *triggers*: fields that are designated as critical data for indicating the load on the network. A primary goal of trending is to predict when triggers for network elements will reach either their capacity *limits* (100 percent of capacity), or *margins* (for example the value that represents 85 percent capacity, that alerts engineers that an element is approaching full capacity). (See the *Prospect Glossary* for definitions.)

The following figure illustrates the relationship between a trigger, margin and limit in a trending diagram, and shows the predicted intercepts with margin and limit values.

Figure 39: Linear Trending Diagram of a Trigger



Legend:

No.	Description
1	TRAFFIC is a trigger—a field that indicates when a network element is approaching its capacity limits.
2	Limit is 100% capacity.
3	Margin is the lower end of a network element's capacity "margin of safety".
4	This linear trend predicts the load on this network entity.

Long-Term Trending with Short-Term Databases

Typically, companies keep complete performance data for only a few months. This is obviously not helpful for trending analyses. You might need to do the following several months before you can generate optimal analyses:

- Identify the fields you want to monitor over time.
- Have the Prospect data administrator set up stored busy hours and/or stored summations for those fields.

Note: As a general rule, it is advisable to base trends on at least three months of data.

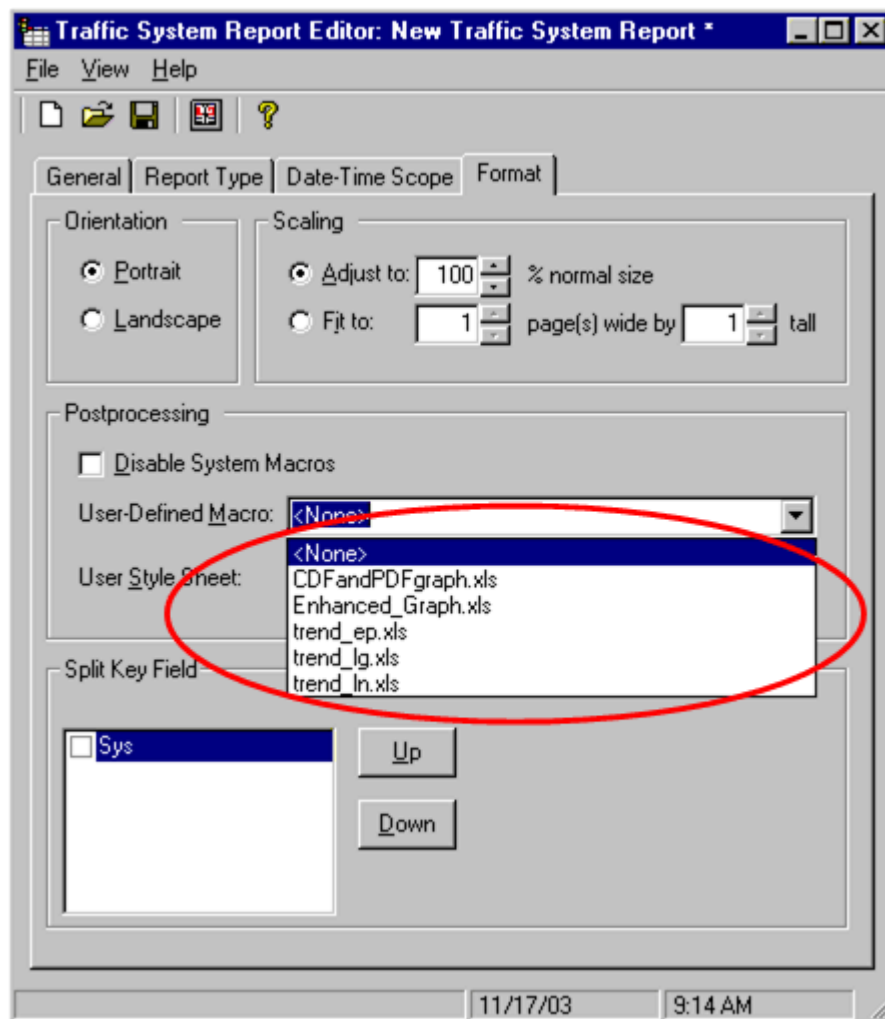
Trending Macros

The Prospect system includes predefined trending macros. You can also create your own, but you must save them under names different from those already assigned.

See the the following figure. Predefined trending macros appear in the USER-DEFINED MACRO menu on the Format page of the Traffic Report Editor. Use `trend_ln.xls` for linear trends, use `trend_lg.xls` for logarithmic trending, or use `trend_ep.xls` for exponential trends.

The Prospect macros `trend_ln.xls`, `trend_lg.xls`, and `trend_ep.xls` use Excel's LINEST and LOGEST macros. LINEST uses a least-squares fit algorithm to fit the data to a straight line. LOGEST uses an exponential best fit algorithm to fit the data to a curve. See the Excel Help file for additional information on these Excel functions.

Figure 40: Predefined Trending Macros



Related Topics

[User-Defined Macros for Excel](#)

Creating a Traffic Report for Trending Analysis

Creating a traffic report for trending analysis is similar to the process for creating other traffic reports, except for the information contained in the following sections:

- [User-Defined Calculations for Limit Fields](#)
- [Templates for Trending Analysis](#)
- [Report Definitions for Trending Analysis](#)

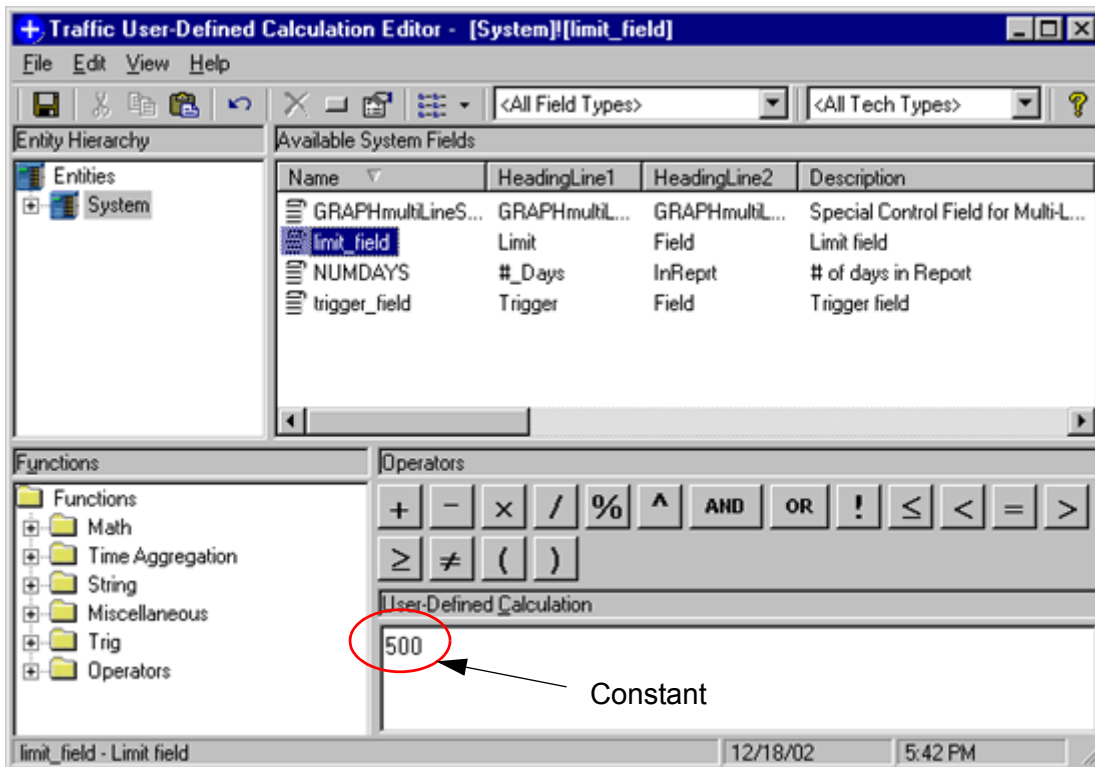
User-Defined Calculations for Limit Fields

Create a user-defined calculation (UDC) as your limit field before creating a template for trending analysis. For more information on UDCs, see [User-Defined Calculations](#) on page 231. Use the limit field in the template that you create.

To create a UDC for a limit field

1. Create a UDC using the same entity level as the template used for trending analysis.
2. Place a numerical value in the lower right calculation pane of the USER-DEFINED CALCULATION EDITOR window to represent the capacity limit for the trigger of the selected network element (see the following figure).

Figure 41: Traffic User-Defined Calculation Editor



3. Save your UDC as follows:
 - a. Select SAVE from the FILE menu. The USER-DEFINED CALCULATION PROPERTIES dialog box opens.

Figure 42: User-Defined Calculation Properties

User-Defined Calculation Properties

Name:

Description:

Heading Line 1:

Heading Line 2:

Time Aggregator: Element Aggregator:

Data Type:

Complex UDC: ☐

Technologies:

☐ **Tech Types**

- ☐ EDGE
- ☐ GPRS
- ☐ GSM
- ☐ UMTS

Field Style:

OK Cancel Help

- b. Give your UDC a name by typing in the NAME text box. A description is optional.
- c. Type LIMIT in the HEADING LINE 1 text box. Leave the HEADING LINE 2 text box empty.
- d. Select CONSTANT from the AGGREGATION TYPE drop-down list box.
- e. Select Max from the Time Aggregator drop-down list box.
- f. Select Max from the Element Aggregator drop-down list box.
- g. Select an appropriate entry from the DATA TYPE drop-down list box.
- h. Under TECHNOLOGY, select the appropriate check box.
- i. Click SAVE.

Related Topics

[User-Defined Calculations](#)

Templates for Trending Analysis

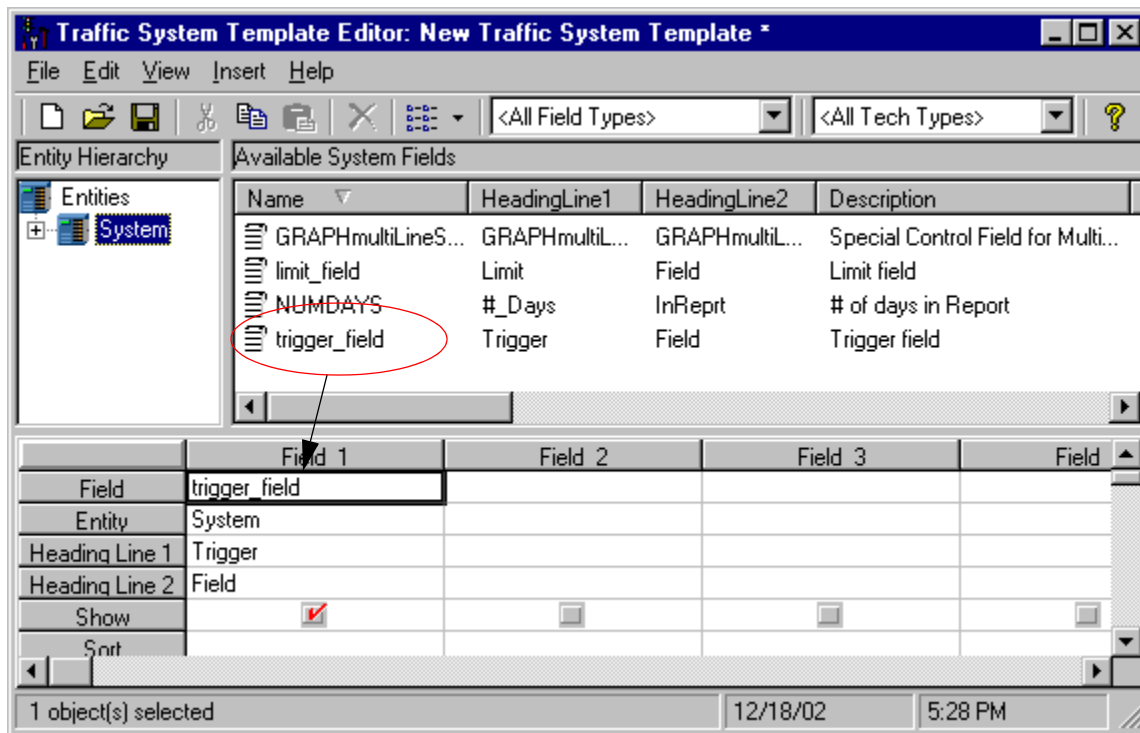
Create a traffic report template to define the limits and triggers of the trending analysis. A template for trending analysis is the same as a traffic template, except your template must include the trigger and the limit. Optionally, you can also add a second field, whose value is used for the y-axis instead of time.

You must create a UDC as your limit field before you can create a template for trending analysis.

To create a template for analyzing a field over time

1. Create a traffic template. See [Templates](#) for more information.
2. In the AVAILABLE FIELDS pane, select a field as your trigger field, and drag it to the FIELD 1 column of your template (see the following figure).

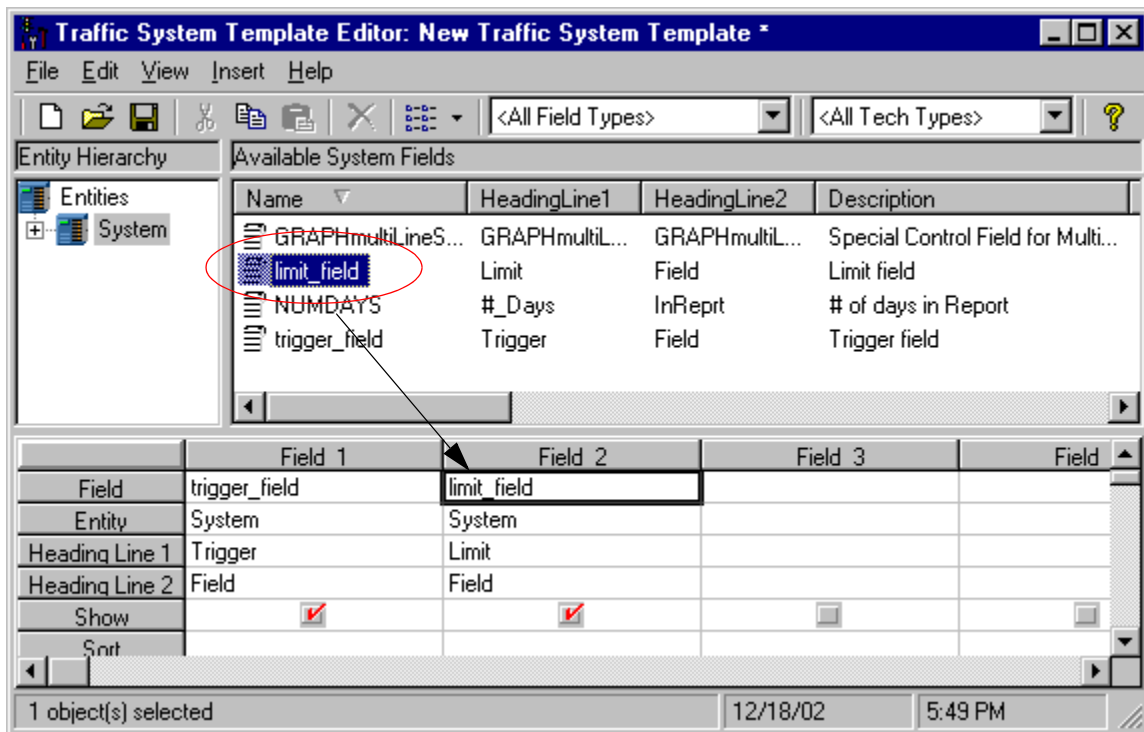
Figure 43: Trigger Field Placement



3. The second column is your *limit* field. You need to create a UDC to complete this column. From the list of available fields, place the UDC you created in the FIELD 2 column (see the following figure).

Important: The limit field HEADING LINE 1 must be LIMIT. See [User-Defined Calculations for Limit Fields](#) for more information.

Figure 44: Completing the Limit Field



To create a template for analyzing a field based on the value of another field

1. Create a traffic template. See [Templates](#) for more information.
2. In the AVAILABLE FIELDS list pane, select a field as your trigger field, and drag it to the FIELD 1 column of your template.
3. In the AVAILABLE FIELDS pane, select a field to compare against the trigger field, and drag it to the FIELD 2 column of your template.
4. The third column is your *limit* field. You need to create a UDC to complete this column. From the list of available fields, drag the UDC you created in the FIELD 3 column.

Important: Heading Line 1 for the limit field must be LIMIT.

Report Definitions for Trending Analysis

Create a traffic report definition when you want to analyze trending just as you create any other traffic report definition, with a few exceptions:

- In the REFERENCES area on the GENERAL page of the Report Editor, choose a template created specifically for trending analysis.

- From the USER-DEFINED MACRO drop-down list box on the FORMAT page, choose trend_ln.xls for linear trending, or trend_ep.xls for exponential trending.

See [Defining Traffic Reports](#) for more information.

8 Confidence Reports

Prospect software lets you create confidence reports that contain information about the availability of loaded data.

This chapter discusses confidence reports in the following sections:

- [Confidence Report Basics](#)
- [Process for Creating Confidence Reports](#)
- [Filtering Available Data](#)
- [Creating Confidence Report Definitions](#)

After reading this chapter, you should be able to understand the following:

- Purpose of confidence reports
- Steps necessary to create confidence reports

For more information on different ways to determine missing data, see the following sections:

- [Confidence Factors](#)
- [Data Availability Tool](#)

Confidence Report Basics

Confidence reports are useful when you need to know if data is missing from the Prospect server. Using confidence reports, you can determine which periods do not have any related data loaded into the Prospect server. Without related data, a report that requires the data for a period can produce incomplete results.

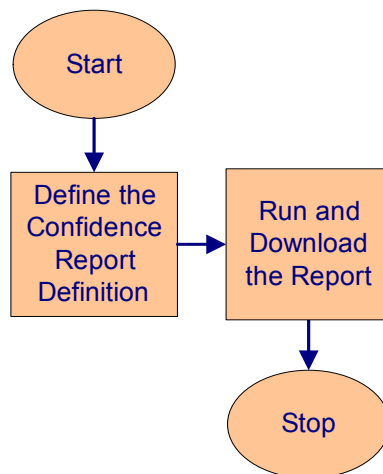
The values reported by confidence reports are percentages that indicate whether all the expected data files within the report's date-time scope have been loaded into the Prospect server. For example, a value of 100 percent means that all of the expected data files have been loaded into the Prospect server. If the confidence factor for a given report is not 100 percent, then a data file has not successfully loaded and reports that require the data contain incomplete results.

Note: A confidence factor is different than a confidence report in that confidence reports focus on whether a data file has been loaded. Confidence factors additionally focus on whether the data file contains information for specific entities and fields.

Process for Creating Confidence Reports

Creating confidence reports is simpler than creating traffic reports because confidence reports do not use a separate template. The process for creating confidence reports is shown in the following figure.

Figure 45: Process for Creating Confidence Reports



Filtering Available Data

You can filter the information in a confidence report by means of the confidence report definition. Information is only included in the confidence report if it is validated by the filter expression.

The following table lists and describes the operators that you can use to filter information in confidence reports.

Table 39: Filtering Operators for Confidence Reports

Operator	Description
<=	Includes only the information less than or equal to the value.
>=	Includes only the information greater than or equal to the value.
<>	Includes only the information that is not equal to the value.
<	Includes only the information that is less than the value.
>	Includes only the information that is greater than the value.
=	Includes only the information that is equal to the value.

Creating Confidence Report Definitions

The procedure for creating confidence report definitions is below.

To create a confidence report

1. In the PROSPECT EXPLORER window, select the FILE menu, point to NEW, and then select CONFIDENCE REPORT. The Confidence Report Editor opens.
2. Select a scenario:
 - a. Start selecting the scenario to use in the Report Definition by clicking the BROWSE button (...). The BROWSE FOR SCENARIO dialog box opens.
 - b. Select the scenario to use and click OK.
3. Set the method by which you want to receive the report by entering the desired information in the REPORT DESTINATION area.
4. Click the REPORT TYPE tab and entering the desired information to set the report type properties.
 - a. Select the check boxes that correspond to the data type you want in the confidence report.
 - b. If you want to filter the available data information, select the ENABLE FILTER check box, select an operator from the OPERATOR list, and enter a value in the VALUE box.
5. Set the date-time scope for the report by clicking the DATE-TIME SCOPE tab and entering the desired information.
6. Set the format for the report by clicking the FORMAT tab and entering the desired information.
7. Save the report definition:
 - a. Select SAVE from the FILE menu. The SAVE CONFIDENCE REPORT AS dialog box opens.
 - b. Enter the appropriate information in the SAVE CONFIDENCE REPORT AS dialog box.

- c. Click SAVE. The report definition is saved.

9 User-Defined Reports

User-defined reports (UDRs) present configuration information. UDRs use a template that you create (therefore, fields that you choose).

Note: This feature is not available for all technologies. However, those who are able to access this capability can use the following instructions to define and generate reports..

This chapter discusses UDRs in the following sections:

- [User-Defined Report Basics](#)
- [Creating a User-Defined Report Definition](#)

After reading this chapter, you should be able to understand the following:

- General information about UDRs
- Steps necessary to generate UDRs

User-Defined Report Basics

User-defined reports (UDRs) summarize information about the configuration of your network. The following figure shows an example of a UDR

Figure 46: Sample UDR

UDR reports are in spreadsheet format, and contain configuration information about network elements.

SysID	ECPID	ApNum	IvecpidIVT	IVsidIVT
500	10	1	1	1251
500	10	1	1	1251
500	10	1	1	1251
500	10	1	1	1251
500	10	1	2	17
500	10	1	2	17
500	10	1	2	17
500	10	1	2	1411
500	10	1	2	1411
500	10	1	2	1411
500	10	1	2	1411
500	10	2	1	1251
500	10	2	1	1251
500	10	2	1	1251
500	10	2	1	1251
500	10	2	2	17
500	10	2	2	17
500	10	2	2	17
500	10	2	2	17
500	10	2	2	1411

Combinatorial Explosion in User-Defined Reports

User-defined reports (UDRs) are the most primitive report type in the sense that they do the least processing of the data that they put into reports. Because of the way they present the data, UDRs can fail if your template includes fields from multiple branches of a scenario hierarchy. This failure mode, called *combinatorial explosion*, reflects the fact that the report fails when it gets too large, usually as a result of using multi-entity scenarios and templates.

The problem of combinatorial explosion arises when you define a UDR that uses:

- A scenario with a branching hierarchy
- A template with fields from multiple branches of the hierarchy.

Such a multi-branch scenario could look like the example in the following figure, and such a multi-branch template could look like the example in the subsequent figure.

Figure 47: A multi-branch scenario that can lead to combinatorial explosion

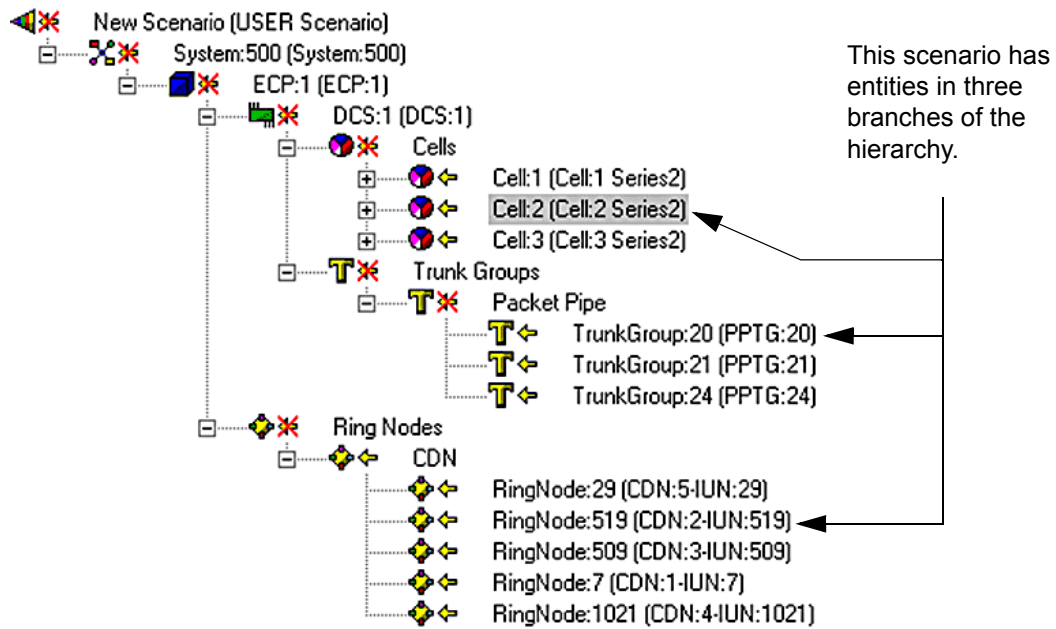


Figure 48: A multi-branch UDR template that can lead to combinatorial explosion

	Field 1	Field 2	Field 3	This template uses fields from all three branches of the preceding scenario.
Field	NewHoCmp	TrnkCalls	CPRTUsg	
Entity	Cell	TrunkGroup	RingNode	
Heading Line 1	New_HOff	Trunk	RealTimeCP	
Heading Line 2	Complete	Calls	Usg	
Show	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

When you define a UDR that uses a multi-branch scenario and a multi-branch template, the default behavior of the Prospect system is to create a UDR output with the number of rows being the product of the number of entities in the different branches of the scenario.

For example, a scenario with three cells, three trunk groups, and five ring nodes is combined with a template that includes cell, trunk group, and ring node fields. The combination results in a report with $3 \times 3 \times 5 = 45$ rows. The format of the report output is as shown in the following figure.

Figure 49: Combinatorial Explosion in Report Output

	<i>CellStat</i>	<i>TrkGpCNTG</i>	<i>IUNMbr</i>	<p>The number of rows in this report is the product of the number of entities: 3 cells x 3 trunk groups x 5 ring nodes = 45 rows.</p>
Row 1	Cell 1 value	Trunk Group 20 value	Ring node 29 value	
Row 2	Cell 1 value	Trunk Group 20 value	Ring Node 519 value	
Row 3	Cell 1 value	Trunk Group 20 value	Ring Node 509 value	
Row 4	Cell 1 value	Trunk Group 20 value	Ring Node 7 value	
Row 5	Cell 1 value	Trunk Group 20 value	Ring Node 1021 value	
Row 6	Cell 1 value	Trunk Group 21 value	Ring node 29 value	
Row 7	Cell 1 value	Trunk Group 21 value	Ring Node 519 value	
Row 8	Cell 1 value	Trunk Group 21 value	Ring Node 509 value	
Row 9	Cell 1 value	Trunk Group 21 value	Ring Node 7 value	
Row 10	Cell 1 value	Trunk Group 21 value	Ring Node 1021 value	
Row 11	Cell 1 value	Trunk Group 24 value	Ring Node 29 value	
...	
Row 45	Cell 3 value	Trunk Group 24 value	Ring Node 1021 value	

The Prospect system fails with an error message of “too many rows” when a report exceeds 65,536 rows.

You can manage the size of your report and tailor your output—and avoid report failure—by using the Criteria feature in your template. The template in the following figure limits the report content to rows where the trunk group data range from 200 to 400.

Figure 50: Preventing Combinatorial Explosion By Using Criteria

	Field 1	Field 2	Field 3
Field	NewHoCmp	TrnkCalls	CPRTUsg
Entity	Cell	TrunkGroup	RingNode
Heading Line 1	New_HOff	Trunk	RealTimeCP
Heading Line 2	Complete	Calls	Usg
Show	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Sort			
Criteria		in (200 ... 400)	

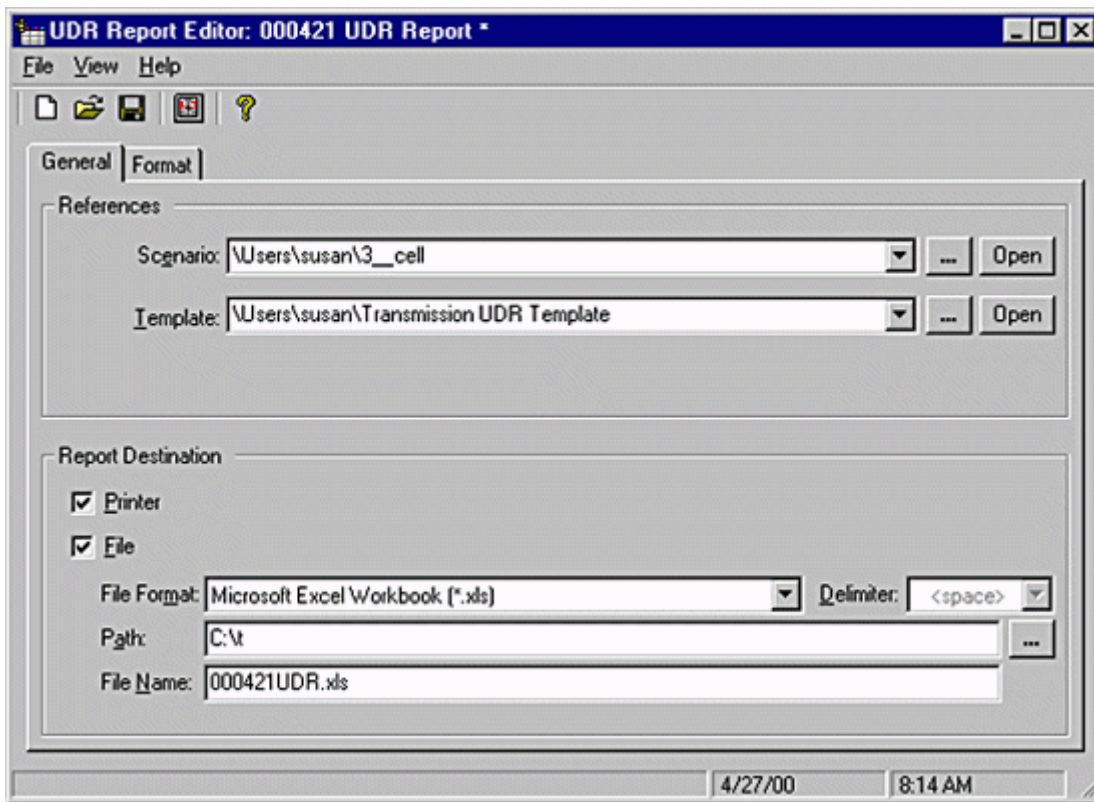
This template controls combinatorial explosion by including only rows where the value of TrkGpCNTG is 200 to 400, inclusive.

Creating a User-Defined Report Definition

Create a UDR definition when you want information about network elements that is not defined in the predefined templates.

Instructions for building and running UDRs will refer to the parts of the **UDR Report Editor** interface labeled in the following figure.

Figure 51: UDR Report Editor



To define a UDR

1. In the PROSPECT EXPLORER window, click the FILE menu, point to NEW, and select UDR REPORT. The UDR REPORT EDITOR dialog box opens.

To open an existing UDR definition

1. In the folder pane of the PROSPECT EXPLORER window, click the folder that contains the report definition you want to open.
2. In the list pane, double-click the report definition.

10 Running and Downloading Reports

This chapter contains information on running and downloading reports in the following sections:

- [Process for Running and Downloading Reports](#)
- [Grouping Documents for Jobs](#)
- [Scheduling Report Generation](#)
- [Immediately Running Reports](#)
- [Monitoring Report Generation Status](#)

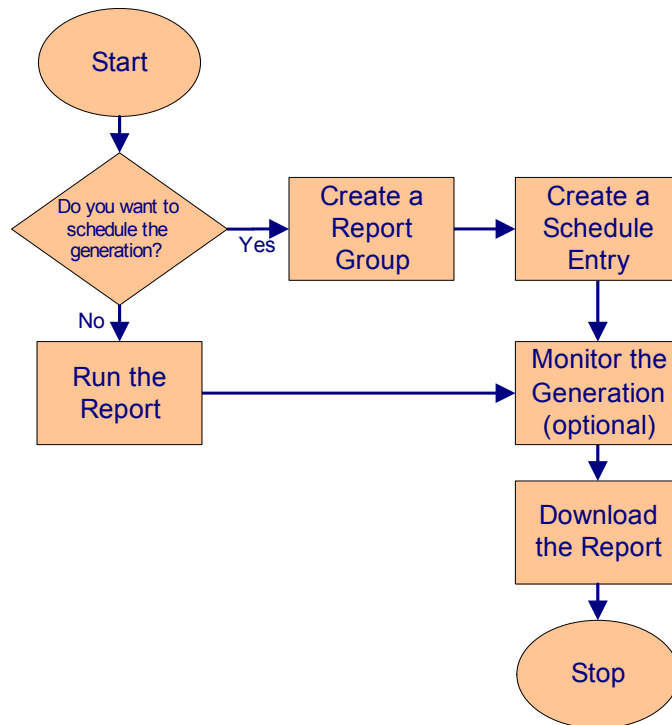
After reading this chapter, you should be able to do the following:

- Schedule and generate reports
- Download or receive reports in a number of ways
- Delete failed or old jobs

Process for Running and Downloading Reports

The following figure shows the process for running and downloading reports.

Figure 52: Running and Downloading Reports



The following table lists the stages of the figure above, including where you can find more information about them in this guide.

Table 40: Tasks for Running and Downloading Reports

Task	For More Information See...
Create a Report Group	Grouping Documents for Jobs
Create a Schedule Entry	Scheduling Report Generation
Run the Report	Immediately Running Reports
Monitor the Generation (optional)	Monitoring Report Generation Status
Download the Report	Downloading and Receiving Reports

Grouping Documents for Jobs

You must combine Report Definitions into document groups before you can schedule a report for generation. Document groups can contain one or more Report Definitions. You do not need to create a document group if you are running an immediate report because a temporary document group is created automatically. For purposes of report generation and downloading, the report group constitutes a *job*. Within the job, each individual report exists as a *task*.

[Creating Report Groups](#)

Creating Report Groups

You must create at least one Report Definition before creating a Report Group.

To create a Report Group

1. In the PROSPECT EXPLORER window, select the FILE menu, point to NEW, and then select DOCUMENT GROUP.

If you have user permissions, the REPORT GROUP EDITOR window opens.

If you have data administrator or system administrator permissions, The CREATE NEW DOCUMENT GROUP dialog box opens. Select REPORT GROUP from the OF TYPE drop-down list and click OK.

For more about permission levels, see [User Permission Levels](#) on page 19.

2. Add the documents you want in the Report Group by doing one of the following:
 - Click and drag reports to the REPORT GROUP EDITOR dialog box. You can use SHIFT+Click and CTRL+Click to move multiple reports.
 - Copy selected reports from the PROSPECT EXPLORER window and paste them in the REPORT GROUP EDITOR dialog box.
 - Click the INSERT button on the REPORT GROUP EDITOR dialog box, navigate through the SELECT DOCUMENT(S) dialog box, select the reports you want, and then click OK.
3. Save the report group:
 - a. Select SAVE from the FILE menu. The SAVE REPORT GROUP AS dialog box opens.
 - b. Enter the appropriate information in the SAVE REPORT GROUP AS dialog box.
 - c. Click SAVE. The report group is saved.

Scheduling Report Generation

A schedule entry tells the Prospect software when to generate reports. Use the Report Group Schedule Editor to set when to run reports and, if you choose to do so, instruct the Prospect software to override specific characteristics of the reports in the document group.

[General Schedule Entry Options](#)

[Schedule Options](#)

[Overriding Report Options](#)

[Creating a Schedule Entry](#)

[Time Zone Support for Reporting](#)

General Schedule Entry Options

The GENERAL page of the Report Group Schedule Editor allows you to do the following:

- Identify which document group you want to run
- Set when the report data is purged from the Prospect server
- Decide how to download the report data
- Choose which defaults you want to override

Setting Purge Options

Purging refers to the fact that a report is first created on a Prospect server and is downloaded to the destination you specify in your report. Purging a report deletes it from the Prospect server after it is downloaded to your destination (it also removes the report from Status Monitor).

Setting Download Options and Download Reports

You can choose to download completed report output manually or automatically from the server to a destination you specify. If you choose to manually download the report, use the Status Monitor. See [Monitoring Report Generation Status](#) for more information. If you choose to automatically download the report, you must run Auto Downloader.

To run Auto Downloader

- From the Windows START menu, point to PROGRAMS, PROSPECT TOOLS, and then click PROSPECT AUTODOWNLOADER. Auto Downloader opens.

Note: When AutoDownloader downloads a report, it opens the report in its own version of Excel to avoid interrupting other spreadsheets you may have open. This version of Excel does not open custom macros you may have saved to your PERSONAL.XLS or other spreadsheets.

Schedule Options

The SCHEDULE page of the REPORT GROUP SCHEDULE EDITOR dialog box allows you to do the following:

- Set the duration of the schedule
- Set the frequency of the schedule
- Set the days to exclude from the schedule

The schedule options are described in the following table.

Table 41: Schedule Options

<i>Option</i>	<i>Description</i>
Schedule Duration	Allows you to set the first date and last date on which the report should run. You can do one of the following: <ul style="list-style-type: none">• Enter the dates in MM/DD/YY format• Select the dates using the START DATE spin box.• Select the dates from the drop-down calendar
Schedule Frequency	Allows you to select the frequency of the report from the options: <ul style="list-style-type: none">• Once• Hourly• Daily• Weekly• Monthly Set the interval (for example: <i>every 2 hours</i>) from the RUN drop-down box. Using the STARTING AT spin box, select the time at which the first report should run. If you create a new schedule entry with dates that have already passed, the scheduler accepts it and then runs the process when the entry next occurs.
Exclude	Select the check boxes for the days on which the report should not run (for example, Monday and Holidays).

Overriding Report Options

If you want to run a set of reports that is similar to an existing group, but with a few modifications, you can override the Scenario, destination, and/or the date-time scope (for Traffic reports) by using the Report Group Schedule Editor. The settings you are overriding are those in the report definitions.

Using the destination override settings, you can set a report to delivery by e-mail. The e-mail destination allows you to send a report, in Excel format, to one or more e-mail addresses. The destination setting you are overriding is the global setting in the Prospect Options tool.

Tip: Use a semi-colon to separate multiple e-mail addresses.

Reports sent by e-mail might produce an error stating that the report cannot find the `FlexPM.xls` file. This error occurs when the Prospect client is not installed on the computer that is used to view the report or when the Prospect client is installed in a different directory than the client that sent the e-mail. You can eliminate this error, using the Macro options, by setting the value of the `SaveLinks` macro to `False`.

Notes: You can only use the e-mail destination if Microsoft Outlook 2000 or later is installed on your computer and if Outlook is your default e-mail client. All e-mails are sent using the default Outlook profile.

You can e-mail all report types except Matrix reports.

Creating a Schedule Entry

You must create a report group before you can create a schedule entry. After you have created a Report Group, carry out the following procedure.

To create a schedule entry

1. In the PROSPECT EXPLORER main window, click the FILE menu, point to NEW, and select SCHEDULE ENTRY. The CREATE NEW SCHEDULE ENTRY dialog box opens.
2. Select the schedule type you want from the OF TYPE drop-down list box and then click OK. The REPORT GROUP SCHEDULE EDITOR dialog box opens.
3. Type or select the name of the document group you want to run in the REPORT GROUP drop-down list box.
4. Save the schedule entry:
 - a. Select SAVE from the FILE menu. The SAVE SCHEDULE ENTRY AS dialog box opens.
 - b. Enter the appropriate information in the SAVE SCHEDULE ENTRY AS dialog box.
 - c. Click SAVE. The schedule entry is saved.

The schedule entry is automatically saved in the shared SCHEDULES folder in Prospect Explorer. The save operation places your new schedule entry in the Prospect report generation queue.

Time Zone Support for Reporting

The Prospect report scheduler offers you the option of running reports according to a different time zone region from where the Prospect server is located. The Prospect administrator defines the time zone regions for your system, which you can select when you are scheduling reports.

For example, the Prospect server might be in Los Angeles, California (America/Seattle time zone region) and your switch might be in Denver, Colorado (America/Denver region). In order

to collect data for the correct times on your reports, you must account for the local time zone region where the network entity resides.

Important! A time zone *region* is not the same as a time zone. For example: in the Mountain time zone of the United States, the State of Arizona does not observe Daylight Saving Time, whereas Colorado does. Arizona, therefore, is in a different time zone region from Colorado.

To select a time zone

1. Open a new schedule entry. (See [Creating a Schedule Entry](#) on page 154).
2. On the SCHEDULE tab in the SCHEDULE FREQUENCY area, you can select a time zone region from the TIME ZONE: drop-down list box.
3. Select a start time from the STARTING AT: spin box. This is the local time in the region you have chosen.

When you select a time zone region for your schedule that is different from where the Prospect server is located, the schedule time of the report and relative data time scopes are offset by the difference between the two regions.

Example 1

You have an hourly schedule with the date-time scope set to the last 2 hours, current hour not included. The Prospect server is in Los Angeles (America/Seattle time zone region) and you select the America/New York time zone region for your schedule with a starting time of 8:00 AM.

- When the schedule first runs, it is 8:00 AM in New York and 5:00 AM in Los Angeles
- When the schedule fires at 2:00 PM in Los Angeles, it is 5:00 PM in New York. The report will therefore gather 3:00 and 4:00 PM data, which were the previous 2 hours in the America/New York region.

Contact your Prospect administrator if you need an additional time zone region.

Example 2

You schedule a report to run at 6:00 PM every day that has a relative date-time scope defined for the last 8 hours, not to include the current day. The Prospect server is in the America/Seattle time zone region and the schedule is set to the America/New York time-zone region. This schedule will run at 3:00 PM Seattle time (6:00 PM New York time) and will contain data for 9:00 AM - 5:00 PM New York time. These settings allow you to report on data from switches in time zones that are ahead of the Prospect server.

Immediately Running Reports

An alternative method to scheduling report generation is to run immediate report generation. Run a report immediately if you do not need to schedule a report.

To run an immediate report generation

1. In the PROSPECT EXPLORER main window, select the Report Definition or Report Group that you want to run.
2. From the FILE menu, select one of these options:
 - a. For a Report Definition, select RUN.
 - b. For a Report Group, select RUN DOCUMENT GROUP.The REPORT OVERRIDES window opens.
3. As an option, you can adjust a number of settings, as described in the following table.

Table 42: Immediate Report Generation

<i>To Adjust This...</i>	<i>Do This...</i>
Scenario	<ol style="list-style-type: none">1. Click the SCENARIO tab.2. To override the existing Scenario, select OVERRIDE SCENARIO.3. Use the SCENARIO area to select a new Scenario.
Destination	<ol style="list-style-type: none">1. Click the DESTINATION tab.2. To override the existing destination, select OVERRIDE DESTINATION.3. Use the REPORT DESTINATION area to select a different destination. <p>Note: The immediate report generation options allow you to also send a copy of the report by e-mail. See Overriding Report Options for more information about the e-mail destination.</p>
Date-Time Scope	<ol style="list-style-type: none">1. Click the DATE-TIME SCOPE tab.2. To override the existing date-time scope, select OVERRIDE DATE-TIME SCOPE.3. Use the DATE-TIME SCOPE area to select a different scope.
Purge settings	On the GENERAL tab, change the purge settings in the PURGE area.
Download setting	On the GENERAL tab, change the download settings in the DOWNLOAD area.

4. Click RUN.

Monitoring Report Generation Status

The Status Monitor displays all defined reports, their attributes, the status of the last report executed, and other information. Additionally, you can view the report directly from the Status Monitor interface.

Report is a generic term refers to both jobs and tasks. A *task* is an individually configured report for a single Prospect server. A *job* is a collection of one or more tasks that is executed on demand or on a periodic basis.

Through the Status Monitor interface, you can:

- View all configured jobs and tasks
- View the status of reports that were generated or are in the process of being generated
- Manually download and view completed reports

[Using the Status Monitor Interface](#)

[Status Types](#)

[Starting the Status Monitor](#)

[Filtering and Sorting Jobs](#)

[Deleting Jobs](#)

[Configuring Options](#)

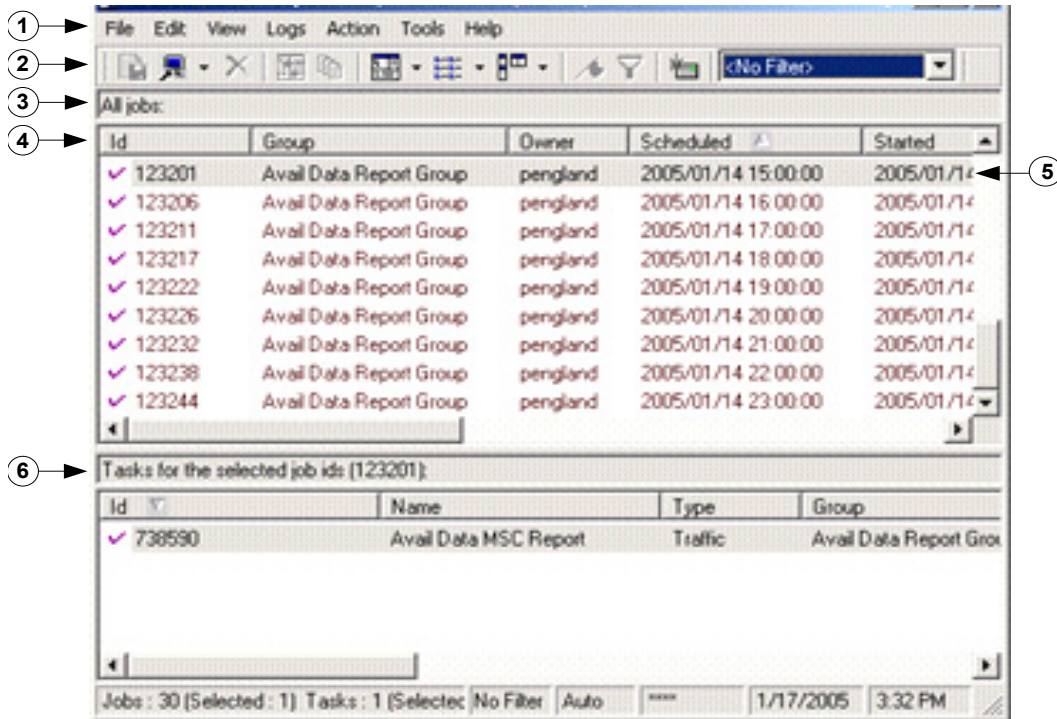
[Viewing Logs](#)

Using the Status Monitor Interface

The Status Monitor interface is designed to simplify the location of jobs and their associated tasks, and to improve job filtering.

The following figure shows the Status Monitor interface.

Figure 53: Status Monitor



Legend:

No.	Name	Description
1	Menu bar	An organized list of commands.
2	Toolbar	Performs a number of unique functions. For more information, see Status Monitor Toolbar .
3	Job Pane	Lists all configured jobs.
4	Schedule entry columns	Labels for jobs or tasks
5	Entry	Scheduled job or task.
6	Task Pane	Lists all configured tasks

Status Monitor Toolbar

The following table describes the Status Monitor toolbar buttons.

Table 43: Status Monitor Toolbar Buttons,













Button	Name	Description
	Download Jobs/ Tasks	Downloads the report associated with the selected job or task using the default download settings.

Table 43: Status Monitor Toolbar Buttons,

Button	Name	Description
	Download Server or Client Logs	Downloads the server or client logs.
	Delete	Deletes the selected job or task.
	Restore Job Selection	Selects the previously selected job.
	Show Tasks	Displays or refreshes the tasks for the selected job.
	Editor	Displays the <i>jobs</i> and <i>tasks</i> panes, the <i>job</i> pane only, or the <i>task</i> pane only.
	List Style	Selects whether tasks are displayed as large icons, small icons, in list format, or in detailed format.
	Orientation Style	Selects whether the <i>jobs</i> and <i>tasks</i> panes are displayed in the TOP AND BOTTOM (default) or SIDE-BY-SIDE style.
	Flag	Manual mode only. Downloads status information from the Prospect server.
	Filter Toggle	Allows you to toggle between the filtered and unfiltered display.
	Connect	Allows you to change the connection profile used by the Status Monitor.
None	Filter List Box	Allows you to select which filter to apply.
	Help	Displays online help for the Status Monitor.

Status Monitor Columns

There are two views for the Status Monitor: job view and task view. You can change views using the VIEW menu.

The columns in Status Monitor for the job view are described in the following table.

Table 44: Status Monitor Columns for the Job View

Column	Description
ID	ID number that the Prospect server sequentially assigns to a job.
Group	Name of the document group (or a system-assigned name if it is an immediate report).
Owner	Name of the user that submitted the report to run.
Scheduled	Date/time the job was scheduled to run.
Started	Date/time the job actually started to run.
Finished	Date/time the job finished.
Schedule Name	Name of the schedule entry (or a system-assigned name if the report was not scheduled).
Status	Current status of the job (see the table entitled Job Status Types).
Status Message	Explanatory message associated with the status.
Type	Type of document.

The columns in Status Monitor for the task view are described in the following table.

Table 45: Status Monitor Columns for Task View

Column	Description
ID	ID number that the Prospect server sequentially assigns to a task.
Name	Name of the document for the task.
Type	Type of document.
Group	Document group name (or assigned name for immediate reports).
Owner	Name of the user that submitted the report to run.
Scheduled	Date/time the task was scheduled to run.
Started	Date/time the task actually started to run.
Finished	Date/time the task finished.
Status	Current status of the task (see the table entitled Job Status Types).
Status Message	Explanatory message associated with the status.
Job ID	ID number that the Prospect server assigns sequentially to a job.
Group By	Lists whether the default report output is grouped by report or server. Applies only to report tasks. (Pre-8.0 client only.)

Status Monitor Status Bar

The following table shows the Status Bar.

Figure 54: Status Bar



The objects in the Status Bar are described in the following table.

Table 46: Status Bar Objects

Column	Description
Jobs	Specifies the number of jobs and tasks displayed in this view.
Filter	Specifies whether any filters are applied to the view. Double-click this object to modify filter settings.
Download	Specifies whether manual or automatic downloading is enabled.
Flag	Manual Only. When information is available for download, a red flag will appear. To download the information, double-click the flag.
Date	Specifies the current date.
Time	Specifies the current time.

Status Types

The job status types are described in the following table.

Table 47: Job Status Types

Status	Description
Scheduled	The initial state for all document groups.
Pending	The schedule date/time has passed, and the job is about to receive a license to run.
Waiting	If a license is not immediately available, the jobs waits until a license can be allocated.
Active	When a job has a license, it moves into the active queue.
Started	The task manager has picked up the job and expanded the job definition to create a task for each of the documents in the document group associated with that job.
Running	This status has two meanings: <ul style="list-style-type: none">• Document groups: the relevant job group processor has started—this calls each of the tasks in the group to run in sequential order (according to Task ID).• Task (document): the individual document has started to run.
Done	The document has run successfully and has generated output.
Failed	Jobs/tasks that attempted to run, but failed; the Status Message is often instructive in these cases.
Deleted	Jobs/tasks that the owner has deleted from the system.

Starting the Status Monitor

Status Monitor runs separately from the Prospect software so that you can monitor and download reports without launching Prospect Explorer. While Status Monitor is running, you can switch to a different profile and monitor the report status of another Prospect server. You can start Status Monitor either from Prospect Explorer or from the Windows START menu.

To start Status Monitor from Prospect Explorer

1. Click the STATUS MONITOR button on the PROSPECT EXPLORER toolbar. The STATUS MONITOR window opens showing the name of the currently logged-on connection profile in the title bar.
2. To select a different connection profile, select CONNECT TO DATA SERVER from the FILE menu. Then, select the new profile and enter your username and password. The STATUS MONITOR window opens with the name of the current data server displayed in the title bar.

To start Status Monitor from Windows

1. Click START, point to PROGRAMS, point to PROSPECT TOOLS, and select STATUS MONITOR. The LOGIN dialog box opens.

2. Select the profile you want to monitor and enter your username and password. The STATUS MONITOR window opens with the name of the current data server displayed in the title bar.
3. To select a different connection profile, select CONNECT TO DATA SERVER from the FILE menu. Then, select the new profile and enter your username and password. The STATUS MONITOR window opens with the name of the current data server displayed in the title bar.

Filtering and Sorting Jobs

In large production environments, finding specific jobs can be challenging. The filtering and sorting features make it easy for you to monitor only the jobs in which you are interested.

Sorting Jobs and Tasks

To sort currently selected jobs and tasks, use the Status Monitor sorting features.

To sort jobs and tasks

1. Start the Status Monitor.
2. Click TOOLS, select SORT, and select JOBS or TASKS. The SELECT SORT COLUMNS dialog box appears.
3. Select a field to use for sorting in the COLUMNS pane and click the left arrow button. The field appears in the SORT BY pane.
4. Select whether the column will use an ascending or descending sort method.
5. Select additional fields for sorting by repeating Steps 3 and 4. The Status Monitor sorts the fields in the order they appear in the SELECT SORT COLUMNS dialog box.
6. Click OK. The jobs or tasks are sorted in the Status Monitor window.

To view your jobs and tasks only

1. Start the Status Monitor.
2. Select SHOW ONLY MY JOBS AND TASKS from the TOOLS menu.

To show all tasks

1. Start the Status Monitor.
2. Select SHOW ALL TASKS from the TOOLS menu.
3. To show tasks that belong to the selected job only, select SHOW TASKS FOR SELECTED JOBS from the TOOLS menu.

Creating or Editing a Filter

Creating multiple filters can help you group only the reports that you need.

To create or edit a filter

1. Start the Status Monitor.
2. Select FILTER from the TOOLS menu. The FILTER DEFINITIONS dialog box opens.
3. To create a new filter:
 - a. If an existing filter is selected, click ADD to clear the FILTER NAME field.
 - b. Enter a name for the new filter in the FILTER NAME field.
 - c. Go to step 5.
4. To edit an existing filter, select the filter from the list at the top of the dialog box.
5. Select one of the filtering attributes from the list in the middle of the dialog box and make any changes:

Notes: Some attributes apply only to jobs or only to tasks. These are labeled *Job Only* or *Task Only*, respectively.

You can view all existing attributes associated with a filter by double-clicking the filter in the list at the top of the dialog box. This pops a window showing the attributes.

- **Finished**—sorts jobs by their completion time
 - **Group**—sorts jobs by groups that match a specified string; this option supports pattern matching, exact matching, and case matching
 - **Job ID**—displays jobs within a range that you specify
 - **Job Type**—displays jobs that match specific job types
 - **Owner**—sorts jobs by job owners that match a specified string; this option supports pattern matching, exact matching, and case matching
 - **Schedule Name**—sorts jobs by schedule names that match a specified string; this option supports pattern matching, exact matching, and case matching
 - **Scheduled**—sorts jobs by their scheduled start time
 - **Started**—sorts jobs by their start time
 - **Status**—displays jobs that match specific status settings; for example, you can apply a filter that will only display Pending tasks
 - **Status Msg**—sorts jobs by status messages that match a specified string; this option supports pattern matching, exact matching, and case matching
 - **Task ID**—displays tasks within a range that you specify
 - **Task Name**—sorts tasks by names that match a specified string; this option supports pattern matching, exact matching, and case matching
 - **Task Type**—displays tasks that match specific task types
6. Repeat Step 5 for each filtering attribute that will be applied to this filter.

7. To save the changes to this filter, click **APPLY**. To clear the settings for this filter, click **CLEAR**.
8. To delete a filter, select the filter and click **DELETE**.
9. To save the changes and exit, click **OK**. To exit without saving, click **CANCEL**.

Switching between Filters

You can switch between filters to simplify report monitoring and downloading.

To switch between filters

- Select a new filter from the **FILTER** list box.

To view all jobs without filtering, do one of two things:

- Select **SHOW ALL** from the **TOOLS** menu.
- Select **<No Filter>** from the Filter list box.

Downloading and Receiving Reports

There are two ways to download or receive a report:

- [Manually Downloading Reports](#)
- [Automatically Downloading Reports](#)

For more information about Status Monitor, see [Status Monitor Status Bar](#).

Manually Downloading Reports

Use Status Monitor to manually download reports.

To download reports manually

1. In the **STATUS MONITOR** window, select one or more jobs or tasks.
2. Select from the following:
 - To download the reports in Excel format, select **DOWNLOAD** from the **ACTION** menu
 - To download the reports in raw format, select **VIEW RAW DATA** from the **ACTION** menu

To download the log file associated with the report, select **VIEW LOG FILE** from the **ACTION** menu

Note: If you download a large report, the scheduled job list can be slow to refresh. In this case, the status bar displays a message stating that the list view is refreshing and the job list

is temporarily unavailable. To prevent a slow refresh, large reports should be deleted from the list view.

Note: When Status Monitor downloads a report, it opens the report in its own version of Excel to avoid interrupting other spreadsheets you may have open. This version of Excel does not open custom macros you may have saved to your PERSONAL.XLS or other spreadsheets.

Automatically Downloading Reports

Use Auto Downloader to download reports automatically. You can either start Auto Downloader manually through the START menu or configure Auto Downloader to start automatically when the Status Monitor is running.

Auto Downloader downloads each report based on its configuration settings when it was created.

Important! Auto Downloader uses the workstation ID to identify the reports that need to be downloaded. When a user creates a report, it will be downloaded to the client system from which it was created, not the client system that the user is currently using.

To download reports automatically when the Status Monitor is running

1. In the STATUS MONITOR window, select OPTIONS from the TOOLS menu. The OPTIONS dialog box opens.
2. Click the GENERAL tab. The GENERAL page opens.
3. Select the AUTOMATICALLY START THE AUTO DOWNLOADER AT STARTUP check box.
4. Specify how often the Auto Downloader will check for new reports in the AUTO DOWNLOADER POLLING INTERVAL field (default: 10 minutes).
5. Enter the path for a temporary directory where downloaded files will be parsed in the TEMP DIRECTORY FOR DOWNLOADING.
6. Click OK. The OPTIONS dialog box closes.
7. Restart the Status Monitor to activate this option.

To download reports automatically without the Status Monitor

- Click START, point to PROGRAMS, point to PROSPECT TOOLS, and click PROSPECT AUTODOWNLOADER. The Auto Downloader launches and downloads any reports set for automatic downloading.

To download reports automatically from multiple servers

1. Launch Auto Downloader.
2. Right-click the Auto Downloader icon and select ROTATE. A check mark appears next to the ROTATE menu item and the Auto Downloader downloads reports for all defined connection profiles in the Connection Manager that are configured for automatic downloading.

Hint: If you place your cursor over the Auto Downloader icon, a ToolTip displays the server name from which reports are currently being downloaded.

Deleting Jobs

There are two main reasons to delete report generation jobs in Status Monitor:

- As a matter of housekeeping so that your finished output does not clutter the Status Monitor
- To stop a job before it finishes

Note: You can only delete report generation jobs. Dictionary import jobs and export jobs are automatically deleted after two days.

To delete a job

1. In the list pane of the STATUS MONITOR window, select the job you want to delete.
2. Select DELETE from the FILE menu. The deletion request enters the processing queue, and the selected jobs or reports are marked for deletion. The deleted items disappear from the list pane when Status Monitor refreshes its display.

Note: Unless you are an administrator, you can delete only jobs or tasks that you own.

Configuring Options

Use the Options dialog box to configure Status Monitor settings.

To configure general options

1. In the STATUS MONITOR window, select OPTIONS from the TOOLS menu. The OPTIONS dialog box opens.
2. Click the GENERAL tab. The GENERAL page opens.
3. By default, clicking any part of a row selects the item. To select items by clicking within the first column only, clear the ENABLE FULL ROW SELECTION check box.

4. By default, the entire row appears in the color that indicates the status of the job or task. To configure only the first column to appear in the status color, clear the **ENABLE FULL ROW COLOR** check box.
5. Select the **AUTOMATICALLY START THE AUTO DOWNLOADER AT STARTUP** check box.
6. Specify how often the Auto Downloader will check for new reports in the **AUTO DOWNLOADER POLLING INTERVAL** field (the default is 10 minutes).
7. Enter the path for a temporary directory where downloaded files will be parsed in the **TEMP DIRECTORY FOR DOWNLOADING**.
8. Click **OK**. The **OPTIONS** dialog box closes.
9. Restart the Status Monitor to activate changed Auto Downloader options.

To configure style options

1. In the **STATUS MONITOR** window, select **OPTIONS** from the **TOOLS** menu. The **OPTIONS** dialog box opens.
2. Click the **STYLE** tab. The **STYLE** page opens.
3. Select the colors that indicate **SCHEDULED**, **RUNNING**, **DONE**, **DOWNLOADED**, **FAILED**, or **CANCELLED** jobs and tasks.
4. Select the font size to use within the Status Monitor window (the default is 8 points).
5. Click **OK**. The **OPTIONS** dialog box closes.

To configure logging options

1. In the **STATUS MONITOR** window, select **OPTIONS** from the **TOOLS** menu. The **OPTIONS** dialog box opens.
2. Click the **LOGGING** tab. The **LOGGING** page opens.
3. To enable logging, select the **LOGGING ON** check box.
4. Select the types of events that will be logged:
 - Errors
 - Errors and Warnings
 - Diagnostic (All Messages)
5. Specify how many days of data to store in the **OVERWRITE LOG FILE AFTER** list box.
6. To view all data sent to the Prospect server at the debug level, select the **LOG ALL DATA TO DATASERVER** check box.
7. To view all data sent from the Prospect at the debug level, select the **LOG ALL DATA FROM DATASERVER** check box.
8. Click **OK**. The **OPTIONS** dialog box closes.

Viewing Logs

You can use the Status Monitor to view the following logs:

- **Job Logs**—detailed logs recorded for each job; see [Manually Downloading Reports](#)
- **Client Logs**—chronological recording of all client activity
- **Server Logs**—recording of all server activity that can be viewed chronologically or by job number

To view client logs

In the STATUS MONITOR window, select CLIENT LOGS from the LOGS menu. The client log is displayed in a text editor.

To view server logs sorted by job

In the STATUS MONITOR window, click LOGS, point to SERVER LOG, and click SORTED BY JOB. The server log is displayed in a text editor.

To view server logs sorted by time

In the Status Monitor window, click Logs, point to Server Log, and click Sorted by Time. The server log is displayed in a text editor.

Note: The Status Monitor logs display approximate start and finish times, based on the polling frequency.

Report Logs

When a report group runs, the resulting log file contains the logs of all the reports in this report group. The apparent header of this log file is the first job ID of this report group. This job ID runs all of the tasks in the group. The resulting log file appends all the logs of these tasks. The same log file is shown, no matter which of these task IDs (reports) you select. If you are looking for the log of a specific report within the group, you need search within the log file for that section.

11 Excel Report Output

One means of producing Prospect reports uses a Microsoft Excel spreadsheet. Reports sent to Excel can be forwarded directly to the printer, to file, to screen, or to any combination of these.

This chapter contains the following sections:

- [Excel Report Output Basics](#)
- [User-Defined Macros for Excel](#)
- [Enhanced Graphing Macros](#)
- [MultiSheet Graphing Macro](#)
- [Cumulative and Percentage Graphing Macros](#)
- [Working with Graphs](#)

After reading this chapter, you will have information to understand:

- The integration of Prospect software with Excel
- How to change the appearance of Excel report output
- How to use enhanced graphing macros in reports

Excel Report Output Basics

The following information is useful when working with Excel report output:

- [Prospect Menu in Excel](#)
- [Styles for Report Output](#)
- [Changing Report Output Styles](#)
- [Links for Summary Information](#)
- [Macros for Excel Report Output](#)
- [Excel Graphs](#)

Note: Excel reports cannot exceed 65,536 rows. If a report is greater than 65,536 rows, the report is downloaded as a .txt file. To limit the size of the .txt file, see *Excel Worksheet Troubleshooting* in the *Administration Guide*.

Prospect Menu in Excel

Prospect reports that you download to Excel display an additional menu item, PROSPECT <VERSION #>, which is located on the Excel menu bar. The following table describes the possible PROSPECT menu commands:

Table 48: Prospect Menu Commands

Command	Description
GoTo	Provides navigation within the report
PRINT	Allows you to print parts of the report
EDIT GRAPH	Allows you to change the data that is displayed in individual and summary graphs
FREEZE HEADING	Locks column and row title headings to keep them in view when you scroll through a report
SORT	Sorts a report according to the column(s) selected in the SORT dialog box
HIGHLIGHT	Applies styles to each row of a report based on the standard deviation of a column
STYLE	Allows you to change the styles applied to the report in Excel

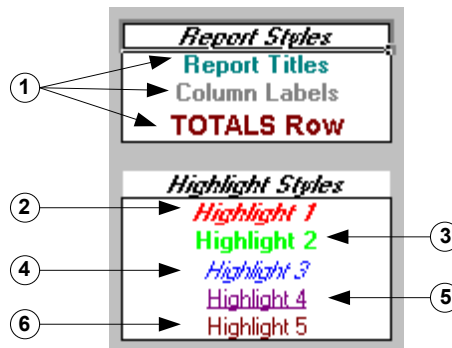
Tip: To avoid a failure in Excel when downloading reports, Excel macro security should be set to *low*. See your Excel online Help for details and instructions.

Note: If the computer you are working at does not have a Prospect Classic client, you will not see the Prospect menu in Excel.

Styles for Report Output

Prospect reports that you download to Excel color-code the report output to make it easier to interpret results. You can use default colors or assign your own. The following figure shows how the Prospect system assigns styles.

Figure 55: Default Styles in Prospect Reports



Legend:

No.	Description
1	Report styles. Used to define the general aspects of a report.
2	Highlight 1. Used for values that are 2 or more standard deviations outside the mean.
3	Highlight 2. Used for values that are 1 to 2 standard deviations outside the mean.
4	Highlight 3. Used for values that are mean to 1 standard deviation above the mean.
5	Highlight 4. Used for values that are zero to mean.
6	Highlight 5. Used for values that are less than zero.

When you use the same styles throughout your company, everyone can share information more easily. However, you might want to change styles of your report output occasionally, such as when you print in black and white.

Changing Report Output Styles

Change the styles applied to a report by either updating the default style sheet or applying your own custom style sheet to a report.

To update the default style sheet

1. From the WINDOWS EXPLORER or EXCEL window, open DEFAULT.XLS, which by default is in C:\Program Files\vallent\Prospect\Styles. This is the predefined style sheet for Prospect macros.
2. Click the FILE menu and select SAVE AS to create a new name in the same folder.
3. In the new style sheet, click the FORMAT menu and select STYLE. The STYLE dialog box opens.

4. Click the STYLE NAME drop-down list box and select the element you want to modify. The list closes and the STYLE INCLUDES area shows current settings for the element.
5. Click the MODIFY button. The FORMAT CELLS dialog box opens, with several tabbed pages that let you edit different attributes of the styles.
6. Edit one element as you wish (you can only edit one element at a time).
7. Click the OK button to register your changes to one element. The FORMAT CELLS dialog box closes.
8. Click the OK button on the STYLE dialog box when you finish the changes to the element.
9. Repeat from step 4 for each style element you want to change.
10. Click SAVE and then CLOSE.

To apply your custom style sheet to a report

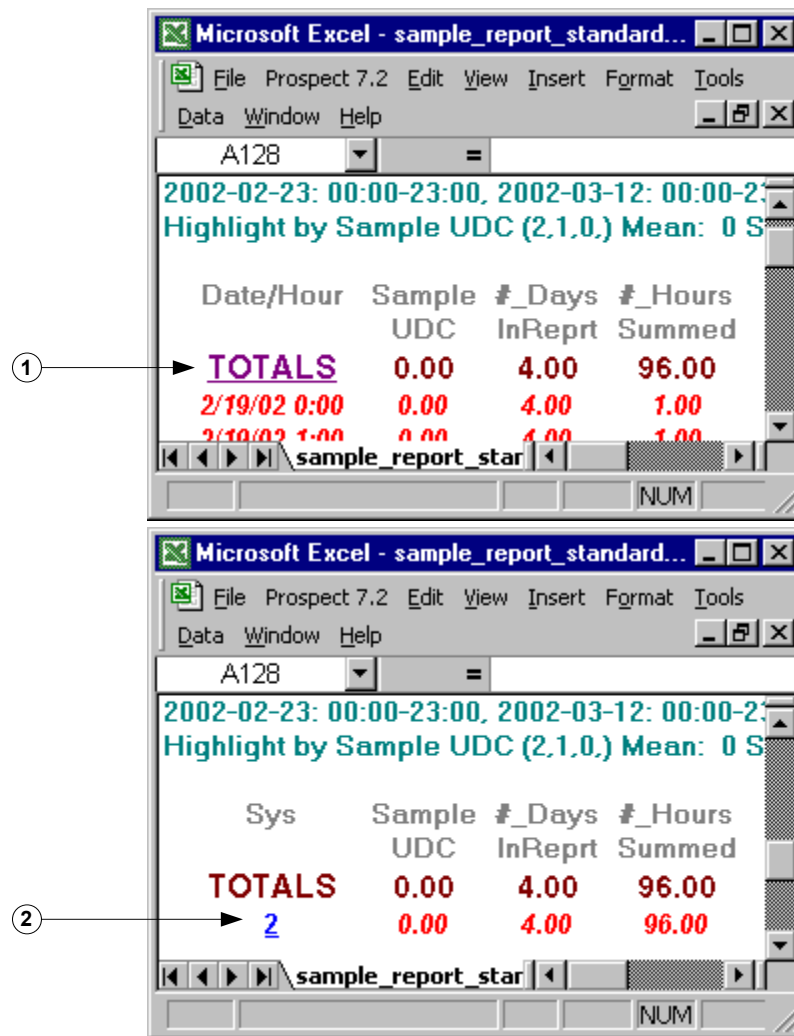
1. In the appropriate Report Editor, click the FORMAT tab.
2. In the POSTPROCESSING area, click the USER STYLE SHEET drop-down list box and select your custom style sheet.
3. Select SAVE from the FILE menu.

Links for Summary Information

If your report includes summary information, the Excel report output connects the summary totals and the sections that contain the detailed information. The report includes a link from the summary totals to the detailed information and a link from the detailed information to the summary totals.

The links for summary information appear using the default styles for most Web browsers. The following figure shows an example of links for summary information.

Figure 56: Links for Summary Information



Legend:

No.	Description
1	Link from detailed information to summary information.
2	Link from summary information to detailed information.

Macros for Excel Report Output

When a user requests a report downloaded as an Excel workbook, the Prospect system runs built-in Excel macros that format and sort the data according to the user's specifications. All macros, including any requested trending calculations, run automatically as part of the report generation process.

User-Defined Macros for Excel

The Prospect system uses Excel macros for report postprocessing. These are the macros that you select in the Report Editor and become part of the report definition. The macros run when a report is downloaded and opens automatically in a new Excel window. You can add custom Excel macros (user-defined macros) to these system macros. Your custom macros then become selectable in the Report Editor alongside the system macros.

See your Microsoft documentation for general instructions on creating Excel macros. The following information relates to Excel macros associated with the Prospect environment.

Requirements for User-Defined Macros

You can define your macros in any Excel workbook of any name. The requirements are:

- The Excel workbook containing the user-defined macro must contain a macro named `Auto_Open`, a macro named `Start`, or both.
- The user-defined macro must reside in the `usermacros` directory.
- Worksheets in the user-defined macro workbook must be invisible to prevent them from being active when the macro is run.
- The macro should not include commands that close the workbook, like `ActiveWorkbook.Close` or `Application.Quit`, or commands of the form
- The macro should not include a command that activates the workbook, like `Workbooks("<workbook_name>.xls").Activate`.

An `Auto_Open` macro runs when the report is downloaded from the Status Monitor and each subsequent time the report is opened. A `Start` macro only runs when the report is downloaded from the Status Monitor and after the `Auto_Open` macro executes; the `Start` macro does not run when the report is opened from a file.

Adding a User-Defined Macro

To add a user defined macro to your system

1. Record and save the macro in an Excel workbook.
2. Go to `Tools->Macro->Macros`, select the macro, then click `EDIT`. This opens the macro source code in the Microsoft Visual Basic editor.
3. Rename the macro by editing the name as it appears after the string `Sub`, as follows.
 - If you want the macro to run when the report is downloaded, and also each time the report is opened from a file, rename it `Auto_Open`.
 - If you want the macro to run only when the report is downloaded and only after an `Auto_Open` macro runs, rename it `Start`.
4. Hide all the worksheets in the workbook containing the macro and save the `Hide` property, as follows. (This prevents the workbook from appearing when you run a report.)
 - a. In Excel, hide the workbook using `WINDOW->HIDE`.

- b. In the Microsoft Visual Basic editor, select VIEW->EXPLORER.
 - c. In Project Explorer, select the vba project belonging to the macro workbook.
 - d. Select VIEW->IMMEDIATE WINDOW.
 - e. In the immediate window, type `ThisWorkbook.Save`, followed by a carriage return.
 - f. Close the Microsoft Visual Basic editor.
5. Move the workbook file containing the macro to `UserMacros` directory of the Prospect application directory of your PC. The path to this directory will be similar to the following:
`c:\program files\vallent\Prospect\usermacros.`

Adding a User-Defined Macro to a Report Definition

To include the user-defined macro in a report definition

6. In Prospect Explorer, open the appropriate Report Editor, click the FORMAT tab. The FORMAT page opens.
7. In the POSTPROCESSING area, select your user-defined macro workbook from the USER-DEFINED MACRO drop-down list box.
8. Save and close the report definition.

Excel Graphs

You use Excel macros, both user-defined and system-defined, to format the report output and graphically represent the data in your report. When you assign a graphing macro to your report output, the Excel graph associated with that macro is placed to the right of the report information. The following system-defined macros are available with all report types and produce a corresponding graphs in the Excel report output:

- Enhanced Graph Macro (`Enhanced_Graph.xls`)
- MultiSheet Graph Macro (`MultiSheet.xls`)
- Cumulative and Percentage Graph macro (`CDFandPDFgraph.xls`)
- Exponential Trending macro (`trend_ep.xls`)
- Logarithmic Trending macro (`trend_lg.xls`)
- Linear Trending macro (`trend_ln.xls`)

For more information about the available system-defined macros, see the following sections:

- [Enhanced Graphing Macros](#)
- [MultiSheet Graphing Macro](#)
- [Cumulative and Percentage Graphing Macros](#)
- [Trending Macros](#)

Related Topics

[Traffic Report Types](#)

[Trending Analysis for Traffic Reports](#)

Enhanced Graphing Macros

The Enhanced Graph macro (`Enhanced_Graph.xls`) allows you to create a graphic comparison of multiple performance measurements for multiple entities. To access the Enhanced Graph Macro, select `Enhanced_Graph.xls` on the FORMAT tab of the REPORT EDITOR. For more information, see [Report Format Options](#). When you use the Enhanced Graph Macro (`Enhanced_Graph.xls`) with Traffic Reports you have three graphs in addition to the standard Excel graphs:

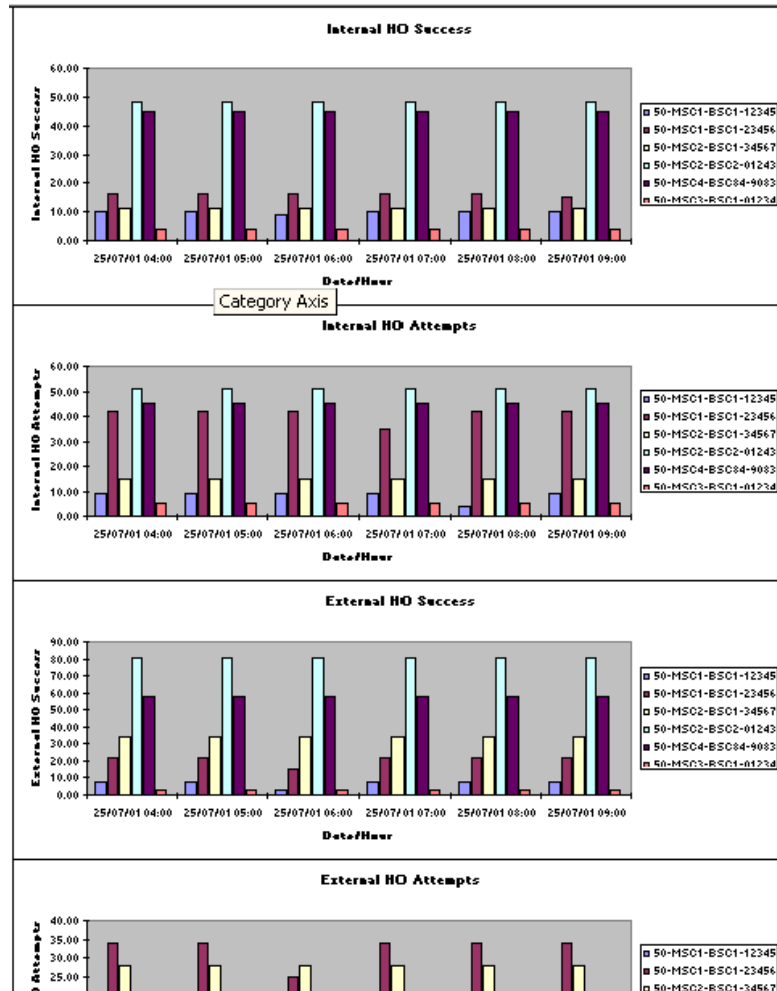
- [Comparison Graph](#)
- [Graph Manager](#)
- [Multi-Line Graphs](#)

Comparison Graph

The *Comparison Graph* is a graphing feature that displays plotted data only from individual entity reports (it does not work on Summary report data). You can create up to six separate graphs, each associated with a different data field. Additionally, one graph can display data for as many as six network elements. With data from several network elements displayed on a graph at any time, it is easy to compare the performance of different parts of the network. The following figure provides an example of a Comparison Graph.

You use the COMPARISON CONTROL dialog box to change the data field or network element displayed in the report. You access the COMPARISON CONTROL dialog box from the PROSPECT menu in the downloaded Excel report. For information on the COMPARISON CONTROL dialog box, see [Changing a Network Element or Data Field in a Comparison Graph](#).

Figure 57: Comparison Graph



Graph Manager

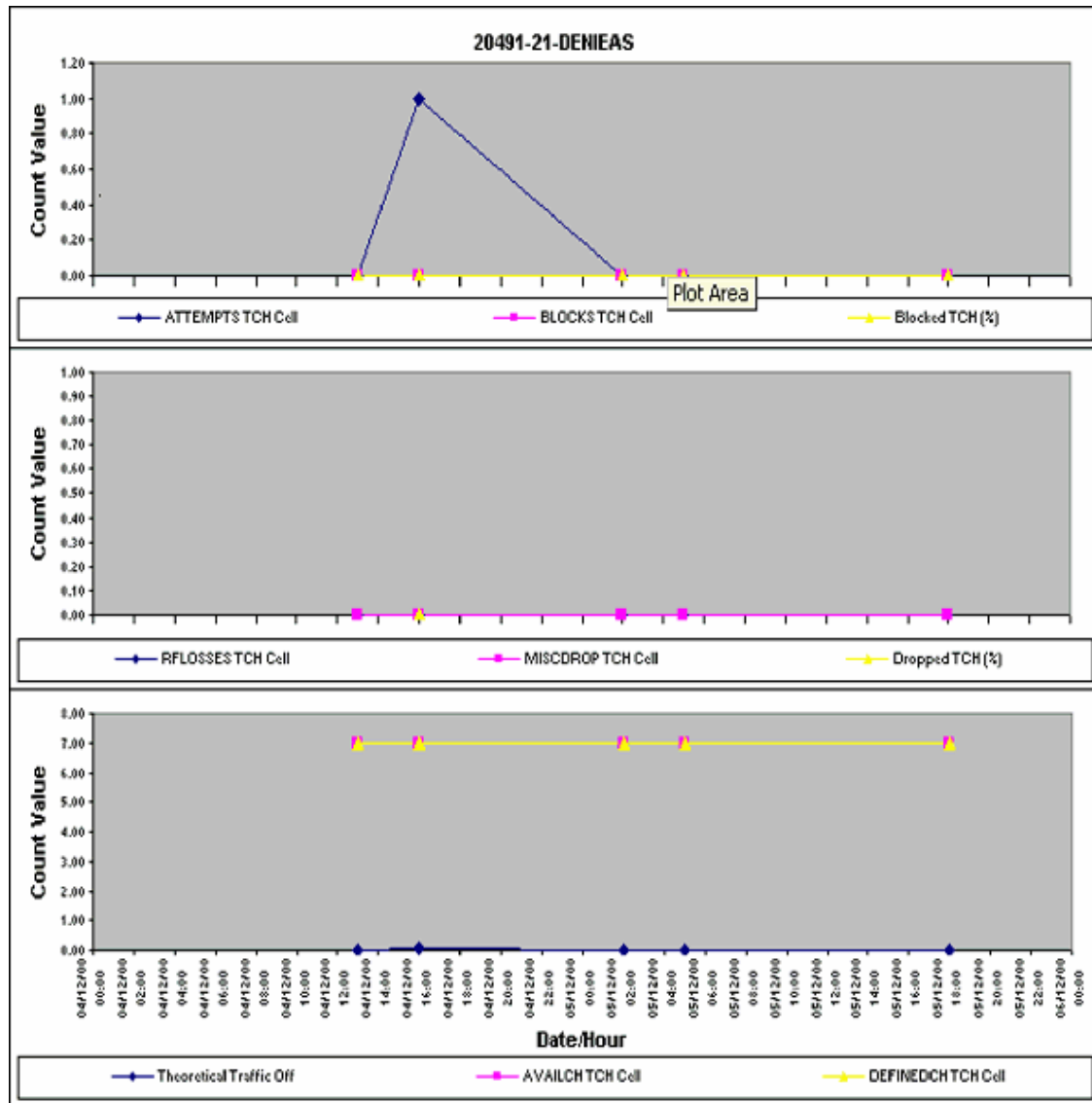
The Individual Graph Report generates an enhanced graph called the *Graph Manager*. The Graph Manager displays the first six fields from the reported data. The GRAPH MANAGER dialog box allows you to instantly change any of the fields shown on the graph or change the cell that it reports on. When you select a new cell or field, the graph is refreshed immediately. As with the standard Multi-Line Graph, the Graph Manager only reports on one entity.

Multi-Line Graphs

The *Multi-Line Graph* is only generated for Individual Reports in the Excel spreadsheet. Unlike the standard Excel graph, which only allows one field to be displayed on the graph at any one time, the Multi-Line Graph allows you to display as many fields as you want in an Individual Report. Like the standard Excel graph, however, Multi-Line Graphs can only show information for one entity. The following figure provides an example of a Multi-Line Graph.

The Multi-Line Graph is generated when you select the `Enhanced_Graph.xls` macro in the Report Editor. When you first open a Multi-Line Graph, it only includes data from the first field in the report. Using the EDIT GRAPH dialog box, you can change the graph to represent any field that you want. You access the EDIT GRAPH dialog box from the PROSPECT menu in the downloaded Excel report. For more information on editing your graph, see [Prospect Menu in Excel](#).

Figure 58: Multi-Line Graph Report



Graph Separators for Multi-Line Graphs

The Multi-Line Graph can support up to three graphs from the Individual Report. You create these separate graphs by using a primitive calculation called the *graph separator*. Other reports

ignore the graph separator field, but the Multi-Line Graph uses it to signal the end of one graph and the start of a new one.

The graph separator appears in the field list pane as the field `GRAPHmultiLineSeparator`.

As with other primitive calculations in the report template, you select the graph separator field in the field list pane and drag it to the appropriate location in the report field pane.

You can apply a maximum of two graph separators in the report field pane when you create your report template. For example, one graph separator results in two graphs in the output. Similarly, two graph separators would result in three graphs in your report output. You add the separators just as you would any other field. If you do not add a graph separator in the report field pane of your report template, your report output will have only one graph showing all fields for that cell.

After you add your graph separator(s) to your report template, you run the report. When the report downloads, the Graph Separator Macro runs against the data in the report. The Excel output produces the Multi-Line Graph, as well as the Standard Graph.

Note: If there are more than eight fields on any one of the graphs, the extra fields disappear from the legend box. You can manually expand the legend box to show these missing fields by dragging a border of the box.

MultiSheet Graphing Macro

The MultiSheet Graphing macro (`MultiSheet.xls`) allows you to combine several individual traffic reports into a single report. Each individual report is displayed on a separate Excel worksheet. You can only access this macro from the PROSPECT menu on the first worksheet in Excel. See [Prospect Menu in Excel](#) for more information about the PROSPECT menu.

Note: You should only use the MultiSheet macro when the number of individual traffic reports are less than one hundred.

Cumulative and Percentage Graphing Macros

The Cumulative and Percentage Graph macro (`CDFandPDFgraph.xls`) allows you to create additional graphs for summary reports that analyze the distribution of values for a specific performance data measurement, such as the number of dropped calls.

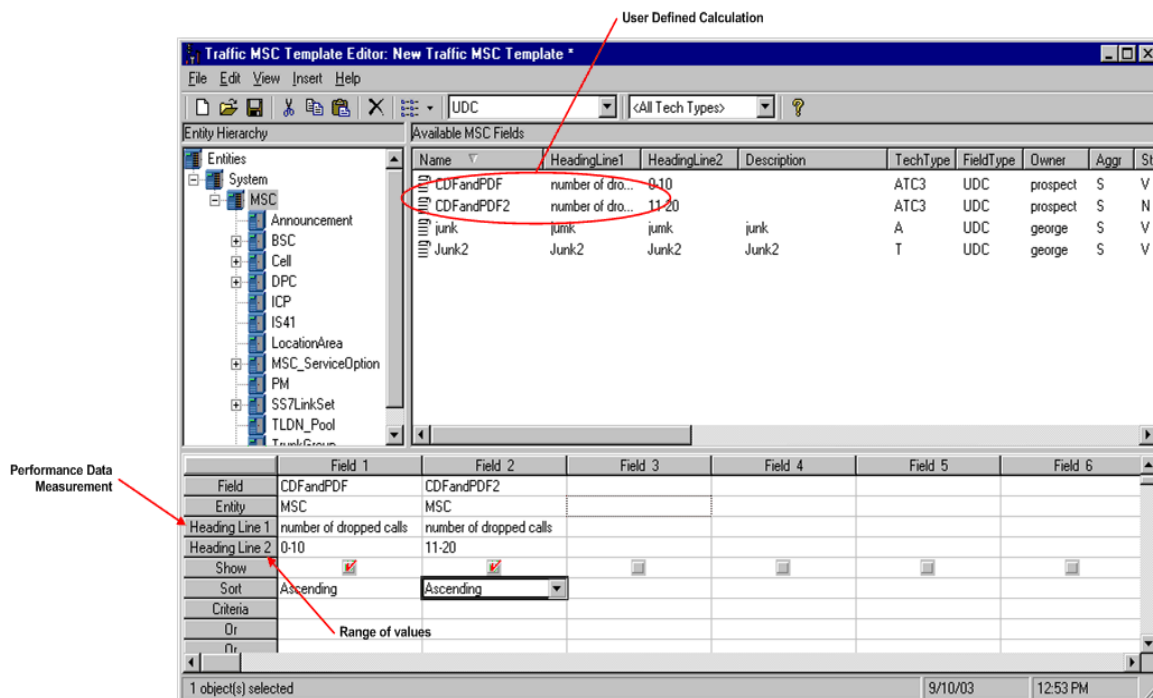
Note: The `CDFandPDFgraph.xls` macro can only be applied to summary reports that use user-defined calculations.

Creating Cumulative and Percentage Report Templates

To use the CDFandPDFgraph.xls macro, you must define specific UDCs and place them in a specific order in the report template. A cumulative and percentage template is the same as a traffic template, except your template must only include information about the performance data measurement collected and the range of values specified in the user-defined calculation. You must create a UDC before you can create a cumulative and percentage template. For more information about UDCs, see [User-Defined Calculations Tool](#).

For each UDC used in the template, the first heading row (that is, HEADINGLINE1) must be identical to the performance data measurement collected and the second heading row (that is, HEADINGLINE2) must indicate the range of values specified in the user-defined calculation. For example, to create a report to determine the percentage of dropped calls, the first heading would be “Number of Dropped Calls” and the second heading would be the range of values for the dropped calls. The following figure provides an example of a cumulative and percentage report template.

Figure 59: Cumulative and Percentage Report Template



The only valid fields in a cumulative and percentage report template are user-defined calculations and you must sort the user-defined calculations in ascending order.

Report Definitions for Cumulative and Percentage Reports

You create a report definition for a cumulative and percentage report just as you would any other traffic definition, with the following exceptions:

- On the REPORT TYPE page of the Report Editor, verify that the SUPPRESS HEADERS AND TOTALS check box is not selected.
- From the USER-DEFINED MACRO drop-down list on the FORMAT page, choose CDFandPDFgraph.xls.

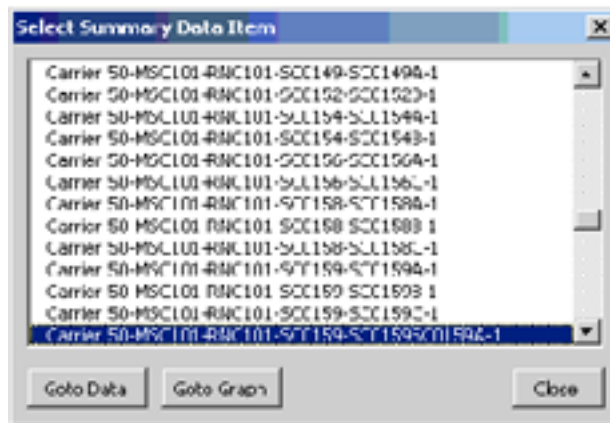
Graphing Cumulative and Percentage Data Fields

In order to graph the cumulative and percentage data fields, you must download an Excel report.

To graph the data fields

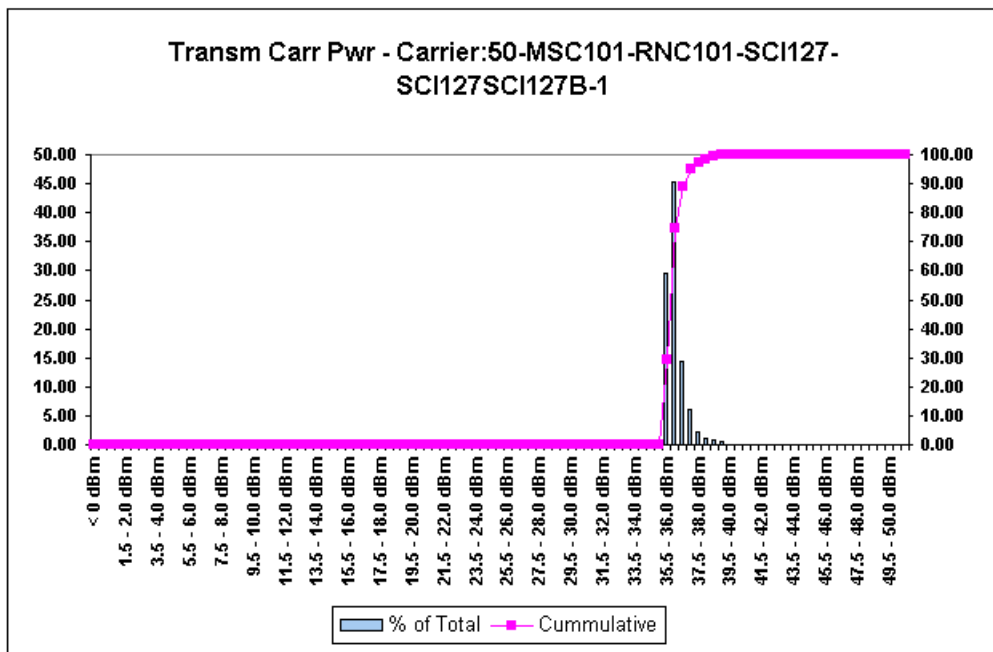
1. In the downloaded Excel report, select CDF & PDF GRAPH... from the PROSPECT menu. The SELECT SUMMARY DATA ITEM dialog box opens.

Figure 60: Select Summary Data Item Dialog Box



2. Select the row of data to graph, and click GOTO GRAPH. The cumulative and percentage graph displays as shown in the following figure.

Figure 61: Cumulative and Percentage Graph



Working with Graphs

You can perform a number of specialized tasks when working with graphs in Excel report output:

- [Graphing Individual Fields and Reports](#)
- [Changing a Multi-Line Graph By Using Graph Manager](#)
- [Changing a Network Element or Data Field in a Comparison Graph](#)

Graphing Individual Fields and Reports

In order to graph individual fields and reports, you must download an Excel report.

To select individual fields to graph

1. In the downloaded Excel report, click the PROSPECT menu, and select EDIT GRAPH. The PROSPECT EDIT GRAPH dialog box opens.
2. In the GRAPH DATA COLUMN area of the PROSPECT EDIT GRAPH dialog box, select the appropriate field from the SELECT DATA COLUMN TO GRAPH list box.
3. Click OK.

To select individual reports to graph

1. In the downloaded Excel report, click the PROSPECT menu, and select EDIT GRAPH. The PROSPECT EDIT GRAPH dialog box opens.
2. In the INDIVIDUAL GRAPH area of the PROSPECT EDIT GRAPH dialog box, select the individual report that you want to graph from the list box labeled SELECT INDIVIDUAL REPORTS TO GRAPH.
3. Click OK.

Note: If you combine two or more individual reports in one Excel graph report and the hours for available data differ between those reports, then you must select the XY SCATTER graph type in the Report Editor for all of the data to be displayed properly. For more information on Excel chart types and limitations, see the Excel online Help.

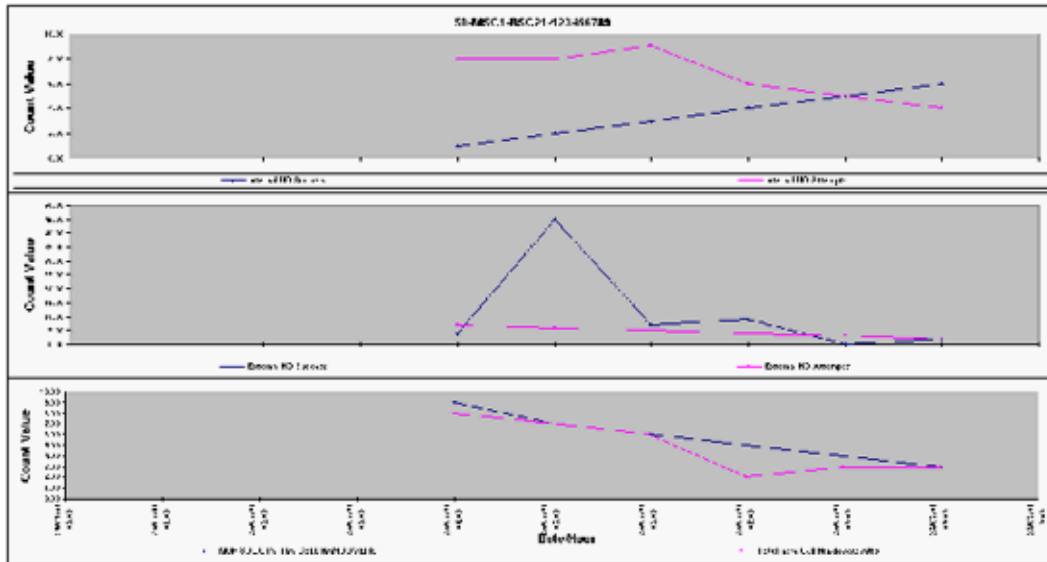
Changing a Multi-Line Graph By Using Graph Manager

By default, the Graph Manager will use the first cell of a report's data. You can select another cell for the Graph Manager by using the GRAPH MANAGER dialog box. An example of a Graph Manager graph is provided in the following figure.

To change a Multi-Line Graph using Graph Manager

1. In the Excel downloaded report, click the PROSPECT menu, and select GRAPH MANAGER. The PROSPECT GRAPH MANAGER dialog box opens.
2. In the SWAP SERIES area of the PROSPECT GRAPH MANAGER dialog box, change any of the six fields by clicking the appropriate drop-down list box.
3. In the ENTITY area of the PROSPECT GRAPH MANAGER dialog box, click the drop-down list box and select a new cell. A new Multi-Line Graph showing the selected entity appears.

Figure 62: Graph Manager Edited Graph



Changing a Network Element or Data Field in a Comparison Graph

You can dynamically change which network elements and data fields are being reported on by using the **Comparison Control** dialog box. For an example of the **Comparison Control** dialog box, see the following figure.

Figure 63: Comparison Graph Dialog Box

To change a network element or data field

1. In the Excel downloaded report, click the PROSPECT menu, and select COMPARISON GRAPH. The COMPARISON GRAPH dialog box opens.
2. In the CELL area of the COMPARISON GRAPH dialog box, click the appropriate drop-down list box to change a network element.

3. In the FIELD area of the COMPARISON GRAPH dialog box, click the appropriate drop-down list box to change a data field.
4. Click CLOSE.

12 Tools

This chapter describes a variety of tools that are not closely aligned with any specific part of the document generation process. They are either general tools or help you with aspects of network engineering independent of document generation.

This chapter contains the following sections about common tools used by Prospect software:

- [User Administration Tool](#)
- [Find Documents Tool](#)
- [Find Fields Tool](#)
- [User-Defined Calculations Tool](#)
- [Traffic Busy Hours Tool](#)
- [Traffic Summations Tool](#)
- [Data Availability Tool](#)
- [Holiday Definition Tool](#)
- [GOS Defaults Tool](#)
- [Engineered Capacity Calculator Tool](#)
- [Message of the Day Tool](#)

For information about the Options tool, see the [Options](#) chapter.

This chapter provides information to do the following:

- Work with the Prospect tools
- Use user-defined calculations (UDCs) to define additional fields for reports
- Set busy hours and stored summations
- Check the availability of performance data

User Administration Tool

The User Administration tool is used by Prospect administrator to create and modify Prospect user accounts. Even without administrator permissions, you can see the user names and their status on your Prospect server. You can also see your allocated file limits.

To open the User Administration Tool

- In the PROSPECT EXPLORER window, select USER ADMINISTRATION from the TOOLS menu. The USER ADMINISTRATION window opens.

Find Documents Tool

There are two ways to find a document. When you know where a document is, you can sort a folder that contains many documents. When you don't know where a document is, you can use the Find tool.

To find a document

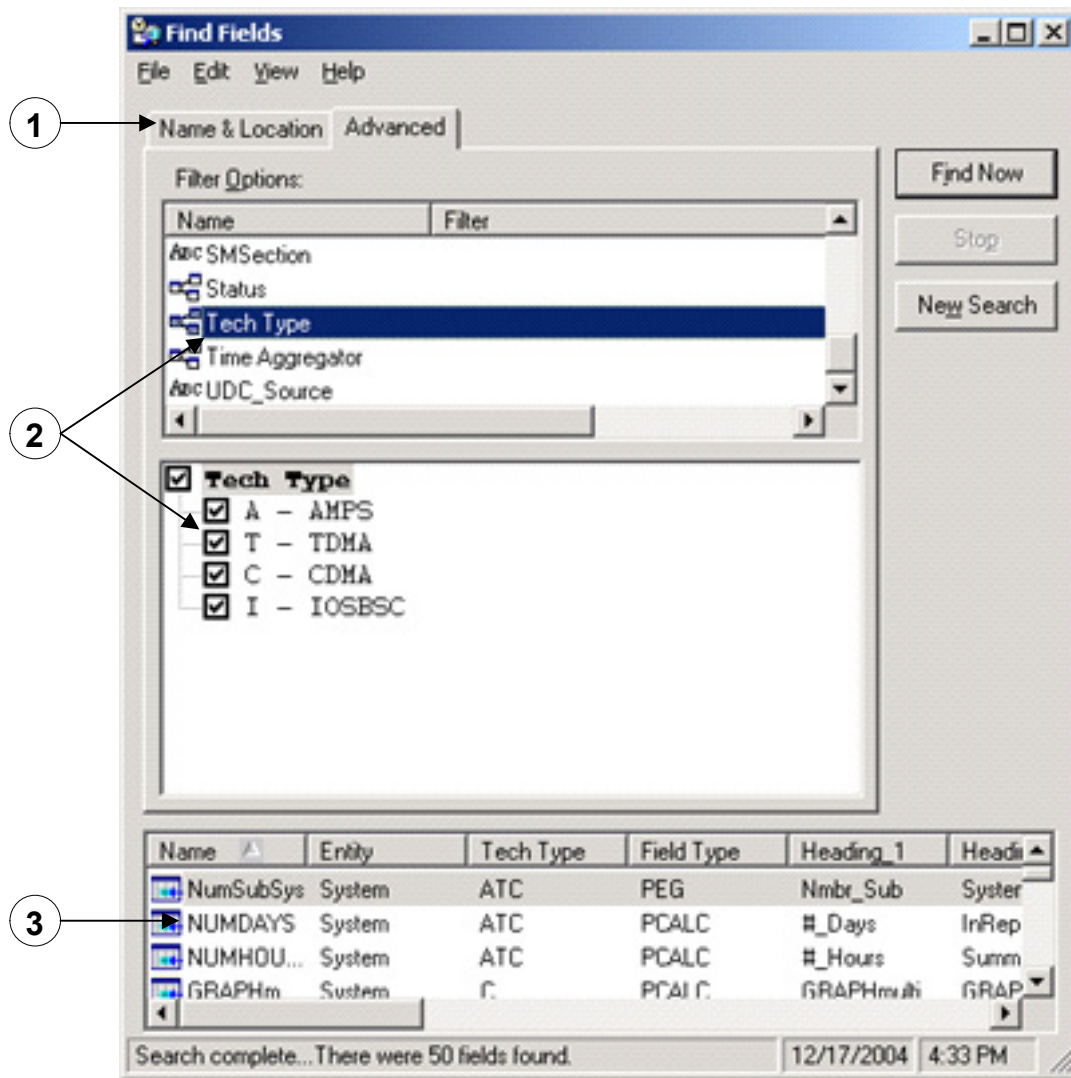
1. In the PROSPECT EXPLORER window, select FIND DOCUMENTS from the TOOLS menu. The FIND DOCUMENTS dialog box opens.
2. Enter all or part of the document's name in the NAMED text box.
 - Use the DATE MODIFIED and ADVANCED tabs to further refine your search.
 - You can use the asterisk (*) as a wildcard character to replace characters in your search string.
3. Click FIND NOW. The dialog box lists search results.

Note: The Find Documents tool is case sensitive.

Find Fields Tool

Use the Finds Field tool to search through all of the available fields in the Prospect software. You can search the available fields according to different field attributes. The information that the Find Fields tool returns can help you learn more about the field and the entity level at which it is defined. The Find Fields Tool window is shown in the following figure.

Figure 64: Find Fields Tool



Legend:

No.	Name	Description
1	Option tabs	Allows you to search for fields using different sets of criteria.
2	Options	Specifies the search criteria.
3	Results pane	The list of fields that match the search criteria.

Find Fields Tool Options

The Find Fields tool has two sets of options you can use to search for a field:

Tools

- Name and Location options
- Advanced options

The two sets of options are complimentary. That is that changing a name and location option does not change the search results when using the advanced options.

Note: All filters in the **ADVANCED** tab are removed if you reset the **SOURCE** option or **ENTITY TYPE** option in the **NAME AND LOCATION** tab after setting filters in the **ADVANCED** tab.

The following table lists the name and location options you can use to search the available fields.

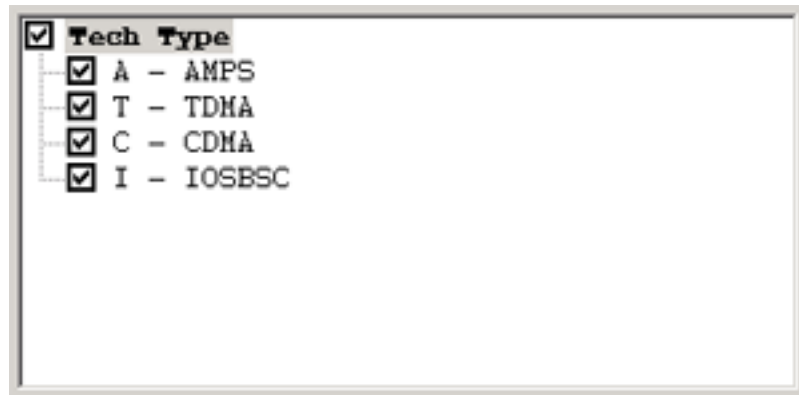
Table 49: Name and Location Options

<i>Option</i>	<i>Description</i>
NAMED	Allows you to specify a string or pattern for the field name.
SOURCE	Allows you to set the application category to use for the source of the fields.
ENTITY	Lists the template field types. This limits your search to the selected entity type.
USE PATTERN MATCHING	Allows you to use special characters, or wildcard characters such as an asterisk (*), in the NAMED text box. If this option is not checked, all special characters are treated as regular characters.
MATCH WHOLE NAME	Requires a complete match for the field name. If this option is not checked, partial matching is accepted.
MATCH CASE	Specifies whether character case is important when searching for the field name.

The advanced options allow you to search all available fields by attribute type. Each attribute type allows you to define the filter component for the field attributes.

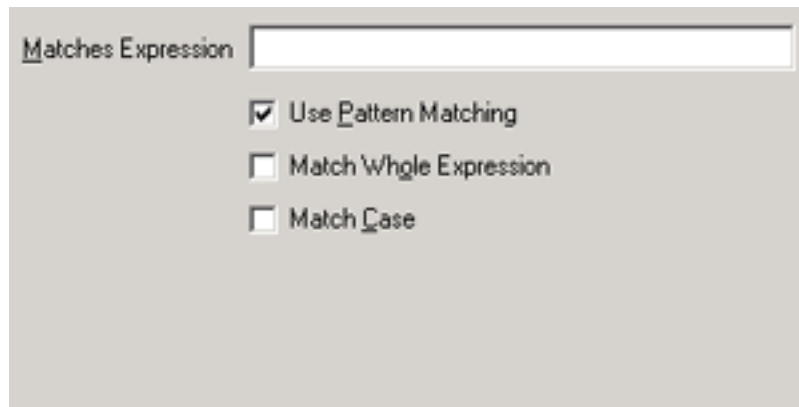
- Enumeration — All possible values for the attribute type are displayed in hierarchy (see the following figure).

Figure 65: Enumeration Filters



- String — Provides the ability to filter using a string or pattern as the value of the attribute (see the following figure).

Figure 66: String Filter



The following table describes the string options available:

Table 50: String Options

Option	Description
EXPRESSION MATCHING	Allows you to specify a string or pattern for the value of the attribute. For example, if you enter <i>subs</i> in the MATCHES EXPRESSION text box, the Find Fields tool returns all attributes that contain the letters <i>subs</i> .
PATTERN MATCHING	Allows you to filter the attribute type using special characters or wildcard characters such as an asterisk (*). For example, if you enter <i>Sub*s</i> in the MATCHES EXPRESSION text box and select PATTERN MATCHING, the Find Fields tool returns all attributes that contain the letters <i>Sub</i> followed by a letter <i>s</i> . Any combination of letters can appear between the letters <i>Sub</i> and <i>s</i> .
WHOLE NAME MATCHING	Allows you to specify an exact match for the attribute type in the MATCHES EXPRESSION text box. The Find Fields tool will not return any results if the attribute type does not exactly match what you enter in the MATCHES EXPRESSION text box.
MATCHING THE CHARACTER CASE	Allows you to filter the attribute type using the character case as the filtering criteria. For example, if you enter <i>SubS</i> in the MATCHES EXPRESSION text box, the Find Fields tool will only return attributes that contain a capital <i>S</i> followed by a lowercase <i>u</i> and <i>b</i> followed by another capital <i>S</i> .

- Date/Time — Provides the ability to filter using date and time specifications (see the following figure).

Figure 67: Date/Time Filter

Finding Fields

You can search for fields using two separate sets of options. See [Find Fields Tool Options](#) for more information.

To find a field

1. In the PROSPECT EXPLORER window, select FIND FIELDS from the TOOLS menu. The FIND FIELDS dialog box opens.
2. If you want to search using Advanced options, click the ADVANCED tab.
3. Set the options you want to use to search for fields. See [Find Fields Tool Options](#) for more information.
4. Click FIND NOW. The FIND FIELDS dialog box expands to include the field results.

Hint: You can create report templates by dragging the search results from the FIND FIELDS dialog box to the Field column on the Template editor. For more information about the Template editor see [Templates](#) on page 97.

User-Defined Calculations Tool

The User-Defined Calculations tool is your entry point to UDCs. For a description of the User-Defined Calculations tool, see [Section 15, User-Defined Calculations](#).

Traffic Busy Hours Tool

The Traffic Busy Hours tool is used by data administrators and system administrators. If you do not have Data Administrator or System Administrator permissions, you can view any stored busy hours, but you cannot modify them.

Traffic Summations Tool

The Traffic Summations tool is used by data administrators and system administrators. If you do not have Data Administrator or System Administrator permissions, you can view any stored summations, but you cannot modify them.

Data Availability Tool

Data availability shows if traffic data files have been successfully loaded for all time periods for a given day. The Data Availability Tool displays availability of data for network elements, and date-time constraints that you specify. You can use it to do the following:

- To confirm availability of data files for Traffic reports.
- To confirm that network elements are sending performance data.

Topics

[Checking Data Availability](#)
[Data Availability Results](#)

[Filtering Data Availability Results](#)
[Effects of Daylight Savings Time on Data Availability](#)

Related Topic

[Missing Data and Confidence Factors](#)

Checking Data Availability

Use the following procedure to check for data availability using the Data Availability tool.

To check data availability

1. In the PROSPECT EXPLORER window, click the TOOLS menu and select DATA AVAILABILITY. The DATA AVAILABILITY window opens.
2. On the DATATYPE tab, move the type of data you want into the SELECTED pane by using the selection buttons located between the AVAILABLE and SELECTED panes.
3. For each data type selected in the DATATYPE tab, do the following:
 - a. Select the tab corresponding to the data type.
 - b. Move the entities you want to include from the AVAILABLE pane to the SELECTED pane.
4. Click the DATE tab. On the DATE page, do the following:
 - a. Use the START DATE and END DATE drop-down list boxes to set the start and end dates for your search.
 - b. In the PERIODS area, select the periods you want to search.
5. Click the FIND NOW button to begin a search that covers all the parameters you established in the previous steps. The dialog box expands and displays data availability. See [Data Availability Results](#) for more information about the results.

To start another master search

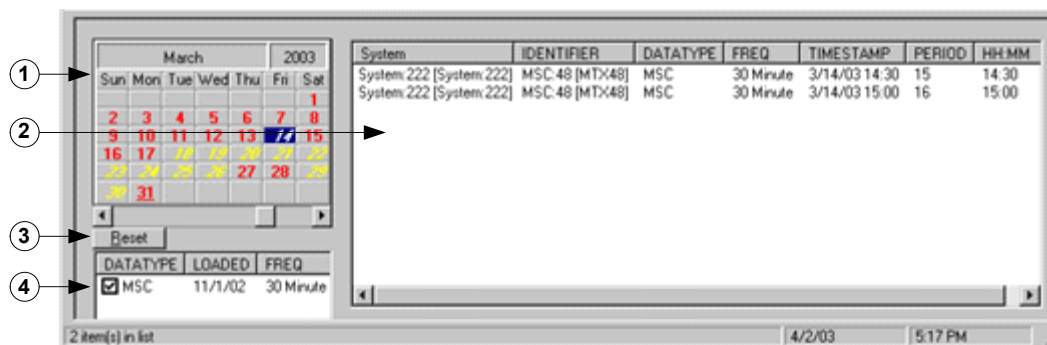
1. Click the NEW SEARCH button. The window contracts, and all previous search parameters disappear from the pages.
2. Repeat the procedures laid out in the preceding steps.

Data Availability Results

When you search for available data, the results of the search are displayed at the bottom of the Data Availability tool (see the following figure).

Note: The following figure shows an example and might not reflect the data types or entities used by your version of Prospect software.

Figure 68: Example Data Availability Results



Legend:

No.	Name	Description
1	Calendar	Colors are assigned to dates on the calendar as follows: <ul style="list-style-type: none"> Green dates in the calendar have complete data of the types, for the entity types, and for the periods you selected. (However, it does not mean that there is complete data for every entity of that type—you must check a Missing Data report for information on individual entities.) Yellow indicates dates with partial data. Red indicates dates with no data. Gray indicates a date prior to the start date for data in the database.
2	List pane	Displays attributes of data availability for each network entity.
3	Reset button	Resets the available data list to the results from the last search.
4	Data types	Use the check boxes associated with each data type to filter the available data. See Filtering Data Availability Results for more information.

Filtering Data Availability Results

You can filter the results from your master search and also easily return to your last search results.

To filter the results of a master search

1. To filter for a subset of days in your date scope, select dates in the Filter calendar using click, SHIFT+Click, or CTRL+Click.
2. To filter for a subset of data types from your original list, check or clear the check boxes next to each data type at the bottom of the Data Availability tool.

To return to your last search results

- Click the RESET button.

Effects of Daylight Savings Time on Data Availability

Daylight Savings Time, or Summer Time as it is called in many countries, is a way of getting more out of the summer days by advancing the clocks by one hour during the summer. Prospect software loads and displays data in a different manner during the transition to and from Daylight Savings Time.

- During the transition to Daylight Savings Time, when an hour is skipped, Prospect software expects only 23 hours of data for the day.
- During the transition to standard time, when an hour is repeated twice and 25 hours of data is available, Prospect software loads the latest data for a given period. Data from the second instance of the repeated hour replaces data loaded from the first hour.

Holiday Definition Tool

The Holiday Definition tool is used by data administrators and system administrators.

GOS Defaults Tool

Note: The GOS Defaults tool is optional and not all systems support this feature.

The Prospect data administrator sets grade of service (GOS) defaults; you can view them in the GOS tool. Once set, the GOS defaults affect report output by changing the values of system calculations.

Grade of service (GOS) is the probability that a call will be blocked at a given circuit—that an attempted call will receive a busy signal because no trunks are available. The GOS Defaults tool records target grades of service for trunk types. Grade of service plays the following roles in Prospect:

- GOS defaults, as set in the GOS Default tool, are a factor in some system-defined calculations that appear in Traffic templates. If GOS defaults change, these fields change.
- GOS defaults, in combination with the Traffic trending feature, allow you to predict when traffic on your network will reach volumes that impact your grade-of-service targets.

Multiple GOS Values

A Prospect data administrator or Prospect system administrator can create additional GOS default values by using the GOS Defaults tool or override the GOS default listed in the GOS Defaults tool using the Entity Data Editor.

See [Viewing GOS Values](#) for viewing GOS default values using the GOS Defaults Tool.

Use the Entity Data Editor to view any GOS value overrides. For more information, see [Viewing Entity Data](#).

Viewing GOS Values

View grade of service defaults to determine current grade of service targets and their impact on system calculations. You can also choose the GOS data to include in your Traffic reports by selecting relevant GOS default types. See a Prospect administrator for more information about the GOS default types.

To view grade of service defaults

1. In the PROSPECT EXPLORER window, click the TOOLS menu and select GOS DEFAULTS. The GOS DEFAULTS window opens.
2. Scroll as necessary to display the defaults you want to see.
3. Click the CLOSE button to close the dialog box.

Engineered Capacity Calculator Tool

The Engineered Capacity Calculator tool allows you to calculate the engineered capacity of a circuit, in terms of offered load, using the Erlang B, Erlang C, or Poisson traffic formula.

This is a stand-alone tool for network engineering; it has no direct connection to report generation or the database.

Calculate engineered capacity to evaluate the effect of proposed changes to your network. Use the following formula to convert from offered load to carried load:

$$\text{CarriedLoad} = (1 - \text{GOS}) * \text{OfferedLoad}$$

To open the Engineered Capacity Calculator tool

- In the PROSPECT EXPLORER window, click the TOOLS menu and select ENGINEERED CAPACITY CALCULATOR. The ENGINEERED CAPACITY CALCULATOR window opens.

Erlang C Calculations

The following figure shows an example of an Erlang C calculation.

Figure 69: Engineered Capacity Calculator, Erlang C

The screenshot shows a window titled "Engineered Capacity Calculator" with a menu bar containing "File" and "Help". Inside the window, there is a "Calculation Type" section with three radio buttons: "Erlang B", "Poisson", and "Erlang C". The "Erlang C" button is selected. Below this, there are four input fields: "Number of Circuits" (30), "Offered Traffic in Erlangs" (25), "Acceptable Delay in Seconds" (5), and "Server Holding Time in Seconds" (5). Below these are four output fields: "Probability Of Delay Greater Than T0" (0.24989), "Probability Of Delay Greater Than T1" (0.00168), "Average Delay On All Calls" (0.25), and "Average Delay On Calls Delayed" (1.00). At the bottom right, there are two buttons: "Calculate" and "Reset".

To calculate engineered capacity using Erlang C

1. In the Engineered Capacity Calculator tool, make sure the ERLANG C option button is selected in the ENGINEERED CAPACITY CALCULATOR window.
2. Enter the number of circuits. If you enter more than 10 million, an error message appears.
3. Enter the offered traffic in Erlangs. This figure must be less than the number of circuits.
4. Enter the acceptable delay, in seconds or fractions of seconds.
5. Enter the server holding time, in seconds or fractions of seconds.
6. Click CALCULATE. Or, press ENTER.

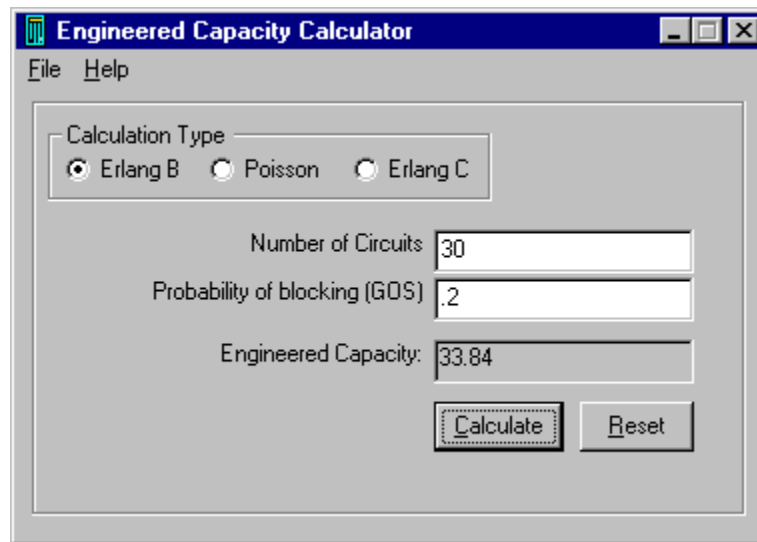
The results of the calculation appear in the following text boxes:

- PROBABILITY OF DELAY GREATER THAN T0
- PROBABILITY OF DELAY GREATER THAN T1
- AVERAGE DELAY ON ALL CALLS (in seconds)
- AVERAGE DELAY ON CALLS DELAYED (in seconds)

Erlang B and Poisson Calculations

The following figure shows an example of an Erlang B/Poisson calculation.

Figure 70: Engineered Capacity Calculator, Erlang B/Poisson



To calculate engineered capacity using Erlang B or Poisson

1. In the Engineered Capacity Calculator tool, select the ERLANG B or POISSON option button.
2. Enter the number of circuits.
3. Enter the probability of blocking (1 = 100%). The probability of blocking (grade of service) must be between 0.001 and 1.00.
4. Click CALCULATE NOW, or press ENTER. The result of the calculation appears in the ENGINEERED CAPACITY text box. Results are given in Erlangs.
5. If you selected the ERLANG B option button, select POISSON now. Or, if you at first selected the POISSON option button, select ERLANG B now. The engineered capacity is recalculated for the other option, according to the number of circuits and probability of blocking you entered at first.
6. If desired, after selecting the option button other than that from which you began (either ERLANG B or POISSON), you can calculate the engineered capacity by entering different values for number of circuits and probability of blocking.

Message of the Day Tool

The Prospect administrator sets the Message of the Day. Users without administrator rights do not have access to this tool.

13 Options

This chapter provides information on how to configure the Prospect options by using the Options tool. The Options tool allows you to customize the Prospect client for your individual needs. The following sections discuss different options you can configure with the Options tool:

- [Advanced Options](#)
- [E-mail Options](#)
- [Category Options](#)
- [General Options](#)
- [Immediate Reports Options](#)
- [Logging Options](#)
- [Macro Options](#)
- [Periods Definitions Options](#)
- [Report Format Options](#)
- [Report Output Options](#)
- [Reports Options](#)
- [Schedule Entries Options](#)
- [Technology Filters Options](#)

To open the Options tool

- In the PROSPECT EXPLORER window, click the TOOLS menu and select OPTIONS. The OPTIONS dialog box opens.

Advanced Options

The Advanced Options are a collection of settings that can improve your efficiency in working with Prospect Explorer.

Table 51: Advanced Options

<i>Option</i>	<i>Description</i>
Change to category's starting folder when category is selected	Select to use the button bar to move to folders, based on the settings in the category options (see Category Options).

Table 51: Advanced Options (Continued)

<i>Option</i>	<i>Description</i>
Change to folder's document category when folder is selected	Select to filter the display of folder contents, so that only one category is displayed, based on the settings in the category options (see Category Options). Important: Filtering a folder's contents can prohibit certain documents from displaying.
Associate new folders with Explorer Documents category	Select to have all new folders to associated with the Explorer Documents category. If you do not select this check box, new folders have no associated category.
Use Explorer Documents category if folder category is not set	Select to have existing folders to associated with Explorer Documents if they are not set to another category. If you do not select this check box, folders have no associated category unless you assign one. Generally, you use this option if you use Prospect Explorer in a way that associates folders with document categories, and especially if you want to change folders by clicking the category buttons on the button bar.
Copy selected documents to Windows Clipboard on Cut/Copy requests	Select to place Prospect data on the Windows Clipboard. From there, you can paste it into other Windows applications. If you do not check this option, you can still cut, copy, and paste within the Prospect client.
Confirm cancel requests on Properties/Options dialogs with unsaved data	Select to receive a warning when you click the Cancel button after you have made a selection in the OPTIONS dialog box or in a Properties dialog box. This option gives you the opportunity to save any changes you have made.
Clean up temporary files on exit	Select to have the Prospect client delete temporary files that it generates in the system Temp directory while you are logged on to the Prospect client. See System Folders for more information on temporary files.
Recently used document list	The Prospect client lists the most recently used or selected documents in a number of areas, such as: <ul style="list-style-type: none">• the FILE menu of Prospect Explorer (see File Menu on page 24)• the SCENARIO and TEMPLATE drop-down list boxes on the GENERAL page of the Report Editor Enter a number that determines the total number of documents that can be listed.

Table 51: Advanced Options (Continued)

<i>Option</i>	<i>Description</i>
UDC Time-out	<p>Enter the number of seconds that the Prospect software should wait for a user-defined calculation (UDC) to be validated before timing out.</p> <p>When you add or modify a UDC, it is validated on the Prospect server. The client waits for a defined number of seconds (the default is 5) for the validation to complete. If you have a large number of UDCs or if the Prospect server is heavily loaded, this might not be long enough for the Prospect server to validate the new or modified UDC. In that event, a dialog box displays a message that the UDC could not be validated.</p>
Enable Message of the Day for all users	<p>This option is only available to Prospect administrators. You can view the setting to determine whether Message of the Day is enabled for Prospect software.</p>
Check data availability when Traffic reports are run	<p>Select to verify that all the expected data is available on the server at the time of report generation. If <i>all</i> of the data is not available, the report fails and a list of missing data is written to the report log.</p>

E-mail Options

The E-mail options allow you to specify the necessary information for you to send reports by e-mail (see the table entitled [E-mail Options](#)). You might need to obtain some information from your company's network administrator, or someone at your company who is responsible for maintaining the e-mail system.

Table 52: E-mail Options

<i>Option</i>	<i>Description</i>
Maximum e-mail size with attachments	The maximum size of the e-mail. If the e-mail exceeds this size, the Prospect software sends an e-mail message stating that the e-mail exceeded the maximum size and could not be delivered.
Reply E-mail Address	The e-mail address that most e-mail clients will use when replying to the e-mail.
Server Name	The name of the Simple Mail Transport Protocol (SMTP) server used to send the e-mail message.
Port Number	The port to use for connecting to the SMTP server. A typical value for this number is 25.
Authentication required	Specifies whether the SMTP server requires authentication in order to send an e-mail.
Account Name	The user name to use for logging on to the SMTP server, required only if authentication is required.
Password	The password to use for logging on to the SMTP server, required only if authentication is required.

Note: Use the TEST button to see if the SMTP server information is valid.

Category Options

By default, the buttons on the Prospect Explorer button bar are set to display the category of the button you click (or all categories in the case of the EXPLORER button). Alternatively, you can set Prospect Explorer to jump to a designated folder when you click a button on the button bar.

To set the Prospect client to jump to a specific folder from the button bar

1. Open the Options tool and click the CATEGORY tab.
2. In the list, select the document category for which you want to set a folder.
3. In the STARTING FOLDER drop-down list box, browse or type a path to a folder. You need not specify the name of the database at the beginning of the path, but you must separate levels in the path with a backslash (\); for example \Users\steve\Reports.
4. To save the settings and exit, click OK. To exit without saving, click CANCEL. To restore the default settings that were configured during installation, click RESTORE DEFAULTS.

To remove jump-to behavior and set buttons as category filters

1. Open the Options tool and click the CATEGORY tab.
2. In the list, select the document category for which you want to remove a folder.
3. In the STARTING FOLDER drop-down list box, delete the path name. The path in the list should now read <not set>.
4. To save the settings and exit, click OK. To exit without saving, click CANCEL. To restore the default settings that were configured during installation, click RESTORE DEFAULTS.

General Options

The General Options are a collection of settings that change the appearance of Prospect Explorer and modify user interaction. They are described in the following table.

Table 53: General Options

Option	Description
Display full path of the current folder in the window's title bar	Applies to Prospect Explorer, not to other editors or dialog boxes.
Display full path of the current folder in the banner	Refers to the gray banner above the folder pane and list pane in Prospect Explorer.
Display the profile name in the full path	Starts the path with the profile name in the Prospect Explorer title bar and banner, when they are in full-path mode.
Enable full row selection in document pane	Selects the entire contents of a row when active so that you can always see which row is selected.

Table 53: General Options (Continued)

Option	Description
Confirm folder operations (deletion, ownership changes)	Displays a preliminary dialog box that asks whether you want to delete the selected folder(s) and its contents. If this option is not selected, you still get dialog boxes that let you evaluate the impacts of deletions in terms of inter-document dependencies.
Startup in last accessed folder and category	Registers your selections in Prospect Explorer and, when you start the product the next time, returns you to the last folder you visited. If this option is not selected, the Prospect client opens the folder associated with the profile with which you log on.
Use phone number mask	Sets how phone numbers are displayed.
Enable Message of the Day for this user	Determines whether the message is displayed for the current user when Prospect Explorer starts.

Immediate Reports Options

The IMMEDIATE REPORTS options page controls the override defaults when you immediately run reports.

Table 54: Immediate Reports Options

Option	Description
Purge	Select an option button to set the default parameter for purging your reports from the server.
Download	Select AUTOMATIC to have your report download without your intervention. Select MANUAL to download only using the Status Monitor.
Report Destination	Sets the defaults for destination overrides by selecting the appropriate check boxes. These are displayed in the REPORT DESTINATION area of the DESTINATION page in the REPORT OVERRIDES dialog box.
Always override Report Destination for immediate reports	<ul style="list-style-type: none">• Select the check box to open the REPORT OVERRIDES dialog box with the REPORT DESTINATION override check box selected. The REPORT DESTINATION page displays the destination you specify with this tool.• If you do not select this check box, the REPORT OVERRIDES dialog box opens with the REPORT DESTINATION set to not override a destination.

Logging Options

The Logging options give you a written record of error messages and/or warning messages that appear as you use the Prospect client. The log file, which is generated and updated automatically, is in the `Logs` subdirectory of the Prospect program directory.

Table 55: Logging Options

Option	Description
Logging On	Select to create a log file of Prospect errors and warnings.
Log Errors only	Select to write only errors to the log file.
Log Errors and Warnings	Select to write both errors and warnings to the log file.
Diagnostic (all messages)	Select to write all errors to the log file.
Overwrite Log file after: _ days	Enter the overwrite period in the OVERWRITE LOG FILE AFTER: _DAYS spin box. the Prospect software builds one log file per day—your setting here determines not only when the Prospect software deletes your file, but also how many log files can accumulate.
Log all data to Dataserver	Select to log the information sent to the Prospect server.
Log all data from Dataserver	Select to log the information received from the Prospect server.

Macro Options

Macro options are ways in which you can configure the Prospect client's Excel macros to change your report output.

Both System and Custom macro options have four associated columns in the list box of the MACRO OPTIONS page of the Options tool, which are described in the following table.

Table 56: Macro Options

Option	Description
Macro	Groups macro options in the Windows Registry.
Option	Provides the textual description of the variable.
Value	Holds the value used by the Excel macro.
Type	<p>There are two types of macro options, System and Custom:</p> <ul style="list-style-type: none">• System macro options, included with the Prospect client, are available for use by Prospect's Excel macros. Although you can change the value of System macro options, you cannot add or remove them. See Excel Report Output for more information.• Custom macro options allow you to define variables for user-defined macros. You can add, remove, or modify these options.

Specifying Macro Options in the Windows Registry

You can access macro options through the Windows Registry in the following location:

```
\HKEY_CURRENT_USER\SOFTWARE\Vallent\Prospect\MacroOptions\MacroName\OptionName
```

In the preceding path, MacroName is the name of the macro that appears in the MACRO text box, while OptionName is the macro description that appears in the OPTION text box on the REPORT EDITOR.

Report Processing Macros

The following table describes the report processing macros, used solely by Traffic reports.

Table 57: Report Processing Macros

Option	Description
ShowGridLines	True displays grid lines for spreadsheet cells in a given report; False does not.
ShowRowColHeaders	True displays row and column headings in a given report; False does not.
SaveLinks	<p>True keeps named ranges and links to other Excel files intact after you close a downloaded report. False breaks the named ranges and links so that you can move the report without producing missing links errors.</p> <p>Note: Once the links to other Excel files are broken, the report no longer displays the PROSPECT menu.</p>
CloseUDMs	True automatically closes the workbook that contains the user-defined macros after they have been processed; False does not.

Trending Macros

The following table describes the trending macros, used only by Traffic reports in conjunction with one of the two user-defined macros, `trend_ln.xls` or `trend_ep.xls`.

Table 58: Trending Macros

Option	Description
DaysForward	The number of days the chart displays
ShowLegend	True displays a legend for trending charts; False does not.
ShowRSquared	True displays the R^2 value for a trend; False does not.
SortByMargin	For a summary report, True sorts by margin, False sorts by limit.
MarginPercent	The number you enter here is the percent below the Limit value that you want to designate as a margin of safety for capacity. For example, if your Limit value is 100 and you enter 15 here, the resulting Margin value is 85.
CreateChartAsPicture	True creates your chart as a picture object; False creates it as a chart object. The picture option creates bitmap charts, which helps you avoid reaching the end of Excel's resource limits in large reports.

Adding a Macro Option

The Add Macro Options feature allows you to create, maintain, and use certain custom registry key entries. You can access these custom entries in user-defined macros.

To add a new macro option

1. Open the OPTIONS tool and click the MACRO OPTIONS tab. The MACRO OPTIONS page opens.
2. Click the ADD button.
3. Type a macro category name in the MACRO text box.
This is the name that you can find as the key in the Windows Registry.
4. Type a name for the option in the OPTION text box.
This name is also known as *Value name* in the Windows Registry.
5. Type a value in the VALUE text box.
This value is also known as *Value data* in the Windows Registry.
6. Click APPLY to add the new option. To save the settings and exit, click OK. To exit without saving, click CANCEL. To restore the default settings that were configured during installation, click RESTORE DEFAULTS.

To change the order of your custom macro option

1. Open the OPTIONS tool and click the MACRO OPTIONS tab. The MACRO OPTIONS page opens.
2. Click the name of the custom macro option you want to move.
3. Click MOVE UP or MOVE DOWN.
4. To save the settings and exit, click OK. To exit without saving, click CANCEL. To restore the default settings that were configured during installation, click RESTORE DEFAULTS.

Modifying the Value of a System Macro Option

You can change the value of the system macro options to fit your needs.

To modify the value of a macro option

1. Open the Options tool and click the MACRO OPTIONS tab. The MACRO OPTIONS page opens.
2. In the list pane, select the option you want to reconfigure. That option appears in the text boxes in the MACRO area.
3. Type the replacement value in the VALUE text box.
4. Click the APPLY button. Your new value appears in the list pane.
5. Repeat for any other options you want to change.
6. To save the settings and exit, click OK. To exit without saving, click CANCEL. To restore the default settings that were configured during installation, click RESTORE DEFAULTS.

Periods Definitions Options

A *periods definition* is a predefined block of time periods that you create, name, and then use in the date-time scope of a report editor. For example, you could create two periods definitions named *time_period_1* and *time_period_1*. Then, when selecting the time periods in the Report Editor, you could select either period definition.

To create a periods definition

1. Open the OPTIONS tool and click the PERIODS DEFINITIONS tab. The PERIODS DEFINITION page opens.
2. Depending on your system configuration, do one of the following:

If ...	Do This ...
A periods definition is not defined	In the PERIODS text box, type a name for your periods definition.

<i>If ...</i>	<i>Do This ...</i>
A periods definition is defined	Select the periods definition in the PERIODS DEFINITION NAME list.

3. Select the time periods in the PERIODS selection grid. Periods can be either whole hours or increments of hours. The numbers indicate, on a 24-hour clock, the ending time of each one-hour block. For detailed procedures on operating the grid, see [Selecting a Time Period](#) on page 113.
4. Click the APPLY button. Your periods definition appears in the PERIODS DEFINITION NAME list, and everywhere else in the product where periods definitions are defined.
5. To save the settings and exit, click OK. To exit without saving, click CANCEL. To restore the default settings that were configured during installation, click RESTORE DEFAULTS.

To change the order of your custom periods definition

1. Open the Options tool and click the PERIODS DEFINITIONS tab. The Periods Definitions page opens.
2. Click the name of the custom periods definition you want to move.
3. Click MOVE UP or MOVE DOWN.
4. To save the settings and exit, click OK. To exit without saving, click CANCEL. To restore the default settings that were configured during installation, click RESTORE DEFAULTS.

Report Format Options

The REPORT FORMAT options page allows you to set default options for the report editors.

To set report format options

1. Open the Options tool and click the REPORT FORMAT tab. The Report Format page opens.
2. Select your orientation and scaling options.
3. To disable any system macros that are applied to the data, select the DISABLE SYSTEM MACROS check box.
4. The Prospect client downloads reports, runs macros, stores control information at the end of the file, and applies any custom macros. The control information provides the functions that are in the Prospect menu. If you want to configure the Prospect client to remove the control information from the end of the file, select the REMOVE CONTROL INFORMATION check box.

When you remove control information, traffic reports are processed as usual, but the functions are no longer available, and the Prospect menu is removed from the downloaded report in Excel.

Options

5. To apply a custom macro to the downloaded report, select the macro from the POST PROCESSING MACRO list box.
 6. To apply a style sheet to the downloaded report, select a style sheet from the USER STYLE SHEET list box.
 7. To add custom headings or footnotes, enter the text in the REPORT HEADING/FOOTNOTE text boxes.
 8. To split the key field into separate entity columns, check the field in the SPLIT KEY FIELD area. Columns are selected individually, so you can select all of them or any subset for display. To repeat the separate entity names in each row of data, select the APPLY TO ALL ROWS check box in the SPLIT KEY FIELD area.
 9. To save the settings and exit, click OK. To exit without saving, click CANCEL. To restore the default settings that were configured during installation, click RESTORE DEFAULTS.
-

Note: These settings are only applied to new report definitions that you create.

Report Output Options

The REPORT OUTPUT options page defines the report output default values that appear in report editors.

If you change the defaults, they only apply to reports you define in the future, not existing report definitions.

Table 59: Report Output Options

Option	Description
Printer	Select to send your reports to your default printer.
File	Select to save your reports as files. If you save as a file, you must select a file format. If you select Raw data as the format, you must also select a column delimiter. You can also: <ul style="list-style-type: none">• Enter a default file path where you want to save the document.• Enter a default file name. Caution: By default, Traffic reports will overwrite an existing file with the same path and name.
E-Mail	Select this option to email your reports. Enter the email address in the TO text box, the subject in the SUBJECT text box, and a message in the MESSAGE text box.

Note: If your default printer is not set to a valid printer you will experience problems downloading reports—even if the destination is set to FILE.

Reports Options

The REPORTS options page defines some basic report settings.

Table 60: Reports Tab Options

Option	Description
Months of Data Availability	Specifies the number of months that can be searched in the Report Editor.
Show Warning for complex UDCs and lengthy reports	Sets whether warning messages are displayed for complex UDCs and lengthy reports. See Complex UDCs and Lengthy Report Warnings for more information.
Include re-homed data in Traffic reports	Select to include re-homed data in your Traffic reports. See Using Re-Homed Entity Data for more information about using re-homed data in traffic reports. See the <i>Administration Guide</i> for more information about re-homing network elements.

Schedule Entries Options

The SCHEDULE ENTRIES page controls the defaults for the Schedule Entry Editor.

To set schedule defaults for the Schedule Entry Editor

1. Open the Options tool and click the SCHEDULE ENTRIES tab. The Schedule Entries page opens.
2. Set purge preferences under PURGE by clicking the option button you want. This refers to purging your report from the server, not your destinations.
3. Set your download preference under DOWNLOAD by clicking either the AUTOMATIC or MANUAL option button. This refers to whether you manually download your report by using the Status Monitor.
4. In the REPORT DESTINATION area of the SCHEDULE ENTRIES page in the OPTIONS dialog box, set the defaults for destination overrides by selecting the appropriate check boxes. The override options are displayed in the SCHEDULE ENTRY EDITOR dialog box for new schedule entries.
5. To save the settings and exit, click OK. To exit without saving, click CANCEL. To restore the default settings that were configured during installation, click RESTORE DEFAULTS.

Technology Filters Options

A custom *technology filter* is a named group of technologies that you create. A filter you create with this tool appears in the technology filter in the Template Editor, Busy Hour Editor, and the Report Editor.

To create a custom technology filter definition

1. Open the Options tool and click the TECHNOLOGY FILTERS tab. The Technology Filters page opens.
2. Click the ADD button. The technology check boxes become active, and a cursor appears in the TECHNOLOGY text box.
3. In the TECHNOLOGY text box, enter a name for your custom technology filter.
4. Select the technology types you want to include in your filter.
You must select at least two of the available check boxes. If only one technology type is available, you cannot create a filter. The Prospect software will not let you define a filter that is redundant to an existing system or custom filter.
5. Click the APPLY button. The name of your technology filter appears in the TECHNOLOGY FILTER DEFINITION window as a custom filter type, and throughout the Prospect client where technology filters appear.
6. To save the settings and exit, click OK. To exit without saving, click CANCEL. To restore the default settings that were configured during installation, click RESTORE DEFAULTS.

To modify a custom technology filter definition

1. Open the Options tool and click the TECHNOLOGY FILTERS tab. The Technology Filters page opens.
2. Click the name of the custom filter you want to modify.
3. Select the technology types you want to include in your filter. You must select at least two of the available check boxes. If only one technology type is available, you cannot create a filter. The Prospect software will not let you define a filter that is redundant to an existing system or custom filter.
4. Click the APPLY button. If you make a mistake, click RESET to reinstate the filter to the last saved version.
5. To save the settings and exit, click OK. To exit without saving, click CANCEL. To restore the default settings that were configured during installation, click RESTORE DEFAULTS.

To delete a custom technology filter definition

1. Open the Options tool and click the TECHNOLOGY FILTERS tab. The Technology Filters page opens.
2. Click the name of the custom filter you want to delete.
3. Click DELETE.
4. To save the settings and exit, click OK. To exit without saving, click CANCEL. To restore the default settings that were configured during installation, click RESTORE DEFAULTS.

To change the order of your custom technology filter definitions

1. Open the Options tool and click the TECHNOLOGY FILTERS tab. The Technology Filters page opens.
2. Click the name of the custom filter you want to move.
3. Click MOVE UP or MOVE DOWN.
4. To save the settings and exit, click OK. To exit without saving, click CANCEL. To restore the default settings that were configured during installation, click RESTORE DEFAULTS.

14 Soft Alarms

Premium Option Available

Prospect Alarm is a premium feature that generates performance data messages that you use to actively monitor network performance. Alarms raised by the Prospect software (called soft alarms) differ from hardware alarms in that soft alarms are inferred from performance data, rather than hardware performance.

A Prospect system administrator or data administrator configures a soft alarm's message content, the criteria by which it is generated, and its severity.

This chapter contains the following sections:

- [Soft Alarm Views](#)
- [Creating Soft Alarm Views](#)
- [Viewing Soft Alarms](#)
- [Acknowledging Soft Alarms](#)
- [Clearing Soft Alarms](#)
- [Organizing Soft Alarm Views](#)
- [Formatting Soft Alarm Views](#)
- [Changing the Scenario](#)
- [Suspending and Updating Soft Alarms](#)
- [Printing Soft Alarms](#)

After reading this chapter, you will have information to understand:

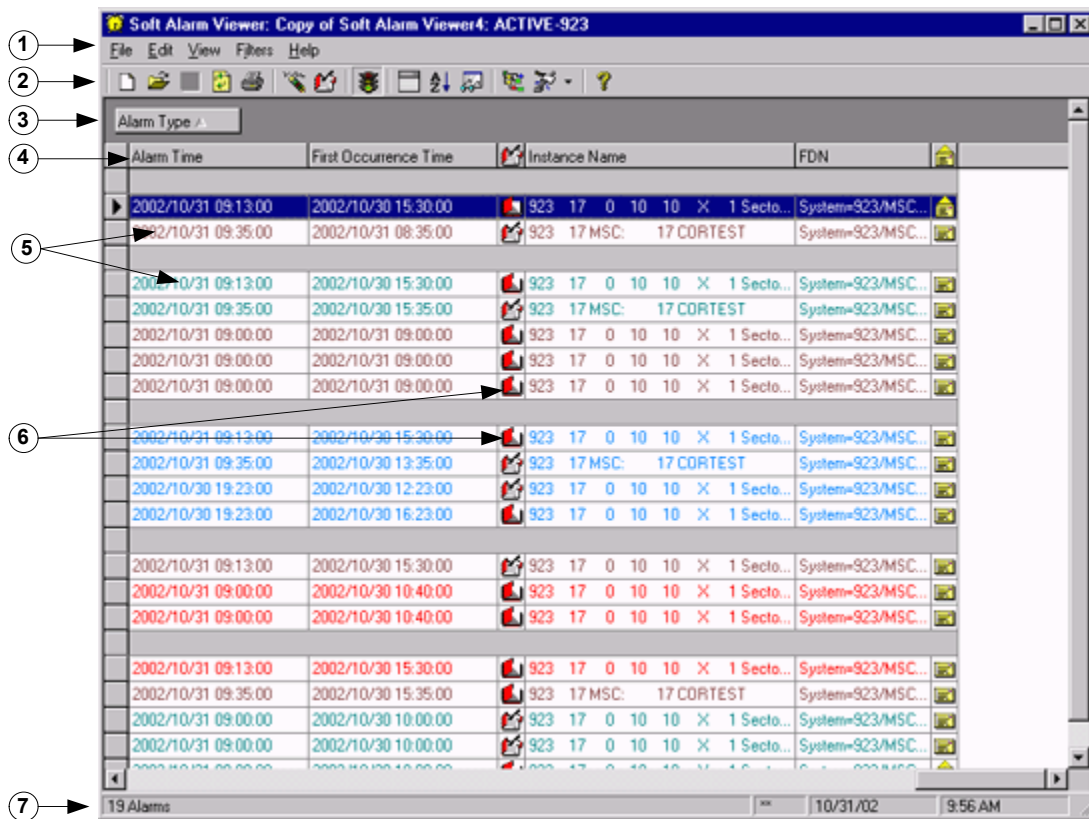
- The tasks necessary to view soft alarms
- How to use the Soft Alarm Viewer

Soft Alarm Views

Premium Option Available [Soft Alarms](#)

The Soft Alarm Viewer, shown in the following figure, is your interface for soft alarms.

Figure 71: Soft Alarm Viewer



Legend:

No.	Name	Description
1	Menu bar	An organized list of commands.
2	Toolbar	The toolbar buttons function in the same way as other Windows applications.
3	Group by bar	See Grouping Soft Alarms for more information.
4	Column headers	Labels for the soft alarm attributes.
5	Soft alarms	Each row in the Soft Alarm Viewer represents a generated soft alarm.
6	Acknowledgment icons	See Acknowledging Soft Alarms for more information.
7	Status bar	Displays the number of alarms in the view.

Use the Soft Alarm Viewer to view soft alarms and to perform these important tasks:

- [Viewing Soft Alarms](#)

- [Acknowledging Soft Alarms](#)
- [Clearing Soft Alarms](#)

Use the Soft Alarm Viewer to also perform these tasks:

- [Grouping Soft Alarms](#)
- [Filtering Soft Alarms](#)
- [Sorting Soft Alarms](#)
- [Formatting Soft Alarm Views](#)
- [Changing the Displayed Columns](#)
- [Changing the Scenario](#)
- [Suspending and Updating Soft Alarms](#)
- [Printing Soft Alarms](#)

Creating Soft Alarm Views

Premium Option Available [Soft Alarms](#)

When you create a Soft Alarm View, you can view soft alarms for entities at or below a specified point in a scenario. You can create multiple Soft Alarm Views to view alarms for different scenarios, or create a Soft Alarm View with no associated scenario. See [Scenarios](#) for more information on creating scenarios.

To create a Soft Alarm View

1. From the PROSPECT EXPLORER window, select the FILE menu, point to NEW, and then click SOFT ALARM VIEW.

The BROWSE FOR SCENARIO dialog box opens.

2. Specify whether to use a scenario:
 - To choose a scenario, select it in the BROWSE FOR SCENARIO window and click OK.
 - To choose no scenario, click NO SCENARIO.

The Soft Alarm Viewer opens and displays the current alarms.

3. Edit the view to your desired [grouping](#), [filtering](#), [sorting](#), and [formatting](#).
4. On the FILE menu, click SAVE AS.

The SAVE SOFT ALARM VIEW AS dialog box opens.

5. In the hierarchy pane, navigate to the location where you want to store the soft alarm view. In the SOFT ALARM VIEW NAME text box, type the name you want to give the view.
6. Click the SAVE button. The SAVE SOFT ALARM VIEW AS dialog box closes if your save operation is successful. If not, trouble-shooting dialog boxes guide you through problem solving.

Viewing Soft Alarms

Premium Option Available [Soft Alarms](#)

To view any soft alarms, a Soft Alarm View must be open. Soft alarms for entities in the selected scenario are displayed in the Soft Alarm View. If no scenario is selected, the Soft Alarm View displays all the soft alarms.



To open a Soft Alarm View

1. Use PROSPECT EXPLORER to locate the Soft Alarm View document you want to open.
2. Double-click the view.

Acknowledging Soft Alarms

Premium Option Available [Soft Alarms](#)



Acknowledging a soft alarm tells the Prospect system that you have seen a specific alarm, but do not want to clear the alarm from a Soft Alarm View.

As *acknowledgment icons*, the Prospect system uses a book and pencil symbol for alarms acknowledged () and a book symbol for alarms not acknowledged ()

Note: Only a system administrator or data administrator can acknowledge soft alarms.

The following icons indicate alarm acknowledgement status:

Table 61: Acknowledgment Status Icons

Icon	Indicates
	Alarms not acknowledged
	Acknowledged alarms

To acknowledge a soft alarm

1. Open a Soft Alarm View (see [Viewing Soft Alarms](#) on page 222).
2. Select the alarm you want to acknowledge.
3. From the EDIT menu, select ACKNOWLEDGE.

The icon changes, indicating the alarm has been acknowledged. Additionally, your Prospect user name is added to the ACK USER column in the Soft Alarm Viewer as the user who acknowledged the alarm.

Clearing Soft Alarms

Clearing a soft alarm removes a soft alarm from a Soft Alarm View.

Note: Only a system administrator or data administrator can clear a soft alarm.

To clear a soft alarm

1. Open a Soft Alarm View (see [Viewing Soft Alarms](#) on page 222).
2. Select the alarm you want to clear.
3. From the EDIT menu, select CLEAR.

The alarm is deleted from the Soft Alarm View.

Organizing Soft Alarm Views

The Soft Alarm Viewer allows you to organize Soft Alarm Views in a number of ways, which are described in the following sections:

- [Grouping Soft Alarms](#)
- [Filtering Soft Alarms](#)
- [Sorting Soft Alarms](#)
- [Changing the Displayed Columns](#)

Grouping Soft Alarms

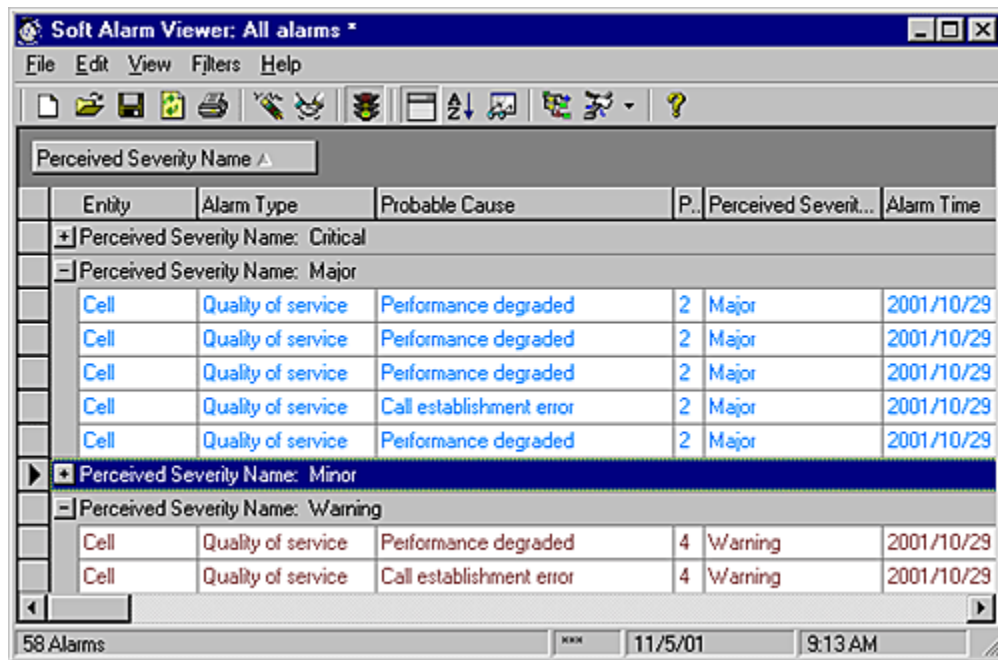
Premium Option Available [Soft Alarms](#)

Grouping soft alarms in a Soft Alarm View allows you to easily browse through many soft alarms. You can group soft alarms by one or more columns. Soft alarms grouped by multiple columns are grouped based on a specified column hierarchy.

To group soft alarms by one column

1. [Open a Soft Alarm View](#).
2. Drag one column header to the area labeled DRAG A COLUMN HEADER HERE TO GROUP BY THAT COLUMN. The view is grouped by each alarm's value for the specified column, as shown in the following figure.

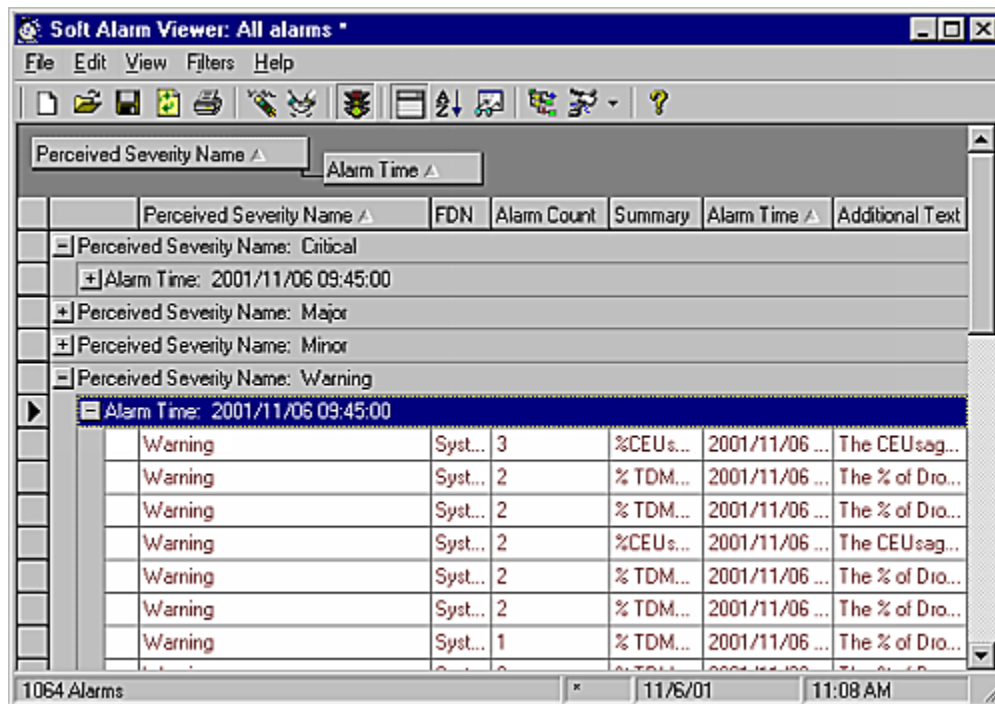
Figure 72: Soft Alarm View Grouped by One Column



To group soft alarms by more than one column

1. [Open a Soft Alarm View.](#)
2. Drag each column header you want to the area labeled DRAG A COLUMN HEADER HERE TO GROUP BY THAT COLUMN. The view is grouped by each alarm's value for the specified column. The following figure shows a view grouped by two columns.

Figure 73: Soft Alarm View Grouped by Two Columns

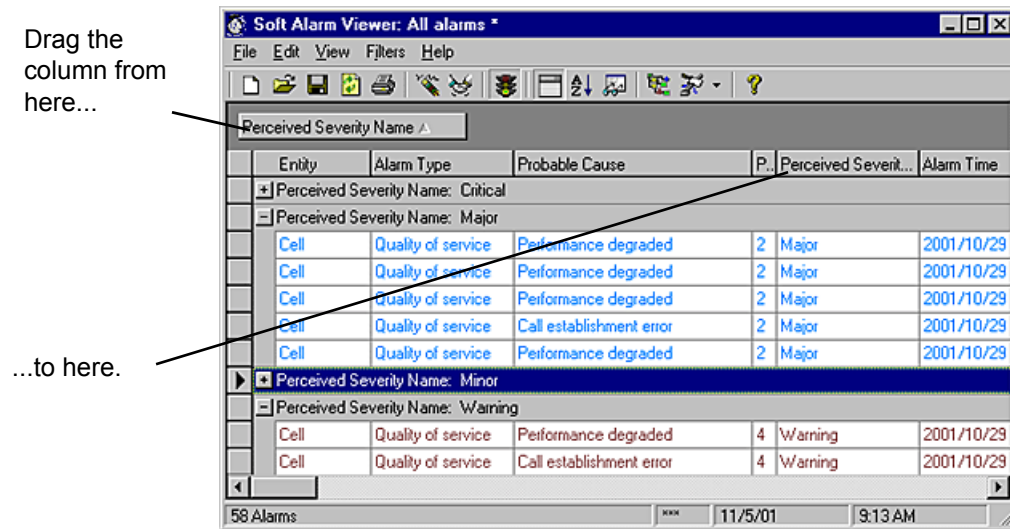


3. To change the column hierarchy, which specifies the order by which soft alarms are grouped, drag a column heading from the area labeled DRAG A COLUMN HEADER HERE TO GROUP BY THAT COLUMN to the left or right of another column heading.

To ungroup soft alarms

1. [Open a Soft Alarm View](#).
2. Drag a column heading from the area labeled DRAG A COLUMN HEADER HERE TO GROUP BY THAT COLUMN to the same column heading in the soft alarm list (shown in the following figure).

Figure 74: Ungrouping Soft Alarms



Dragging a column heading to another location within the column headings moves the order by which the columns are listed.

Filtering Soft Alarms

Premium Option Available [Soft Alarms](#)

Filtering soft alarms may remove soft alarms from a Soft Alarm View. You can filter alarms by severity or entity type.

To filter soft alarms

1. [Open a Soft Alarm View.](#)
2. Select a severity and/or an entity type from the FILTERS menu. Or, to remove all filters from a Soft Alarm View, select NO FILTERS from the FILTERS menu.

Sorting Soft Alarms

Premium Option Available [Soft Alarms](#)

Sorting soft alarms enables you to organize soft alarms by column types. You can sort up to four levels of alarms.

To sort soft alarms

1. [Open a Soft Alarm View.](#)
2. Select SORT from the VIEW menu.

The SORT dialog box opens.

3. Select the column you want to sort by in the SORT ITEMS BY area.
4. Click OK. The Soft Alarm view is sorted.

Changing the Displayed Columns

Premium Option Available [Soft Alarms](#)

Changing the displayed columns allows you to select the columns you want to see in the Soft Alarm Viewer and determine the order in which the columns are displayed.

To show and hide the displayed columns

1. [Open a Soft Alarm View](#).
2. From the VIEW menu, select SELECT FIELDS.
The SHOW FIELDS dialog box opens.
3. To show a column, select it in the AVAILABLE FIELDS box, and click ADD->.Or, to hide a column, select it in the SHOW THESE FIELDS IN THIS ORDER box, and click <-REMOVE.
4. Click OK.

To change the column order

1. [Open a Soft Alarm View](#).
2. Drag the column heading next to the column heading you want to move it by.

Formatting Soft Alarm Views

Premium Option Available [Soft Alarms](#)

You can change the appearance of the column headings, rows, and grid lines by using the Soft Alarm Viewer.

To change the fonts or line styles

1. [Open a Soft Alarm View](#).
2. From the VIEW menu, select OPTIONS. The VIEW SUMMARY dialog box opens.
3. Select FORMAT and use the FORMAT TABLE VIEW dialog box to change the appearance of column headings, rows, or grid lines.

Changing the Scenario

Premium Option Available [Soft Alarms](#)

You can change the scenario that is used in a Soft Alarm View to filter soft alarms.

To change the scenario

1. [Open a Soft Alarm View](#).
2. From the EDIT menu, select SCENARIO. The BROWSE FOR SCENARIO dialog box opens.
3. To choose a different scenario, select it in the BROWSER FOR SCENARIO dialog box and click OK. Or, to specify no scenario, click NO SCENARIO.

Suspending and Updating Soft Alarms

Premium Option Available [Soft Alarms](#)

When you suspend updates, you prohibit a Soft Alarm View from updating the soft alarms for a new time period. Auto-updating soft alarms allows a Soft Alarm View to automatically refresh for new time periods. You can manually refresh a Soft Alarm View at any time to view the soft alarms for the most recently completed time period.

To suspend updates

1. [Open a Soft Alarm View](#).
2. From the EDIT menu, select SUSPEND UPDATES.

To auto-update soft alarms

1. [Open a Soft Alarm View](#).
2. From the EDIT menu, select AUTO UPDATES.

To refresh a Soft Alarm View

1. [Open a Soft Alarm View](#).
2. From the EDIT menu, select REFRESH.

Printing Soft Alarms

Premium Option Available [Soft Alarms](#)

You can preview and print the alarms listed in a Soft Alarm View. Soft alarms are printed exactly as they are shown in a Soft Alarm View.

To preview a Soft Alarm View print job

1. [Open a Soft Alarm View](#).
2. From the FILE menu, select PREVIEW. The PRINT PREVIEW dialog box opens.

To print a Soft Alarm View

1. [Open a Soft Alarm View](#).
2. From the FILE menu, select PRINT. The view is printed using your default printer.

15 User-Defined Calculations

A User-Defined Calculation (UDC) is a field that you create that performs mathematical operations on existing fields. These existing fields can be peg counts, primitive calculations (pcales), or other UDCs. You can create, view, edit and delete UDCs using the User-Defined Calculation tool. Once created, a UDC appears in the field list in the Template Editor and can be added to a template like any other field.

This chapter contains the following sections:

- [UDC Basics](#)
- [Regular Expressions in UDCs](#)
- [Aggregation Types for UDCs](#)
- [Functions in UDCs](#)
- [Complex UDCs](#)
- [Creating, Viewing, Editing and Deleting UDCs](#)

References:

[Templates](#)

[Aggregation Types](#)

UDC Basics

The following sections review the key concepts that underlie User-Defined Calculations.

Topics

[When to Create UDCs](#)

[UDC Components: Regular Expressions and Aggregation Types](#)

When to Create UDCs

As a general guideline, you create a UDC when:

- You want to report values based on calculated fields
- You want to report values based on more than one field or operator

- You want to build a complex expression (more than one field or operator) to use as a filtering criterion in a template

Alternatively, you can use the criteria feature of the Template Editor in a template when:

- You want to filter your report output so that it includes only specified values or ranges of a field
- You can use one or a few simple regular expressions to define the desired filter

UDC Components: Regular Expressions and Aggregation Types

The two main components of a UDC are the *regular expression* and the *aggregation type*.

The expression is user-defined and unique to the UDC. It describes the mathematical or logical operation the UDC is to perform on the fields referenced.

The aggregation type is system-defined and you choose it from a list. The aggregation type determines how the values resulting from the expression are aggregated over time and element in a report using a template containing the UDC. For UDCs, `sum` is the aggregation type most frequently used, followed by `avg`.

Related Topics

[Regular Expressions in UDCs](#)

[Aggregation of Field Values](#)

Regular Expressions in UDCs

The expression is the component of the UDC that performs the calculation. The following paragraphs provide a brief description of regular expressions. For detailed descriptions, refer to *the Expressions Technical Reference*.

The most common expression types are arithmetic, conditional, and functional. All expressions consist of *operands* (fields, constants or functions) combined with arithmetic or logical *operators* according to a certain *syntax*. These are described in the following paragraphs.

Topics

[Operands](#)

[Operators](#)

[Expression Syntax](#)

Operands

Operands are the components of an expression that represent values. Operands consist of fields, constants, and functions.

Fields

The primary operands for a UDC expression are other fields. When you create a UDC, you select a focal entity with which to associate the UDC. The fields you can select for an expression depend upon the focal entity selected. You can select a field from the focal entity level or from the ancestors or descendants of the focal entity.

When you select a field for an expression, it takes the following form in the UDC tool:

```
[<entity>]![<field_name>]
```

where the exclamation mark (!) indicates the entity with which the field is found.

Example:

```
[Cell]![Drp_Call]
```

Note: Do not confuse the “!” used to identify the entity with the operator “!”.

Constants

Constants (also referred to as literals) are values that do not change. The following table lists some of the common constants used in UDCs:

Table 62: Constants

Constant	Description
Integer	Sequence of decimal digits (whole number)
Float	Sequence of decimal digits with a period (.)
String	Sequence of characters surrounded by double quotes

Integer Example:

```
[Cell]![Drp_Calls] * 100
```

Float Example:

```
[Cell]![Total_Calls] - 123.456
```

String Example:

```
NBTYPE="I"
```

Functions

Functions are operands with parameters that return values. For more information about functions, see [Functions in UDCs](#) on page 238.

Operators

The UDC tool provides logical, arithmetical, and conditional operators. Table 63 lists all the operators and summarizes the precedence among operators. In the table, the operators are

grouped in blocks outlined in bold. Each operator in a block shares the same precedence and is evaluated from left to right. An operator in a higher blocks of rows has a higher precedence than operators in a lower block.

For example:

$a + b * c ==> a + (b * c)$ because $*$ has a higher precedence than $+$.

$a + b - c ==> (a + b) - c$ because $+$ and $-$ have the same precedence and because $+$ is left associative.

Note: The Expression Operators shown in the following table should not be used as the starting character in headings or the resulting heading will be incorrectly displayed.

Table 63: Expression Operators

<i>Operator</i>	<i>Description</i>	<i>Syntax</i>
!	Not	! expr
-	Unary minus (negation)	- expr
()	Explicit Cast	(type) expr
^	Power	expr ^ expr
*	Multiply	expr * expr
/	Divide	expr / expr
%	Modulo (remainder)	expr % expr
+	Addition	expr + expr
-	Subtraction	expr - expr
==	Equality	expr == expr
=	Equality	expr = expr
!=	Inequality	expr != expr
<>	Inequality	expr != expr
<	Less than	expr < expr
<=	Less than or equal to	expr <= expr
>	Greater than	expr > expr
>=	Greater than or equal to	expr >= expr
?:	Conditional Expression	expr ? expr : expr
AND	Logical AND	expr AND expr
&&	Logical AND	expr && expr
OR	Logical OR	expr OR expr
	Logical OR	expr expr

Unary and Binary Operators and Precedence

Operators may be unary or binary. This affects the order of precedence.

Unary operators use one operand in the format:

operand operator

Example:

- [Cell]![Drp_Calls]

Binary operators use two operands in the format:

operand1 operator operand2

Example:

[Cell]![Drp_Calls] / [Cell]![Total_Calls]

For purposes of precedence, unary operators are right associative, and binary operators are left associative, as illustrated in the following example:

a - (INT)b - c < -d

should be read as

((a - (INT)b) - c) < (-d)

Addition vs. Summation

Addition, as performed by + operator, is a scalar operation. Summation, as performed in aggregation, is a vector operation, converting vectors (such as time-series statistics) into scalar sums. These yield different results where NULLs appear in the calculation. (A NULL value is one that is not meaningful to include in a total, for example, a status indicator or a data-validity flag.) In an addition, a NULL value in an argument yields a NULL result. In a summation, a NULL is ignored unless all values are NULL, in which case the result is also NULL.

You can avoid the NULL expression result by using one of two functions: `vsum` and `NullValue`. See [Functions in UDCs](#) on page 238

Expression Syntax

The following table lists the syntax of the types of regular expressions most commonly used in UDCs.

Table 64: Expression Syntax

<i>Expression Type</i>	<i>Syntax</i>
Arithmetic	Can use both unary and binary operators: Unary: <i>operator expression</i> Binary: <i>expression operator expression</i>
Functional	<code>functionName(expr1, ..., exprN)</code>

Table 64: Expression Syntax

<i>Expression Type</i>	<i>Syntax</i>
Conditional	<i>test_expr</i> ? <i>expr1</i> : <i>expr2</i> The conditional expression allows a simple IF.THEN.ELSE statement. That is, if <i>test_expr</i> returns a nonzero result, then the value of <i>expr1</i> is used. Otherwise, the value of <i>expr2</i> is used. Both <i>expr1</i> and <i>expr2</i> must return the same type.

Arithmetic Example:

```
100 * ( [Cell]![Drp_Calls] / [Cell]![Total_Calls] )
```

Functional Example:

```
vsum ( [Cell]![Field_A] , [Cell]![Field_B] , [Cell]![Field_C] )
```

For more on `vsum()` and functions in general, see [Functions in UDCs](#) on page 238.

Conditional Example:

```
[Cell]![Field_A] > 0 ? [Cell]![Field_B] : [Cell]![Field_C]
```

Aggregation Types for UDCs

In order to aggregate (roll up) calculation results to the level of a parent entity, a UDC must be assigned an *aggregation type*. For a detailed description of aggregation and aggregation types, see [Aggregation of Field Values](#) on page 57.

For UDCs, the most common aggregation types is `sum`, followed by `avg` (also called `mean`). The following example compares these two aggregation types.

Example

[Table 65](#) shows *PEG1* and *PEG2* data for two cells, *CellA* and *CellB*, for each of four one-hour time slices.

Table 65: Cell Peg Data

Time	Peg1	Peg2
hour 1	100	99
hour 2	50	5
hour 3	10	1
hour 4	60	30
hour 1	100	99
hour 2	1	0
hour 3	10	NULL
hour 4	30	15

Two UDCs, *UDCX* and *UDCY*, are defined using the same expression: `Cell.PEG2/Cell.PEG1`. The object is to determine the ratio between the *PEG2* and *PEG1* counts.

UDCX has the aggregation type *sum* assigned to it. This produces the following calculations:

Cell A: (sum of PEG2(t))/(sum of PEG1(t))=135/220=0.61

Cell B: (sum of PEG2(t))/(sum of PEG1(t))=114/141=0.81

It can be seen that a ratio of the sums of hourly counts has been taken, producing an average ratio between *PEG2* and *PEG1* over time. The results are shown in the *Total-Cell A* and *Total-Cell B* in [Table 66](#):

Table 66: Ratios and Aggregation Types

Time	Peg1	Peg2	UDCX sum aggr	UDCY avg aggr
Total-Cell A	220	135	0.61	0.61
hour 1	100	99	0.99	0.99
hour 2	50	5	0.10	0.10
hour 3	10	1	0.10	0.10
hour 4	60	30	0.50	0.50
Total-Cell B	141	114	0.81	1.08
hour 1	100	99	0.99	0.99
hour 2	1	0	0L	0
hour 3	10	NULL	NULL	NULL
hour 4	30	15	0.50	0.50

UDCY has the aggregation type *avg* assigned. This produces the following calculations:

Cell A: (mean of PEG2)/(mean of PEG1)=((99+5+1+30)/4)/((100+50+10+60)/4)=0.61

Cell B: (mean of PEG2)/(mean of PEG1) =((99+0+15)/3)/(100+1+10+30)/4)=1.08

As with `sum`, this yields a ratio between *PEG2* and *PEG1* over time, but it is taken as a *ratio of means* and not a *ratio of sums*. For *Cell A*, the results for *UDCX* and *UDCY* are identical. For *Cell B* they are different, because the NULL value is included in the calculation when the ratio of sums is taken. For more complex expressions, taking a ratio of means as opposed to a ratio of sums can produce other significant differences.

Functions in UDCs

A function is an operand that returns a value. This section describes some of the functions commonly used in UDCs. You can apply the principles used in implementing these functions to other functions as well. For a complete list and description of functions, see the *Expressions Technical Reference*.

Topics:

- [An Example Function: `sum\(\)`](#)
- [The `mean\(\)` or `avg\(\)` Function](#)
- [The `protect\(\)` Function](#)
- [Use of Conditionals in Functions](#)
- [The `decode\(\)` Function](#)
- [The `vsum\(\)` Function](#)
- [Example - Summary Report](#)
- [The `count\(\)` Function](#)

An Example Function: `sum()`

The following description of the function `sum` demonstrates some of the semantic features common to many functions. These include the concepts of `Relation` and `Expression` in function syntax, aggregation expressions associated with the functions, and the use of the `protect` function with other functions.

The function `sum` is the same function called by the system to perform aggregation when the aggregation type *sum* is used. You can also use it in an expression field.

Syntax

```
float sum (Relation, Expression)
```

Where:

- **Relation** takes the form of `relation1.relation2.. relationN`. A relation is the entity of interest expressed as a path relative to the UDC focal entity.
- **Expression** is any expression that is valid for the object type defined in `Relation`. Usually it is a field.

The result is the sum of the `Expression` values, when `Expression` is applied to every object found by following the relation specifier `Relation`.

Example1

```
protect sum(NBCell, HOATTHS) * 100.0 / HO_CAUSEALL
```

Where:

- Calculation was created at the cell level and *NBCell* is a child of the cell
- The aggregation type for the expression is *avg*
- *NBCELL* is the focal entity
- *HOATTHS* (handover attempts resulting from a particular cause) and *HO_CAUSEALL* (all handovers) are integer pegs

The calculation was created to determine the average of the percentage of all handovers (*HO_CAUSEALL*) that are attributable to the metric captured in *HOATTHS* when rolled up to the cell level.

The calculation sums the *HOATTHS* values for all instances of *Cell.NBCell*, multiplies by 100, then divides by the value in *HO_CAUSEALL* to obtain a percentage.

The above expression, using the aggregation type *avg*, would be evaluated as:

```
mean(ElementAndTime.Cell, ((sum(NBCell, HOATTHS) *100)/HO_CAUSEALL))
```

ElementAndTime is a special automatically inserted by the process of transforming the UDC expression into an aggregation expression.

Note that the *protect* function has been used. (See [The protect\(\) Function](#).) This to prevent expression evaluation and the aggregation from being performed in the reverse order. This reversal is called *warping*. Warping of an expression can cause the aggregation to produce an undesired result. In this example, without the use of the *protect* function, the expression would evaluate as follows:

```
mean(ElementAndTime.Cell, sum(NBCell, HOATTHS) *100) / mean(ElementAnd-  
Time.Cell, HO_CAUSEALL)
```

The mean() or avg() Function

The *mean()* and *avg()* functions are synonymous. These are the same functions called by the system to perform aggregation when the aggregation type *avg* is used. You can also use them in expression fields.

These functions return the mean of a number of values.

Syntax

```
FLOAT mean(Relation)
```

```
FLOAT mean(Relation, Expression)
```

In the first syntax prototype, the result is the mean of all the attributes found in the relation.

In the second prototype, result is the mean of the *Expression E* values, when *Expression* is applied to every object found by following the relation specifier. The return type must be numeric.

If no objects are found, a NULL is returned

Example

```
mean(BSC_C7Link, PercentageLinkAvailability)
```

Where:

- Calculation is at the *BSC7LinkSet* level
- Aggregation type is average
- BSC_C7Link is the entity that satisfies the relation R
- PercentageLinkAvailability is an expression field with avg aggregation type.

The example calculation determines the average link availability. This type of calculation is a good example of when to use average aggregation semantics.

The expression is evaluated to find the mean at the BSC_C7LinkSet level of all the mean values returned from each of the BSC_C7Links.

The expression is aggregated as:

```
mean(EntityHierarchy.Cell.NBCell, nullValue (HOI_LOST,0))
```

In the underlying HOI_Lost expression is a percentage calculation that uses average aggregation semantics. The aggregation function then aggregates the results by performing averaging semantics on the resulting averages.

The protect() Function

protect is a special function that is used with other functions to ensure that the expression is evaluated for each instance or time slice before aggregation takes place. (Normally, warping causes the evaluation and the aggregation to be performed in the reverse order.)

Syntax

```
protect (expression)
```

Example

```
Cell.Peg3 = sum(Cell, protect(Cell.Peg2/Cell.Peg1))
```

Each value of the ratio Peg2/Peg1 is evaluated independently and then summed.

Use of Conditionals in Functions

The ternary expression, *? :*, is the Prospect software's version of the simple *If:Then:Else* conditional. If the test expression returns a non-zero result, then the value for the first expression is returned otherwise the value of the second expression is returned. In the conditional, the first and second expression must return the same type.

Syntax

```
[test_expression ? expr1 : expr2]
```

Note: Conditionals can be nested to any depth, but this makes them increasingly difficult to interpret and expensive in using Prospect software resources. A better alternative to nesting this conditional is the use of the decode function. (See [The decode\(\) Function](#).)

Example

```
protect(NBTYPE="I" ? HOVERCNT : nullInt())
```

Where:

- Aggregation type for the expression is `sum`
- `NBTYPE` is a string representing a Neighbor Cell Type of either `I` (internal) or `E` (external)
- `HOVERCNT` is an integer peg count
- `nullInt()` is a function that returns a NULL of type `Int`

In this example, the conditional evaluates the neighbor cell type of an entity instance and returns a value based on that. If the neighboring cell type is *internal*, the *int* value of `HOVERCNT` is returned; otherwise a NULL of type `int` is returned.

The `protect` function is used to ensure the desired evaluation semantics are implemented when the UDC is aggregated. In this case we want to evaluate the entire function expression for each entity instance and then sum the results of these return values.

The decode() Function

The `decode()` function is interpreted as `If:Then:ElseIf:Then:Else`. You can have multiple `ElseIf` expressions to achieve the required evaluations.

Syntax

```
decode(test_expr, expr1, return1, expr2, ..., exprN, returnN, returnX
```

Example1

```
protect(decode(NBTYPE,"I", HOVERCNT, nullInt()))
```

Where:

- `NBTYPE` is an attribute representing neighbor cell type. Possible values are `I` (internal) and `E` (external)
- `HOVERCNT` is an integer peg count
- `nullInt()` is a function that returns a NULL integer.

If `NBType` is `I`, the integer value of `HOVERCNT` is returned; otherwise a NULL integer is returned.

The `vsum()` evaluation has a `protect` added to it to ensure the proper aggregation semantics.

The vsum() Function

`vsum()` is one of the most frequently used expression functions. It returns the sum of the field arguments unless all are Null. If all field arguments are NULL, it returns a NULL unless a literal argument is placed at end of the expression. In the latter case it returns the literal.

Syntax

```
vsum(AttrA, AttrB, AttrC, 0)  
vsum(AttrA, AttrB, AttrC)
```

Example

```
(100.0 * TotalBlocks / vsum(CAUOATTS, CAUPGRES, CAUHATTS,0))
```

Where:

- Calculation is performed at the `cell_sector` entity level
- Aggregation type for the expression is *sum*
- `TotalBlocks` is defined as `vsum(CAUOBLKS, CAUTBLKS, CAUHBLKS, 0)`
- `CAUOATTS, CAUPGRES, CAUHATTS` are `Cell_sector` pegs

This expression calculates the percentage of failures due to a particular type of failure. The expression is evaluated as follows:

```
((100.000000 * vsum(sum(ElementAndTime.Cell_Sector, CAUOBLKS),  
sum(ElementAndTime.Cell_Sector, CAUTBLKS), sum(ElementAndTime.Cell_Sector,  
CAUHBLKS), 0)) / vsum(sum(ElementAndTime.Cell_Sector, CAUOATTS),  
sum(ElementAndTime.Cell_Sector, CAUPGRES), sum(ElementAndTime.Cell_Sector,  
CAUHATTS), 0))
```

The numerator and denominator are calculated separately. In each case, if any of the `Cell_sector` pegs evaluates to NULL, it is not included in the calculation, and if all of the `Cell_sector` pegs evaluate to NULL, then 0 is returned.

Note: Remember that if a denominator evaluates to 0 then the Prospect software will return a NULL value or empty row.

The following figures display individual and summary reports showing the results of the above calculation. The first figure is an individual report and the second figure is a relevant section of a summary report.

Figure 75: vsum() Example - Individual Report

Date/Hour	CAU_Orig Blocked	CAU_Term Block	CAU_Ho Blocked	Total Blocks	CAU_Orig Attempt	CAU_Page Resp	CAU_Ho Attempt	TotalBlocks Percent
TOTALS	0.00	0.00	0.00	0.00	967.00	441.00	0.00	0.00
8/12/2002 0:00	0.00	0.00	0.00	0.00	2.00	3.00	0.00	0.00
8/12/2002 1:00	0.00	0.00	0.00	0.00	9.00	6.00	0.00	0.00
8/12/2002 2:00	0.00	0.00	0.00	0.00	73.00	5.00	0.00	0.00
8/12/2002 3:00	0.00	0.00	0.00	0.00	3.00	2.00	0.00	0.00
8/12/2002 4:00	0.00	0.00	0.00	0.00	2.00	1.00	0.00	0.00
8/12/2002 5:00	0.00	0.00	0.00	0.00	12.00	5.00	0.00	0.00
8/12/2002 6:00	0.00	0.00	0.00	0.00	48.00	21.00	0.00	0.00
8/12/2002 7:00	0.00	0.00	0.00	0.00	121.00	57.00	0.00	0.00
8/12/2002 8:00	0.00	0.00	0.00	0.00	154.00	63.00	0.00	0.00
8/12/2002 9:00	0.00	0.00	0.00	0.00	237.00	89.00	0.00	0.00
8/12/2002 10:00	0.00	0.00	0.00	0.00	347.00	117.00	0.00	0.00
8/12/2002 11:00	0.00	0.00	0.00	0.00	139.00	72.00	0.00	0.00
8/12/2002 12:00				0.00				
9/12/2002 0:00				0.00				
9/12/2002 1:00				0.00				
9/12/2002 2:00				0.00				
9/12/2002 3:00				0.00				
9/12/2002 4:00				0.00				
9/12/2002 5:00				0.00				
9/12/2002 6:00				0.00				
9/12/2002 7:00				0.00				
9/12/2002 8:00				0.00				
9/12/2002 9:00				0.00				
9/12/2002 10:00				0.00				
9/12/2002 11:00				0.00				
9/12/2002 12:00				0.00				

Figure 76: Example - Summary Report

System/MSB/BSC/BTS/BTS_Cell/ Cell_Sector/Name/Label	CAU_Orig Blocked	CAU_Term Block	CAU_Ho Blocked	Total Blocks	CAU_Orig Attempt	CAU_Page Resp	CAU_Ho Attempt	TotalBlocks Percent
TOTALS	19.00	6.00	0.00	25.00	136,351.00	68,150.00	4,399.00	0.01
2_42_1_3_3 X Cell_Sector_X	0.00	0.00	0.00	0.00	967.00	441.00	0.00	0.00
2_42_1_3_3 Y Cell_Sector_Y	0.00	0.00	0.00	0.00	316.00	162.00	0.00	0.00
2_42_1_3_3 Z Cell_Sector_Z	0.00	0.00	0.00	0.00	276.00	123.00	0.00	0.00

The nullValue() Function

The function `nullValue` returns a specified non-NULL value when a NULL value is encountered.

Syntax

`Attr nullValue(Attr A, Attr X)`

If attribute `A` is NULL then value of attribute `X` is returned, otherwise attribute `A` is returned. The return type of the function must be the same as attribute `A`'s type. Therefore attribute `X` must be of the same type as `A`.

Example 1

`nullValue(HOATTLS_CELLEVENT, HOATTLS_CELEVENTH)`

Where:

- Calculation is at the Cell level
- Aggregation type is `sum`
- `HOATTLS_CELLEVENT` and `HOATTLS_CELEVENTH` are integer pegs

This expression was created because both of the pegs represent the number of cell handovers due to cell load sharing, but one peg is used for older cell hardware and the other peg is used for newer cell hardware. This expression will return the applicable results for the cell version. If the

first attribute results in a NULL, the results for the second attribute are returned; otherwise the first attribute's results are returned.

Example 2

```
SUM(NBCell, nullValue(HOE_LOST, 0))
```

Where:

- Calculation is at the `Cell` level and `NBCell` is a child of `Cell`
- Aggregation type is `sum`
- `HOE_Lost` is an expression that has sum aggregation semantics

The expression is evaluated as:

```
sum(EntityHeirarchy.Cell.NBCell, nullValue(HOE_LOST,0))
```

In the underlying `HOE_Lost` expression is a binary summation calculation of applicable fields. The sum function then aggregates the results by performing summation semantics on the resulting sums to roll up the results to the `Cell` level. The use of the `NullValue` is to return a value of `NULL` for each neighboring cell that does not have a result for `HOE_Lost`.

The count() Function

`count()` is a simple function that returns the number of objects found in the package or relation. It is often used to return the number of devices or pieces of hardware associated with an entity.

Syntax

```
INT count(Relation R)
```

This function returns an integer of the number of objects found in the package or relation specified by `R`. If `R` is not specified, `count` returns the number of objects in the current package.

Example

```
count(BSC_C7Link)
```

Where:

- Aggregation type is `quantity`
- Calculation is at the `BSC_C7LinkSet` level
- `BSC_C7Link` is a child of `BSC_C7LinkSet`
- `BSC_C7Link` is the entity of interest

The expression finds the maximum for each `BSC_C7Link` and then sums across the `BSC_C7Links` to aggregate to the `BSC_C7LinkSet` level to get a sum of all the links available.

Complex UDCs

A complex UDC is one that references fields from another branch of the entity tree. Either you or the system can define a UDC as complex.

The system marks a UDC as complex when the UDC references fields that are in another branch of the entity tree; that is, entities that are neither parents nor children of one another.

Important: A complex UDC uses a large amount of system resources because the server aggregates all pegs associated with the foreign branch and then reflects the same pegs to the reference level of the template. They should be developed in consultation with your Prospect administrator.

You can define a UDC as complex by selecting the COMPLEX UDC check box in the USER-DEFINED CALCULATION PROPERTIES dialog box when you save the UDC.

When you schedule or run a report that has a complex UDC, you receive a warning message and are given the chance to continue or cancel the report.

Creating, Viewing, Editing and Deleting UDCs

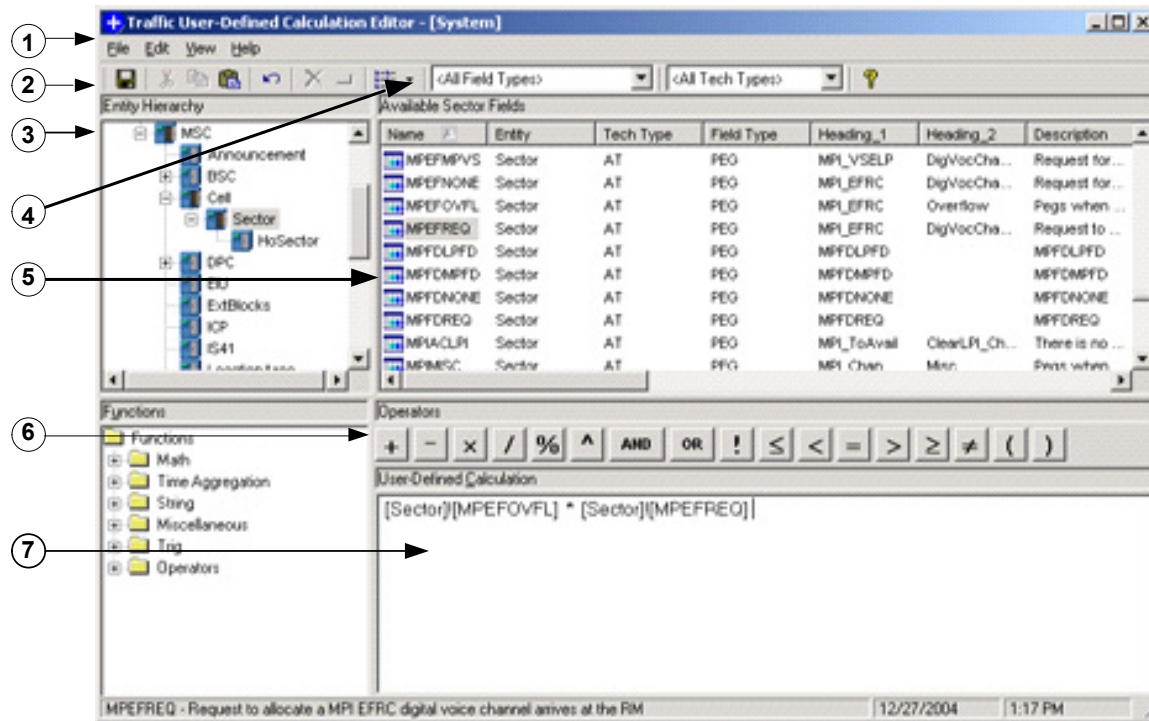
Opening the User-Defined Calculations TOOL

To open the User-Defined Calculations TOOL

1. In the PROSPECT EXPLORER window, select USER-DEFINED CALCULATIONS from the TOOLS menu. The USER-DEFINED CALCULATIONS window opens.
2. In the ENTITY HIERARCHY section, select a network element and click NEW from the FILE menu. The User-Defined Calculation Editor opens ([Figure 77](#)).

Use the User-Defined Calculation Editor ([Figure 77](#)) to develop the details of your UDCs.

Figure 77: User-Defined Calculation Editor



Legend:

No.	Name	Description
1	Menu bar	An organized list of commands.
2	Toolbar	The toolbar icons.
3	Entity tree	Shows a hierarchical list of entities. Selecting a different entity changes the available fields in the list pane.

No.	Name	Description
4	Filter bar	You can use the filter bar to limit the fields that are displayed in the list pane. You can filter by field type, technology type, or both. When you have filtered the display, all the fields that do not match the condition of the filter are hidden.
5	List pane	Shows the available fields for the selected entity.
7	Functions list	Shows the common functions and operators you can use to build a UDC.
8	Calculation pane	Shows the calculation formula.

Creating a new UDC

See [UDC Basics](#) to determine if creating a new UDC is necessary.

To create a new UDC

1. In the PROSPECT EXPLORER window, select USER-DEFINED CALCULATIONS from the TOOLS menu. The USER-DEFINED CALCULATIONS window opens.
2. Click the FILE menu and select NEW. The USER-DEFINED CALCULATION EDITOR window opens with your selected network element highlighted in the ENTITY TREE pane and a list of fields associated with the element.
3. Build your calculation. You can double-click, select EDIT and INSERT, or type to include any of the following:
 - Fields from the list that appears initially in the list pane
 - Fields associated with other network element types
 - Operators on the buttons above the CALCULATION pane
 - Functions from the function pane
 - Content that you type in

When you select an item in the field pane or function pane, a description appears in the status bar.

Note: Spaces are required before and after all operators and fields.

4. Click the SAVE button. The USER-DEFINED CALCULATION PROPERTIES dialog box opens.

Figure 78: User-Defined Calculation Properties

The screenshot shows the 'User-Defined Calculation Properties' dialog box. The fields are as follows:

- Name: test_udc
- Description: UDC
- Heading Line 1: UDC
- Heading Line 2: 1
- Time Aggregator: Sum
- Element Aggregator: Sum
- Data Type: Integer
- Complex UDC: ☐
- Technologies: ☒ Tech Types
 - ☒ AMPS
 - ☒ TDMA
 - ☒ CDMA
 - ☒ IOSBSC
- Field Style: Sample

Buttons: OK, Cancel, Help

5. Modify the UDC properties as needed and click OK. The Prospect software reports any typographical or logical errors it finds in your UDC and makes the UDC available in the Template Editor.

Ranking Data with a UDC

You can create a UDC that ranks data, and then reports this data in either ascending or descending order, depending on one of two functions: `rankAscending` or `rankDescending`. The syntax of these two functions is similar. For example, `rankAscending` would be as follows:

```
rankAscending(<expression variable>, <relation>, <expression variable>,  
IsValid())
```

To rank data with a UDC

1. Create a new UDC:
2. Type in the ranking function, either `rankAscending` or `rankDescending`, and then select the expression that you want to evaluate.
3. Save the UDC, being sure to specify the aggregation type as NULL.
4. Add the UDC to a template.
5. When you create a report definition, do the following:

- a. Group the report by time and network element from the GROUP BY list. Time can be hour, day, week, month, or year.
- b. Use the INDIVIDUAL REPORT option. This lists the performance data measurements for each entity separately in the report.

Editing a UDC

You edit a UDC to add new information or to modify an existing UDC for a different purpose.

To edit an existing UDC

1. In the PROSPECT EXPLORER window, select USER-DEFINED CALCULATIONS from the TOOLS menu. The USER-DEFINED CALCULATIONS window opens.
2. Double-click the UDC you want to edit. The USER-DEFINED CALCULATION EDITOR window opens with the selected UDC in the calculation pane in expanded form.
3. Edit your UDC.
 - You can use all the tools that were available to you when you built the UDC.
 - You can use standard Windows techniques to highlight, cut, copy, and paste in the Traffic User-Defined Calculation Editor.
 - You can also select PROPERTIES from the FILE menu of the TRAFFIC USER-DEFINED CALCULATION EDITOR window to modify the name, headings, aggregation, data, and technology types.

Deleting a UDC

To delete a UDC

1. In the PROSPECT EXPLORER window, select USER-DEFINED CALCULATIONS from the TOOLS menu. The USER-DEFINED CALCULATIONS window opens.
2. Select the UDC that you want to delete.
3. Select DELETE from the EDIT menu. A warning dialog box opens.

Note: If you delete a UDC, any reports that Use a template where this UDC appears will fail. Click the VIEW DETAILS button to display a list of templates that reference this UDC.

4. The VIEW area of the warning dialog box shows busy hours and other documents that refer to the UDC that you intend to delete. You should revise the documents so that they no longer refer to this UDC.

Appendix A: SPRG Graph Report Templates

This Appendix contains the field definitions for the Standard Performance Reports for GSM (SPRG) graph report templates. For each template, there is a field definitions table.

Note: Not all GSM installations support SPRG. Contact your Prospect data administrator to determine whether you can use this feature.

Except where indicated, the graph reports listed in this Appendix are based on the enhanced graph format known as the Multi-Line Graph (see [Enhanced Graphing Macros](#) on page 178). In this Appendix, the tables containing Multi-Line Graph content are divided into groups of fields related to each graph; a thick horizontal line separates each group.

Multi-Line Graphs are only generated automatically for individual reports in the Excel spreadsheet. Any data that can be written to individual reports can be graphed, including raw (one hour) data, busy hour data (daily and weekly), and, depending on the **Group By** parameter, summary data (for example, period sums, averages, or maximums).

Filtering of graphs by BSC, sector, customer-defined hierarchical data (administrative regions, areas, clusters, and so on), and network is supported by the use of scenarios.

Cell TCH Traffic Graphing Report Template

Focal Entity = Sector

Description

This report shows the TCH usage and performance at the sector level. The first graph shows the traffic and defined channels in the sector; the second graph shows the attempts and connections with MHT; and the third graph shows the percentile value of blocked and dropped calls. All the graphs are generated based on user-defined report (UDR) definitions.

Usage

This report can be used for routine visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 67: Cell TCH Traffic Graphing Report Template

Parameter	Field Name
Traffic (E)	TCH_TRAFF_VOL
Number of Defined Channels	tchFrAveragedAvailableMax
TCH Attempts with HO	TCH_ATTMTPT_WITHHO
TCH Connection with HO	TCH_CNNCT_WITHHO
MHT (s) with HO	TCH_MNHOLD_WITHHO
% Blocked Assignments with HO	TCH_BLK_WITHHO%
% Dropped Establishments with HO	TCH_DRP_EST_WITHHO%

Cell TCH Blocking Graphing Report Template

Focal Entity = Sector

Description

This report shows the blocking on TCH at the sector level. The first graph shows the defined and blocked TCH channels; the second graph shows the attempted, blocked and the congestion time on TCH; and the third graph shows the percentage of blocked assignments with and without handovers. All these graphs are generated based on UDR definitions.

Usage

This report can be used for optional visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 68: Cell TCH Blocking Graphing Report Template

Parameter	Field Name
Number of Defined Channels	tchFrAveragedAvailableMax
TCH Blocked Assignments	TCH_BLOCK
TCH Attempts with HO	TCH_ATTMTPT_WITHHO
Blocked HO on TCH	TCH_HO_REQ_BLK
Congestion Time (seconds)	TCH_CONGES_TIME
% Blocking Assignments without HO Attempts	TCH_BLK_WITHOUTHOTH%

Table 68: Cell TCH Blocking Graphing Report Template (Continued)

% Blocking Assignments with HO Attempts	TCH_BLK_WITHHO%
---	-----------------

Cell TCH Dropped Calls Graphing Report Template

Focal Entity = Sector

Description

This report shows the dropped calls on TCH at the sector level. The first graph shows the call connection information on TCH with handovers; the second graph shows the dropped calls, which result from radio interface and time-out of handovers; and the third graph shows the percentage of dropped calls with and without handovers. All these graphs are generated based on UDR definitions.

Usage

This report can be used for routine visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 69: Cell TCH Dropped Calls Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
TCH Connection with HO	TCH_CNNCT_WITHHO
Dropped Calls	trafficAbnormalRelease
Dropped Calls – due to Radio	TCH_DRP_CALL_RADIO
Dropped Calls - due to Handover Timeouts	TCH_DRP_CALL_TIMEOUT
% Dropped Calls with HO	TCH_DRP_EST_WITHHO%
% Dropped Calls without HO Attempts	TCH_DRP_EST_WITHOUTHO%

Cell SDCCH Traffic Graphing Report Template

Focal Entity = Sector

Description

This report shows the SDCCH usage and performance at the sector level. The first graph shows the traffic and defined channels in the sector; the second graph shows the attempts and seized calls; and the third graph shows the MHT with the percentile value of the blocked and dropped calls. All these graphs are generated based on UDR definitions.

Usage

This report can be used for routine visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 70: Cell SDCCH Traffic Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
Traffic (E)	SD_TRAFF_VOL
Number of Defined Channels	sdccchAveragedAvailableMax
SDCCH Attempts	SDCCH_ATTMPT
Total Channels establishment indication	allEstabIndicSignalling
% Blocking	SDCCH_ATTMPT
% Dropped	SDCCH_DRP_ALL%
MHT (s)	SDCCH_MHT

Cell SDCCH Blocking Graphing Report Template

Focal Entity = Sector

Description

This report shows the blocking on SDCCH at the sector level. The first graph shows the SDCCH allocation failures; the second graph shows the attempted calls and the congestion time; and the third graph shows the percentage of SDCCH allocation failures with the defined SDCCH channels. All these graphs are generated based on UDR definitions.

Usage

This report can be used for optional visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 71: Cell SDCCH Blocking Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
SDCCH Blocks	sdccchResourceFailure
SDCCH Attempts	SDCCH_ATTMPT
Congestion Time (s)	SDCCH_CONGES_TIME
% Blocking	SDCCH_ALLOCATE_FAIL%
Number of defined SDCCH	sdccchAveragedAvailableMax

Cell SDCCH Dropped Calls Graphing Report Template

Focal Entity = Sector

Description

This report shows the dropped calls on SDCCH at the sector level. The first graph shows the seizures information; the second graph shows the dropped calls, the percentage of dropped calls with and without handovers; and the third graph shows the percentage of overall dropped calls on SDCCH. All these graphs are generated based on UDR definitions.

Usage

This report can be used for optional visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 72: Cell SDCCH Dropped Calls Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
Total Channels establishment Indication	allEstabIndicSignalling
SDCCH Dropped	SDCCH_DROP
% Dropped Calls - due to Handover Timeouts	SDCCH_DRP_CALL_TIMEOUT%
% Dropped Calls – due to Radio	SDCCH_DRP_CALL_RADIO%
% Dropped SDCCH connections	SDCCH_DRP_ALL%

Cell CCCH Access and Assignments Graphing Report Template

Focal Entity = Sector

Description

This report shows the behavior of CCCH at the sector level. The first graph shows the RACH access from the mobile and the RACH access forwarded to the BSC; the second graph shows the immediate assignments; and the third graph shows the successful assignments and the percentage of successful assignment due to all causes. All these graphs are generated based on UDR definitions.

Usage

This report can be used for optional visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 73: Cell CCCH Access and Assignments Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
Number of decoded Random Access - from Mobile	rachBusyCount
Number of decoded Random Accesses – Forward to BSC	rachAccessCount
Immediate Assignment Attempts	CCCH_REQ_ALLCAUSES
Successful Immediate Assignments	CCCH_IMM_ASS_ALLCAUSES
% Successful Immediate Assignments	CCCH_IMM_ASS_ALLCAUSES%

Cell Idle Channel Band Measurements Graphing Report Template

Focal Entity = Sector

Description

This report shows the Idle Channel Band Measurements at the sector level. This report includes interference measurements for the underlaid sub-cell for full-rate channels only. The first graph shows the free channels in band 0; the second graph shows the free channels in bands 1 and 2; and the third graph shows the free channels in bands 3 and 4. All these graphs are generated based on UDR definitions.

Usage

This report can be used for optional visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 74: Cell Idle Channel Band Measurements Graphing Report Template

Parameter	Field Name
Idle Band 0	AVG_IDLE_BAND0
Idle Band 1	AVG_IDLE_BAND1
Idle Band 2	AVG_IDLE_BAND2
Idle Band 3	AVG_IDLE_BAND3
Idle Band 4	AVG_IDLE_BAND4

Cell TCH Handover Graphing Report Template

Focal Entity = Sector

Description

This report shows the TCH handover performance at the sector level. The first graph shows the attempted and successful intra-cell handovers; the second graph shows the successful and attempted outgoing internal and external cell handovers; and the third graph shows lost handover statistics. All these graphs are generated based on UDR definitions.

Usage

This report can be used for routine visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report out put can be integrated into the user's proprietary reporting system for further data manipulation.

Table 75: Cell TCHHandover Graphing Report Template

Parameter	Field Name
Successful Intra Cell Handover	hoSuccessIntraBts
Attempted Intra Cell Handovers	hoExecutionIntraBts
Successful Outgoing Internal Cell Handovers	hoSuccessOutgoingIntraBss
Attempted Outgoing Internal Cell Handovers	hoExecutionOutgoingIntraBss
Successful Outgoing External Cell Handover	hoSuccessOutgoingInterBss
Attempted Outgoing External Cell Handovers	hoExecutionOutgoingInterBss
Lost Intra Cell Handovers	HO_LOST_INTRA_CELL
Lost Outgoing Internal Cell Handovers	HO_OG_LOST_INTER_CELL
Lost Outgoing External Cell Handovers	HO_OG_LOST_EXTER_CELL

Cell TCH Dropped Calls % (for N-Worst Cells) Graphing Report Template

Focal Entity = Sector

Description

This report generates a predefined graph showing the performance of the n-worst cells based on the percentage of dropped calls with handovers. This graph can be based on either all hours in the date-time scope, or on the dropped call rate in the cell busy-hour based on the Prospect Pcalc TCH_TRAFF_VOL_BH. This graph is generated based on UDR definitions.

For better visualization, it is recommended that you use a bar graph with cell names of the n-worst cells on the x-axis for selected date and the percentage of dropped calls with handovers for the period on the y-axis. These n-worst cells are sorted in descending order based on the selected parameter, and N initially will be set to 15. With the ranking function, it is possible that more than the top N cells will be reported; for example, where two cells are ranked as 15 there will be 16 cells included in the output.

Usage

This report can be useful for management to analyze cell performance. It is equally useful to traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 76: Cell TCH Dropped Calls% (for N-Worst Cells) Graphing Report Template

Parameter	Field Name
% Dropped Calls with HO	TCH_DRP_EST_WITHHO%
% Cell Dropped Call Rate (1 = highest dropped%)	TCH_DRP_EST_WITHHO%_RANK

Note: This graph will not use the multi-column graph facility; it will use standard Prospect graphs.

Cell TCH Blocked Calls % (for N-Worst Cells) Graphing Report Template

Focal Entity = Sector

Description

This report generates a predefined graph showing the performance of the n-worst cells based on the percentage of blocked calls with handovers. This graph can be based on the dropped call rate in the cell busy-hour derived from the Prospect Pcalc TCH_TRAFF_VOL_BH. This graph is generated based on UDR definitions.

For better visualization, it is recommended you use a bar graph with cell names of n-worst cells on the X-axis for a selected date, and the percentage of blocked calls with handovers for the period on the Y axis. These n-worst cells are sorted in descending order based on selected parameter, and N will be initially set to 15. It is possible with the ranking function that more than the top N cells will be reported; for example, where 2 cells are ranked as 15 there will be 16 cells included in the output.

Usage

This report can be useful for management to analyze the Cells performance. It is equally useful to traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 77: Cell TCH Blocked Calls% (for N-Worst Cells) Graphing Report Template

Parameter	Field Name
% Blocking with HO	TCH_BLK_WITHHO%
% Cell Assignment Congestion (1 = highest congestion)	TCH_BLK_AS_WITHHO%_RANK

Note: This graph will not use the multi-column graph facility; it will use standard Prospect graphs.

Cell TCH Availability (for N-Worst Cells) Graphing Report Template

Focal Entity = Sector

Description

This generates a predefined graph showing the TCH availability in the n-worst cells based on the percentage of dropped calls. This graph can be based the TCH availability in the cell busy-hour derived from the Prospect Pcalc TCH_TRAFF_VOL_BH. This graph is generated based on UDR definitions.

For better visualization, it is recommended that you use a bar graph with cell names of the n-worst cells on the X-axis for selected date and the percentage of availability for calls for the period on the Y axis. These n-worst cells are sorted in ascending order based on the selected parameter, and N will be initially set to 15. With the ranking function, it is possible that more than the top N cells will be reported; for example, where two cells are ranked as 15 there will be 16 cells included in the output.

Usage

This report can be useful for management to analyze the cells performance. It is equally useful to traffic engineers and system engineers. Depending on the user's requirements, this report

output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 78: Cell TCH Availability (for N-Worst Cells) Graphing Report Template

Parameter	Field Name
% TCH Availability	TCH_AVAIL%
% Cell Availability Ranking (1 = lowest availability)	TCH_AVAIL%_RANK

Note: This graph will not use the multi-column graph facility; it will use standard Prospect graphs.

BSS TCH Traffic Report Graphing Template

Focal Entity = BSC

Description

This report shows the TCH usage and performance aggregated over a BSC. The first graph shows the total TCH traffic; the second graph shows the connected and attempted calls in TCH; and the third graph shows the percentile value of blocked and dropped calls. All these graphs are generated based on UDR definitions.

Usage

This report can be useful for management to analyze the BSS performance. It is equally useful to traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 79: BSS TCH Traffic Report Graphing Template

Parameter	Field Name
Total BSS Traffic	TCH_TRAFF_VOL
Total BSS TCH Attempts	TCH_ATTMTPT_WITHOUTH0
Total BSS TCH Connection	TCH_CNNCT_WITHOUTH0
% Blocking Assignments	TCH_BLK_WITHOUTH0%
% Dropped Calls	TCH_DRP_EST_WITHOUTH0%

Location Area Paging Graphing Report Template

Focal Entity = LocationArea

Description

This report shows the paging performance in a location area. The attempts, failures and the percentage of successful paging are shown in separate graphs. All these graphs are generated based on UDR definitions.

Usage

This report can be used for routine visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 80: Location Area Paging Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
Total Paging Attempts	TOT_PAGES
Paging Failures	PG_FAIL
% Response	PG_SUCC%

MSC Processor Load Graphing Report Template

Focal Entity = MSC

Description

This report shows the CPU occupancy, i.e. the percentage of total CPU time that the CPU spends on the call processing. This graph is generated based on UDR definitions.

Usage

This report can be used for optional visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 81: MSC Processor Load Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
Average Load	CPSCPOCC

BSC Processor Load Graphing Report Template

Focal Entity = BSC_Proc

Description

This report shows the processor and synthetic load on CPUM, expressed in percentages. Both these graphs are generated based on UDR definitions.

Usage

This report can be used for optional visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 82: BSC Processor Load Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
Average Load	prLoadMoy
Synthetic Load	cardSynthLoadMoy

TrunkGroup Graphing Report Template

Focal Entity = TrunkGroup

Description

This template generates a predefined graph showing trunk group traffic. The first graph shows the bids and answered calls; the second graph shows the percentile values of the successful and unsuccessful attempts, congestion and answer seize ratio; and the third graph shows the trunk traffic, and defined and available circuits in the trunk group. All these graphs are generated based on UDR definitions.

Usage

This report can be used for routine visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 83: TrunkGroup Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
Call Attempts (Bids)	TOT_CALL_ATT
Answered Calls	NANS
% Successful Attempts	CALL_SUCC_ATT%
% Unsuccessful Attempts	CALL_UNSUCC_ATT%
% Congestion	TRK_CALL_CONGES%
% Answer Seize Ratio	ANS_SEIZE_RATIO%
Traffic (Erlangs)	TRAFFIC_TRK
Defined Circuits	NCCT
Available Circuits	NWCCT

Interconnect and Interswitch Traffic Graphing Report Template

Focal Entity = MSC

To generate this report, use [TrunkGroup Graphing Report Template](#) with a Prospect scenario that contains interconnect and interswitch traffic trunk groups. Most of the customers use the same sort of naming convention for the trunk type.

SS7 Link Availability Graphing Report Template

Focal Entity = SS7Link

Description

This template generates a predefined graph showing SS7 link availability. The first graph shows the percentage of link availability; the second graph shows the link failures and synchronization; and the third graph shows the percentage of link congestion with link reception errors. All these graphs are generated based on UDR definitions.

Usage

This report can be used for optional visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 84: SS7 Link Availability Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
% Link Availability	SS7_LINK_AVAIL%
Link Failures	C7LKFAIL
Synchronized links	C7LKSYNU
% MSU lost due to Congestion	MSU_LOST_CONGES%
Link Reception Errors	C7SUERR

MSC SS7 Link Utilization Graphing Report Template

Focal Entity = MSC

Description

This template generates a predefined graph showing SS7 link utilization aggregated over an MSC level. The first graph shows the transmitted and received MSUs; and the second graph shows the transmitted and received traffic. Both these graphs are generated based on UDR definitions.

Usage

This report can be useful for management to analyze the SS7 Link performance. It is equally useful to traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 85: MSC SS7 Link Utilization Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
Transmitted MSUs	SS7Link.C7MSOR
Received MSUs	SS7Link.C7MSTE
TX Usage (E)	SS7Link.SS7_SL_TX
RX Usage (E)	SS7Link.SS7_SL_RX

SS7 Linkset Availability Graphing Report Template

Focal Entity = SS7LinkSet

Description

This report shows the SS7 linkset availability. The first graph shows the percentage of linkset availability with its unavailability given in seconds; the second graph shows the percentage of constituent links availability; and the third graph shows the link and linkset failure statistics. All these graphs are generated based on UDR definitions.

Usage

This report can be used for optional visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 86: SS7 Linkset Availability Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
% Linkset Availability	SS7_LS_AVAIL%
Linkset Unavailable (s)	C7LSUNAU
% Link Availability	SS7Link.SS7_LINK_AVAIL%
Linkset Failures	C7LSFAIL
Link Failures	SS7Link.C7LKFAIL

SS7 Linkset Utilization Graphing Report Template

Focal Entity = SS7Linkset

Description

This template generates a predefined graph showing SS7 Linkset transmission utilization. The first graph shows the transmitted and received MSUs; and the second graph shows the transmitted and received traffic. Both these graphs are generated based on UDR definitions.

Usage

This report can be used for optional visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 87: SS7 Linkset Utilization Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
Transmitted MSUs on Linkset	C7MSOR
Received MSUs on Linkset	C7MSTE
Transmitted Linkset Traffic (E)	SS7Link.SS7_SL_TX
Received Linkset Traffic (E)	SS7Link.SS7_SL_RX

SS7 Link Delta from Mean Graphing Report Template

Focal Entity = SS7Link

Description

This template generates a predefined graph showing SS7 link deviation from its mean value. The first graph shows the percentile value of transmitted traffic deviation; and the second graph shows the percentile value of received traffic deviation. Both these graphs are generated based on UDR definitions.

Usage

This report can be used for optional visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 88: SS7 Link Delta from Mean Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
% Difference from the mean of Transmitted Traffic (E) on Constituent Links within Linkset	SS7_SL_DIFF_TX%
% Difference from the mean of Received Traffic (E) on Constituent Links within Linkset	SS7_SL_DIFF_RX%

SS7 Routeset Availability Graphing Report Template

Focal Entity = DPC

Description

This report shows the SS7 routeset availability. The first graph shows the percentage of routeset available with its congestion time in seconds; and the second graph shows its failures and errors. Both these graphs are generated based on UDR definitions.

Usage

This report can be used for optional visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 89: SS7 Routeset Availability Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
% Routeset Availability	SS7_RSAV%
Routeset Congestion Time (s)	C7RSCNGU
Routeset Failures	C7RSFAIL
Routeset Errors	C7RTERR

SS7 Route Availability Graphing Report Template

Focal Entity = SS7Route

Description

This template generates a predefined graph showing SS7 route availability. The first graph shows the percentage of route availability; and the second graph shows the statistics on forced rerouting with number of restricted messages in route link. Both these graphs are generated based on UDR definitions.

Usage

This report can be used for routine visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 90: SS7 Route Availability Graphing Report Template

<i>Parameter</i>	<i>Field name</i>
% Route Availability	SS7_RAV%
Route Forced Rerouting	C7FRCRER

Table 90: SS7 Route Availability Graphing Report Template (Continued)

<i>Parameter</i>	<i>Field name</i>
Number of Restricted messages in the route	C7TFR

MSC Trunk Traffic Graphing Report Template

Focal Entity = MSC

Description

This template generates a predefined graph showing trunk group traffic statistics aggregated over an MSC level. The switched traffic, the percentage of seize attempt failures and the percentage of answer seize ratio are shown in separate graphs. All these graphs are generated based on UDR definitions.

Usage

This report can be useful to management in analyzing the trunk group performance. It is equally useful to traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 91: MSC Trunk Traffic Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
Total Switched Traffic	TrunkGroup.TRAFFIC_TRK
% Failed Seizure Attempts	TrunkGroup.CALL_UNSUCC_ATT%
% Answer Seize Ratio	TrunkGroup.ANS_SEIZE_RATIO%

MSC Mobile Calls Graphing Report Template

Focal Entity = MSC

Description

This template generates a predefined graph showing mobile call statistics handled by an MSC. The first graph shows the assigned channels and call failures for both incoming and outgoing calls; the second graph shows the percentage of successful mobile originated and terminated calls; and the third graph shows the percentile values of mobile originated and terminated establishment. All these graphs are generated based on UDR definitions.

Usage

This report can be useful to management in analyzing mobile call performance. It is equally useful to traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 92: MSC Mobile Calls Graphing Report Template

Parameter	Field Name
No of Channels Assigned for Calls to Mobile	MN_TERM_BIDS
No of Channels Assigned for Calls from Mobile	MN_ORIG_BIDS
Mobile Terminating Failed Calls	MN_TERM_FAIL
Mobile Originating Failed Calls	MN_ORIG_FAIL
% Successful Mobile Termination	MN_TERM_SUCC%
% Successful Mobile Origination	MN_ORIG_SUCC%
% Established Mobile Termination	MN_TERM_ESTB%
% Established Mobile Origination	MN_ORIG_ESTB%

MSC Pages Graphing Report Template

Focal Entity = MSC

Description

This report generates a predefined graph showing paging performance on an MSC. The location area (LA) directed paging and global paging are shown in separate graphs. All these graphs are generated based on UDR definitions.

Usage

This report can be used for optional visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 93: MSC Pages Graphing Report Template

Parameter	Field Name
Total LA directed pages.	LocationArea.TOT_PAGES
Total Global Pages	LocationArea.GPGPSAT

MSC Handover Graphing Report Template

Focal Entity = MSC

Description

This template generates a predefined graph showing handover performance statistics on an MSC. The first graph shows the successful and failed intra-MSC handovers; the second graph shows the number of handovers attempted and those that were successful, for both incoming and outgoing inter-MSC handovers; and the third graph shows the failed incoming and outgoing

inter MSC handovers and the percentage of overall handover loss. All these graphs are generated based on UDR definitions.

Usage

This report can be useful to management in analyzing the MSC handover performance. It is equally useful to traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 94: 2.29 MSC Handover Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
Successful inter-BSC intra-MSC handovers.	RAMSCHO
Failed inter-BSC intra-MSC handovers.	INTRA_MSC_FAIL
% Successful Intra MSC Handover	HO_INTRA_MSC_SUCC%
Incoming inter-MSC handover attempts.	AINERMH
% Successful Incoming Inter-MSC Handover	HO_IN_INTER_MSC_SUCC%
Outgoing inter-MSC handover attempts.	AOUERMH
% Successful Outgoing Inter-MSC Handover	HO_OG_INTER_MSC_SUCC%
Failed incoming inter-MSC handover attempts	HO_IN_INTER_MSC_ATT_FAIL
Failed outgoing inter-MSC handover attempts	HO_OG_INTER_MSC_ATT_FAIL
% Total Handover Loss	HO_MSC_LOSS%

HLR Subscribers Graphing Report Template

HLR data is not currently supported in Nortel.

VLR Subscribers Graphing Report Template

Focal Entity = MSC

Description

This template generates a predefined graph showing VLR subscriber statistics on an MSC. The first graph shows the registered and roaming subscribers; the second graph shows the active and roaming subscribers. Both these graphs are generated based on UDR definitions.

Usage

This report can be used for optional visual analysis, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 95: VLR Subscribers Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
Subscribers in VLR - Registered	SUBSREG
Roaming Subscribers in VLR - Registered	SUBSREGR
Subscribers in VLR - Active	ACHSVLR
Roaming Subscribers in VLR - Active	ACRSVLR

System TCH and Trunk Traffic Graphing Report Template

Focal Entity = System

Description

This template generates a predefined graph showing switch traffic in trunk and air traffic aggregated over a system level. The graph shows the total switched traffic in trunk and the total cell TCH traffic. All these graphs are generated based on UDR definitions.

Usage

This report can be useful to management in analyzing the traffic statistics at the system level. It is equally useful to traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 96: System TCH and Trunk Traffic Graphing Report Template

<i>Parameter</i>	<i>Field Name</i>
Total switched traffic.	TrunkGroup.TRAFFIC_TRK
Total Cell TCH traffic.	Sector.TCH_TRAFF_VOL

Note: This graph will not use the multi-column graph facility; it will use standard Prospect graphs.

Appendix B: SPRG Tabular Report Templates

This Appendix contains the field definitions for the Standard Performance Reports for GSM (SPRG) tabular report templates. For each template, there is a field definitions table.

Note: Not all GSM installations support SPRG. Contact your Prospect data administrator to determine whether you can use this feature.

These tabular reports can be generated using raw data (hourly), busy hour data (daily and weekly), and depending on the **Group By** parameter, different summary data (for example, period sums, averages, and maximums).

Filtering of reports by BSC, location area, customer-defined hierarchical data (for example, administrative regions, areas, and clusters), and network is supported by use of scenarios. Grouping by physical network hierarchy is also supported.

Data in these reports can be threshold and sorted by parameters used in that report.

Cell TCH Tabular Report Template

Focal Entity = Sector

Description

This template generates a report on TCH usage and performance at the sector level. The report contains the summarized statistics on TCH, such as traffic volume, seizures, blocked, successful, dropped, mean holding time, and availabilities. The report is generated based on UDR definitions.

Usage

This report can be used for detail analysis on TCH activities, which is useful for traffic engineers and system engineers. Depending on the user's requirements, the report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 97: Cell TCH Tabular Report Template

Parameter	Field Name
The number of max available channels	tchFrAveragedAvailableMax
The number of available channels	tchFrAveragedAvailableMoy
Attempted TCH seizures with HO Attempts	TCH_ATTMTPT_WITHHO
Attempted TCH seizures without HO Attempts	TCH_ATTMTPT_WITHOUTHO
Blocked TCH seizures	TCH_BLOCK
Blocked HO on TCH	TCH_HO_REQ_BLK
Congestion Time(s)	TCH_CONGES_TIME
TCH Connections with HO Attempts	TCH_CNNCT_WITHHO
TCH Connections without HO Attempts	TCH_CNNCT_WITHOUTHO
Dropped TCH	trafficAbnormalRelease
% Blocking without HO Attempts	TCH_BLK_WITHOUTHO%
% Blocking with HO Attempts	TCH_BLK_WITHHO%
% Dropped Calls without HO Attempts	TCH_DRP_EST_WITHOUTHO%
% Dropped Calls with HO Attempts	TCH_DRP_EST_WITHHO%
TCH traffic volume	TCH_TRAFF_VOL
% Call Set-up Success Rate without HO Attempts	TCH_CNNCT_WITHOUTHO%
% Call Set-up Success Rate with HO Attempts	TCH_CNNCT_WITHHO%
Mean Holding Time with HO Attempts	TCH_MNHOLD_WITHHO
Mean Holding Time without HO Attempts	TCH_MNHOLD_WITHOUTHO
% TCH Availability	TCH_AVAIL%

Cell TCH Dropped Call by Reason Tabular Report Template

Focal Entity = Sector

Description

This template generates a report that shows the dropped call reasons on TCH at the sector level. The report contains the percentile values for each reason for dropped calls on TCH. The report is generated based on UDR definitions.

Usage

This report can be used to analyze the dropped call reasons on TCH, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 98: Cell TCH Dropped Call by Reason Tabular Report Template

Parameter	Field Name
TCH Connections with HO Attempts	TCH_CNNCT_WITHHO
TCH Connections without HO Attempts	TCH_CNNCT_WITHOUTHO
Dropped Calls	trafficAbnormalRelease
% Dropped Calls without HO Attempts	TCH_DRP_EST_WITHOUTHO%
% Dropped Calls with HO Attempts	TCH_DRP_EST_WITHHO%
% Dropped Calls – due to MSC	TCH_DRP_CALL_MSC%
% Dropped Calls – due to O&M	TCH_DRP_CALL_OM%
% Dropped Calls - due to Handover Timeouts	TCH_DRP_CALL_TIMEOUT%
% Dropped Calls – due to Equipment Failure	TCH_DRP_CALL_EQP%
% Dropped Calls – due to Radio	TCH_DRP_CALL_RADIO%
% Dropped Calls – due to Protocols (BSS)	TCH_DRP_CALL_PRTCL%
% Dropped Calls – others	TCH_DRP_CALL_OTHR%

Cell SDCCH Tabular Report Template

Focal Entity = Sector

Description

This template generates a report on SDCCH usage and performance at the sector level. The report contains the summarized statistics on SDCCH, such as traffic volume, seizures, blocked, successful, dropped, and mean holding time. This report is generated based on UDR definitions.

Usage

This report can be used for detail analysis on SDCCH activities, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 99: Cell SDCCH Tabular Report Template

Parameter	Field Name
The number of available channels	sdccAveragedAvailableMoy
Attempted SDCCH seizures	SDCCH_ATTMTPT
Blocked SDCCH seizures	sdccRessourceFailure
Congestion Time (s)	SDCCH_CONGES_TIME
Total Channels establishment indication	allEstabIndicSignalling
Dropped SDCCH seizures	SDCCH_DROP

Table 99: Cell SDCCH Tabular Report Template (Continued)

Parameter	Field Name
% Blocking	SDCCH_ALLOCATE_FAIL%
% Dropped Calls	SDCCH_DRP_ALL%
Traffic	SDCCH_TRAFF_VOL
Mean Holding Time	SDCCH_MHT

Cell SDCCH Dropped Calls by Reason Tabular Report Template

Focal Entity = Sector

Description

This report shows the dropped call reasons on SDCCH at the sector level. The report contains the percentile values for each reason of dropped calls on SDCCH. This report is generated based on UDR definitions.

Usages

This report can be used to analyze the dropped call reasons on SDCCH, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 100: Cell SDCCH Dropped Calls by Reason Tabular Report Template

Parameter	Field Name
Total Channels establishment indication	allEstabIndicSignalling
Dropped SDCCH seizures	SDCCH_DROP
% Dropped Calls	SDCCH_DRP_ALL%
% Dropped Calls – due to MSC	SDCCH_DRP_CALL_MSC%
% Dropped Calls – due to O&M	SDCCH_DRP_CALL_OM%
% Dropped Calls - due to Handover Timeouts	SDCCH_DRP_CALL_TIMEOUT%
% Dropped Calls – due to Equipment Failure	SDCCH_DRP_CALL_EQP%
% Dropped Calls – due to Radio	SDCCH_DRP_CALL_RADIO%
% Dropped Calls – due to Protocols (BSS)	SDCCH_DRP_CALL_PRTCL%
% Dropped Calls – due to Overload	SDCCH_DRP_CALL_OVLD%
% Dropped Calls – others	SDCCH_DRP_CALL_OTHS%

Cell CCCH Tabular Report Template

Focal Entity = Sector

Description

This report shows the idle channel band measurements at the sector level and includes interference measurements for the underlying sub-cell for full-rate channels only. The report contains the statistics of free channels on each band. This report is generated based on UDR definitions.

Usage

This report can be used to analyze the idle band information, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 101: Cell CCCH Tabular Report Template

<i>Parameter</i>	<i>Field name</i>
Number of Random Access attempts	rachBusyCount
Immediate Assignment Attempts	CCCH_REQ_ALLCAUSES
Successful Immediate Assignments	CCCH_IMM_ASS_ALLCAUSES
% Successful Immediate Assignments	CCCH_IMM_ASS_ALLCAUSES%

Cell Idle Channel Band Measurements Tabular Report Template

Focal Entity = Sector

Description

This report shows the idle channel band measurements at the sector level. This report includes interference measurements for the underlying sub-cell for full-rate channels only. It reports the statistics of free channels on each band. This report is generated based on UDR definitions.

Usage

This report can be used to analyze the idle band information, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 102: Cell Idle Channel Band Measurements Tabular Report Template

<i>Parameter</i>	<i>Field Name</i>
Idle Band 0	AVG_IDLE_BAND0
Idle Band 1	AVG_IDLE_BAND1
Idle Band 2	AVG_IDLE_BAND2
Idle Band 3	AVG_IDLE_BAND3
Idle Band 4	AVG_IDLE_BAND4

Cell TCH Handover Tabular Report Template

Focal Entity = Sector

Description

This report shows the TCH handover statistics at the sector level. It reports the attempt, loss and success rates for intra- and inter-cell handover including both incoming and outgoing calls. This report is generated based on UDR definitions.

Usage

This report can be used to analyze the handover performance on TCH, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 103: Cell TCH Handover Tabular Report Template

<i>Parameter</i>	<i>Field name</i>
Intra-cell handover attempts	hoExecutionIntraBts
Intra-cell handover success	hoSuccessIntraBts
Intra-cell handover Lost	HO_LOST_INTRA_CELL
Intra-cell handover % Lost	HO_LOST_INTRA_CELL%
Outgoing Internal inter-cell handover attempts	hoExecutionOutgoingIntraBss
Outgoing Internal inter-cell handover success	hoSuccessOutgoingIntraBss
Outgoing Internal inter-cell handover Lost	HO_OG_LOST_INTER_CELL
Outgoing Internal inter-cell handover % Lost	HO_OG_LOST_INTER_CELL%
Outgoing External inter-cell handover attempts	hoExecutionOutgoingInterBss
Outgoing External inter-cell handover success	hoSuccessOutgoingInterBss
Outgoing External inter-cell handover Lost	HO_OG_LOST_EXTER_CELL
Outgoing External inter-cell handover % Lost	HO_OG_LOST_EXTER_CELL%
Incoming inter-cell handover attempts	HO_IN_INTER_CELL_ATT
Incoming inter-cell handover success	HO_IN_INTER_CELL_SUCC

Cell TCH Handover by Reason Tabular Report Template

Focal Entity = Sector

Description

This report shows the statistics on TCH handover required due to various reasons at the sector level. It reports the percentile values for each cause of handovers on TCH. This report is generated based on UDR definitions.

Usage

This report can be used to analyze the handover required reasons on TCH, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 104: Cell TCH Handover by Reason Tabular Report Template

Parameters	Field Name
TCH Handovers Required – All Causes	TCH_HO_REQ_ALLCAUSES
% TCH Handovers Required Due to Uplink Strength	TCH_HO_UPLK_STRN%
% TCH Handovers Required Due to Downlink Strength	TCH_HO_DNLK_STRN%
% TCH Handovers Required Due to Uplink Quality	TCH_HO_UPLK_QLTY%
% TCH Handovers Required Due to Downlink Quality	TCH_HO_DNLK_QLTY%
% TCH Handovers Required Due to Distance	TCH_HO_DISTANCE%
% TCH Handovers Required Due to Power Budget Quality	TCH_HO_POWER%
% TCH Handovers Required Due to Microcell Capture	TCH_HO_MICROCELL%
% TCH Handovers Required due to Intra BTS O&M	TCH_HO_INTRABTS_OM%
% TCH Handovers Required Due to Intra BTS Uplink Quality	TCH_HO_INTRABTS_UPLKQLTY%
% TCH Handovers Required Due to Intra BTS Downlink Quality	TCH_HO_INTRABTS_DNLKQLTY%
% TCH Handovers Required Due to Directed Retry	TCH_HO_DIRECTED_RETRY%
% TCH Handovers Required Due to TDMA Class 0	TCH_HO_TDMA_C0%
% TCH Handovers Required Due to TDMA Class 1	TCH_HO_TDMA_C1%
% TCH Handovers Required Due to Inter BTS O&M	TCH_HO_INTERBTS_OM%
% TCH Handovers Required Due to Traffic	TCH_HO_TRAFFIC%

Cell SDCCH Handover Tabular Report Template

Focal Entity = Sector

Description

This report shows the SDCCH handover statistics at the sector level. It reports the attempt, loss and success rates for intra- and inter-cell handover including incoming and outgoing calls. This report is generated based on UDR definitions.

Usage

This report can be used to analyze the handover performance on SDCCH, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 105: Cell SDCCH Handover Tabular Report Template

Parameter	Field Name
Intra-cell handover attempts	hoExecutionIntraBtsSdcch
Intra-cell handover success	hoSuccessIntraBtsSdcch
Intra-cell handover Lost	SDCCH_HO_INTRABTS_LOST
Intra-cell handover % Lost	SDCCH_HO_INTRABTS_LOST%
Outgoing Internal inter-cell handover attempts	hoExecutionOutgoingIntraBssSdcch
Outgoing Internal inter-cell handover success	hoSuccessOutgoingIntraBssSdcch
Outgoing Internal inter-cell handover Lost	SDCCH_HO_OG_INTRABSS_LOST
Outgoing Internal inter-cell handover % Lost	SDCCH_HO_OG_INTRABSS_LOST%
Outgoing External inter-cell handover attempts	hoExecutionOutgoingInterBssSdcch
Outgoing External inter-cell handover success	hoSuccessOutgoingInterBssSdcch
Outgoing External inter-cell handover Lost	SDCCH_HO_OG_INTERBSS_LOST
Outgoing External inter-cell handover % Lost	SDCCH_HO_OG_INTERBSS_LOST%
Incoming inter-cell handover attempts	SDCCH_HO_IN_INTERCELL_ATT
Incoming inter-cell handover success	SDCCH_HO_IN_INTERCELL_SUCC

Cell SDCCH Handover by reason Tabular Report Template

Focal Entity = Sector

Description

This report shows the statistics on SDCCH handover required due to various reasons at the sector level. It reports the percentile values for each reason of handovers on SDCCH. This report is generated based on UDR definitions.

Usage

This report can be used to analyze the handover required causes on SDCCH, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 106: Cell SDCCH Handover by reason Tabular Report

Parameter	Field Name
SDCCH Handovers Required – All Causes	SDCCH_HO_REQ_ALLCAUSES
% SDCCH Handovers Required Due to Uplink Strength	SDCCH_HO_UPLK_STRN%
% SDCCH Handovers Required Due to Downlink Strength	SDCCH_HO_DNLK_STRN%
% SDCCH Handovers Required Due to Uplink Quality	SDCCH_HO_UPLK_QITY%
% SDCCH Handovers Required Due to Downlink Quality	SDCCH_HO_DNLK_QITY%
% SDCCH Handovers Required Due to Distance	SDCCH_HO_DISTANCE%
% SDCCH Handovers Required Due to Power Budget Quality	SDCCH_HO_POWER%
% SDCCH Handovers Required Due to Microcell Capture	SDCCH_HO_MICROCELL%
% SDCCH Handovers Required Intra BTS O&M	SDCCH_HO_INTRABTS_OM%
% SDCCH Handovers Required Due to Intra BTS Uplink Quality	SDCCH_HO_INTRABTS_UPLKQITY%
% SDCCH Handovers Required Due to Intra BTS Downlink Quality	SDCCH_HO_INTRABTS_DNLKQITY%
% SDCCH Handovers Required Due to Inter BTS O&M	SDCCH_HO_INTERBTS_OM%
% SDCCH Handovers Required Due to Traffic	SDCCH_HO_TRAFFIC%

Neighbor Cell TCH Handover Tabular Report Template

Focal Entity = Handover

Description

This report shows the statistics on neighbor cell TCH handover at the sector level. It reports the percentile values of unsuccessful handovers on a neighbor cell due to time-out, back to old channels and other reasons. This report is generated based on UDR definitions.

Usage

This report can be used to analyze the handover on neighbor cell TCH, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 107: Neighbor Cell TCH Handover Tabular Report Template

Parameter	Field Name
Handover Attempts	hoNcellsExecution
% Unsuccessful Handover - back to old channel	NCELL_HO_OG_UNSUCC_BCK_OLDC_TCH%
% Unsuccessful Handover – Timeout	NCELL_HO_OG_UNSUCC_TIMEOUT_TCH%
% Unsuccessful Handover – others	NCELL_HO_OG_UNSUCC_OTHERS_TCH%

Neighbor Cell SDCCH Handover Tabular Report Template

Focal Entity = Handover

Description

This report shows the statistics on neighbor cell SDCCH handover at the sector level. It reports the percentile values of unsuccessful handovers on neighbor cells due to time-out, back to old channels and other reasons. This report is generated based on UDR definitions.

Usage

This report can be used to analyze the handover on neighbor cell SDCCH, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 108: Neighbor Cell SDCCH Handover Tabular Report Template

Parameter	Field Name
Handover Attempts	hoNcellsExecution
% Unsuccessful Handover - back to old channel	NCELL_HO_OG_UNSUCC_BCK_OLDC_SDCCH%
% Unsuccessful Handover – Timeout	NCELL_HO_OG_UNSUCC_TIMEOUT_SDCCH%
% Unsuccessful Handover – others	NCELL_HO_OG_UNSUCC_OTHERS_SDCCH%

Trunk Group Traffic Tabular Report Template

Focal Entity = TrunkGroup

Description

This template generates a report on trunk group usage and performance per TrunkGroup level. It reports the summarized statistics on trunk, such as traffic volume, capacity, congestion, rates of utilization, success and failure, and so on. This report is generated based on UDR definitions.

Usage

This report can be used for detail analysis on trunk activities, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 109: Trunk Group Traffic Tabular Report Template

<i>Parameter</i>	<i>Field Name</i>
Call Attempts (Bids)	TOT_CALL_ATT
Defined Circuits	NCCT
Available Circuits	NWCCT
Erlang B Capacity	TRK_CRITICAL_OFFERED
Traffic	TRAFFIC_TRK
Answer Seize Ratio (%)	ANS_SEIZE_RATIO%
% Successful Attempts	CALL_SUCC_ATT%
% Unsuccessful Attempts	CALL_UNSUCC_ATT%
% Congestion	TRK_CALL_CONGES%
Utilization %	TRK_UTIL_OFFERED%

SS7 Linkset Availability Tabular Report Template

Focal Entity = SS7LinkSet

Description

This template shows the statistics on SS7 Linkset availability. It reports the failures, outage, in-service and unavailability of linkset and links. This report is generated based on UDR definitions.

Usage

This report can be used to analyze the SS7 linkset availability, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 110: SS7 Link-set Availability Tabular Report Template

<i>Parameter</i>	<i>Field Name</i>
Links	NUMLINKS
% Linkset In-service	SS7_LS_AVAIL%
Linkset Unavailable (s)	C7LSUNAU
Linkset out due to Routeset Traffic Congestion (s)	C7LSEMRU

Table 110: SS7 Link-set Availability Tabular Report Template (Continued)

Parameter	Field Name
Linkset Failures	C7LSFAIL
Link Failures	SS7Link.C7LKFAIL
Links Unavailable (s)	SS7Link.C7LKUNAU

SS7 Linkset Utilization Tabular Report Template

Focal Entity = SS7LinkSet

Description

This template shows the statistics on SS7 linkset utilization. It reports the transmitted and received traffic and MSUs on linkset and links. This report is generated based on UDR definitions.

Usage

This report can be used to analyze the SS7 linkset utilization, which is useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 111: SS7 Linkset Utilization Tabular Report Template

Parameter	Field Name
Links	NUMLINKS
TX MSUS	SS7Link.C7MSOR
TX Usage (E)	SS7Link.SS7_SL_TX
TX Average Link (E)	SS7_LS_AVG_TX
RX MSUS	SS7Link.C7MSTE
RX Usage (E)	SS7Link.SS7_SL_RX
RX Average Link (E)	SS7_LS_AVG_RX

MSC Trunk Traffic Tabular Report Template

Focal Entity = MSC

Description

This template generates a report on trunk group usage and performance statistics aggregated over an MSC level. It reports the summarized statistics of trunk, such as traffic volume, attempt, failure, success, answer, fail rates, and so on. This report is generated based on UDR definitions.

Usage

This report can be used to analyze trunk traffic on MSC, which is useful for management analysis. It is equally useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 112: MSC Trunk Traffic Tabular Report Template

Parameter	Field Name
Switched Traffic	TrunkGroup.TRAFFIC_TRK
Switched Attempts	TrunkGroup.TOT_CALL_ATT
Switched Calls	TrunkGroup.TOT_SWTCH_CALL
Failed Switched Calls	TrunkGroup.TOT_SWTCH_CALL_FAIL
% Failed Switched Calls	TrunkGroup.TOT_SWTCH_CALL%
Answered Switched Calls	TrunkGroup.NANS
% Answered Switched Calls	TrunkGroup.ANS_SWTCH_CALL%
Seizures	TrunkGroup.SEIZE_CALL_TRK
Rejected Calls	TrunkGroup.RJCT_CALL_TRK
Answers: Bid Ratio (%)	TrunkGroup.ANS_BID_RATIO%
Answers: Seize Ratio (%)	TrunkGroup.ANS_SEIZE_RATIO%
% Failed Seizure Attempts	TrunkGroup.CALL_UNSUCC_ATT%

MSC Handover Tabular Report Template

Focal Entity = MSC

Description

This report shows the handover performance statistics on an MSC. It reports the failures and attempts of incoming and outgoing handovers on MSC. This report is generated based on UDR definitions.

Usage

This report can be useful for management to analyze the MSC handover performance. It is equally useful to traffic engineers as well to system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 113: MSC Handover Tabular Report Template

Parameter	Field Name
Traffic	TrunkGroup.TRAFFIC_TRK
Inter-BSC Handover Attempts	ARAMCHO
Inter-BSC Handover Failures	INTRA_MSC_FAIL
Inter-BSC % Handover Failure	INTRA_MSC_FAIL%
Incoming Inter-MSC Handover Attempts	AINERMH
Incoming Inter-MSC Handover Failures	IN_INTER_MSC_HO_ATT_FAIL
Incoming Inter-MSC Handover % Failure	IN_INTER_MSC_HO_ATT_FAIL%
Outgoing Inter-MSC Handover Attempts	AOUERMH
Outgoing Inter-MSC Handover Failures	OG_INTER_MSC_HO_ATT_FAIL
Outgoing Inter-MSC Handover % Failure	OG_INTER_MSC_HO_ATT_FAIL%
% Total Handover Loss	HO_MSC_LOSS%

BSS TCH Tabular Report Template

Focal Entity = BSC

Description

This template generates a report on TCH usage and performance statistics aggregated over a BSS level. It reports the summarized statistics of TCH, such as traffic volume, attempts, drops, successes, blocks, losses, and mean holding time. This report is generated based on UDR definitions.

Usage

This report can be used to analyze TCH traffic on BSS, which is useful for management analysis. It is equally useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 114: BSS TCH Tabular Report Template

Parameter	Field Name
Total BSS Traffic	Sector.TCH_TRAFF_VOL
Total BSS TCH Attempts	Sector.TCH_ATTPT_WITHOUTH0
Total BSS TCH Connection	Sector.TCH_CNNCT_WITHOUTH0
% TCH Dropped Calls	Sector.TCH_DRP_EST_WITHOUTH0%
% TCH Blocked Calls	Sector.TCH_BLK_WITHOUTH0%

Table 114: BSS TCH Tabular Report Template (Continued)

Parameter	Field Name
% TCH Call Set-up Success	Sector.TCH_ATTMP_T_WITHOUTHOT
TCH Mean Holding Time	Sector.TCH_MNHOLD_WITHOUTHOT
% TCH RF Loss	Sector.TCH_RF_LOSS%
% TCH Handover Loss	Sector.TCH_HO_LOSS%

MSC TCH Tabular Report Template

Focal Entity = MSC

Description

This template generates a report on TCH usage and performance statistics aggregated over a MSC level. It reports the summarized statistics of TCH, such as traffic volume, attempt, drop, success, block, loss and mean holding time. This report is generated based on UDR definitions.

Usage

This report can be used to analyze TCH traffic on MSC, which is useful for management analysis. It is equally useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 115: MSC TCH Tabular Report Template

Parameter	Field Name
Total Cell TCH traffic.	Sector.TCH_TRAFF_VOL
Successful TCH Calls	Sector.TCH_CNNCT_WITHOUTHOT
% TCH Dropped Calls	Sector.TCH_DRP_EST_WITHOUTHOT%
% TCH Blocked Calls	Sector.TCH_BLK_WITHOUTHOT%
% TCH Call Set-up Success	Sector.TCH_ATTMP_T_WITHOUTHOT%
TCH Mean Holding Time	Sector.TCH_MNHOLD_WITHOUTHOT
% TCH RF Loss	Sector.TCH_RF_LOSS%
% TCH Handover Loss	Sector.TCH_HO_LOSS%

System TCH Tabular Report Template

Focal Entity = System

Description

This template generates a report on TCH usage and performance statistics aggregated over a system level. It reports the summarized statistics of TCH, such as traffic volume, attempts, drops, successes, blocks, losses, and mean holding time. This report is generated based on UDR definitions.

Usage

This report can be used to analyze TCH traffic on systems, which is useful for management reports. It is equally useful for traffic engineers and system engineers. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 116: System TCH Tabular Report Template

<i>Parameter</i>	<i>Field Name</i>
Total Cell TCH traffic.	Sector.TCH_TRAFF_VOL
Successful TCH Calls	Sector.TCH_CNNCT_WITHOUTH0
% TCH Dropped Calls	Sector.TCH_DRP_EST_WITHOUTH0%
% TCH Blocked Calls	Sector.TCH_BLK_WITHOUTH0%
% TCH Call Set-up Success	Sector.TCH_ATTMPT_WITHOUTH0%
TCH Mean Holding Time	Sector.TCH_MNHOLD_WITHOUTH0

Appendix C: SPRG Forecasting Report Templates

This Appendix contains the field definitions for the Standard Performance Reports for GSM (SPRG) forecasting report templates. For each template, there is a field definitions table.

Note: Not all GSM installations support SPRG. Contact your Prospect data administrator to determine whether you can use this feature.

All forecasting reports will be based on linear regression in the initial system and the choice of weekly busy-hours will be provided, including the BDBH, PABH3, PABH5, and the BDAV5.

Filtering of graphs by BSC, sector, customer-defined hierarchical data (for example, administrative regions, areas, or clusters) and network are supported by use of scenarios. Grouping by physical network hierarchy is also supported. This report is generated based on UDR definitions.

Data in these reports can be threshold and sorted by the parameters found in the report.

Cell TCH Historical Forecasting Report Template

Focal Entity = Sector

Description

This report shows the performance statistics of TCH on the sector level. The statistics such as carried, lost and offered traffic, and profile average busy hours, provide details on how cells are performing. This report is generated based on UDR definitions with busy hours on TCH_TRAFF_VOL_BH.

Usage

This report can be used to analyze TCH performance, which is useful for management forecasting reports. It is equally useful for system engineers in the design of optimal network systems. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 117: Cell TCH Historical Forecasting Report Template

Parameter	Field Name
The number of defined channels	tchFrAveragedAvailableMax
The number of available channels	tchFrAveragedAvailableMoy
% TCH Blocked calls	TCH_BLK_WITHOUTH0%
Carried Traffic	TCH_TRAFF_VOL
Offered Traffic	TCH_TRAFFIC_OFF
Lost Traffic	TCH_EST_LOST
Critical Traffic	TCH_CRITICAL_OFFERED
3-DAV Traffic	TCH_PABH3
5-DAV Traffic	TCH_PABH5
% Utilization	TCH_UTIL_OFFERED%
% Grade of service	TCH_EST_GOS%

Cell TCH Exhaustion Forecasting Report Template

Focal Entity = Sector

Description

This report shows the forecasting statistics of TCH exhaustion at the sector level. The statistics, such as carried and offered traffic, are used to forecast the exhaustion date and time along the traffic growth, data sampling, dimensioning, and correlation. This report is generated based on UDR definitions with busy hours on TCH_TRAFF_VOL_BH.

Usage

This report can be used to forecast the TCH exhaustion time, which is useful for management forecasting reports. It is equally useful for system engineers in order to design optimal network system. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 118: Cell TCH Exhaustion Forecasting Report Template

Parameter	Field Name
Carried Traffic	TCH_TRAFF_VOL
% Blocking without HO Attempts	TCH_BLK_WITHOUTH0%
% Blocking with HO Attempts	TCH_BLK_WITHHO%
% Utilization	TCH_UTIL_OFFERED%
% Grade of service	TCH_EST_GOS%

Table 118: Cell TCH Exhaustion Forecasting Report Template (Continued)

Parameter	Field Name
Lost Traffic	TCH_EST_LOST
Dimensioning Parameter	TCH_DIMENSION
Critical Traffic	TCH_CRITICAL_OFFERED
Samples	TCH_SAMPLE_SIZE
Correlation	TCH_CORRELATION
Growth (E/Week)	TCH_GROWTH
Offered Traffic	TCH_TRAFFIC_OFF
Exhaustion date	TCH_EXHAUST_DATE
Exhaustion days	TCH_EXHAUST_DAYS

Cell TCH Low Utilization Forecasting Report Template

Focal Entity = Sector

Description

This report shows the statistics of TCH utilization at the sector level. The statistics such as offered traffic and profile average busy hours are used to calculate the percentage of current and final utilization along the blocking factors, lost and critical traffic, data sampling, dimensioning, and correlation. This report is generated based on UDR definitions with busy hours on TCH_TRAFF_VOL_BH.

Usage

This report can be used to forecast the TCH exhaustion time, which is useful for management forecasting reports. It is equally useful for system engineers in order to design optimal network systems. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 119: Cell TCH Low Utilization Forecasting Report Template

Parameter	Field Name
Carried Traffic	TCH_TRAFF_VOL
% Blocking without HO Attempts	TCH_BLK_WITHOUTH0%
% Blocking with HO Attempts	TCH_BLK_WITHHO%
% Utilization	TCH_UTIL_OFFERED%
% Grade of service	TCH_EST_GOS%
Lost Traffic	TCH_EST_LOST
Dimensioning Parameter	TCH_DIMENSION
Critical Traffic	TCH_CRITICAL_OFFERED

Updated: 2007-08-07

Table 119: Cell TCH Low Utilization Forecasting Report Template (Continued)

Parameter	Field Name
The % current utilization	TCH_CURRENT_UTIL%
Samples	TCH_SAMPLE_SIZE
Correlation	TCH_CORRELATION
The % Final Utilization	TCH_FINAL_UTIL%

Cell TCH Required Channels Forecasting Report Template

Focal Entity = Sector

Description

This report shows the forecasting statistics on TCH channels requirement at the sector level. The statistics such as grade of service, growth and dimension are used to calculate the forecasted required channels along the data sampling and correlation. This report is generated on users defined report definitions with busy hours on TCH_TRAFF_VOL_BH.

Usage

This report can be used to forecast the TCH channels requirement, which is useful for management forecasting reports. It is equally useful for system engineers in order to design optimal network systems. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 120: Cell TCH Required Channels Forecasting Report Template

Parameter	Field Name
Sample size	TCH_SAMPLE_SIZE
Correlation	TCH_CORRELATION
Defined channels	tchFrAveragedAvailableMax
Required channels	TCH_REQ_CH
Dimensioning Parameter	TCH_DIMENSION
N1 days time forecast channels	TCH_N1DAYS_FCAST_CH
N1 days time forecast traffic	TCH_FORECAST_VALUE1
N2 days time forecast channels	TCH_N2DAYS_FCAST_CH
N2 days time forecast traffic	TCH_FORECAST_VALUE2
N3 days time forecast channels	TCH_N3DAYS_FCAST_CH
N3 days time forecast traffic	TCH_FORECAST_VALUE3
Extra Channels	TCH_EXTRACHAN_REQ

Trunk Group Historical Forecasting Report Template

Focal Entity = TrunkGroup

Description

This report shows the performance statistics of a trunk group. The statistics such as carried, lost and offered traffic and profile average busy hours provide details of trunk performance. This report is generated based on UDR definitions with busy hours on TRAFFIC_TRK.

Usage

This report can be used to analyze trunk performance, which is useful for management forecasting reports. It is equally useful for system engineers in order to design optimal network systems. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 121: Trunk Group Historical Forecasting Report Template

<i>Parameter</i>	<i>Field Name</i>
The number of defined circuits	NCCT
The number of available circuits	NWCCT
% Congestion	TRK_CALL_CONGES%
Carried Traffic	TRAFFIC_TRK
Offered Traffic	TRK_TRAFFIC_OFF
Lost Traffic	TRK_EST_LOST
Critical Traffic	TRK_CRITICAL_OFFERED
3-DAV Traffic	TRK_PABH3
5-DAV Traffic	TRK_PABH5
% Utilization	TRK_UTIL_OFFERED%
Grade of service	TRK_EST_GOS

Trunk Group Exhaustion Forecasting Report Template

Focal Entity = TrunkGroup

Description

This report shows the forecasting statistics of trunk group exhaustion. The statistics such as carried and offered traffic are used to forecast the exhaustion date and time adjusting for traffic growth, data sampling, dimensioning, and correlation. This report is generated based on UDR definitions with busy hours on TRAFFIC_TRK.

Usage

This report can be used to forecast the trunk exhaustion time, which is useful for management forecasting report. It is equally useful for system engineers in order to design optimal network systems. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 122: Trunk Group Exhaustion Forecasting Report Template

Parameter	Field Name
Carried Traffic	TRAFFIC_TRK
% Unsuccessful Attempts	CALL_UNSUCC_ATT%
% Congestion	TRK_CALL_CONGES%
% Utilization	TRK_UTIL_OFFERED%
Grade of service	TRK_EST_GOS
Lost Traffic	TRK_EST_LOST
Dimensioning Parameter	TRK_DIMENSION
Critical Traffic (capacity)	TRK_CRITICAL_OFFERED
Samples	TRK_SAMPLE_SIZE
Correlation	TRK_CORRELATION
Growth (E/Week)	TRK_GROWTH
Offered Traffic	TRK_TRAFFIC_OFF
Exhaust On	TRK_EXHAUST_DATE
Days Until Exhaustion	TRK_EXHAUST_DAYS

Trunk Group Low Utilization Forecasting Report Template

Focal Entity = TrunkGroup

Description

This report shows the statistics of trunk utilization. The statistics such as offered traffic and profile average busy hours are used to calculate the percentage of current and final utilization along the blocking factors, lost and critical traffic, data sampling, dimensioning, and correlation. This report is generated on users defined report definitions with busy hours on TRAFFIC_TRK.

Usage

This report can be used to forecast the trunk exhaustion time, which is useful for management forecasting reports. It is equally useful for system engineers in order to design optimal network systems. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 123: Trunk Group Low Utilization Forecasting Report Template

Parameter	Field Name
Carried Traffic	TRAFFIC_TRK
% Unsuccessful Attempts	CALL_UNSUCC_ATT%
% Congestion	TRK_CALL_CONGES%
% Utilization	TRK_UTIL_OFFERED%
Grade of service	TRK_EST_GOS
Lost Traffic	TRK_EST_LOST
Dimensioning Parameter	TRK_DIMENSION
Critical Traffic (Capacity)	TRK_CRITICAL_OFFERED
The % current utilization	TRK_CURRENT_UTIL%
Samples	TRK_SAMPLE_SIZE
Correlation	TRK_CORRELATION
The % final Utilization	TRK_FINAL_UTIL%

Trunk Group Required Circuits Forecasting Report Template

Focal Entity = TrunkGroup

Description

This report shows the forecasting statistics on trunks requirement. Statistics such as GOS, growth and dimension are used to calculate the forecasted circuit requirement with given rates of data sampling and correlation. This report is generated based on UDR definitions with busy hours on TRAFFIC_TRK.

Usage

This report can be used to forecast the circuit requirement, which is useful for management forecasting reports. It is equally useful for system engineers in order to design optimal network systems. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 124: Trunk Group Required Circuits Forecasting Report Template

Parameter	Field Name
Dimensioning Parameter	TRK_DIMENSION
Sample size	TRK_SAMPLE_SIZE
Correlation	TRK_CORRELATION
Actual circuits	NCCT

Table 124: Trunk Group Required Circuits Forecasting Report Template (Continued)

Parameter	Field Name
Required circuits	TRK_REQ
N1 days time forecast circuits	TRK_N1DAYS_FCAST
N1 days time forecast traffic	TRK_FORECAST_VALUE1
N2 days time forecast circuits	TRK_N2DAYS_FCAST
N2 days time forecast traffic	TRK_FORECAST_VALUE2
N3 days time forecast circuits	TRK_N3DAYS_FCAST
N3 days time forecast traffic	TRK_FORECAST_VALUE3
Extra Circuits	TRK_EXTRACIRCT_REQ

SS7 Link-set Exhaustion Forecasting Report Template

Focal Entity = SS7LinkSet

Description

This report shows the forecasting statistics of SS7 link-set exhaustion. The statistics such as carried and offered traffic are used to forecast the exhaustion date and time given traffic growth, data sampling, dimensioning, and correlation. This report is generated based on UDR definitions with busy hours on SS7_LS_AVG_TX or SS7_LS_AVG_RX.

Usage

This report can be used to forecast the SS7 linkset exhaustion time, which is useful for management forecasting reports. It is equally useful for system engineers in designing optimal network systems. Depending on the user's requirements, this report output can be integrated into the user's proprietary reporting system for further data manipulation.

Table 125: SS7 Link-set Exhaustion Forecasting Report Template

Parameter	Field Name
No of Links	NUMLINKS
MSUS	SS7Link.C7MSOR
TX Usage (E)	SS7Link.SS7_SL_TX
RX Usage (E)	SS7Link.SS7_SL_RX
Nominal Capacity	LS_NOMINAL_CAPACITY
Samples	LS_SAMPLE_SIZE
Correlation	LS_CORRELATION
Growth (E/Week)	LS_GROWTH
Exhaust on	LS_EXHAUST_DATE

Table 125: SS7 Link-set Exhaustion Forecasting Report Template (Continued)

<i>Parameter</i>	<i>Field Name</i>
Days Until Exhaustion	LS_EXHAUST_DAYS

Appendix D: SPRG Acronyms and Abbreviations

This appendix contains a legend of common terms, acronyms, and abbreviations found in [Appendix A: SPRG Graph Report Templates](#), [Appendix B: SPRG Tabular Report Templates](#), and [Appendix C: SPRG Forecasting Report Templates](#).

Note: Not all GSM installations support SPRG. Contact your Prospect data administrator to determine whether you can use this feature.

Acronyms and Abbreviations

Table 126: Performance Report Acronyms and Abbreviations

Acronym	Description
3-DAV	Three Day Average
5-DAV	Five Day Average
BDAV5	Average of the 5 highest individual daily busy hours per week
BDBH	Busy Day Busy Hour
BSC	Base Station Controller
BSS	Base Station System
BTS	Base Transceiver Subsystem
BTSSite	Base Transceiver Subsystem Site
CCCH	Common Control Channel
CCITT7	CCITT (International Telegraph and Telephone Consultative Committee) Signaling System No. 7
LA	Location Area
LAC	Location Area Code
MHT	Mean Holding Time
MSC	Mobile Switching Center

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Table 126: Performance Report Acronyms and Abbreviations (Continued)

Acronym	Description
MSU	Message Signal Unit
PABH3	Profile Average Busy Hour (Average of 3 highest values at the weekly average BH)
PABH5	Profile Average Busy Hour (Average of 5 highest values at the weekly average BH)
SDCCH	Stand Alone Dedicated Control Channel
SS7	CCITT (International Telegraph and Telephone Consultative Committee) Signaling System No. 7
TCH	Traffic Channel
TRX	Transceiver
UDC	User Defined Calculation

Glossary

This section describes a number of terms used in this guide. The terms are organized in alphabetical order.

A

active entity

A network element that is in service.

active scenario

The active scenario shows the network elements that currently are in service.

aggregation

Some operation such as summing or averaging, which has been performed on descendants in a network hierarchy to arrive at a combined value for the ancestor.

ancestor

An entity at a higher level in a network hierarchy. See also parent entity.

B

BDAV5

The average of the top five busy hour values of the week. In this case, the algorithm calculates the busiest hour of each day in the week. It then ranks the values for each of the seven busy hours from lowest to highest, and then averages the highest five values.

BDBH

A busy hour algorithm that selects the data associated with the time and day of the busiest hour of the week. When the forecast report is generated, data from all other times of the week are ignored. The only data that the report generation uses is for the single busiest hour of the week.

BHD

Busy Hour Determiner—Specifies which kinds of summary traffic records are to be computed and stored on a regular basis.

Busy Day Busy Hour

See BDBH.

Busy Hour Determiner

See BHD.

busy hour

A busy hour is the busiest hour of the day for some performance metric. It reflects the peak demands on the network, for that metric, for each day.

busy hour criterion

The field that you want the Prospect system to rank as its busy period criterion.

C

category

The middle level of the document hierarchy. Category is a subset of a class, and a grouping of types. Categories appear as icons within each class of the button bar.

CDF

Cumulative Data Field

channel assignment

The process of specifying which channel group or channel sets of voice channel frequencies can be used at each cell site of a service area; a channel number assigned by this process.

channel set

A collection of channel frequencies associated with a cell.

child

An entity directly below an entity in a hierarchy. See also descendant.

class

A constituent of the document hierarchy, it is the highest level grouping of documents. Classes appear as buttons on the button bar of the Prospect Explorer.

co-channel

Co-channel cells are cells that use the same channel sets. Co-channel cells are identified during the configuration process.

combinatorial explosion

The cause of UDR report failure when templates use fields from multiple branches of a scenario hierarchy. This failure occurs when the report becomes too large, usually as a result of using multi-entity scenarios and templates.

complete scenario

A complete scenario is a comprehensive overview of all entities in the network, past and present. It shows the current state of both active and inactive entities.

configuration data

Data and parameters describing your cellular system. This data describes the entities (network elements) in your system, how they are configured (such as settings and engineered capacity) and how they are related to one another (their parent-child relationship).

CP

Call Processing

D

data availability

Data availability describes the completeness of data to show if data files are loaded for all time periods for a given day.

Data Availability Tool

The Data Availability tool displays availability of data for network elements and date-time constraints that you specify.

date-time scope

The date-time scope specifies the time period used in a report.

day

In Prospect, from midnight to midnight.

descendant

An entity at a lower level in a hierarchy. The child entity is a special case of a descendant entity.

DLN

Provides central message routing functions for all IMS messages. Two Direct Link Nodes (DLNs) are required in the IMS architecture. One DLN is assigned as the home DLN, and the other is a standby DLN.

document

In Prospect, a building block for generating reports (for example, scenario, template, report definition, and schedule entry).

E

element

A particular instance of an entity.

engineered capacity

Calculated theoretical capacity of a trunk group, in Erlangs or CCS (100 call-seconds), based on a user-supplied target grade of service and the number of trunks in the trunk group.

Engineered Capacity Calculator

The Engineered Capacity Calculator tool allows you to calculate the engineered capacity of a circuit, in terms of offered load, using the Erlang B, Erlang C, or Poisson traffic formula.

entity

A particular type or class of something. In Prospect, a representation of a network element used in scenarios.

entity attributes

Characteristics assigned to each entity by either the user or data administrator. Entity attributes allow you to tailor your report output.

entity data

Attributes of individual entities. Entity data include such information as latitude, longitude, and elevation; street address; or compass bearing and distance from some reference point.

entity report

A Config report that gives attributes of a single network element. If you run an entity report on a scenario, you get one report for each network element of the type you choose.

Erlang

A measure of traffic load. A cumulative count of the number of facilities (for example, trunks in a trunk group, registers of a certain kind) found in the busy states during periodic scans occurring within a fixed time interval.

equipment entity

A representation of actual network hardware.

excluded entity

An entity that does not appear in report output. By default, entities are included (incorporated in the report).

F

field

The performance measurements or configuration parameters that appear in a report. A user designates fields in a template.

floor

For a real number, the floor value $[x]$ is defined as the largest integer no greater than x . Thus $[5] = 5$, and $[-5] = -5$ however $[-5.1] = -6$.

folder

Data structures within the database that contain one or more documents. Prospect folders behave like typical folders in a Windows environment. They organize subfolders and documents, and you can create, move, rename, or delete the ones you own.

forecast attribute

A forecast attribute is the algorithm that calculates the data for the week. The data, in turn, is used for establishing trends.

forecast field

A field used that should only be used in the context of a Forecast report.

forecast report

Forecast reports analyze a one-week period and track the growth rate of a particular attribute (such as cell site traffic). Forecast reports make traffic projections that help identify the busiest periods on your network and to simplify the task of planning and building out your network.

forecast template

Forecast templates are traffic report templates that contain fields specific to forecast reports. As with other traffic report templates, forecast templates contain a list of user-defined fields displayed as columns in the report output.

G

GOS

Grade of Service. The probability that a call will be blocked at a given circuit. A GOS of 0.02 represents a 2% probability that a call will be blocked.

graph manager

The Individual Graph Report automatically generates an enhanced graph called the Graph Manager. Using the Graph Manager dialog box, you display six fields from the reported data. The Graph Manager dialog box allows you to instantly change any of the fields shown on the graph or change the cell that it reports on. When you select a new cell or field, the graph is refreshed immediately. As with the standard Multi-Line Graph, the Graph Manager only reports on one cell.

graph separator

A primitive calculation used with the Multi-Line graph. You can apply up to two graph separators in your report template.

group by

Menu used to select a grouping pair (contents of each page, and rows or columns) for report output.

GSM

Global System for Mobile communications

H

holiday

A date designated as a holiday in the database and maintained by the administrator. A user can include or exclude holidays from reports, or generate or not generate reports on holidays.

hour

In Prospect, an hour is x:00 to x+1:00. In the Report Editor, you include this hour by checking the x+1 checkbox. In your report output, this same hour is labeled x:00.

/

inactive entity

An element that is out of service. Inactive entities may not have any associated data for use in reports.

included entity

An entity that is to be represented in report output. By default, entities are included (incorporated) in reports and maps.

individual report

Individual report information lists the performance data measurements for each entity in the report.

inter-document dependencies

The relationship between a document and its references. Prospect keeps track of these references and warns you if changes to a document impact the other documents that refer to it.

L

limit

In trending analysis, the load that represents 100% of capacity for a network element.

linear regression

Linear regression is the mathematical algorithm that the system uses to extrapolate traffic levels into the future. Used in Forecast reports.

linked entity

An entity that stays up-to-date with changes to the network. The configuration of entities below it stays current as the network changes.

logical entity

An abstract entity with no physical counterpart in the network. Logical entities simplify a scenario by grouping entities of a single type together; for example, a trunk group logical entity has trunk group equipment entities as its children.

M

map report

A Config report that show the geographic distribution of network elements.

margin

A trending analysis value that alerts engineers that a network element is approaching full capacity.

master search

Data availability search that covers all the specified parameters.

month

In Prospect, a month is a calendar month.

multi-line graph

The multi-line Graph is an additional enhanced graph. Multi-line Graphs are only generated automatically for individual Reports in the Excel spreadsheet.

N

N High Days report

N High Days reports take the data for your busy criterion, aggregate them per day, and include the days that match the busy period rankings that you specify in the report definitions.

N High Hours report

N High Hours reports show the number of busiest hours from the entire reporting period and must allow more than one busy hour to fall on the same day.

network element

An individual piece of hardware from the network.

non-placeholder entity

An entity that represents an operating network element. Placeholders convert to non-placeholder entities when the equipment they represent goes into service in the network.

non-stored busy hours

Component of a Traffic report that takes a busy-hour criterion (a data field) and identifies the busiest hour of the day for each piece of equipment for that criterion. The values of all of its fields (along with its descendants) for that hour are not stored in the database.

O

ownership

The privileges derived from owning documents or folders. Only the owner or administrator can edit or delete documents.

P

PABH

Profile Average Busy Hour (PABH) is a weekly busy hour algorithm that computes the average busy hour of an entire week. PABH3 and PABH5 refine the data that determines the final PABH value.

PABH3

PABH3, or *Top 3 Average PABH*, is even more selective than PABH5 and bases its average on only the top three values. PABH3 is usually preferred over PABH5 for forecasting because it is the more cautious choice. PABH3 yields a higher average value than PABH5 because it is based on more narrowly selected data. A higher average value results in an earlier prediction for the exhaust rate (the value when traffic carrying capacity is reached).

PABH5

PABH5, or *Top 5 Average PABH*, excludes the two lowest daily values and only averages the five highest of the busy hour's traffic values for the week. This generally eliminates the effect that lower weekend traffic might have.

pcalc

See [primitive calculation](#).

Pearson's Correlation Coefficient

A commonly used correlation measure in Forecast reports, the Pearson Correlation Coefficient shows how well the regression technique fits the data, and consequently, indicates how accurate the traffic projection is.

parent entity

An entity directly above an entity in a hierarchy. Each entity can have only one parent. See also ancestor entity.

PDF

Percentage Data Field; Portable Document Format

placeholder entity

A representation of an entity that is not yet part of the network, but will be in the future, or is part of a neighboring network.

poisson

Statistical option that gives slightly higher blocking probabilities and has been found to be more accurate than Erlang B in high-traffic urban areas.

primitive calculation

A performance metric whose value is determined by a set calculation. Some primitive calculations use regular expressions. For more information on regular expressions, see the

Expressions Technical Reference. Many pcalcs are complex expressions based on one or more peg counts or other pcalcs. For examples see the *Prospect Performance Data Reference*.

R

references

Other documents that Prospect cites within a document. For example, a report definition references a scenario and a template, meaning Prospect software uses that scenario and that template when it creates the report's output.

reflection

The projection of values of an ancestor field onto each of its descendants at the level of the template type. For example, the same value for a System field would project down to each of its trunk groups if the report uses a trunk group template.

report

A basic communication tool in Prospect. The term has two identities: the instructions you sent in for processing, and the output that Prospect returns to the screen, file, or printer.

report definition

The report parameters you specify in the Report Editor.

report group

A collection of report definitions that run at the same time.

report output

The spreadsheet that Prospect delivers as a finished product.

S

schedule entry

A schedule entry tells Prospect when to generate reports.

scenario

A scenario is a hierarchical representation of network elements that you use to specify which elements to include in a report. You can use the scenarios that your data administrator provides for you, or you can build custom scenarios that contain the network elements you want in your reports.

scenario filter

A scenario filter is a logical expression that you apply to a user-defined scenario. By placing a logical condition on one or more fields of an entity, you create an expression that moderates the way performance data is to be reported for that entity.

scenario report

A Config report that covers specific attributes of the element in a scenario. Report output is in the form of one report per scenario.

stored busy hour

Component of a Traffic report that takes a busy-hour criterion (a data field), identifies the busiest hour of the day for each piece of equipment for that criterion, and stores the values of all of its fields (along with its descendants) for that hour in the database.

stored summation

A stored summation takes every field for an entity, aggregates it per day, week or month, and stores the results in the database. Because one stored summation covers all fields for an entity, there is only one stored summation per equipment entity type and frequency.

summary report

A single page in Traffic report output that summarizes an entire scenario and date-time scope.

system administrator

The person in charge of a multiuser computer system, also called sys admin. The system administrator designs the system and manages its use. The system administrator is the person responsible for installing Prospect in addition to managing system users and security.

A class of user who is authorized to access database objects created by any other user, and who sets up user profiles and privileges.

T

template

Document that tells Prospect which fields to include in the report output, how to sort the data, which ranges of values to include for each field, and whether to show the data for a field, or just use the data as a sorting mechanism without displaying it.

template type

The type of network element that sets the point of view for the template. Different template types provide different frames of reference for the report output.

threshold

The point at which a network element attains its capacity.

Top 5 Busy Day Busy Hours

See BDAV5.

traffic report

Traffic reports provide information about the activity on your network on a per-time-unit basis. The Prospect system can aggregate those incremental values into hourly, daily, weekly, monthly, or yearly totals. It can also pick out busy periods for any field.

trending analysis

Trending analysis is the calculation of value variation in one variable in comparison to another. Time is often, but not always, one of these variables.

trending macro

An Excel macro that postprocesses the report output and creates a trending plot, which it adds to the report output.

trending report

A traffic report that plots data trends.

trigger

A field that indicates when a network element is approaching its capacity limits.

type

The bottom level of the document hierarchy. Type includes each kind of document that appears in the list pane of the Prospect Explorer.

U

UDC

User-defined calculation. Mathematical operations on a field named and saved as another field. Can be used for displaying a calculated value in the report output or as a filtering criterion.

UDR

User-defined report. Similar to Config reports in covering network configuration data on network entities. The difference is that for a UDR, the user creates a template to specify which report output data to include. The user creates a template to specify which report output data to include.

user-defined calculation

See UDC.

user-defined report

See UDR.

user scenario

A personal scenario that you create by dragging and dropping entities or blocks of entities from an existing scenario.

W

warping

Warping is a reversal of expression processing from the desired time slice evaluation/aggregation order to the reverse order.

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