Prospect

Version 8.0.6

**Administration Guide
for Nortel AMPS/TDMA/CDMA/MTX17**

> **Note**
>
> Before using this information and the product it supports, read the information in <u>Notices</u> on page 235.

Table of Contents

1   About This Documentation

The *Administration Guide* provides instructions for configuring and supporting IBM Prospect software to analyze the performance of your network, and perform other network or database management tasks. This guide is customized to support IBM Prospect 8.0 (8.0.6) for Nortel AMPS/TDMA/CDMA/MTX17 (Release Point 16.5).

This guide was last updated on November 4, 2009.

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

Audience

This guide is intended as a roadmap for system implementers who are responsible for maintaining IBM Prospect software within an enterprise. This document refers to the person who fills this role as the overall *administrator.* It applies a different term, *IBM Prospect system administrator,* to the person who operates the computer systems and networks used to run IBM Prospect software. In general, the reader of this guide is also referred to as "*you.*" By contrast, "*we*" refers to the IBM Prospect development and technical staff who support this product.

Required Skills and Knowledge

Some implementations may require knowledge of relational databases (such as the Oracle database), or other third-party systems, such as performance databases.

The *Administration Guide* also assumes that you are familiar with the following:

- UNIX basics (such as file structures, text editing, and permissions).
- A UNIX-based text editor, such as `vi` or `emacs`.
- Shell and `awk` scripting.
- UNIX system administration.
- High-level concepts of object-oriented systems such as objects, classes, and inheritance.

This guide also assumes that you are familiar with your company's network and with procedures for configuring, monitoring, and solving problems on your network.

Document Conventions

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

Table 1: General Document Conventions

Format	*Examples*	*Description*
ALL UPPERCASE	• GPS • NULL • MYWEBSERVER	Acronyms, device names, logical operators, registry keys, and some data structures.
Underscore	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	• **Note**: The busy hour determiner is...	Heading text for Notes, Tips, and Warnings.
SMALL CAPS	• 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.
Italic	• A *busy hour* is... • A web server *must* be installed... • See the *User Guide*	New terms, emphasis, and book titles.
`Monospace`	• `./wminstall` • `$ cd /cdrom/cdrom0` • `/xml/dict` • `http://java.sun.com/products/` • `addmsc.sh` • `core.spec` • 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`	**`[root] # pkginfo	grep -i perl`** `system Perl5 On-Line Manual Pages` `system Perl 5.6.1 (POD Documentation)` `system Perl 5.6.1`	For contrast in a code example to show lines the user is expected to enter.
`<Monospace italics>`	`# cd <oracle_setup>`	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]`	`log-archiver.sh  [-i][-w][-t]`	Used in code examples: indicates options.

User Publications

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

Table 2:   IBM Prospect User Documentation

Document	Description
Administration Guide	Helps an administrator configure and support IBM Prospect core server software to analyze network performance and perform other network or database management tasks.
Administrator's Quick Reference Card	Presents the principal tasks of a IBM Prospect core server administrator in an easy-to-use format.
Expressions Technical Reference	Provides detailed information about expressions used in special calculations for reports.
Installation Guide	Instructions for installing and configuring the IBM Prospect software.
Open Interface API Guide	Describes how the Open Interface tool enhances your access to information about database peg counts and scenarios.
Performance Data Reference	Provides detailed information including entity hierarchies, peg counts, primitive calculations, and forecast expressions specific to your organization.
Release Notes	Provides technology-specific and late-breaking information about a given IBM Prospect release and important details about installation and operation.
Server Preparation Guide	Provides instructions for installing and setting up Solaris and Oracle software before you install IBM Prospect software.
Server Sizing Tool Guide	Helps an administrator use the sizing tool to calculate the system space needed for the IBM Prospect software and database.
User Guide	Provides conceptual information and procedures for using IBM 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 IBM Prospect graphical user interface or press F1 for context-sensitive Help. To update the Help files, click the HELP menu on the IBM Prospect Explorer, and select UPDATE ALL HELP FILES.

When Help files are updated, they are downloaded automatically from the IBM Prospect server to the IBM 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/ .

Viewing the Publications in IBM Information Center

All of the IBM Prospect publications, including Release Notes, are available online from the IBM Information Center website as follows:

http://publib.boulder.ibm.com/infocenter/tivihelp/v8r1/index.jsp?topic=/
com.ibm.netcool_pm.doc/IBM_Prospect_060308.htm

2   IBM Prospect Architecture

The IBM Prospect architecture is composed of a server-client configuration. A data network connects the IBM Prospect server to the wireless network. A local area network (LAN) connects the client workstations to the IBM Prospect server.

The following figure shows the IBM Prospect system architecture.

Figure 1: IBM Prospect Architecture
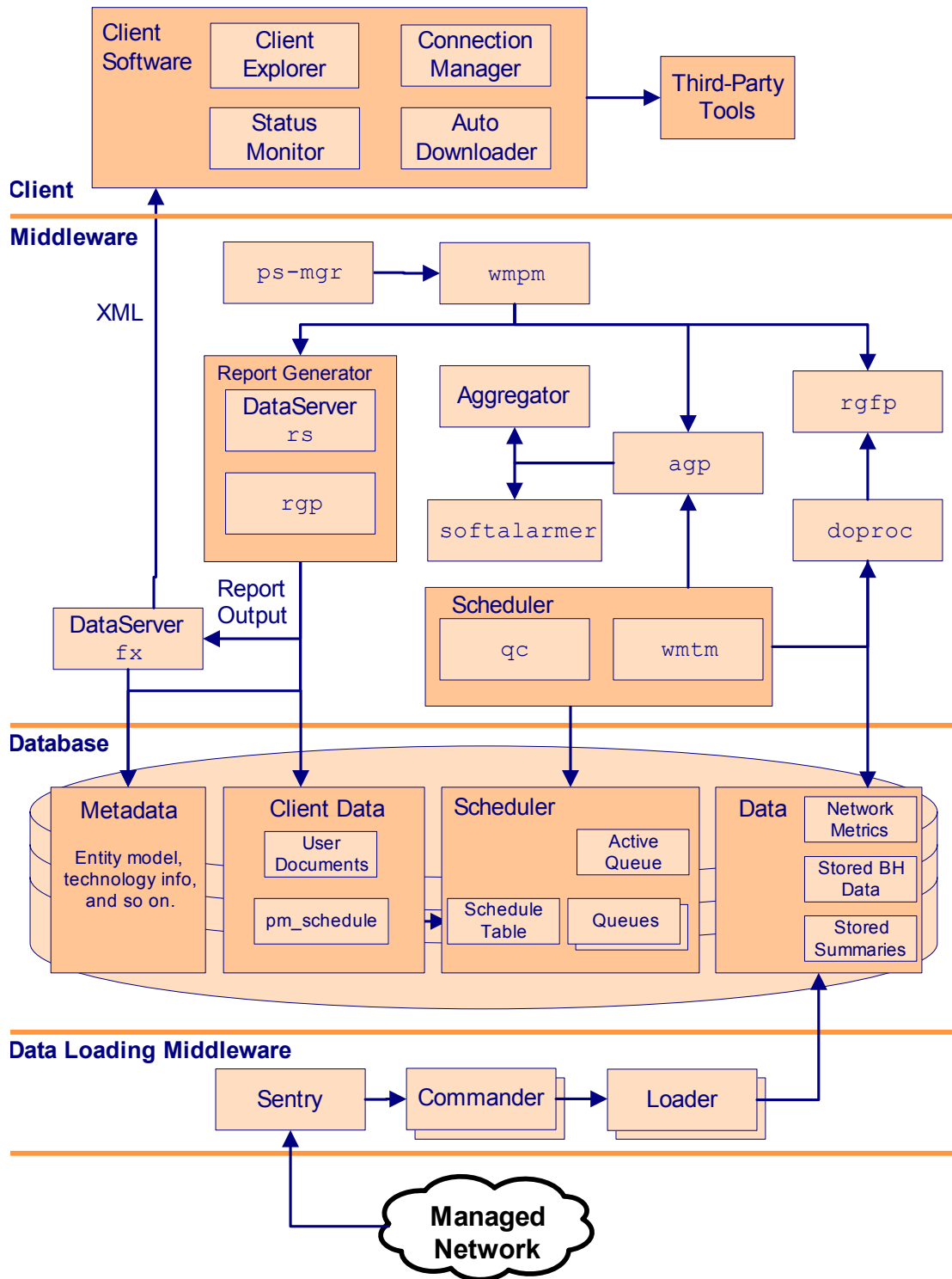
IBM Prospect Server

The IBM Prospect server collects data from one or more network elements and processes this data for use in the IBM Prospect client. All processed data is generated by and stored on the server and is independent of the client workstations.

Middleware

Middleware applications are those software components that operate on a layer between the database and client. Because the middleware is controlled through the server and not the client, an administrator must maintain and run these applications.

Database

All data is kept in an Oracle database. This data includes the following:

- Network performance measurements and other network metrics
- Configuration data for IBM Prospect software; for example, the data-loading formulas and report definitions
- Timetables used to produce reports, summarize and archive data, and perform automated management tasks

Important: Administrators should not, without prior consultation and agreement from IBM/Vallent, make any changes to the Index Organized Tables or database schema. Changes to the Index Organized Tables or schema may result in corruption of data and failure of the IBM Prospect System. This applies to all releases of IBM Prospect using all versions of interfaces.

Client

The IBM Prospect client, which runs on Microsoft Windows, accesses data stored in the database on the IBM Prospect server. The IBM Prospect client includes IBM Prospect software and third-party software.

3   User Management

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

User Permission Levels

User Administration

Connection Manager

User Permission Levels

When you create a user for IBM Prospect software, you create an entry in the database that defines the user as owner for a set of folders. The levels of user permissions are as follows:

- IBM Prospect User
- IBM Prospect Data Administrator
- IBM Prospect System Administrator

A user's permission level affects the menus displayed for various actions. For example, IBM Prospect Explorer displays the CREATE NEW DOCUMENT GROUP dialog box if the user has permissions to create multiple types of document groups. This dialog box is not displayed if the user has permissions to create only one type of document group.

IBM Prospect User

IBM Prospect users can do the following to folders and documents that they own:

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

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

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

IBM Prospect users can also do the following:

- Create, edit, and delete user-created documents that they own (such as templates, reports, or calculations)
- Create, edit, and delete User Scenarios
- Create, edit, and delete Excel macros that they own

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.

IBM Prospect Data Administrator

In addition to what IBM Prospect users can do, IBM Prospect data administrators can do the following:

- Edit and delete user-created documents owned by IBM Prospect users (such as templates, reports, or calculations)
- Create, edit, and delete Stored Busy Hour Determiners
- Edit (but not delete) Busy Hour Determiners owned by system administrator or other data administrators
- Create, edit, and delete Active and Complete Scenarios
- Define holidays

IBM Prospect System Administrator

In addition to everything that a IBM Prospect user and IBM Prospect data administrator can do, IBM 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
- Edit & delete Busy Hour Determiners owned by data administrators

User Administration

The IBM Prospect software allows a system administrator to do the following user administration tasks with the USER ADMINISTRATION dialog box, shown in the following figure:

- Create, edit, and delete user profiles
- Set size limits for storing reports on the server

Figure 2: User Administration Dialog Box
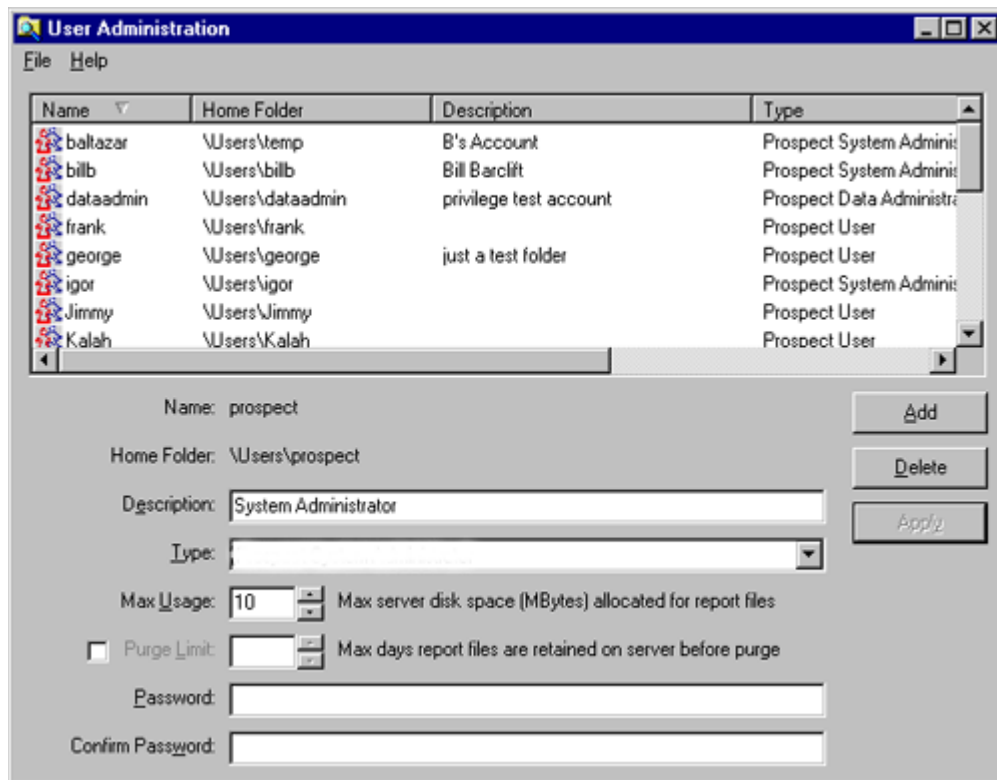
Adding Users

Only IBM Prospect system administrators can add users. By default, a IBM Prospect Explorer folder is created with the user name as the folder name. This folder is the user's default folder. You cannot modify user names or default folders after they are created.

To add a new user

1. On the TOOLS menu, select USER ADMINISTRATION. The USER ADMINISTRATION dialog box opens.

2. Click ADD.

3. In the NAME text box, enter a user name. Names must be between 1 and 64 characters in length and can include any character.

4. To change the name of the default folder, in the HOME FOLDER text box, enter a path string to an existing parent folder followed by a valid name for the new folder.

5. Enter any description or additional information in the DESCRIPTION text box. IBM Prospect software does not use the description for any specific purpose.

6. In the TYPE drop-down list box, select a user permission level. For information on user permission levels, see [User Permission Levels](#) on page 19.

7. Enter the maximum disk space allocated to the user's default folder in the MAX USAGE spin box.

8. Set the purge options.

    a. Clear the PURGE LIMIT check box to prevent the user from purging reports. When a user schedules a document group, purge options in the Schedule Entry Editor are unavailable.

    b. In the PURGE LIMIT spin box, enter the maximum amount of time documents are kept on the server after being downloaded.

Note: Users can set purge options in the Schedule Entry Editor, and when they first schedule a document group.

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9. Enter the password in the PASSWORD text box and re-enter it in the CONFIRM PASSWORD text box.

Note: Users can change their passwords by using IBM Prospect Explorer.

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10. Click APPLY. The system stores the new information and resets the form so that you can enter another user.

11. When you are through adding users, click CLOSE on the FILE menu.

Modifying User Information

You can modify a user's description, permission level, maximum server disk space for reports, purge limit, and password. You cannot modify user names or default folders after they are created.

To modify a user's information

1. On the TOOLS menu, click USER ADMINISTRATION. The USER ADMINISTRATION dialog box opens.

2. Select from the list of user names. The USER ADMINISTRATION dialog box displays information for the selected user.

3. To change the description, enter the new description in the DESCRIPTION text box. IBM Prospect software does not use the description for any specific purpose.

4. To change the maximum disk space allocated to the user's reports on the server, enter the new maximum value in the MAX USAGE spin box.

5. If necessary, change the purge options.

   a. Clear the PURGE LIMIT check box to prevent the user from purging reports. When a user schedules a document group, purge options in the Schedule Entry Editor are unavailable.

   b. Enter the maximum amount of time documents are kept on the server after being downloaded in the PURGE LIMIT box.

Note: Users can set purge options in the Schedule Entry Editor, and when they first schedule a document group.

6. To change the password, enter the password in the PASSWORD text box and re-enter it in the CONFIRM PASSWORD text box.

Note: Users can change their passwords using IBM Prospect Explorer.

7. To change the permission level for a user, select a permission level from the TYPE list. For information on user permission levels, see User Administration.

8. Click APPLY to save the changes. The system stores the new information and resets the form so that you can modify another user's information.

9. When you are through modifying users, click CLOSE on the FILE menu.

Deleting Users

You cannot delete a user if the user owns any documents outside of the home folder, or if the user's home folder contains documents owned by other users.

To delete a user

1. On the TOOLS menu, select USER ADMINISTRATION. The USER ADMINISTRATION dialog box opens.

2. Select the user from the list of user names. The USER ADMINISTRATION dialog box displays information for the selected user.

3. Click DELETE. IBM Prospect software removes the user and the user's home folder.

Note: You may want to remove any Connection Manager profiles associated with the deleted user. For information, see Connection Manager.

Connection Manager

The Connection Manager allows you to work with connection profiles. *Connection profiles* connect a IBM Prospect client to the IBM Prospect server.

This section introduces the connection profile, provides procedures for creating and editing connection profiles, discusses what happens to profiles during a IBM Prospect client upgrade, and also provides procedures for importing and exporting profiles.

Topics

About Connection Profiles

A connection profile contains the following information:

- User name
- Password
- DataServer host
- DataServer port
- Connect, send, and receive time-out values

Set the user name and password by using the USER ADMINISTRATION dialog box in the client user interface. Since profiles are stored on the IBM Prospect client computer, you must add a profile to each IBM Prospect client that uses the profile.

Important: Profiles are stored in the registry for the Windows user used to create the profile. To work with a Connection Manager profile, you must log onto Windows as the Windows user that created the profile.

Accessing the Connection Manager

There are two ways to access the Connection Manager:

- Using the START menu in Windows.
- Using the LOGIN dialog box of IBM Prospect Explorer.

> **Note**: The LOGIN dialog box, as indicated by its name, appears only when you are logging on to IBM Prospect. Moreover, it is only available when the USE CURRENT PROFILE option of the Connection Manager is not enabled.

Use one of the following procedures to access the Connection Manager.

To use the Start menu

Click the Widows START button, then select PROGRAMS, then IBM PROSPECT TOOLS, and then click CONNECTION MANAGER. The CONNECTION MANAGER window opens as shown in the following figure.

Figure 3: Connection Manager
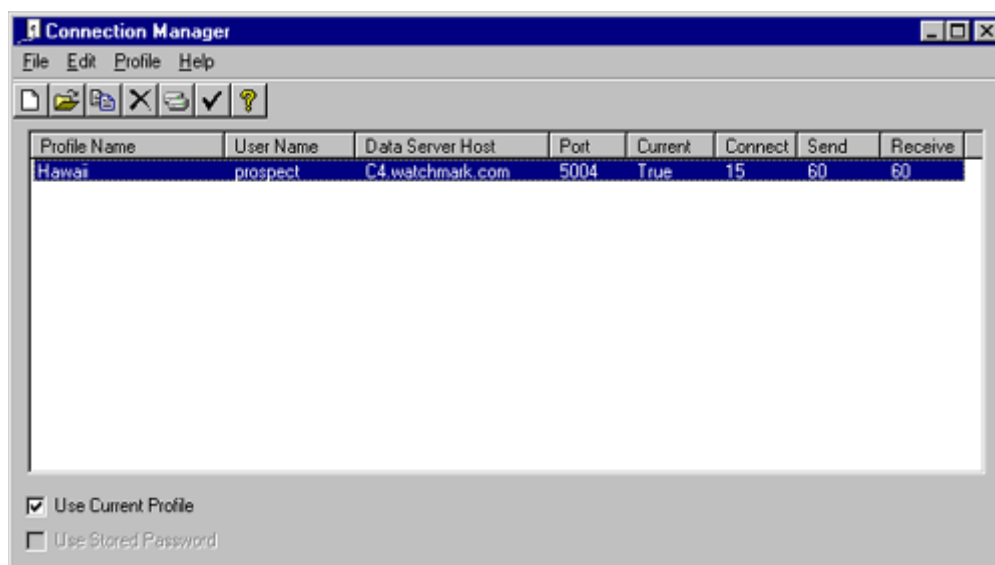
To use the Login dialog box

1. Start the IBM Prospect Explorer.

2. The LOGIN dialog box opens.

   Note: The LOGIN box does not open if the USE CURRENT PROFILE option of the Connection Manager is enabled.

3. In the PROFILES area, click the BROWSE button (...). The Connection Manager opens.

Creating a Profile

A *profile* contains all the information necessary for the IBM Prospect software to connect a client computer with a IBM Prospect data server host. You can create one profile for each user name-data server host set. For example, if the same user can log on to different IBM Prospect

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servers, create one profile for each server. Or, if one client computer is used by many different users to access the same IBM Prospect server, set up one profile for each user.

To create a new profile

1. Click the Windows START button, then PROGRAMS, then IBM PROSPECT TOOLS, and then click CONNECTION MANAGER. The CONNECTION MANAGER window opens.

2. Click NEW on the FILE menu. The PROFILE EDITOR dialog box opens.

3. In the USER NAME box, enter the user name to use when logging on to the IBM Prospect data server host. The system administrator needs to create this user in the host database before a logon attempt using this user name can succeed.

4. Enter the password for the user name in the PASSWORD and CONFIRM PASSWORD boxes.

5. Enter the IBM Prospect server host name in the DATA SERVER HOST box.

6. Enter the IBM Prospect server port number in the DATA SERVER PORT box.

7. If necessary, change the default time-out values for the CONNECT TIMEOUT, SEND TIMEOUT, and RECEIVE TIMEOUT boxes.

8. On the FILE menu, click SAVE to save the new profile. The PROFILE NAME dialog box opens.

9. Enter the name for the profile in the PROFILE NAME box and click OK. The profile is created.

10. To close the PROFILE EDITOR dialog box, click CLOSE on the FILE menu.

After creating a profile, you may want to test the profile's connection settings. See Testing a Profile's Connection for more information about testing a profile's connection. See Setting Profile Behaviors for more information about setting profile behaviors.

Related Topics

> About Connection Profiles

> Modifying a Profile

Modifying a Profile

Use the following procedures to modify a profile's user name, password, or server settings, or to rename the profile. Each procedure assumes the CONNECTION MANAGER window is open. To open the CONNECTION MANAGER, click the Windows START menu, select PROGRAMS, then IBM PROSPECT TOOLS, and then click CONNECTION MANAGER.

To modify a profile's user name and IBM Prospect server settings

1. Click the profile you want to edit, then click OPEN on the FILE menu. The PROFILE EDITOR dialog box opens.

2. To change the user name, enter a new name in the USER NAME box.

3. To change the IBM Prospect server host name, enter the new name in the DATA SERVER HOST box.

4. To change the IBM Prospect server port number, enter the new number in the DATA SERVER PORT box.

5. To change the default time-out values, enter the new values in the CONNECT TIMEOUT, SEND TIMEOUT, and RECEIVE TIMEOUT boxes.

6. Save the modifications by clicking SAVE on the FILE menu.

To rename an existing profile

1. On the FILE menu, click RENAME. The profile name can be edited.

2. Rename the profile, then press ENTER.

To change a profile's password

1. Click the profile whose password you want to change.

2. On the FILE menu, click OPEN. The PROFILE EDITOR dialog box opens.

3. Click CHANGE PASSWORD on the EDIT menu. The CHANGE PASSWORD dialog box opens.

4. Enter the new password in the PASSWORD and CONFIRM PASSWORD boxes.

5. Click OK.

After modifying a profile, you may want to test the profile's connection settings. See Testing a Profile's Connection for more information about testing a profile's connection. See Setting Profile Behaviors for more information about setting profile behaviors.

Related Topics

> About Connection Profiles
>
> Creating a Profile

Testing a Profile's Connection

The Connection Manager can verify whether a connection can be made with a profile's connection settings.

To test a profile connection

1. On the Windows START menu, select PROGRAMS, then IBM PROSPECT TOOLS, and then click CONNECTION MANAGER. The CONNECTION MANAGER window opens.

2. Click the profile for which you want to test the connection.

3. On the PROFILE menu, click TEST CONNECTION.

Setting Profile Behaviors

Use the Connection Manager to set the following behaviors:

- Require a password every time a user logs on
- Use a profile automatically (by setting the current profile)

Although there can be only one current profile, you are not required to use a current profile. It is not possible to require a password every time a user logs on and use a profile automatically.

To require a password every time a user logs on

1. On the Windows START menu, select PROGRAMS, then IBM PROSPECT TOOLS, and then click CONNECTION MANAGER. The Connection Manager opens.

2. Select the profile you want to modify.

3. If necessary, clear the USE CURRENT PROFILE check box.

4. Select the USE STORED PASSWORD check box.

To force a specific name and password for a profile

1. On the Windows START menu, select PROGRAMS, then IBM PROSPECT TOOLS, and then click CONNECTION MANAGER. The Connection Manager opens.

2. Select the profile you want to modify.

3. Select the USE CURRENT PROFILE check box.

Deleting a Profile

Deleting a profile removes connection information from the client computer; it does not remove a user from the IBM Prospect software.

To delete an existing profile

1. On the Windows START menu, select PROGRAMS, then IBM PROSPECT TOOLS, and then click CONNECTION MANAGER. The Connection Manager opens.

2. Select the profile you want to delete.

3. On the FILE menu, click DELETE.

Connection Profiles from a Previous Version

When you upgrade the IBM Prospect client to a new version, the Connection Manager automatically imports the connection profiles from the existing version (or versions).

Important: If you uninstall the existing client before installing the new version, you lose the connection profiles. However, if you must uninstall the client, you can still save the connection profiles by first using the profile import/export utility (see Importing and Exporting Profiles).

Importing and Exporting Profiles

The import/export profile utility allows you to do the following:

- Export connection profiles from the Connection Manager to a file
- Import connection profiles into the Connection Manager from a file

This section discusses why you might use the import/export profile utility, as well as security issues. It also provides procedures for importing and exporting profiles.

Why Use the Import / Export Profile Utility?

You can use the profile import/export utility for the following reasons:

- Providing backups — If the Connection Manager profile data is lost or corrupted, you will need to re-enter all the information manually.
- Re-installing the IBM Prospect client — If you uninstall and then re-install the client, all your connection profiles will be lost. You can use the import / export utility to save the profiles and then import them once you have re-installed the client.
- Transferring a profile from one PC to another — If you work on more than one PC, you can transfer your connection profiles from one PC to the other.
- Transferring profiles between IBM Prospect clients of different versions — Starting with the client version 7.2.82, you can export one set of profiles from one version of the client to another.

Security Issues

Each Connection Manager profile contains a user password which provides access to the IBM Prospect server. Although the password is encrypted, a user might still gain access to the server by importing another user's connection profiles. Therefore, when distributing the export file, ensure that you send the profiles to trusted individuals and groups.

Importing Profiles

Use the following procedure to import profiles into the Connection Manager. The procedure assumes that the Connection Manager window is open (see Accessing the Connection Manager on page 24).

To import profiles

1. Click IMPORT PROFILES on the FILE menu. The IMPORT PROFILES dialog box opens.

2. Go to the directory where the profile export file (`*.pfl`) is located.

3. Select the file and click the OPEN button.

   A second IMPORT PROFILES dialog box opens as shown in the following figure.

Figure 4: Import Profiles Dialog Box
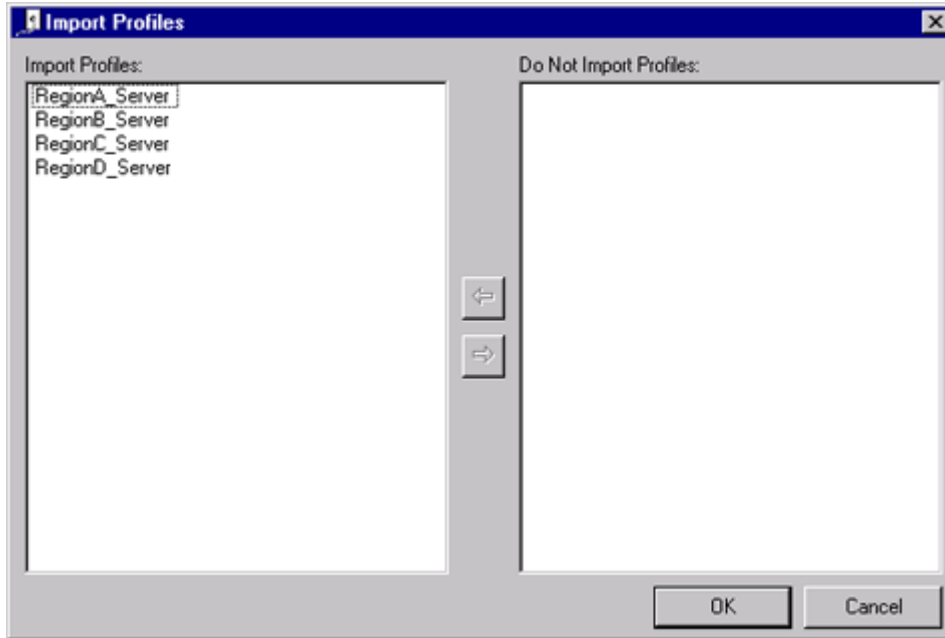
You can import all or some of the profiles listed in the IMPORT PROFILES list box.

4. To deselect profiles from import:

   a. Under IMPORT PROFILES, select one or more profiles.

   b. Click the right arrow.
      The profiles are moved from the IMPORT PROFILES list box to the DO NOT IMPORT PROFILES list box.

5. Do one of the following to finish:

To...	Do This...
Import the selected profiles	Click OK. > If you import a a profile name that already exists on the PC, a message box opens and lets you decide whether or not to overwrite the existing file. > If one of the imported profiles is marked as "use as current profile," the profile becomes your current profile unless a current profile exists on your PC. If a current profile exists on your PC, it remains your current profile. > The Connection Manager imports the profiles. A message box opens and confirms that the import was successful.

To...	Do This...
Cancel	Click the CANCEL button. The IMPORT PROFILES dialog box closes.

Related Topic

Exporting Profiles

Exporting Profiles

Use the following procedure to export profiles from the Connection Manager to a file. The procedure assumes that the Connection Manager window is open (see Accessing the Connection Manager on page 24).

To export profiles

1. Click EXPORT PROFILES on the FILE menu. The EXPORT PROFILES dialog box opens and displays all the available profiles as shown in the following figure.

Figure 5: Export Profiles Dialog Box
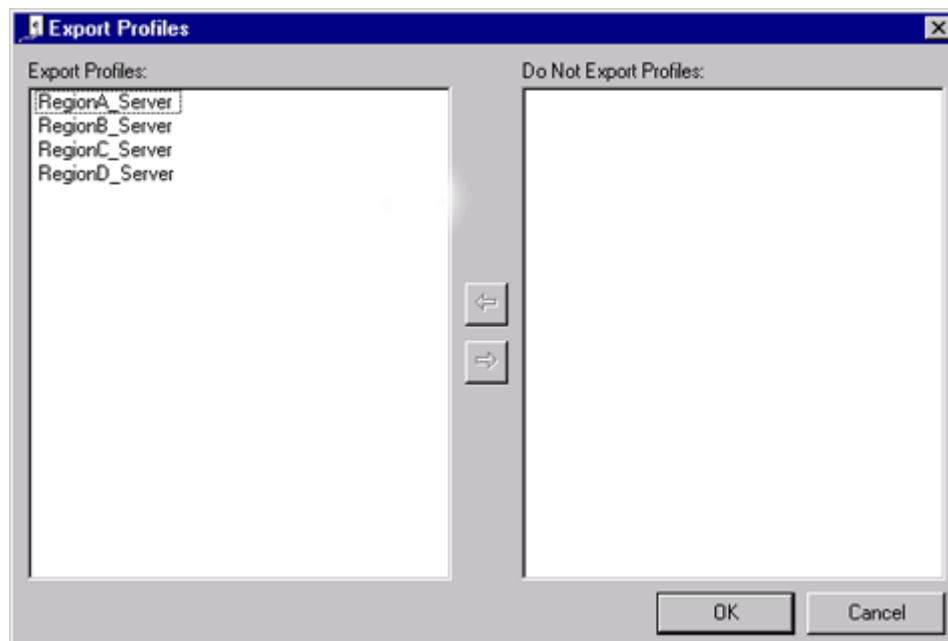
2. To deselect a profile from export:

    a. Under EXPORT PROFILES, select one or more profiles.

    b. Click the left arrow.
    The profiles are moved from the EXPORT PROFILES list box to the DO NOT EXPORT PROFILES.

3. Do one of the following to finish:

To...	Do This...

Export the selected profiles	• Click OK. A second EXPORT PROFILES dialog box opens.
	• Go to the directory in which you want to save the export file.
	• In the FILE NAME text box, type the name of the export file. The default name is MyProfiles.
	• Click the SAVE button.
	  > The file is saved with the .pfl extension.
	  > A message box opens and confirms that export was successful.

Cancel	Click the CANCEL button. The EXPORT PROFILES dialog box closes.

4   Management of the IBM Prospect Client

The following sections describe IBM Prospect client features that are used by or managed by data administrators or system administrators:

- IBM Prospect Client Ports
- Managing Folders
- Defining Holidays
- Traffic Busy Hours and Summations
- Including Fields from External Data Sources
- Choosing a Language Character Set
- Message of the Day

IBM Prospect Client Ports

The IBM Prospect client uses two ports to connect to the IBM Prospect server:

- FX port — Most queries from the IBM Prospect client, status monitor, auto downloader, and DSMonitor use this port. (DSMonitor is a process that registers updates from the DataServer.) By default the FX port number is the base port plus four (4). For example, if the base port is 6440, the FX port number would be 6444.
- Event port — Prospect Alarm receives alarm updates through this port. By default the Event port number is the base port plus three (3).

If users of the IBM Prospect client have a firewall between their computer and the IBM Prospect server, then both the FX and Event ports must be opened in the firewall for the client to function correctly.

To determine which port numbers are required for your system, log on as `flexpm` and run the following two commands:

```
# echo $FX_DS_PORT
# echo $EVENT_PORT
```

Managing Folders

Only an administrator with system permissions can create, delete, or change ownership of folders and documents owned by another user.

Tasks that an administrator can perform are:

- [Creating and Deleting Folders](#)
- [Sharing Folders](#)
- [Associating a Document Category with a Folder](#)
- [Changing the Owner of Folders and Documents](#)

See the *User Guide* for more information about documents and folders.

Creating and Deleting Folders

Users with data administrator and system administrator permissions own the Scenarios and Templates folders. This ensures that IBM Prospect users can access the documents in these folders, but cannot modify them.

IBM Prospect users can create subfolders below the level of their main folder. You must have IBM Prospect system administrator permissions to create or delete folders owned by a different user.

To create a folder

1. Using IBM Prospect Explorer on a client workstation, select the folder to which you want to add a subfolder.

2. On the FILE menu, point to NEW, and then click FOLDER.

   A new folder appears in the folder tree in Rename mode, with the default name New Folder highlighted.

3. Enter a name for the new folder.

To delete a folder

1. Using IBM Prospect Explorer on a client workstation, select the folder you want to delete.

2. On the FILE menu, click DELETE.

   A warning dialog box asks you to verify the deletion. The folder is not deleted until you click YES or YES TO ALL (if you selected more than one folder).

Sharing Folders

By default, users can create or delete documents and subfolders only in folders that they own. However, other users can create documents and subfolders and delete the documents and subfolders that they previously created in a shared folder. Users cannot delete documents and

folders created by other users in a shared folder. Icons for folders that have been shared are marked with a hand under the folder.

To share a folder

1. Using the IBM Prospect client, select the folder you want to share.

2. On the FILE menu, click PROPERTIES, or right-click and select PROPERTIES from the shortcut menu.

3. On the GENERAL tab, click SHARED.

4. To close the FOLDER NAME PROPERTIES dialog box and save your changes, click OK.

To stop sharing a folder

1. Using the IBM Prospect client, select the folder you no longer want to share.

2. On the FILE menu, click PROPERTIES, or right-click, and on the shortcut menu select PROPERTIES.

3. On the GENERAL page, click to clear the SHARED check box.

4. To close the FOLDER NAME PROPERTIES dialog box and save your changes, click OK.

Associating a Document Category with a Folder

By associating a document category with a folder, you instruct the IBM Prospect client to automatically open a specified category when you open a folder in the folder pane. For example, you can associate a folder with Traffic Templates and have the Traffic category open automatically.

To associate a document category with a folder

1. Using IBM Prospect Explorer, select the folder you want to share.

2. On the FILE menu, click PROPERTIES, or right-click and on the shortcut menu click PROPERTIES.

3. Click the CATEGORY tab.

4. From the DOCUMENT CATEGORY drop-down list box, select a document category.

   If the DOCUMENT CATEGORY is set to <NO ASSOCIATED CATEGORY> the category is not changed when you open the folder. As a rule, if the folder will contain documents from several different categories, set the DOCUMENT CATEGORY to either <NO ASSOCIATED CATEGORY> or to EXPLORER DOCUMENTS, which is the collection of all document types.

5. To close the FOLDER NAME PROPERTIES dialog box and save your changes, click OK.

Changing the Owner of Folders and Documents

Users can delete only folders and documents that they own, and they can create documents only in folders that they own, unless a folder has been shared. You must have IBM Prospect system administrator permissions to change the ownership of a folder or document of a different user.

To change the owner of a scenario, document, or folder

1. Select the scenario or folder whose ownership you want to change.

2. On the FILE menu, click CHANGE OWNER.

    The CHANGE OWNER dialog box opens.

Figure 6: Change Owner Dialog Box
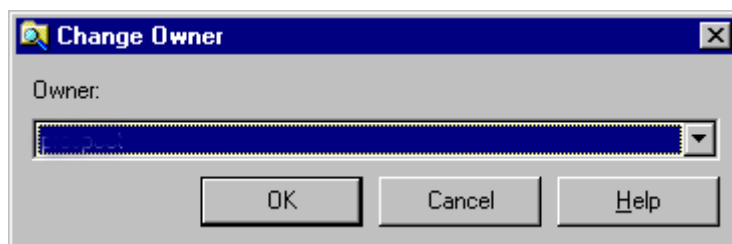
3. Select a new owner in the OWNER drop-down list, and then click OK.

Defining Holidays

The HOLIDAY DEFINITION window, shown in the following figure, displays the holiday dates of the previous year, the current year, and the next year.

Figure 7:   Holiday Definition Window
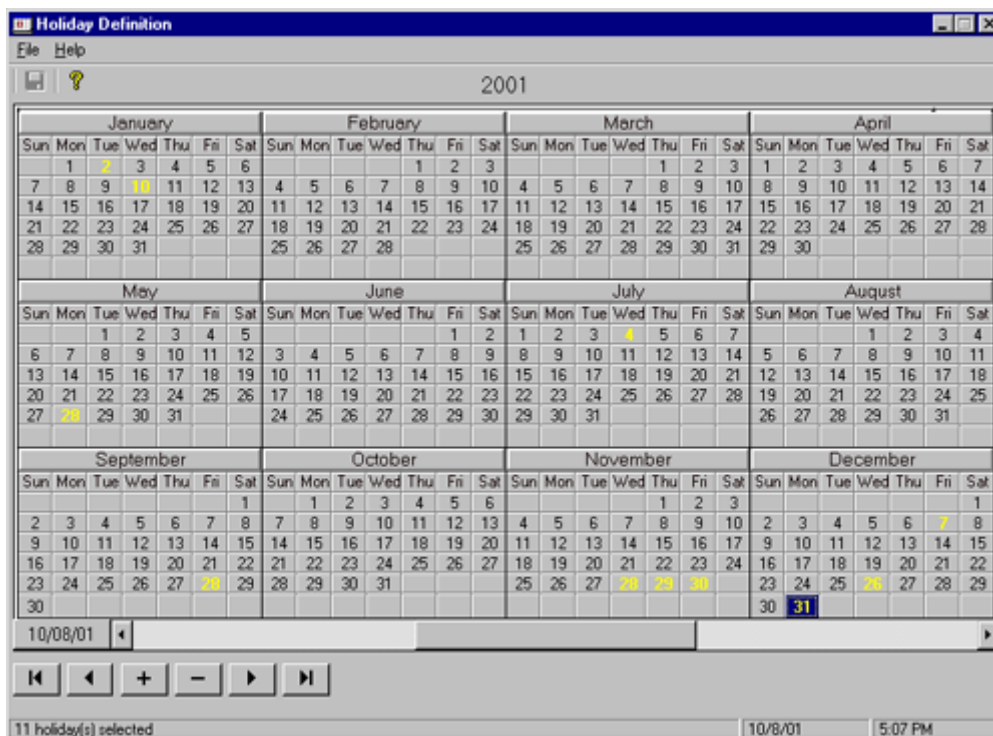
Note: The Schedule Entry Editor provides an override option that lets you exclude these holidays and/or weekends from reports, or report on them exclusively.

To create or delete a holiday

1. On the IBM Prospect Explorer menu bar, click TOOLS and then HOLIDAY DEFINITION. The calendar window for the current year opens.

2. To define a holiday for the previous or the next year, click the left or right arrow of the horizontal scroll bar, respectively.

3. Click a date in the calendar window.

4. Click the PLUS button (+) to select it. The date's color changes from black to yellow. Click the MINUS button (-) to deselect a date.

TIP: Use CTRL+Click and SHIFT+Click to select or deselect multiple dates. The status bar indicates the total days selected for all three years. Dates defined as holidays appear yellow.

5. Press the LEFT ARROW and RIGHT ARROW keys to navigate quickly from one defined holiday to another.

6. Click FILE and SAVE to save the definition for the year. You can define holidays for other years by pressing either the LEFT ARROW or RIGHT ARROW key at the bottom of the display. Click FILE and CLOSE to exit.

When selecting dates:

If You Want To:	Do This:
Select or deselect a date	Click the date.
Select or deselect multiple dates	CTRL+Click each date.
Select contiguous dates (extended select)	SHIFT+Click the start and end dates.
Deselect contiguous dates (extended select)	SHIFT+Click the end date.
Start over after making a mistake	Close the HOLIDAY DEFINITION window without saving changes; then reopen it.

Traffic Busy Hours and Summations

Traffic reports summarize network activity and performance on a per-time-unit basis. The report output can reflect all time periods, or the user can define a report that exclusively reflects only busy time periods.

In a IBM Prospect report, traffic busy hours represent the busiest hour in each day, week, and month for some performance metric. Busy hours reflect the peak demands on the network, for that metric, for that day, week, or month.

Traffic fields are stored in the database in increments of an hour or less (depending upon your database), known as periods. IBM Prospect software can aggregate, or sum, those incremental values into hourly, daily, weekly, or yearly totals. It can also pick out busy periods for any field.

Busy hours and summations are either stored (retained in the database) or non-stored. Using the IBM Prospect client, users can apply either stored or non-stored busy hours to their reports. The information produced by stored and non-stored busy hour are the same; however, stored busy hours represents the more computer-efficient method.

If busy hours and summations are stored, it is your responsibility, as an administrator, to define and maintain the stored data. The following sections briefly explain stored busy hours and summations, and provide procedures for how to define and maintain this stored data.

Why Define Stored Busy Hours and Summations?

Although users can create reports with either non-stored or stored busy hours and summations, the stored busy hours option is preferable. There are two primary reasons to store busy hours and summations and to have your users generate their reports with this data:

- When users generate a report with non-stored busy hours, they must spend time aggregating busy-hour criteria, ranking busy periods, and picking busy times. Using stored busy hours can speed up their report generation significantly. Moreover, stored busy hours reduces the burden of your computing facilities.

- Most organizations do not store complete performance data for more than a few months. Stored busy hours and stored summations may be your only access to older data.

Stored busy hours and stored summations are optional components of Traffic reports.

How Stored Busy Hours and Summations Are Assembled

Stored busy hours and stored summations are processed in the same way. A stored busy hour takes your busy hour determiner, executes the busy hour as defined in the determiner, and stores the results in the database. A stored summation aggregates an entire entity daily, weekly, or monthly, and stores the results in the database.

Both stored busy hours and stored summations are assembled and stored before the report is generated. This activity expedites the report generation process.

IBM Prospect software schedules jobs that automatically update stored busy hours and stored summaries nightly. At installation time, you set the parameters that determine how long to store busy-hour data and traffic summaries. If a user schedules a report to run at night while the report processor is updating busy-hour data, the report might not contain the most current information.

How Stored Busy Hours Are Retained

As administrator, you determine how long to retain busy hour data on a per-stored-busy-hour basis. You can retain daily busy hours, weekly busy hours, and monthly busy hours:

- **Daily busy hours** — The daily busy hour for each day is retained for a specified number of days.

  Example: If you retain the daily busy hours for 21 days, one busy hour for each of the 21 days is stored.

- **Weekly busy hours** — The busiest busy hour for the week is retained for a specified number of weeks. You must have at least two weeks (14 days) of daily busy hours before weekly hours can be retained.

  Example: If you retain weekly busy hours for three weeks, three busy hour values (which represent the busiest hour for each week) are stored.

- **Monthly busy hours** — The busiest busy hour for each month is retained for a specified number of months. You must have more than a month's worth (32 days) of daily busy hours before monthly hours can be retained.

Example: If you save the monthly busy hours for two months, two busy hour values (which represent the busiest hour for each month) are stored.

Important: There is no need to define weekly or monthly busy hours, unless you are retaining data longer than the daily busy hour. There is no saving of processing time or disk storage if weekly and monthly busy hours are retained as long as daily busy hours (180 days).

Busy Hour Calculations

The busy hour calculation is performed per instance at the entity level. For example, assuming your system has a cell entity, the calculation is performed at each instance of the cell entity. In other words, if you have two instances of the cell entity, Cell_1 and Cell_2, a busy hour calculation is performed for Cell_1 and Cell_2.

During each 24-hour period (usually nightly), the script bh_clean reviews the daily, weekly, and monthly hours. It determines, based on a number of field-specific variables, when to start retaining weekly and monthly hours and which values to keep. It also cleans out busy hour data when no longer required.

Total Amount of Retainable Busy Hours

The total amount of busy hours you can retain depends upon the following:

- Number of days to keep data, which was set during installation
- Any subsequent increases or decreases to the number of days to keep data, which you set using the past_part_maint.sh script.

When you set the busy hours retention limit by using the past_part_maint.sh script, the value you set may override any retention values previously set in the Busy Hour Editor. For example, if you set the time to keep at 60 days with past_part_maint.sh, the IBM Prospect database will retain only 60 days of busy hour data. However, if you set the retention time in the Busy Hour Editor to more than 60 days, IBM Prospect software still retains only 60 days of busy hour data. Thus, you can use the past_part_maint.sh script to set the upper limits of data retention, and then use the Busy Hour Editor to set lower limits as necessary.

For more information on the past_part_maint.sh script, see

Defining Stored Busy Hours

As administrator, you have the responsibility of defining stored busy hours. Users can only apply stored data (busy hours and summations) to their reports, they cannot define stored data.

You use the Busy Hour Editor to define busy hour determiners. For each busy hour determiner, you:

- Select the entity for which busy hours are calculated.
- Select a single busy hour criterion, or field, which represents the performance metric.

- Select the time periods to include, or exclude, in the busy-hour calculation.

- Determine whether to calculate a daily busy hour or an average over an entire week, known as Profile Average Busy Hour (PABH).

- Apply a scenario to the stored busy hour. Busy hours will only be calculated for this part of the network. See the note below.

- Determine how long you want to retain the busy hours. For information on retaining busy hours, see How Stored Busy Hours Are Retained on page 39.

Important: Always choose a scenario. If a user defines the Busy Hour without choosing a scenario, the busy hour will run once against each ACTIVE scenario (not against all scenarios).There can be significant overhead involved, causing very long run times, if there are many ACTIVE scenarios. See Using the All Active Scenario on page 50.

When you have defined the busy hour and saved the definition, it is listed in the TRAFFIC BUSY HOURS window. You can create multiple busy hour determiners.

Scheduled jobs automatically calculate and update stored busy hours and stored summaries during a 24-hour period, usually nightly. However, as an administrator you can run these jobs manually if the busy hour needs to be updated immediately. See Maintaining Stored Busy Hours and Summations on page 46 for information on schedule jobs and the associated scripts.

The Busy Hour Editor

You use the Busy Hour Editor to create a busy hour determiner. The following figure shows the Busy Hour Editor. The legend explains the main parts of the window.

Figure 8: Traffic Busy Hour Editor

Legend:

No.	Description
1	Menu bar — Allows you to save a busy hour determiner and to customize the view of the AVAILABLE SYSTEM FIELDS pane.
2	Toolbar — Provides the same functionality as the menu bar. It additionally allows you to filter the items in AVAILABLE SYSTEM FIELDS pane by field and technology types.
3	ENTITY HIERARCHY pane — Represents the system hierarchy. Allows you to select the entity that contains the field, or performance measurement, you want to use in the busy hour calculation.
4	AVAILABLE SYSTEM FIELDS pane — Displays the fields associated with the entity selected in the ENTITY HIERARCHY pane. The fields listed depend upon the filter settings on the toolbar.
5	BUSY HOUR DETAILS area: • BUSY HOUR CRITERION — Displays the field selected from the AVAILABLE SYSTEM FIELDS pane. • SCENARIO — Displays the scenario applied to the busy hour. • DATE NEEDED — Date from when the criterion first becomes effective. • DESCRIPTION — Description of the busy hour determiner. • INCLUDE WEEKLY PABH — Select if you want to calculate the average busy hour over a week in addition to daily busy hours.
6	PERIODS area — Includes or excludes time periods from the busy hour calculation.

No.	*Description*
7	RETENTION area — Allows you select how long you want to keep daily, weekly, and monthly busy hours.

Defining a Busy Hour Determiner

Use the following procedure to define a busy hour determiner.Always choose a scenario.

To define a busy hour determiner

1. On the IBM Prospect Explorer menu bar, click TOOLS and then TRAFFIC BUSY HOURS. The TRAFFIC BUSY HOURS window opens.

2. From the tree in the ENTITY HIERARCHY pane, select the entity for which you want to calculate busy hours.

3. Click the FILE menu and select NEW. The BUSY HOUR EDITOR window opens.

4. From the tree in the ENTITY HIERARCHY pane, select the entity that contains the field you want to use as the performance metric, also known as the busy hour criterion. The fields of the selected entity are displayed in the AVAILABLE *<entity>* FIELDS list pane.

5. From the AVAILABLE *<entity>* FIELDS pane, select the field that represents the performance metric by clicking it in the NAME column. The selected field is displayed as the BUSY HOUR CRITERION.

6. To apply a scenario to the stored busy hour, select the scenario from the SCENARIO drop-down list box under BUSY HOUR DETAILS.

7. Using the DATE NEEDED spin-box, select a date when you want the criterion to become effective. You cannot enter a date that is prior to the date when data was loaded in the IBM Prospect server.

Important: You may go back in time to capture older data. This process is CPU intensive. It is recommended that you go back in time in weekly increments, slowly working your way on a daily basis to the desired time frame.

8. Enter descriptive information about this busy hour determiner in the DESCRIPTION text box. This information is displayed along with the determiner name in the TRAFFIC BUSY HOURS window.

9. If you want to calculate the average busy hour over an entire week, select the INCLUDE WEEKLY PABH check box. When this check box is selected, IBM Prospect software generates stored PABH data in parallel with the standard daily busy hour.

Note: The PABH data set can be added to an existing determiner at any time but cannot be removed. PABH (weekly) data is updated only once a week and is available only for the most recent complete week.

10. Select or cancel the time periods for the busy-hour calculation under PERIODS.

11. Under RETENTION, select the daily busy hours, weekly busy hours, and monthly busy hours you want to retain.

    If you select the options WEEKS TO RETAIN or MONTHS TO RETAIN, the IBM Prospect client adjusts the DAYS TO RETAIN value to 14 or 32 days, respectively, when you save the busy hour determiner.

    Instead of entering a number, you can select the option MAX ALLOWED. The value of MAX ALLOWED is dependent upon time-to-keep values entered during product installation and subsequent use of the `past_part_maint.sh` script.

    For more information on retaining busy hours, see <u>How Stored Busy Hours Are Retained</u> on page 39.

12. Click FILE and then SAVE to save the stored busy hour determiner.

Editing a Busy Hour Determiner

Use the following procedure to edit a busy hour determiner. Use caution when editing the following items:

Table 3: Caution When Editing a Busy Hour Determiner

If You Do This:	*Note This:*
Select a different field as the busy hour criterion	If you change the field used as the criterion for a stored busy hour, all data previously saved for that busy hour criterion are invalidated.
Change the scenario	Changing a scenario invalidates existing data.
Select the PABH option	The PABH data set can be added to an existing determiner at any time. However, once added, it cannot be removed. Because it is a weekly busy hour, the PABH data is updated only once a week.
Select a later date needed	If you move the date forward in time, this action causes the data between the previous date needed and new data needed to be deleted.
Select an earlier date needed	If you move the date backwards in time, this action causes the next `bhupdate.sh` run to calculate stored busy hours for the gap between the two dates. If the gap is large, this process may take a long time.

To edit a busy hour determiner

1. On the IBM Prospect Explorer menu bar, click TOOLS and then TRAFFIC BUSY HOURS. The TRAFFIC BUSY HOURS window opens.

2. In the TRAFFIC BUSY HOURS window, double-click the busy hour determiner of choice from the SYSTEM BUSY HOURS pane. The BUSY HOUR EDITOR window opens.

3. Make the desired changes and save them.

Deleting a Busy Hour Determiner

Use the following command to delete a busy hour determiner.

To delete a busy hour determiner

1. On the IBM Prospect Explorer menu bar, click TOOLS and then TRAFFIC BUSY HOURS. The TRAFFIC BUSY HOURS window opens.

2. In the TRAFFIC BUSY HOURS window, select the busy hour determiner of choice from the SYSTEM BUSY HOURS pane and right-click. From the short-cut menu, select DELETE.

3. A confirmation screen opens, asking you to verify the deletion. To see whether a stored busy hour is used in a report, click the VIEW DETAILS button.

Note: You cannot delete a busy hour unless all references to it are removed from the reports.

4. Click YES to delete the stored busy hour, or click NO to cancel the deletion.

Note: You cannot delete a stored busy hour while `bhupdate.sh` is running.

Defining Stored Summations

You can define up to three summations per entity: one daily summation, one weekly summation, and one monthly summation:

- DAILY SUMMATION — Aggregates the values of incremental times, or periods, of the fields of a single entity into daily totals.
- WEEKLY SUMMATION — Aggregates the values of incremental periods into weekly totals.
- MONTHLY SUMMATION — Aggregates the values of incremental periods into monthly totals.

Example: The following example makes the following assumption: your system has a cell entity with two instances, Cell_1 and Cell_2; and you select a daily summation. Based on these assumptions, the IBM Prospect software will daily aggregate, or sum, the values of incremental periods of the fields in Cell_1 and Cell_2.

You use the Traffic Summation Editor to add and delete stored summations.

To add a traffic summation

1. On the IBM PROSPECT EXPLORER menu bar, click TOOLS and then TRAFFIC SUMMATIONS. The TRAFFIC SUMMATIONS window opens.

2. In the ENTITY HIERARCHY tree pane, click the network entity of the report.

3. Click the FILE menu and select NEW. The NEW **<Entity>** SUMMATIONS window opens.

4. Enter the name of the traffic summation in the NAME text box.

5. Enter a description of the summation in the DESCRIPTION text box.

6. Select the date to use as a starting date for the summation in the DATE FROM drop-down list box, using the spin box as needed.

7. From the SPAN list box, select the how often you want to aggregate, or sum, the incremental values.

8. Click FILE and then SAVE to save the stored summation. The stored summation is created the next time the IBM Prospect server updates stored summations.

Note: When creating stored summations for rolled-up data, you must also create stored summations for the entities below that entity that are rolled up.

To delete a traffic summation

1. On the IBM Prospect Explorer menu bar, click TOOLS and then TRAFFIC SUMMATIONS. The TRAFFIC SUMMATIONS window opens.

2. On the ENTITY HIERARCHY tree pane, click the network entity of the report.

3. Select the traffic summation to delete.

4. Click EDIT and then DELETE to delete the stored summation.

Maintaining Stored Busy Hours and Summations

Busy hours and stored summations databases are updated automatically by scheduled jobs. However, you can run `bhupdate.sh` and `smupdate.sh` jobs manually,

If the regularly scheduled busy hour maintenance job is scheduled to begin while you are running `bhupdate.sh` or `smupdate.sh`, the regularly scheduled job waits for your job to complete.

Automatically Scheduled Jobs

The following regularly scheduled jobs update stored busy hours and stored summations:

- **bh_summary**—Automatically updates stored busy hours. Enter busy-hour criteria using the IBM Prospect client.

- **bh_clean**—Automatically deletes busy hour data that is no longer required, ensuring database consistency.

- **daily_summary**—Aggregates and stores traffic data according to criteria entered using the IBM Prospect client.

- **summary_clean**—Automatically deletes summary data that is no longer required, ensuring database consistency.

To see a list of jobs and when they are scheduled to run, use **schedule_maint**. See Scheduling IBM Prospect System Maintenance for more information on the schedule_maint script.

You can also run any of these tasks immediately, if necessary, using ps-mgr. For detailed information about how to use ps-mgr, see The ps-mgr Program on page 112.

Importing and Exporting Busy Hours

The IBM Prospect software provides scripts for system administrators to use for copying busy hour definitions and their related UDCs from one system to another. For more detailed information about how to use these scripts, see Importing and Exporting IBM Prospect Documents on page 165.

Related Topics

Run bhupdate.sh

Run smupdate.sh

Run bhupdate.sh

The syntax to run bhupdate.sh is as follows:

```
bhupdate.sh
[ [[-e entity ] [ -n name ] | [-i BH_ID ]] [ -a ] [ -f | -b | -d first-
date -D lastdate [ -o ]] ]
```

The following table describes the options for bhupdate.sh.

Table 4: Options for bhupdate.sh

Option	Description
-e	Run only those busy hours at the specified entity level. Requires the entity name.
-n	Name of the stored busy hour definition, which was created with the Traffic Busy Hours tool.

-i	ID of the stored busy hour definition. ID needs to be obtained from a query inside SQLPlus. The following is a sample SQLPlus query:
	
	`SELECT B.ID BH_ID, B.NAME name,`
	`E.ENTITY_NAME entity`
	`  FROM PM_BUSYHOUR B, WMN_ENTITY E`
	` WHERE B.CLUSTER_ENTITY_ID=E.ENTITY_ID`
	`    AND B.FIELD_ID IS NOT NULL;`

-a	Process only those dates for which all 24 hours are present.
-f	Forward gap; only adds missing data between the last stored busy hour and the current day. You can only get busy hour data through midnight of the previous day.
-b	Backward gap; only adds missing data between the first stored busy hour and the earliest date required.
-d	Start date. If specified, you must also specify an ending date, using the format YYYYMMDD.
-D	End date. If specified, you must also specify a starting date, using the format YYYYMMDD.
-o	Override the default behavior of calculating all stored busy hours for a new busy hour determiner.

Enter **bhupdate.sh -v** to display usage.

Run smupdate.sh

The syntax to run smupdate.sh is as follows:

```
smupdate.sh [[-e Entity] [-s span] [-n SM_name]|[-i SM_ID]] [ [-f]|
[-b]|[-d FirstDate -D LastDate [-o] ]
```

The following table describes the options for smupdate.sh.

Table 5: Options for smupdate.sh

Option	*Description*
-e	Run only those summaries at the specified entity level. Requires the entity name.
-s	Span can be one of the following values: D (daily), W (weekly), or M (monthly)
-n	Name of the stored summary definition, which is created with the Traffic Summation tool.

-i	ID of the stored summary definition. ID needs to be obtained from a query inside SQLPlus. The following is an example of a SQLPlus query:
	
	SELECT B.ID SM_ID, B.NAME SM_name, E.ENTITY_NAME Entity
	  FROM PM_BUSYHOUR B, WMN_ENTITY E
	 WHERE B.CLUSTER_ENTITY_ID=E.ENTITY_ID
	    AND B.FIELD_ID IS NULL;

-f	Forward gap; only adds missing data between the last stored summary and the current day. You can only get summary data through midnight of the previous day.
-b	Backward gap; only adds missing data between the first stored summary and the earliest date required.
-d	Start date. If specified, you must also specify an ending date, using the format YYYYMMDD.
-D	End date. If specified, you must also specify a starting date, using the format YYYYMMDD.
-o	Override the default behavior of calculating all dates for a new summary.

Enter **smupdate.sh -v** to display usage.

Performance for Updating Busy Hours and Stored Summaries

If the amount of data needed to calculate a stored busy hour increases, there can be significant impact on the performance of the IBM Prospect server. This can be caused by loading additional data or increasing the scope of the busy hour determiner.

The amount of processing required to calculate busy hour information for each busy hour determiner across each active scenario may decrease the IBM Prospect server performance. You may want to review the first needed date for busy hour determiners and adjust the interval of the bhupdate.sh script.

The IBM Prospect server has a 23-hour processing limit on any busy hour update task. If the task runs to the limit and consequently fails, no retry is attempted. IBM Prospect software picks up the busy hour value on the next run.

Check that the first needed date for all busy hours are set to reasonable dates. The first needed date should be no earlier than the earliest data that has ever been loaded into the IBM Prospect server. If there is a large gap between first needed and first available dates, the nightly summary and busy hour jobs may not run in a timely manner.

Using the All Active Scenario

If the following situation exists on a IBM Prospect server, you may want to run the `all_active.sql` script to reduce busy hour computation time:

- There are busy hours that are not at the system level
- The busy hours have no associated Scenario
- The IBM Prospect server has at least three systems

Running the `all_active.sql` script creates a Scenario called the All Active Scenario and applies the All Active Scenario to all of the busy hours that fit the above situation. This can reduce the time it takes to compute busy hours.

Contact your customer support representative to get the `all_active.sh` script. After acquiring the `all_active.sh` script, use the following procedure the apply the script to a IBM Prospect server.

To create the All Active Scenario

1. Log on as `flexpm`.
2. Go to the directory where the `all_active.sh` script was placed.
3. Log on to the database by typing the following command:
   ```
   $ sqlplus $DB_CONNECT
   ```
4. Run the `all_active.sql` script by typing the following commands:
   ```
   @ALL_ACTIVE.SQL
   EXIT
   ```

Including Fields from External Data Sources

The External Data Source feature lets you include data external to the IBM Prospect database in IBM Prospect traffic reports. This data can be managerial in nature, related to fault management alarms, involve dropped calls, or whatever information your users deem important.

Example

Using cells as an example, here are some sample scenarios. In addition to receiving performance data:

- A manager wants to know who is in charge of a specific cell this week.

- An network operator wants to know the alarm statistics for a cell.

- An engineer wants to see data on dropped calls per cell.

This section contains the information you need to include external data in IBM Prospect reports.

Topics

Preconditions for External Data Sources

Before an external data source can be linked to the IBM Prospect database, it must meet the following conditions:

- The external data source must be an ASCII file, an ODBC-compliant database, or an Oracle database.

- If the external data source is an ASCII file:

  - The file must be located on a mounted UNIX file system that is accessible to the IBM Prospect server and is readable by the IBM Prospect UNIX `flexpm` user.

  - The time stamp must be in ISO 8601 format. For an example of this format, see the ASCII file in the figure Completed Columns Tab on page 55.

To link external data sources to a IBM Prospect database, you must have the following knowledge:

- You must be familiar with database concepts; a working knowledge of primary keys is essential.

- If you link an ODBC-compliant database, you must be familiar with the database you plan to use.

How Linking to External Data Works

When you link an external source to the IBM Prospect database, you are creating a virtual table that consists of IBM Prospect columns and external data columns. Once linked, the external data appear as fields in IBM Prospect traffic templates.

The illustration in the following figure and its explanatory text provide important concepts, as well as high-level activities associated with linking an external data source, including the types of information you need to gather for the External Data Source Editor.

Figure 9:   Linking an External Data Source

Legend:

No.	Description
1	Identify the external data source and record its location. You must provide explicit location information for the external data source. For details, see Identifying the External Data Source on page 65.
2	Identity the external column (or columns) you want to link to the database on the IBM Prospect server. Within the context of an ASCII file a column represents a delimited field. Note the column and its position within the file. For an example, see the figure Completed Columns Tab on page 55. If the external source is in an ODBC-compliant database, you need to note the *exact* name of the column. When viewing the external data, note the data type; for example, integer, string, date, float, and so on.

No.	Description
3	Identify the IBM Prospect entity instance to which you want to link the external column.
4	A relationship must exist between a IBM Prospect field and a column in the external data source. Specifically, the value in a IBM Prospect field must mach a value in the external column. Edit the field in the entity instance that corresponds to a value in the matching column in the external data source. See Editing Scenario Data for External Data Sources on page 59 for an example. Complete any other required preparatory work. See Preparing to Use External Data Sources on page 55 for details.
5	Identify keys for the virtual table.
	When you link an external data source to the IBM Prospect database, you are linking external columns to a IBM Prospect table or tables. The resulting virtual table, a combination of IBM Prospect columns (fields) and external columns, requires one or more keys.
	These keys act as primary keys, which the IBM Prospect software uses to find unique rows within the combined table. See Creating a Key on page 67 for more information.
6	Define field properties for the external data columns. Field properties control the way IBM Prospect calculates and displays the external data.
	For a list of field properties, see Adding or Editing Data Field Properties on page 68.
	Enter the information you have gathered in either the ASCII Data Source Editor or the ODBC Data Source Editor. The data you enter in a Data Source Editor is saved in either an ASCII Data Source document or an ODBC Data Source document.

Related Topics

How Linking Works - An Example

How Linking Works - An Example

The data in the following example is provided only to illustrate how the process of linking an external database to the IBM Prospect database works. Therefore, this data has no connection to the data in your IBM Prospect installation.

Note: Before you read this example, you should review the topics How Linking to External Data Works on page 51.

This example makes the following assumptions:

- Your IBM Prospect hierarchy contains the entity instance ANTENNA:0, which contains traffic information for an antenna at a specific cell site.

- An external data source contains service call information for the same cell site.

- You want to combine the traffic information and service call information into a single time-series traffic report.

The activities for linking the external source might go something like this (the activities in this example loosely follow the flow of activities in the preceding figure):

1. You decide to make computer performance more efficient by splitting large ASCII files into multiple smaller files, and using the special flags %Y%M%D. Because this is daily data, you group the data by day:

    ```
    /usr/edsdata/2003/0408-ser_call.txt
    /usr/edsdata/2003/0409-ser_call.txt
    /usr/edsdata/2003/0410-ser_call.txt
    ```

    For more information, see ASCII File Preparation on page 56.

2. Start entering information in the ASCII Data Source Editor. The following figure reflects the correct time-series selections and the correct usage of the special flags. The ASCII file is delimited by commas as shown in the DELIMETER field.

    Figure 10:   Completed General Tab
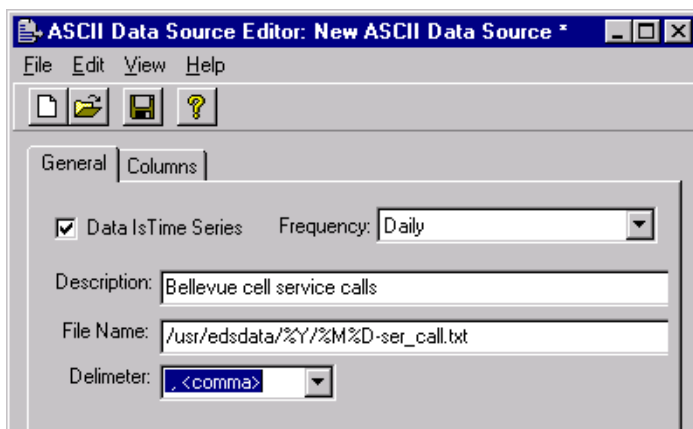
3. You decide you want to link the antenna name column in the ASCII file to the IBM Prospect entity instance ANTENNA:0. You edit the name field for ANTENNA:0 in the Scenario Editor. See Editing Scenario Data for External Data Sources on page 59 for more information.

4. Now start entering information on the COLUMNS tab. Make sure that the position number in the Time Stamp column corresponds to the correct column position in the ASCII file. Create a key that includes the name field of ANTENNA:0. Add a column that corresponds to the service call column in the ASCII file, and define its field properties, which control the way IBM Prospect calculates and displays the external data in the column. See Adding or Editing Data Field Properties on page 68 for more information. The following figure shows the completed COLUMNS tab.

Figure 11: Completed Columns Tab
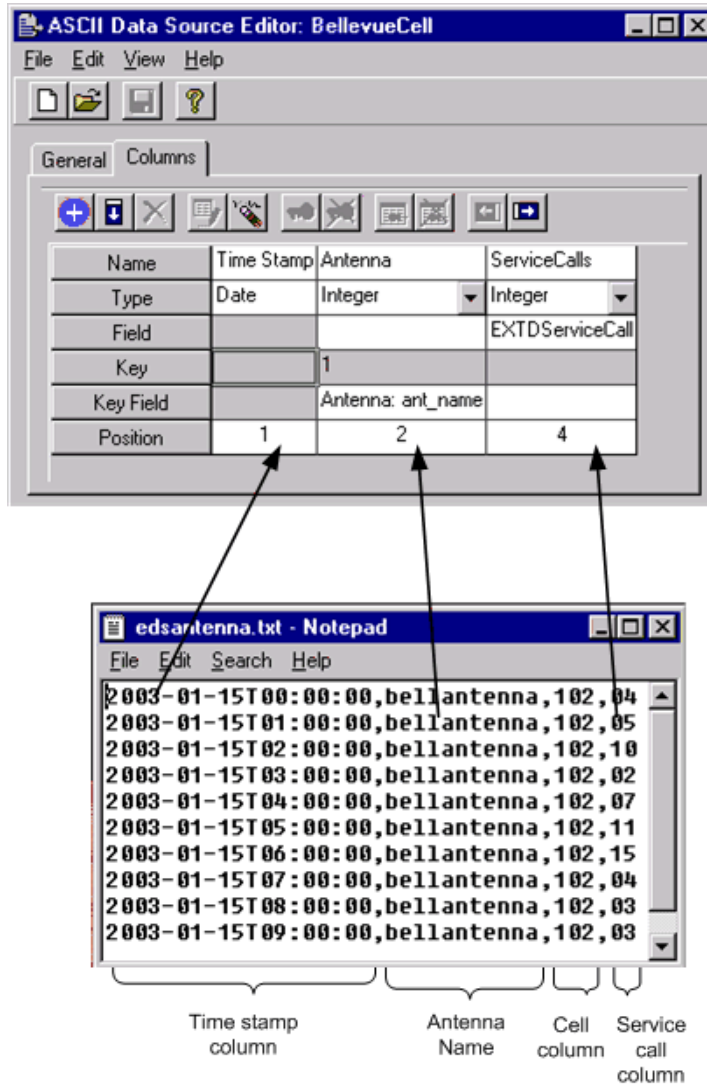
Because the external data source is an ASCII file, you can enter any column name. In the preceding example, ANTENNA and SERVICECALLS are descriptive only and do not relate to the ASCII file.

Preparing to Use External Data Sources

The following sections offer you ways in which to prepare for the use of external data sources. The section ASCII File Preparation reviews how to organize ASCII files to gain performance efficiencies. The section ODBC Preparation reviews the tasks you must perform in order to link an ODBC external data source with the IBM Prospect database.

Frequency of Data

The frequency of the document data should match the frequency of reports that use the data. For example, hourly EDS data only shows up in hourly-based reports or busy hour reports of any frequency. Daily EDS data only appears in daily reports.

Currently, the IBM Prospect program cannot dynamically aggregate external hourly data to daily levels as it can for internal IBM Prospect data. If you need both hourly and daily reporting, you need to create two different documents that reference different data sources. For example, one data source would contain data at the hourly level, and another data source would contain data at the daily level.

ASCII File Preparation

It is recommended that you split a single, large ASCII file into multiple, smaller files for performance reasons. IBM Prospect software can process external data in smaller files more efficiently.

Additionally, for ASCII files that contain time-series data, IBM Prospect software provides special flags to help the Report Group Processor (`rgp`) search for files based on a date-time scope. The flags are `%Y`, `%M`, and `%D` and are substitutions for the year, month, and day, respectively. The date-time scope is dynamic in that it is set by the user in the Report Editor.

To use the special flags `%Y`, `%M`, and `%D`, you insert the flags in the FILE NAME field in the ASCII Data Source Editor, and group or organize your data files by the time-series. It is recommended for documents that contain hourly data, or data for shorter periods, that you group the data by day. Example:

```
/usr/edsdata/2003/0408-eds.txt
/usr/edsdata/2003/0409-eds.txt
/usr/edsdata/2003/0410-eds.txt
```

For documents that contain weekly data, it is recommended that you group them by month or by year. Example:

```
/usr/edsdata/2003/04-eds.txt
/usr/edsdata/2003/05-eds.txt
```

For documents that contain monthly data, it is recommended that you group them by year. Example:

```
/usr/edsdata/2003.txt
/usr/edsdata/2004.txt
```

Example Use of Special Flags:

Assume you want to use files that contain hourly data included in IBM Prospect reports, and you group the files by day in the directory `/usr/edsdata/<Year>/<MonthDay-eds.txt>`.

You would enter the following file name on the GENERAL tab of the ASCII Data Source Editor:

```
/usr/edsdata/%Y/%M%D-eds.txt
```

If users want reports that contain files from April 8, 2003 to April 11, 2003, they set the date-time scope accordingly in the REPORT EDITOr. Based on this information, the `rgp` process interprets the flags as follows:

`%Y` - the four-digit year 2003
`%M` - the two-digit month 04 for April
`%D` - the two-digit day of the month 08 through 11

The `rgp` process then searches for the following files:

```
/usr/edsdata/2003/0408-eds.txt
/usr/edsdata/2003/0409-eds.txt
/usr/edsdata/2003/0410-eds.txt
/usr/edsdata/2003/0411-eds.txt
```

ODBC Preparation

To successfully link an ODBC data source with the IBM Prospect server, you must first register the ODBC database with the ODBC driver `odbc.ini` that is included with the IBM Prospect program.

Note: This section is not applicable if you are using an Oracle database.

To register the external ODBC data source with the odbc.ini driver

1. Log on as the IBM Prospect UNIX user `flexpm`.

2. Change to the `$FLEXPM_HOME/pm/etc` directory.

3. Edit the `odbc.ini` file, adding entries that represent the external ODBC database. Refer to your ODBC database documentation for any specialized instructions or options.

4. Optional. Verify that you can connect to the external data source. To achieve this, run the program `odbctest`. After starting this program, enter the following at the prompt:
   `DSN=<`*`data_source_server`*`>;UID=<`*`value`*`>;PWD=`*`value`*`>;`

   If the connection is successful, you see the prompt for entering basic SQL. For example:
   `select * from myodbctable.`

The following is an example edited `odbc.ini` file. However, refer to your database documentation for ODBC driver information specific to your system and other sample `.ini` files.

Example edited odbc.ini file:

An example of an edited odbc.ini file might look something like the following. Please note the bolded text; you enter this information in the ODBC Data Source Editor.

```
[ODBC DataSources]
test = MySQL  *The bolded value represents the location of the external
              data source server.*
```

```
OpenLink = OpenLink (MT)


[test]
Driver = /usr/local/mysql/MyODBC-3.51.06-sun-solaris2.8-sparc/libmyodbc3.so
Description=MySQL Binary
DSN = odbc_test
Server = server1
Port = 3306
Database = odbc_test   *The bolded value represents the source database*
ReadOnly = no
ServerType = MySQL
FetchBufferSize = 99
ServerOptions =
ConnectOptions =
OPTION = 3
TraceFile = /tmp/mysql_trace.log
Trace = 1


[OpenLink]
Driver          = /home/openlink/lib/oplodbc.so.1
Description     = Sample OpenLink MT DSN
Host            = localhost
ServerType      = Oracle 8
FetchBufferSize = 99
UserName        =
Password        =
Database        =
ServerOptions   =
ConnectOptions  =
Options         =
ReadOnly        = no


[Default]
Driver =
/usr/local/mysql/MyODBC-3.51.06-sun-solaris2.8-sparc/libmyodbc3.so
Description = MySQL Binary
SERVER = server1
PORT = 3306
OPTION = 3
```

To verify the connection for this sample `odbc.ini` file, run the program `odbctest`, entering the following at the prompt: DSN=`test`;UID=`flexpm`;PWD=;

Once you have edited the `odbc.ini` file and tested the connection, you are ready to configure the ODBC Data Source Editor.

Editing Scenario Data for External Data Sources

Editing scenario data defines a crucial link between the IBM Prospect database and an external data source. For the link to be successful, you must establish a relationship between a IBM Prospect field and a column in the external data source. Specifically, you must edit a field in the entity instance so that its value corresponds to a value in the matching external column.

Once you have established this relationship, or link, by editing a field in the entity instance, you incorporate this edited field into one of the primary keys.

Example:

Assume you want to link the antenna name column in an ASCII file to the IBM Prospect entity instance ANTENNA:0. The following figure shows ANTENNA:0 being edited in the IBM Prospect scenario DATA EDITOR. The value BELLANTENNA is the link between the IBM Prospect entity instance ANTENNA:0 and the antenna name in the external ASCII file.

Figure 12: Sample Scenario with Edited Name
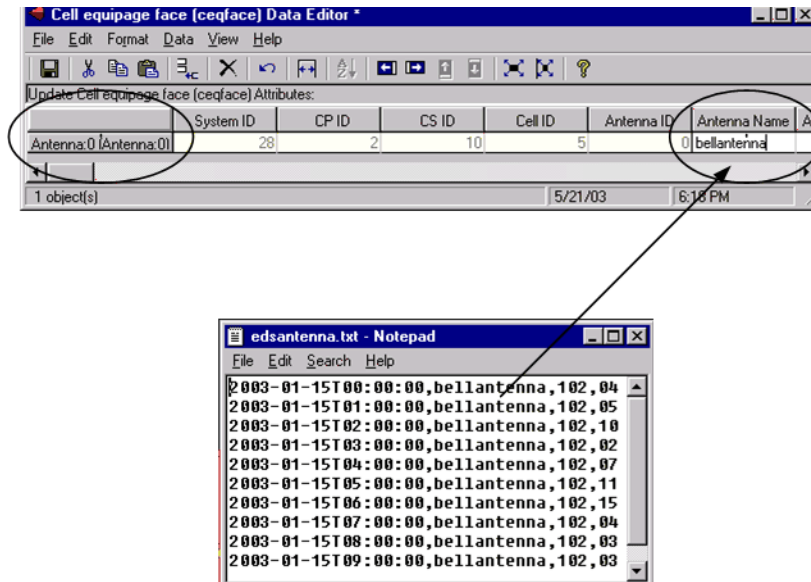
The following figure shows the proper construction of the key in one of the data source editors. The KEY FIELD includes the Antenna Name field.

Figure 13: Sample Key
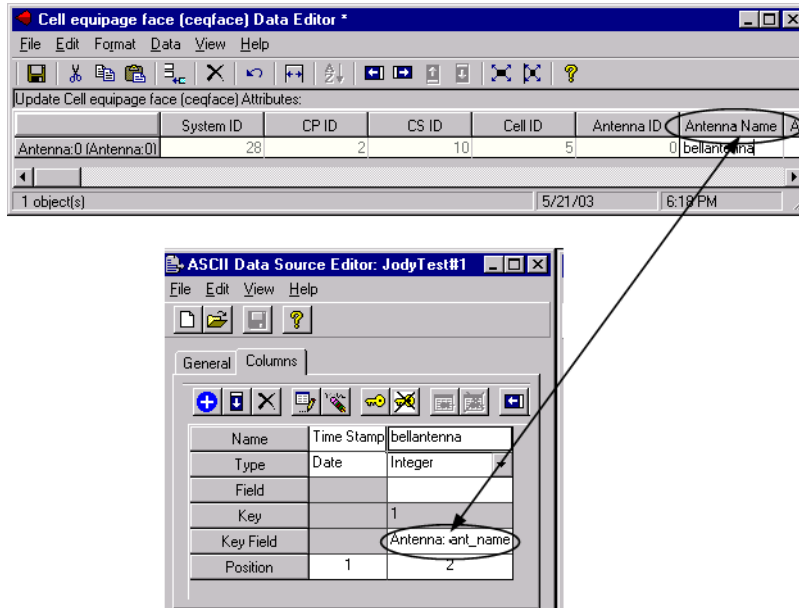
To prepare the scenario for external data sources

1. Open a scenario that contains the entity instance you want to link with an external data source. The SCENARIO EDITOR window opens.

2. From the tree hierarchy, select the entity instance of choice.

3. From the FILE menu, select EDIT ENTITY DATA. The SELECT ENTITY dialog box opens. Click OK.

4. Scroll to the name column. The actual column name will vary from entity to entity.

5. Type in the required name.

6. From the FILE menu, select SAVE.

The SCENARIO EDITOR window replaces the previous name with the new name.

Basics of the External Data Source Editors

Depending upon the external data source, you use either the ASCII Data Source Editor or the ODBC Data Source Editor.

Using the Data Source Editor, you create a data source document, which contains information on how an external data source is linked to an entity in the IBM Prospect database. The following figure shows the ASCII Data Source Editor. The legend explains the main parts of the dialog box.

Figure 14: ASCII Data Source Editor Dialog Box

Legend:

No.	Description
1	Menu bar — Use the menu commands to create a data source document.
2	Toolbar — Use buttons as shortcuts to commonly used menu commands.
3	General tab — Use to specify the data as time series, and enter information that IBM Prospect software uses to locate the external data source. The type of location information you enter in the GENERAL tab depends upon the external data source. For detailed information on the information you must provide, see Identifying the External Data Source on page 65.
4	Columns tab — Use to enter the information that is required for creating the virtual table by performing such tasks as specifying the time-stamp column, creating keys, and setting field properties.
5	Status bar — Displays the entity to which you have linked the external data source.

Note: COPY and SAVE AS are not available for External Data Source (EDS) documents. These operations would create two fields with the same name in a single entity type.

Related Topics

Preparing to Use External Data Sources

Columns Tab Settings

With the COLUMNS tab, you perform such tasks as specifying the time-stamp column, creating keys, and setting field properties. The following figure shows the various parts.

Figure 15: Columns Tab
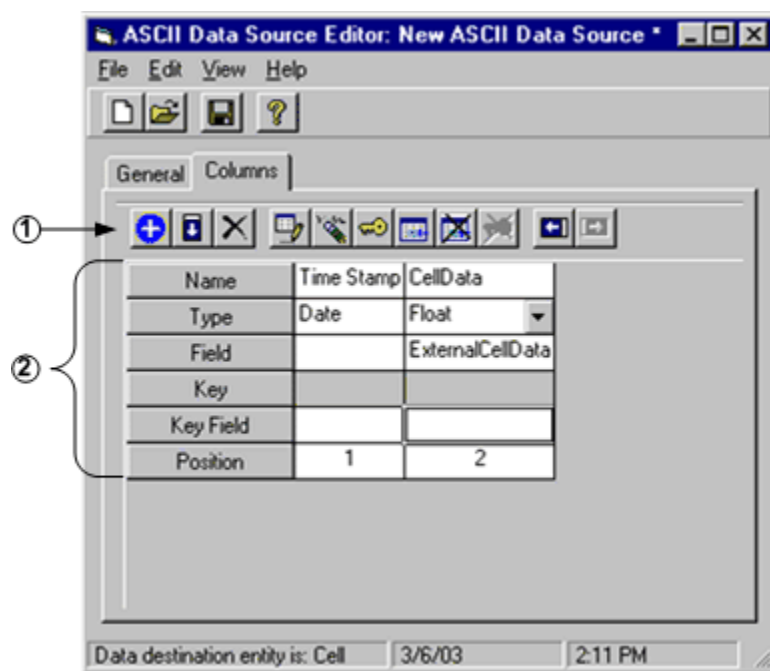
Legend:

No.	Description
1	Column toolbar—use this toolbar to add, edit, and delete columns. In addition to the toolbar buttons, you can right-click a column field to access commands.
2	Row labels—these labels designate the required column information (shown in the following table).

Button	Description
	Appends a column at the end of the column row
	Inserts a column to the left of the selected column
	Deletes the selected column
	Allows you to rename a column
	Clears the values of a selected column
	Allows you to add or edit a key field
	Allows you to add or edit a data field
	Deletes the value in a selected data field
	Deletes the value in a selected key field
	Moves the selected column to the left
	Moves the selected column to the right

Table 6: Row Label Descriptions

Label	Description
NAME	Name of the column. If the external source is: • ASCII file: Name should accurately describe the data • ODBC-compliant database: The name must be the same as the column in the external database, including case sensitivity if applicable. The Data Source Editor uses the name to locate the correct column in the external database.
TYPE	Data type
FIELD	Data field
KEY	Ordinal number for the key
KEY FIELD	IBM Prospect field

Table 6:   Row Label Descriptions (Continued)

Label	*Description*
POSITION	If the external source is: • ASCII file: Number must equal the position of the delimited column in the ASCII file, moving left to right. The Data Source Editor uses the position number to locate the correct delimited column in the external ASCII file. • ODBC-compliant database: Position is not relevant.

Using the Data Source Editor

You use one of the Data Source Editors to create a data source document. This document contains information on how an external data source is linked to the IBM Prospect database and how that information is processed by IBM Prospect software. Depending on your external data source, ASCII file or ODBC-compliant database, you create an ASCII Data Source or ODBC Data Source document, respectively.

To create a data source document

1. On the FILE menu of the IBM Prospect client, point to NEW, and click ODBC DATA SOURCE or ASCII DATA SOURCE, depending upon the external data source.

2. Select the entity that contains the instance to which you want to link an external data source.

3. Indicate whether the data is time-series.

4. Provide identifying information about the external data source.

5. Specify the time-stamp column if the data is time series.

6. Create a key or multiple keys.

7. Add the external columns that contain the data you want to link the IBM Prospect database.

8. In the DATA SOURCE text box, enter a name and click the SAVE button.

Selecting an Entity

Follow this procedure to select an entity to which you want to link an external data source.

To select an entity

1. From the FILE menu of the IBM Prospect client, point to NEW, and click ODBC DATA SOURCE or ASCII DATA SOURCE, depending upon the external data source. The SELECT ENTITY FOR THIS DATA SOURCE dialog box opens.

2. Select the desired entity and click OK. The ODBC DATA SOURCE EDITOR or the ASCII DATA SOURCE EDITOR opens.

Indicating Time-Series Data

If the external data is grouped by time, you need to indicate to the Data Source Editor that the data is time-series.

This procedure assumes the Data Source Editor is open.

To indicate time-series data

1. Make sure the GENERAL tab is open.

2. If the external data is grouped by time, verify that the DATA IS TIME SERIES check box is selected and select how often the data is grouped from the FREQUENCY drop-down list box.

    Using cells as an example, hourly would mean each cell would have a row of data for each hour in the day.

    ```
    2003-01-11T00:00:00,Cell1,data
    2003-01-11T00:00:00,Cell2,data
    2003-01-12T00:00:00,Cell1,data
    2003-01-12T00:00:00,Cell2,data
    ```

In this example, you would select the HOURLY option from the FREQUENCY list.

Note: If the external data source is hourly, then it can be used only in reports that are hourly in frequency.

Identifying the External Data Source

Use one of the following procedures to identify to the IBM Prospect system the location of an external data source. The procedure you use depends upon the external data source type. The following table lists each procedure and when to use one over another:

Table 7: Procedures for Identifying External Data Sources

Procedure	When to use
To identify an ASCII file as the external data source	Use if the external data source is ASCII.
To identify an Oracle database as the external data source	Use if the external data source is an Oracle database.
To identify an ODBC-compliant database as the external data source	Use if the external source is an ODBC-compliant database. If you are using a non-Oracle database, you need to supply additional information related to the ODBC-driver.

The following procedures assume the Data Source Editor is open.

To identify an ASCII file as the external data source

1. Make sure the GENERAL tab is open.

2. In the DESCRIPTION text box, enter a description of the ASCII file. This is for your information only.

3. In the FILE NAME text box, enter the absolute path of the ASCII file or a path with special flags:

   Example of absolute path: `/usr/data_directory/data_file.txt`

   Example of special flags: `/usr/data_directory/%Y/%M`

   For more information on the use of special flags, see [ASCII File Preparation](#) on page 56.

4. From the DELIMITER drop-down list box, select the delimiter used in the ASCII file.

To identify an Oracle database as the external data source

1. Make sure the GENERAL tab is open.

2. In the SERVER text box, type the name of the Oracle database to which you want to connect.

3. In the DATABASE text box, type ORACLE.

4. In the TABLE text box, type the name of the database table that contains the desired external columns.

5. In the USERID text box, type a logon of a valid user if authentication is needed.

6. In the PASSWORD text box, type the password for the user specified in the USERID field if authentication is needed.

To identify an ODBC-compliant database as the external data source

1. Make sure the GENERAL tab is open.

2. In the SERVER text box:
   - Type the name of the ODBC data source to which you want to connect, as found in the `odbc.ini` file; for example, MyServer.
     - or -
   - For direct control of connection parameters, pass a full connection string of the form required by `SQLDriverConnect()`; for example,
     `DSN=someDataSource;UID=user;PWD=password`
     In this case, the string is passed to `SQLDriverConnect()` without modification, and any values in the USERID, PASSWORD, and DATABASE fields are ignored.

3. In the DATABASE text box, type the database name if required. This field is optional, and its value depends on the underlying driver. For example, the name refers to a database when using a Microsoft SQL Server driver and to a directory when using a Paradox driver.

4. In the TABLE text box, type the name of the database table that contains the desired external columns. Case sensitivity may be a factor.

5. In the USERID text box, type a login of a valid user. Depending on the underlying driver, this may or may not be optional.

6. In the PASSWORD text box, type the password for the user specified in the USERID field. Depending on the underlying driver, this may or may not be optional.

Specifying a Time-Stamp Column

If the external data is time series, a time-stamp column is automatically inserted into the COLUMNS tab. Use the following procedure to enter additional information on the time-stamp field.

This procedure assumes the Data Source Editor is open.

To specify a time-stamp column

1. Click the COLUMNS tab to open it.

2. Depending on the external source, enter a column name:

   • Because ASCII files generally do not have column names, the Data Source Editor automatically enters the name for you. You cannot change it.

   • For an ODBC-compliant database, click the RENAME COLUMN toolbar button, and in the RENAMING COLUMN dialog box enter the name of the time-stamp column in the external source. The name you enter must match the name of the external column, including case sensitivity if applicable.

3. For an ASCII file, double-click the POSITION field, and enter the position of the time-stamp column in the external data source. Position is not relevant for ODBC-compliant databases.

Creating a Key

IBM Prospect software uses keys to locate unique data rows within the combined internal and external data sources. The items that constitute a key vary, depending upon the external data source:

Table 8: Parts of Keys

Data Source	Key Consists of...
ASCII file	Only the name field of the entity instance.
ODBC-compliant database	• The name of the column in the external database • The name field of the entity instance

You can create one or more keys. If you create multiple keys, you must rank them using ordinals, with the number 1 ranking the highest. In other words, IBM Prospect software will use the key with the ordinal of 1 first, followed by the remaining keys in sequential order.

Note: A column in the Data Source Editor can represent a either a key or data. Once you designate a column in the Data Source Editor as a key, the field toolbar icons are no longer available.

This topic assumes the Data Source Editor is open.

To create a key

1. Click the COLUMNS tab to open it.

2. To add the external data source portion of the key:

   a. Click the APPEND COLUMN toolbar button. The ADDING COLUMN dialog box opens. Type the name of the column and click OK. If the external source is an ODBC-compliant database, the name you enter here must match the name of the external column, including case sensitivity. The Data Source Editor appends the new column at the end of the column row.

   b. For an ASCII file, double-click the POSITION field, and enter the position of the time-stamp column in the external data source. Position is not relevant for ODBC-compliant databases.

3. To add the IBM Prospect portion of the key:

   a. Click the ADD OR EDIT KEY FIELD toolbar button. The SELECT KEY FIELD dialog box opens.

   b. From the ORDINAL list, select an ordinal number.

   c. Click the BROWSE button (...) and select a field (column) from the list of IBM Prospect available fields.

Adding or Editing Data Field Properties

Use the following procedures to add or edit field properties for data columns. You edit field properties using the COLUMNS tab.

Note: A column on the COLUMNS tab can represent a either a key or data. Once you designate a column in as data, the key toolbar icons are no longer available.

This topic assumes the Data Source Editor is open.

To add or editing data field properties

1. Click the COLUMNS tab to open it.

2. Add the desired external column by clicking the APPEND COLUMN toolbar button. The ADDING COLUMN dialog box opens. Type the name of the column and click OK. If the external source is an ODBC-compliant database, the name you enter here must match the name of the external column, including case sensitivity.

3. Click the ADD OR EDIT FIELD toolbar button.

   The CREATE NEW DATA SOURCE FIELD dialog box opens.

4. In the NAME text box, type the name of field. The field name must be unique within the IBM Prospect database and cannot include spaces.

5. In the DESCRIPTION text box, type a description of the field. ***Example***: Contains dropped-calls data

6. In the HEADING LINE 1 and HEADING LINE 2 text boxes, type the report heading text. The text you enter here becomes the field heading in a report.

7. From the AGGREGATION TYPE list box, select a type.

   - SUM—Tells the IBM Prospect software that the expression represents a sum (for example, lost calls), or a weighted average.

   - AVERAGE—Tells the IBM Prospect software to average values (for example, processor occupancies).

   - NULL—Tells the IBM Prospect software that these values are not meaningful to aggregate (for example, a status indicator or data-validity flag that varies for each entity and hour).

   - LABELS—Tells the IBM Prospect software that these values are not meaningful to aggregate over multiple network elements (for example, Roamer Cell Number).

   - CONSTANT—Tells the IBM Prospect software to evaluate over time and over entity, and pick the maximum value (for example, NUMDAYS).

   - QUANTITY—Tells the IBM Prospect software to pick the maximum value over the time interval, then sum over the entity.

   - MIN—Tells the IBM Prospect software to pick the maximum value over the time interval.

8. Under TECHNOLOGY, select the technology that applies to this field.

9. For an ASCII file, double-click the POSITION field, and enter the position of the time-stamp column in the external data source. Position is not relevant for ODBC-compliant databases.

Troubleshooting

The following items represent situations that might require resolution on your part.

Some existing external data is not included in IBM Prospect report.

External data is shown only when IBM Prospect data exists for the same hour. For example, IBM Prospect doesn't have information for the noon hour, then the external data will also not show for the noon hour.

If your users wish to see the external data regardless of whether IBM Prospect data exists, have them select the DON'T PURGE NULL ROWS check box on the Report Editor.

Existing external data is not included in a Day and Network Element report, but it is included in the Hour and Network Element report.

Check the frequency of the external data. The frequency of the document data should match the frequency of the reports that use the data. For example, hourly EDS data only shows up in hourly-based reports or busy hour reports of any frequency. Daily EDS data only appears in daily reports.

Currently the IBM Prospect program cannot dynamically aggregate external hourly data to daily levels as it can for internal IBM Prospect data. This issue may be addressed in future releases.

Existing ASCII external data is entirely absent from a IBM Prospect report.

Check the STATUS MONITOR for errors on the external data file. If the STATUS MONITOR states that it cannot open or read the file, verify that the path to the external data source is correct, and that the IBM Prospect UNIX user `flexpm` has read permissions for the file.

If you are using the substitution flags `%Y`, `%M`, or `%D`, check the log file for the report in question. There may be a problem with the substituted values. Either external data files for the requested report date-time scope do not exist, there is a error in the file name in the ASCII Data Source document, or the IBM Prospect UNIX user `flexpm` does not have user permissions for the external file.

The Status Report logs the message "SQL call failed" when a user runs a report containing external ODBC data.

Look at the bottom of the log for messages similar to the following. The exact message may differ from database to database.

- "Can't connect to server"

  Verify that the source server name specified in the ODBC Data Source document matches the value specified in the `odbc.ini` file. Some drivers are case sensitive.

- "Access denied for user"

  Verify that the database name is correct, the user ID is correct, and that the password (if needed) is correct. Some drivers are case sensitive.

- "Table doesn't exist"

  Verify that the source table in the ODBC Data Source document is correct.

- "Column doesn't exist"

  Verify the column names in the ODBC Data Source document are correct.

Choosing a Language Character Set

The IBM Prospect database by default supports the 7-bit U.S. ASCII character set. However, for your working environment you may need additional characters, particularly those with diacritical marks near or through a character, such as an umlaut.

The following sections tell you can how to enable the IBM Prospect database and software to accommodate a character set with diacritics. Once you have enabled language support, the IBM Prospect database can correctly store diacritical characters. This activity enables you to create such items as user names, report names, entity data, using diacritics.

Languages Supported

In addition to the default 7-bit US ASCII character set, the IBM Prospect database can support the 8-bit ISO 8859-1 character set. The ISO 8859-1 character set supports the following languages: Albanian, Basque, Breton, Catalan, Danish, Dutch, English, Faroese, Finnish, French, German, Greenlandic, Icelandic, Irish Gaelic, Italian, Latin, Luxembourgish, Norwegian, Portuguese, Rhaeto-Romanic, Scottish Gaelic, Scottish English, and Spanish.

Important: IBM Prospect software has not been tested for other ISO character sets, such as ISO 8859-2 or ISO 8859-3. If you plan to configure IBM Prospect software to support ISO character sets that have not been tested, please contact customer support for assistance.

IBM Prospect software does not support double-byte character sets (DBCSs).

How Language Support Works

For language support to work correctly, the software must enable a two-way data flow between the PC and the database on the IBM Prospect server, as illustrated in the following figure.

Figure 16: Two-way Flow of Diacritical Characters
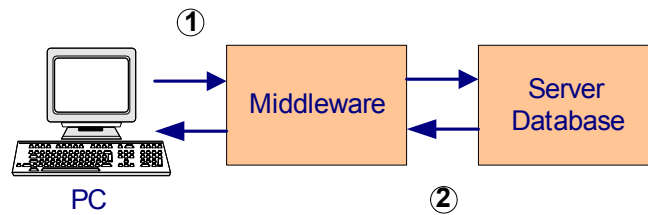
Legend:

No.	Description
1	The user must be able to enter accented characters at the keyboard, and the software must be able to pass these characters through the middleware and store them in the database.
2	Conversely, the middleware must be able to accept accented characters from the database and pass them on to the PC. The PC then must be able to display the characters on the screen.

Because the proper support of diacritics requires this two-way flow, you must configure all three components for language support: the PC, the IBM Prospect middleware, and the IBM Prospect database.

Configuring for Language Support

To enable support for the 8-bit ISO 8859-1 character set, you must configure your computer, the IBM Prospect middleware, and the IBM Prospect database.

Important: When you configure the IBM Prospect database to support the ISO 8859-1 character set, you are moving to a larger character set. Once you have made this transition, you *cannot* return to the default 7-bit U.S. ASCII character set. Therefore, it is highly recommended that you perform a full backup of the database before performing the following procedures.

Configuring the Computer for Language Support

To configure your computer so that it can handle diacritics, follow the instructions provided in Windows Help. From the START menu, click HELP. Look for the REGIONAL OPTIONS topic, which contains instructions for installing languages and keyboards, and customizing date and time formats.

The procedures change the keyboard layout as well as the default output format for dates, time, numbers, and currency. Changing the keyboard layout accommodates the diacritical marks that you enter, and is mandatory. Changing the default output is optional, but highly recommended.

You need administrator privileges on the computer before you can change these settings.

Caution: Since the procedure changes the keyboard layout for your computer, make sure you have either a keyboard in the correct language, or a map of the correct keyboard layout, before proceeding.

Configuring the Middleware for Language Support

Use the following procedures to set environment variables.

After you set the environment variables, you must shut down and then restart the middleware for the new settings to take effect. For procedures, see <u>Shutting Down the Middleware</u> on page 114 and <u>Starting the Middleware</u> on page 114.

To configure the IBM Prospect middleware

1. Log on to the IBM Prospect server using the IBM Prospect UNIX userID `flexpm`.

2. Use a text editor to open the `.profile.vendor` script.

3. Export the following language environment variables:

   ```
   $ export LANG=en_US.ISO8859-1
   ```

   ```
   $ export NLS_LANG=<language>_<territory>.<charset>
   ```

   Where `NLS_LANG` is the Oracle environment variable that sets the locale behavior for the database. Swedish character set example: `NLS_LANG=SWEDISH_SWEDEN.WE8ISO8859P1`. Check your Oracle documentation for a list of `NLS_LANG` parameters.

4. Save and close this file.

5. Open the file `DSRun` and add the following commands:

```
$ export WM_XML_ENCODING=ISO-8859-1

$ export WM_TRACE_ENCODING=1
```

6. Save and close this file.

7. Shut down and restart the middleware for the new settings to take effect.

Configuring the IBM Prospect Database for Language Support

The Oracle company has published a bulletin that contains the information you need to configure the database. The name of the document is "Changing the Database character set or the Database National Character Set," and its DocID number is "Note:66320.1."

Message of the Day

The Message of the Day feature allows IBM Prospect users to receive messages set by a system administrator. Messages are viewed using IBM Prospect Explorer and can be displayed automatically. Use the Message of the Day Editor to edit the message's text.

To automatically show messages

1. Open IBM Prospect Explorer.

2. On the TOOLS menu, click OPTIONS. The OPTIONS dialog box opens.

3. Click the ADVANCED tab.

4. Select the ENABLE MESSAGE OF THE DAY FOR ALL USERS check box.

5. Click OK.

Note: The ENABLE MESSAGE OF THE DAY FOR THIS USER check box on the GENERAL tab determines whether the message is displayed for a specific user.

To turn off automatic messages for one user

1. Open IBM Prospect Explorer as the user for which you want to enable or disable Message of the Day.

2. On the TOOLS menu, click OPTIONS. The OPTIONS dialog box opens.

3. Click the GENERAL tab.

4. Clear the ENABLE MESSAGE OF THE DAY FOR THIS USER check box.

5. Click OK.

To view the message of the day

1. Open IBM Prospect Explorer.

2. On the HELP menu, click MESSAGE OF THE DAY. The MESSAGE OF THE DAY dialog box opens.

Message of the Day Editor

The MESSAGE OF THE DAY EDITOR window, shown in the following figure, allows you to edit the text displayed by the MESSAGE OF THE DAY dialog box.

Figure 17:   Message of the Day Editor
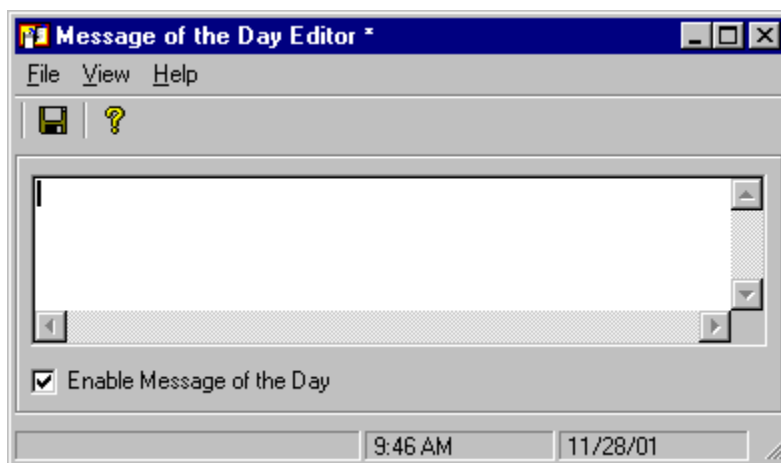
To edit Message of the Day text

1. Open IBM Prospect Explorer.

2. On the TOOLS menu, click MESSAGE OF THE DAY EDITOR. The MESSAGE OF THE DAY EDITOR window opens.

3. Edit the message text.

4. On the FILE menu, click SAVE.

5 Scenario Management

This section tells you how to perform scenario management tasks, such as creating new systems and new scenarios, editing configuration information, and deleting network elements.

Provided that a new entity is not an entity that data is collected from, IBM Prospect software automatically creates the entity in the database and adds entity data to the complete and active scenarios. If user scenarios are still linked to the active or complete scenarios, the new entity is also added to these scenarios.

Topics

Configuring the IBM Prospect Server

Scenario Editor

Entity Data Editor

Rehoming

Configuring the IBM Prospect Server

This section describes the following tasks:

- Adding a Top-Level Network Element
- Maintaining a Mapping Table for Carrier Entities
- Clearing Entity Information
- Clearing a System's Scenarios
- Updating the Active Status of Entities
- Renaming Active Scenarios

Adding a Top-Level Network Element

This procedure describes how to add a top-level network element to the database.

The addmsc.sh script uses the `msc_list` file to update loader configuration files with arguments for the network element you are adding.

To add an MSC to a system

1. Run the script `addmsc.sh`. Use the following syntax:

```
addmsc.sh -insert|-help|-cancel|-output|-remake [-name <NE Name>]
          -sys <sys ID>] [-ne <NE ID>]
          -type <NE type>] -p <prefix>] [-bss 30|60]
          -emsip <EMSIP Address> -concat <Y|N> -rncip <RNCIP Address> ]
```

The options for `addmsc.sh` are described in the following table.

Option	*Description*
`-insert`	Adds new entry to `msc_list` and derived files.
`-help`	Contains examples and usage infomation.
`-cancel`	Removes entry from `msc_list` and derived files.
`-output`	Shows current contents of `msc_list`.
`-remake`	Updates files with `makeArg` and `makeSentry`.
`-name <NE_name>`	Name of the network element in file names. Required for `-insert` and `-cancel`.
`-sys <sys_ID>`	Integer ID for the system. Required for `-insert` and `-cancel`.
`-ne <NE_ID>`	Integer ID for the network element. Required for `-insert` and `-cancel`.
`-type <ne_type>`	Network element type. Required for `-insert` and `-cancel`. Valid entries are: • "MSC" for MTX switches • "RNC" for 1xEVDO • "PDSNFA" for PDSN FA module • "PDSNHA" for PDSN HA module • "PDSN16000" for PDSN 16000 module • "PVG" for Packet Voice Gateway • "UAS" for Universal Audio Server
`-p <prefix>`	Default MSC name for the data file.
`-bss <30|60>`	Time interval of collected data. Required for -insert.
`-emsip`	Contains the IP Address of the EMS corresponding to the `NE-Name`. The EMS server contains EVDO data. This option is only to be specified for element type `RNC`. A default value of 0.0.0.0 will be filled in this column when Prospect for Nortel EVDO 8.0 upgrade is done.
`-concat`	Contains Y or N. The default value is N and will be set during upgrade.

Option	*Description*
`-rncip`	Contains the IP Address of the RNC named in the `NE-Name` column. This option is only to be specified for element type `RNC`. A default value of 0.0.0.0 will be set in this column during upgrade.

To support UAS data file loading, run the following command to add one UAS:

```
$ addmsc.sh -insert -name "UAS_NAME" -sys 100 -ne "UAS_node" -type "UAS" -
bss "60"
```

You need to use a real UAS name and UAS node in the command above. For example, the following commands add two different UAS nodes in msc_list under $PROSPECT_HOME:

```
$ addmsc.sh -insert -name "UAS_NEW2" -sys 100 -ne "SNANUAS2" -type "UAS" -
bss "60"
```

```
$ addmsc.sh -insert -name "UAS_NEW1" -sys 110 -ne "SNANUAS1" -type "UAS" -
bss "60"
```

The $PROSPECT_HOME\msc_list file will have entries like the following:

```
UAS_NEW2 100 SNANUAS2 60 UAS_NEW2. UAS
UAS_NEW1 110 SNANUAS1 60 UAS_NEW1. UAS
```

Note: When adding a top-level network element, you need to consider the planning data established during the system-planning phase. The sizing of the database table space, rollback segments, and other structures are based on that analysis. Therefore, if the number of top-level elements increases, you should review database sizing and possibly recalculate it. See Increasing Tablespace Size for more information.

---

2. Make sure to configure your top-level network element properly to deliver the appropriate files in the IBM Prospect server.

IBM Prospect software is now ready to accept data for the top-level element.

Maintaining a Mapping Table for Carrier Entities

In order to associate performance data for a channel with a logical carrier entity, you must manually maintain a channel-to-carrier mapping. Use the `addcarr.sh` script to maintain the correct channel-to-carrier mapping, which has the following syntax:

```
addcarr.sh -insert|-delete|-output|-update -n <MSC> -s <sys_ID> -m
<MSC_ID>
        -b <BSC_ID> -l <channel> -c <carrier>
```

Option	Description
<MSC>	Name of the MSC.
<sys_ID>	ID for the system.
<MSC_ID>	ID for the MSC.
<BSC_ID>	ID for the BSC.
<channel>	Channel number.
<carrier>	Carrier number.

After adding or deleting a mapping, you must type the following:

```
$ addcarr.sh -update
```

The addcarr.sh script uses the carr_list to update a database table which is used in the loading process to map carriers to cells and BSCs. The script updates both the $FLEXPM_HOME/pm/adm/setup-carr-list file and the NOR_MAP_CARR_CHAN_TAB table in the database.

Clearing Entity Information

The clear_msc.sh script allows you to delete the data for a network element and delete all of the elements under the network element.

Use the clear_msc.sh script with the following syntax:

```
clear_msc.sh <sysID> <element_ID>
```

The options for clear_msc.sh are described in the following table.

Option	Description
<sys_ID>	ID for the system.
<element_ID>	ID for the network element.

Clearing a System's Scenarios

The clear_scenario.sh script removes the scenarios for a system. Use the clear_scenario.sh script with the following syntax:

```
clear_scenario.sh <sysID>
```

For the *<sysID>* parameter, substitute the system ID.

Updating the Active Status of Entities

The `AD_run.sh` script updates the active status of all entities based on the data collected from a date range that you define. The `AD_run.sh` script differs from the `schedule_maint` program in that the `schedule_maint` program only uses the value that the system variable `ScenarioActivationWindow` defines. You can set this variable using a second script, `AD_window.sh`.

See the *User Guide* for more information on active and inactive entities.

For IBM Prospect Versions 8.0 and Newer

IBM Prospect software versions 8.0 and newer offer a `-w` option in the `AD_run.sh` script to specify a time window instead of a date range. The argument `-w 0` causes the script to use the value defined by the system variable `ScenarioActivationWindow`.

The `AD_window.sh` script sets the default window for scenario activation jobs. The value that this script sets becomes the default value for `schedule_maint` jobs as well as for the `AD_run.sh` script.

You cannot override this default value for `schedule_maint` jobs, but you can override it for `AD_run.sh`.

For information on the `schedule_maint` program, see

AD_run.sh Syntax

```
AD_run.sh [ -d <start_date> -D <end_date>|-w <window> ] [ -s {true|false}]
```

The options for `AD_run.sh` are described in the following table.

Table 9: Options for AD_run.sh

Option	*Description*
<start_date>	Start date for loaded data that determines the active status. Format is YYYYMMDD.
<end_date>	End date for loaded data that determines the active status. Format is YYYYMMDD.
<window>	(Available in software versions 8.0 and newer) Time window as expressed in days. The value 20 means "last 20 days." The default is 0, which causes the script to use the value defined by the system variable `ScenarioActivationWindow`.
-s true|false	Determines whether the tables are scanned. Default is `true`. Use the `false` value if the specified date range was previously scanned. This reduces the time it takes to run the script.

AD_window.sh Syntax

This script is only available in IBM Prospect software versions 8.0 and newer.

AD_window.sh [-w <window> | -l | -v]

The options for `AD_window.sh` are described in the following table.

Option	*Description*
<window>	Time window as expressed in days. The value `20` means "last 20 days."
-l	Display the scenario activation window value.
-v	Help

Note: The number of days specified as a time window sets a minimum requirement for the number of days data must be kept online. This will produce an error message if you attempt to specify a lesser number of days using the `past_part_maint.sh` script . See [Changing the Number of Days of Data to Keep Online (Retention Time)](#) on page 145.

Related Topics

> [Updating the Active Status of Entities](#)
>
> [For IBM Prospect Versions 8.0 and Newer](#)

Renaming Active Scenarios

The IBM Prospect software provides a script, `rename_scenario.sh`, that changes the name of active and complete scenarios. It is located in the `pm/adm` directory. The script changes the names of both the active and complete scenarios for a system and adds a description to each.

By default, the names for the active and complete scenario are always prefixed by `ACTIVE-` or `COMPLETE-`, respectively.

Usage

Use the following syntax for this script:

```
rename_scenario.sh -s system_id -n name -d description
```

where

- `-s` : System ID for the scenario (required). Always use the numeric ID for the system.
- `-n` : New name for the scenario (required).
- `-d` : Description (required)

Example

```
rename_scenario.sh -s 10 -n "MSC_North" -d "north district MSC"
```

This example changes the name of the `ACTIVE-10` and `COMPLETE-10` scenarios to `ACTIVE-MSC_North` and `COMPLETE-MSC_North`. The description "`north district MSC`" is applied to both.

Restrictions

Scenario names are limited to a total of 64 characters, including the prefix. (Allow 9 characters for the prefix.) Scenario names cannot contain any of the following characters:

- \ backslash
- / forward slash
- : colon
- * asterisk
- ? question mark
- ' single quote
- " double quote
- < less than symbol
- > greater than symbol
- | pipe symbol
- ; semicolon

The following table lists possible script errors:

Table 10: Possible rename_scenario.sh errors

Error number and text	*Remedy*
ORA-20300: Scenario Name is too long.	Provide a scenario name that is 64 characters or less.
ORA-20301: Name contains invalid characters.	Remove or replace the following characters, if any of them appears in the name: `\ / : * ? " ' <>	;`
ORA-20302: Invalid System ID.	Use a systemID that exists in the database.
ORA-20303: Unable to update ACTIVE and COMPLETE scenario.	Contact your IBM Prospect customer support representative.
ORA-20304: A scenario already exists with that name.	Use a different name for the scenario.

Scenario Editor

Use the SCENARIO EDITOR to do the following administrative tasks:

- Add and delete scenarios
- Add and delete placeholder entities
- Deleting inactive descendants from complete scenarios

The following figure shows the SCENARIO EDITOR window.

Figure 18: Scenario Editor
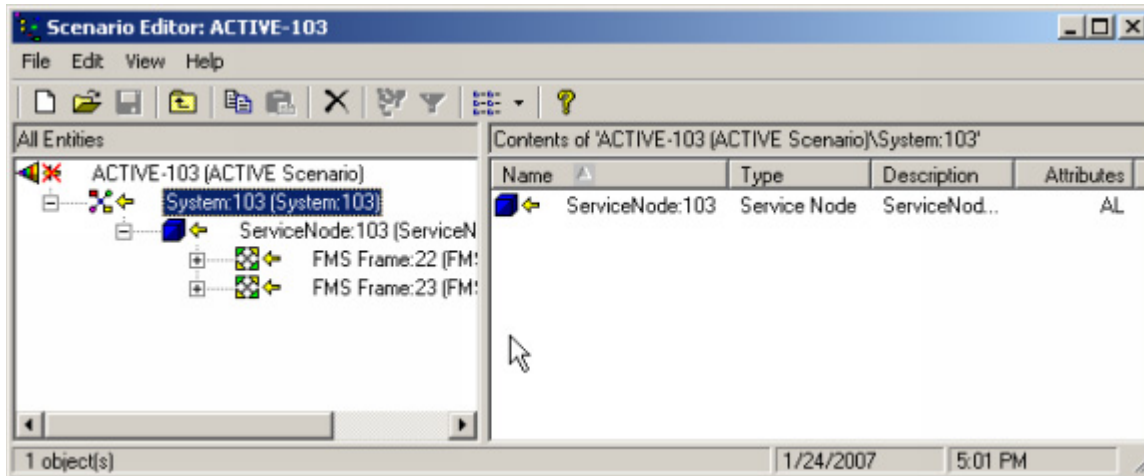
Topics

Adding and Deleting Scenarios

You can create a scenario that represents an entire system or systems—or portion of a system or systems—for report generation purposes and analysis.

You can base a new scenario on an existing scenario, or you can create one that contains placeholders for network elements.

To add a new scenario

1. Using the IBM Prospect client, open the scenario(s) you are using as the source for your new scenario. For example, you can select the Complete scenario if you are creating a scenario that includes inactive (out-of-service) network elements.

2. On the FILE menu, point to NEW, and then click SCENARIO.

   The Scenario Editor window opens, with the title NEW SCENARIO.

3. Drag the network entities from the source scenario to the NEW SCENARIO window.

4. To prevent an entity from being changed as the system is updated, select the entity, and then on the EDIT menu, click UNLINK.

5. To save the new scenario, on the FILE menu, click SAVE AS.

To delete a scenario

1. Using IBM Prospect Explorer, select the scenario you want to delete.

2. On the FILE menu, click DELETE.

Renaming or Moving Entities

If you need to reassign a network element from one system to another, you need to delete the old network element and create a new one. To specify that an element is inactive, you need to remove it from the Active scenario. In most cases, IBM Prospect software keeps track of which network elements are new and which are deleted.

If you want to maintain continuity of reporting on a network element that has moved (for example, if it has moved in the middle of a reporting period), you need to turn on rehoming for that element. This cannot be done with the Scenario Editor. For details on how to turn on rehoming, see [Rehoming](#).

Creating a Placeholder Entity

You can create an entity placeholder that allows a network element to appear in reports that you generate. Placeholders can also be used to represent the hierarchy, or individual elements, of a neighboring system.

If data is available for a placeholder entity, IBM Prospect software turns off the placeholder flag and the entity is no longer a placeholder.

Note: Placeholders are added to Active and Complete scenarios, but not to any user scenario. You must explicitly add a placeholder entity to a user scenario for it to be used in the user scenario.

To create a placeholder entity

1. In the IBM Prospect client, load the scenario in which you want to add the placeholder entity.

2. Start the Scenario Editor.

3. Select an entity that is the same type as the one for which you want to create a placeholder, right-click, and on the shortcut menu click EDIT ENTITY DATA.

4. On the EDIT menu, click ADD PLACEHOLDER **entity type,** or click the PLACEHOLDER

   button ( ) on the toolbar. A blank row now appears at the bottom of the table (grid).

5. Type all the necessary information in the data cells (fields).

6. To add the placeholder to the system, click SAVE.

If you are creating a system placeholder, IBM Prospect software automatically creates the system's Active and Complete scenarios.

Note: You cannot delete active entities that are not placeholders because such an action would make the Active scenario inconsistent with the configuration data that is loaded.

Deleting a Placeholder Entity

Use the following procedure to delete a placeholder entity. If data has been loaded for the entity and it is no longer a placeholder, IBM Prospect Explorer displays an informational message if you attempt to delete this active entity.

To delete a placeholder entity

1. Using the IBM Prospect client, open the Complete scenario.

2. Select the placeholder entity you want to delete.

3. On the EDIT menu, click DELETE.

4. To confirm that you want to delete this placeholder entity, click YES.

Deleting Inactive Descendants from the Complete Scenario

You can remove all inactive entities under a selected entity from a Complete scenario. This cleans up Complete scenarios that contain entities that are no longer needed by IBM Prospect users for reporting purposes.

To delete inactive descendants from the Complete scenario

1. Select a Complete scenario from the Scenario folder.

2. On the EDIT menu, click DELETE INACTIVE DESCENDANTS.

Copying and Pasting Hierarchy Data

The EDIT menu of the Scenario Editor contains two commands related to the copying of hierarchy data: COPY HIERARCHY DATA and PASTE HIERARCHY DATA. These commands give the administrator a quick way to copy all the entity data in the selected entity and all of its descendants to entities of the same type, without having to retype this data. Because these commands alter entity data, they can only be run by a user with IBM Prospect data administrator permissions or greater for a Complete or Active scenario.

To copy hierarchy data

1. Select an entity in the Scenario Editor.

2. On the EDIT menu, click COPY HIERARCHY DATA.

3. IBM Prospect software copies all the entity data for the selected entity in the Scenario Editor and all data associated with its descendants. No data is copied during this operation; the source entity is simply noted for a later paste operation. Therefore, it is important that the source entity still exist when you perform the paste operation later.

Warning: The following operation makes an immediate and irrevocable change to the data associated with the destination entity and its descendants.

To paste data for a selected entity

1. Select an entity.

2. On the EDIT menu, click PASTE HIERARCHY DATA.

3. IBM Prospect software pastes all data associated with the source (copied) entity and its descendants to the destination entity you select. To perform this operation, the paste process matches each source and destination entity by its ID. Only when a matching destination entity is found is the associated source data copied.

If you select a destination entity whose type is different from that of the source entity, IBM Prospect Explorer displays a message that the operation cannot be performed. The paste operation stops. Select an entity whose type is the same as the entity you copied and run PASTE HIERARCHY DATA again.

Entity Data Editor

Use the Entity Data Editor to do the following:

- Add entity information that is not reported by the system
- Add placeholder entities that represent new network entities or entities that are part of neighboring systems

The following figure shows the Entity Data Editor for the System entity.

Figure 19: System Data Editor
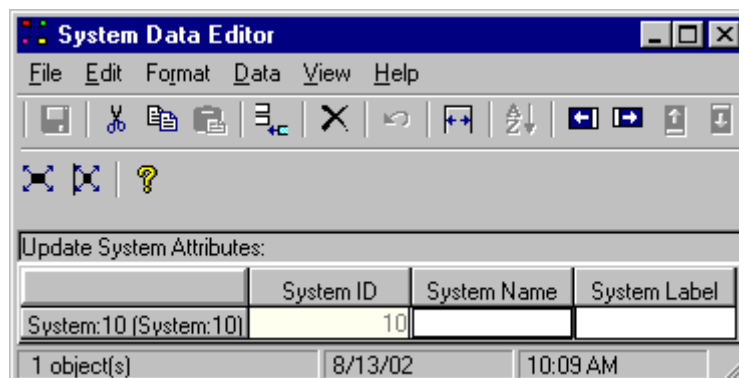
Editing Entity Data

Data loaded from the network lacks some useful information about network elements. You can add this information to the Active or Complete scenario by using the Entity Data Editor on the client workstation.

The following are some circumstances under which you might add or modify data for network elements:

- Loader adds data for a network element for which there is no placeholder in the database. In this case, some information is added to the database during loading, but you need to fill in the empty data fields.

- You need to add longitude and latitude for a cell.

To edit data for a network entity

1. Start the Entity Data Editor.

2. Change the attribute value in the appropriate column cell or cells.

3. On the toolbar, click the DISK button to save the data, or on the FILE menu, click SAVE.

4. To exit the editor, on the FILE menu, click CLOSE.

This returns you to the SCENARIO EDITOR window.

Selecting Data in the Table for the Entity

There are several ways to select the data in the table for the network entity in the Entity Data Editor window:

To select entity data in the table

- To select an individual cell, click it.

- To select a range of cells, press SHIFT+Click or CTRL+Click on the first cell in the range, and right-click to select the remaining cells in the range.

- To select an entire column, click the column heading.

- To select an entire row, click the row heading.

- To select all the editable rows and columns in the table, click SELECT EDITABLE on the EDIT menu, or click the SELECT EDITABLE icon. This procedure does not select key data cells.

- To select all rows and cells in the table without column and row headings, click SELECT ALL on the EDIT menu, or click the SELECT ALL icon. This procedure does not select column and row headings.

- To select all rows and cells in the table, including row and column headings, click the unmarked heading field in the upper left corner of the network entity data table.

Deleting Entity Rows in the Table

To delete row(s) of entity data

1. In the Entity Data Editor, select the row or rows you want to delete.

2. On the EDIT menu, click REMOVE ROW(S).

Sorting Entities

You can change the order in which network entities are displayed in the Entity Data Editor screen by sorting the values of up to three columns.

To sort entities

1. Select the rows you want to sort in the Entity Data Editor.

2. On the DATA menu, click SORT.

   The SORT SETTINGS dialog box opens.

Figure 20: Sort Settings Dialog Box
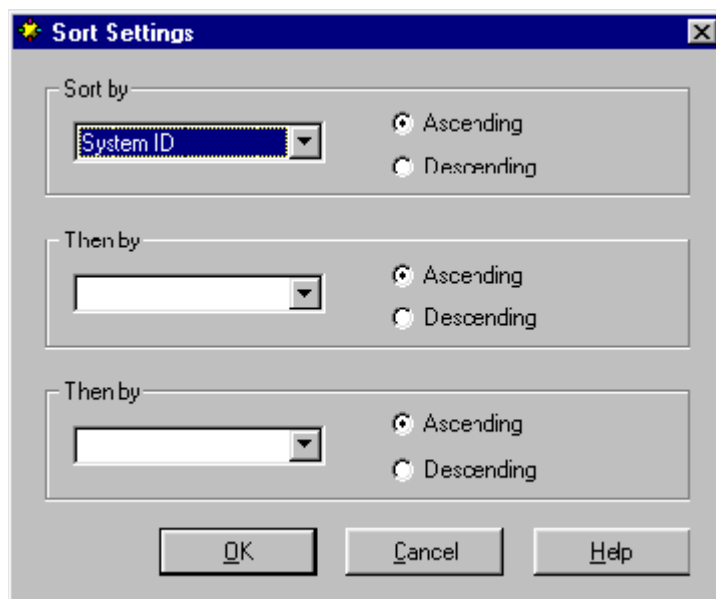
3. Select the column of the entity data table to sort the data from the SORT BY drop-down list.

4. Select the order in which this data will be sorted. To sort this data in ascending order, select the ASCENDING option button. To sort this data in descending order, select the DESCENDING option button.

5. To sort the data according to a second column, select the column from the THEN BY drop-down list.

6. Select the order in which this data will be sorted. To sort this data in ascending order, select ASCENDING. To sort this data in descending order, select DESCENDING.

7. To sort the data according to a third column, select the column in the second THEN BY list.

8. Select the order in which this data will be sorted. To sort this data in ascending order, click the ASCENDING option button. To sort this data in descending order, click the DESCENDING option button.

9. To begin sorting, click OK.

The network entity data rows are displayed according to the parameters you specified.

Copying Entity Data from Excel

Instead of typing network entity data into the cells of the ENTITY DATA EDITOR window, you can copy this data from an Excel spreadsheet that you create. To use this feature, your spreadsheet must satisfy the following requirements:

• The number of columns of the spreadsheet and their order must match the number and order of the columns displayed for the network entity in the Entity Data Editor window.

• The value of key fields must be present in the spreadsheet.

- The spreadsheet cells must be formatted for the same data type as the cells (fields) they correspond to in the Entity Data Editor. For example, longitude in minutes in the spreadsheet cell must be formatted as numeric information, not as labels.

The order of rows in the spreadsheet is not significant, nor must all rows be present. The Entity Data Editor searches through all rows on the Excel spreadsheet data copied to the clipboard to find matching values in key fields. Once it finds the matching row, the Entity Data Editor will paste the optional values specified in the spreadsheet into the editable fields.

To add entity data from Excel

1. In the Entity Data Editor, select the network entity of the type to which you want to add data.

2. In Excel, copy the rows and columns of the Excel spreadsheet to the clipboard.

3. In IBM Prospect Explorer, click PASTE SPECIAL on the EDIT menu. The PASTE SPECIAL dialog box opens.

4. To paste the entity data, click PASTE.

Rehoming

When equipment is moved from one switch to another, the IBM Prospect software treats it as if it were new. The transported equipment is assigned a new ID number, and any information on the equipment associated with the old ID number is not transferred to the new ID number. If this move is completed in the middle of a reporting period, the corresponding report is not complete.

Rehoming is a feature that associates two ID numbers so that a single report can be produced for a piece of equipment that may have been moved. For example, if a piece of equipment is moved in the middle of a month, rehoming allows you to produce an accurate monthly report for that piece of equipment.

The following diagram shows an example of moved equipment. The dotted lines show the piece of equipment that was moved, together with its child object.

Figure 21: Illustration of rehoming
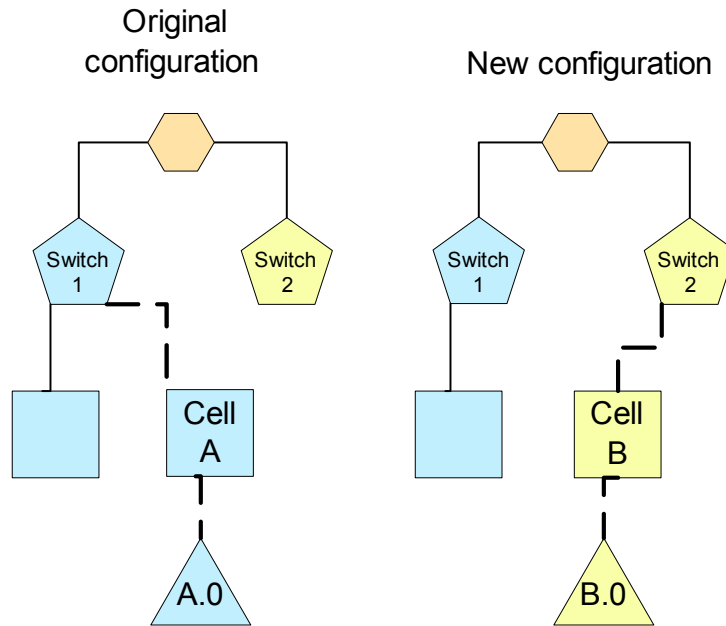
Topics

Restrictions

Managing Rehomed Data

Restrictions

The following restrictions apply to rehoming in IBM Prospect:

- IBM Prospect supports rehoming only at a single entity level. Any instance below this level is considered to have been rehomed if its ancestor was rehomed. Multi-level rehoming is not supported.

- The ability to use rehomed data is specified on a report by report basis. The option is available for reports at or below the entity level that has been rehomed.

- IBM Prospect reports instances that exist in the specified report scenario. For example, if a cell has been rehomed from A to B and A is subsequently reused (see Illustration of rehoming on page 90), IBM Prospect software does not combine data from the reused A or any of its children, after its reuse.

- Data Availability tools continue to represent data as it was recorded.

Managing Rehomed Data

If you need to set up or change rehomed entities, you cannot do so using the IBM Prospect GUI, you must use scripts provided on the IBM Prospect server.

Table 11:   Server scripts for managing rehomed entities

To do this	*Use this*
add a rehomed entity	addRH.sh
remove a rehomed entity	removeRH.sh
dump rehoming information about an entity, within a specified time range	dumpRH.sh

You can invoke each of these scripts with the `-v` parameter to display help text. To run the scripts, you need to be logged on to the IBM Prospect server as `flexpm`.

Calculating the Fullkey Reference

These scripts use a *fullkey* reference for entities. The fullkey is a unique combination of entity keys aligned from the top-level System entity to the lower-level rehomed entity such as Cell. In most cases, individual keys are separated by a dash (-). For rehoming a cell, for example, use the format `SYSid-ECPid-DCSid-CELLid`. The following is an example of a fullkey for a cell entity:

```
4182-4-1-136
```

You can retrieve the `SYSid` and `ECPid` from the file `$PROSPECT_HOME/ecp_list`. You can also retrieve a key from the EDIT ENTITY DATA option in the pop-up menu of the user interface.

Topics

Adding a Rehomed Entity

Use the `addRH.sh` script to add an association between two fullkeys for one entity. Once you have run `addRH.sh`, reports for the rehomed entity combine data from before and after the move.

To add a rehomed entity

1. Log on to the IBM Prospect server as `flexpm`.

2. Invoke the script using the following syntax:

```
addRH.sh -e entity_name -o oldfullkey -n newfullkey -t reparent_time
[ -d oldkey_starttime ][ -D newkey_endtime ] [ -u username ]
```

The following table describes the parameters for the `addRH` script.

Table 12: Parameters for addRH shell script

Parameter	*Description*
entity_name	The entity name of the reparenting fullkey.
oldfullkey	The old fullkey for the entity.
newfullkey	The new fullkey for the entity.
reparent_time	The rehoming time. This specifies the end time of the old fullkey, and the start time of the new fullkey. Use the format YYYYMMDDHH24:MI. For example, 2003102015:23.
oldkey_starttime	(optional) The start time of the old fullkey. Use the format YYYYMMDDHH24:MI.
newkey_endtime	(optional) The end time of the new fullkey. Use the format YYYYMMDDHH24:MI.
username	(optional) The user who conducts the action.
-v	Displays help text for the command.

Deleting a Rehomed Entity

The `removeRH.sh` script removes rehoming from a fullkey at a specified date and time.

To delete a rehomed entity

1. Log on to the IBM Prospect server as `flexpm`.

2. Invoke the script using the following syntax:

```
removeRH.sh -e entity_name -k fullkey [ -D endtime ] [ -u username ]
```

The following table describes the parameters for the `removeRH.sh` script.

Table 13: Parameters for removeRH.sh

Parameter	*Description*
entity_name	The entity name of the reparenting fullkey.
fullkey	The fullkey of the entity.
endtime	(optional) The end time of the new fullkey, in the format YYYYMMDDHH24:MI. For example, 2003102015:23
username	(optional) The user who conducts the action.
-v	Displays help text.

Displaying Data for Rehomed Entities

Use the dumpRH.sh script to dump rehoming information .

To display data for a rehomed entity

1. Log on to the IBM Prospect server as flexpm.

2. Invoke the script using the following syntax:

   ```
   dumpRH.sh [-k fullkey ] [-d startDate] [-D endDate] [-v]
   ```

The following table describes the parameters for the dumpRH.sh script.

Table 14:   Parameters for dumpRH.sh

Parameter	Description
fullkey	(optional) The fullkey of the entity.
startDate	(optional) The start date for data you wish to display.
endDate	(optional) The end date for data you wish to display.
-v	Displays help text.

6   Data Loading

Data loading is performed by a number of processes that parse data, build a data model, and load the data into an Oracle database.

- Sentry
- Commander
- Loader

Topics

Data Loading Process

The following figure shows the data loading process.

Figure 22: Data Loading Process
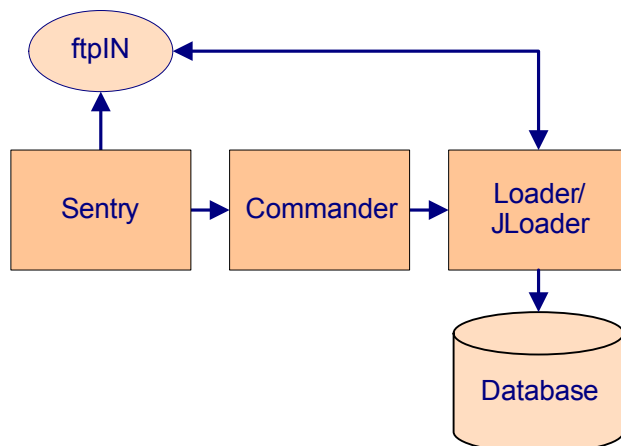
Sentry

The Sentry program runs continuously in the background, monitoring directories for the arrival of files. The Sentry looks for a specific pattern or file name in a particular location. For each file it recognizes, it starts a Commander process.

Commander and Loader

The Commander process starts one or more loader processes appropriate to the type of file. While the data loads, one Commander process and one or more Loader processes run on the server. When the Loader processes finish, the Commander process also finishes. You should never see a Loader process without a Commander process also running.

While loading data files, Loader combines the data files into a single target file, which is then loaded into the database. The target file is necessary in order to include the parent internal IDs using information in the traffic data. The BSC_NI and BSC_C7LinkSet entities use information in the BSC DB configuration files to generate the Network Indicator (NI) and Signaling Point Code (SPC).

After Loader processes the data, it writes a log to the `logs` directory in `$PROSPECT_HOME/../`
`ftpIN/`. If Loader successfully processes the data, it moves the file from the `in` subdirectory to the `ok` subdirectory of `$PROSPECT_HOME/../ftpIN/`*<data_type>*`/`. If the data process fails, Loader moves the file to the `fail` subdirectory.

You must ensure that sufficient disk space is available in the ftpIN directory. You can set up a cron job to run nightly to compress and archive data, log, and temporary files.

Configuring Data Loading

Defining Data Load Expectations

Network elements send data files at a predefined frequency (such as, every hour or every half hour) depending on the file type. Data files must arrive at the IBM Prospect server (in the `in` directory) when expected, because a missing data file could affect the integrity of a traffic report. For example, consider a data file type with an hourly frequency. If the IBM Prospect server does not receive the data file for one or more hours out of 24, the output of the traffic report could be skewed.

You use the `add_filetype_timeout.sh` script in conjunction with the event notification feature to send an event notification whenever a data file does not arrive when expected. For instructions on creating an event notification, see [Creating an Event Notification](#) on page 183. You enable data load expectations by selecting the event type FILE FAILED TO ARRIVE.

You can set a grace period, or *time-out*, during which the software will wait for the file to arrive. If the data file arrives during the time-out period, no notification is sent; if the data file does not arrive, a notification is sent. For example, if a data file is due at noon and the time-out period is one hour, the software checks at 1:00 P.M. to see if the data file has arrived within the last hour. If it has, no event is sent. The use of time-out periods eliminates false event notifications.

A time-out period for each data file type is set in the IBM Prospect database during installation: these are your *base* time-out values. You use the `override_default_timeout.sh` script to permanently replace the base time-out values in the database. For example, if you do not know the base time-out values, you can set your own. You can also use the `add_filetype_timeout.sh` script to set time-out values for individual network elements and data file types. The time-out values set with `add_filetype_timeout.sh` supersede, but do not replace, the time-out values in the database.

Syntax for add_filetype_timeout.sh

Use the `add_filetype_timeout.sh` script to perform the following:

- With the event notification feature to have an event notification sent if a data file does not arrive as expected.

  For information on setting up the event notification feature, see [Creating an Event Notification](#).

- To set time-out values for individual network elements and/or data file types.

The syntax for `add_filetype_timeout.sh` is the following:

```
add_filetype_timeout.sh [[ -t -f | -t -f -i | -f | -i | all ] [ clean ]]
                        | -d | -v | -vdetailed
```

The following table lists options for `add_filetype_timeout.sh`.

Table 15: Options for add_filetype_timeout.sh

Option	*Description*
`-t`	Time-out value in seconds. The time-out values you set with this script override the time-out values in the database.
`-f`	Data file type
`-i`	The network element name. Use the addmsc.sh -output command to list all names.
`all`	All data file types for all network elements
clean	Removes file types from current file-arrival expectations that were set with this command. The `clean` option works with the other command options. For example, you can: • Remove a single, multiple, or all file types, using the `-f` option • Remove groups of file types from a network entity, using the `-f` and `-i` options • Remove all file-arrival expectations by using the `all` option.
`-d`	It lists the file types, instance ID numbers, time-out values, and intervals at which the files are expected. The instance ID numbers are related to the network element instance name, and there is a many-to-one relationship. In other words, you can have many instance ID numbers for a single instance name. To determine the instance name, enter the following command: `add_filetype_timeout.sh -i` *<ne_name>* `-t` *<unique_value>* Look for all the instance names associated with the unique time-out value. Return the time-out value for the instance name to its original value.
`-v`	Describes the options for this command.
-vdetailed	Lists command options and examples.

Example: `add_filetype_timeout.sh -f data_file_typeA -t 3600`

The above example defines a time-out value of 3600 seconds (1 hour) for data file type `data_file_typeA`.

Example: `add_filetype_timeout.sh` -t 3600 `-f data_file_typeA -i network_ele01`

The above example defines a time-out value of 1 hour for data file type `data_file_typeA` of network element `network_ele01`.

Example: `add_filetype_timeout.sh -f data_file_typeA`

The above example uses the time-out value in the database for data file type `data_file_typeA`.

Example: `add_filetype_timeout.sh -i network_ele01`

The above example uses the time-out values in the database for all data file types of network element `network_ele01`.

Example: `add_filetype_timeout.sh all`

The above example uses the time-out values in the database for all data file types of all network elements.

Example: `add_filetype_timeout.sh -d`

The above example displays the time-out and interval for all data file types. The output would look something like the following:

```
File Type        Instance ID   Timeout      Interval
---------------------------------------------------
data_file_typeA   4270          3600         HOURLY
```

Example: `add_filetype_timeout.sh -f data_file_typeA -i network_ele01 clean`

The above example removes data file type `data_file_typeA` from `network_ele01` from the data file-expectation process.

Syntax for override_default_timeout.sh

Use the `override_default_timeout.sh` script to replace the time-out values in the database.

The syntax for `override_default_timeout`.sh is as follows:

```
override_default_timeout.sh -t -f | -t all | -v
```

The following table describes options for `override_default_timeout.sh`.

Table 16: Options for override_default_timeout.sh

Option	*Description*
`-t`	Override timeout value in seconds
`-f`	Data file type
`all`	All data file types
`-v`	Usage
-d	Display the file type, timeout, and interval for existing entries

Example: `override_default_timeout.sh -t 1800 all`

The above example defines a override timeout value of 1,800 seconds (one-half hour) for all data file types.

Parallel Data Loading

You can change the number of commanders and loaders that run in parallel by changing the MAX_COMMANDERS value. The more commanders and loaders that run in parallel, the faster your IBM Prospect system will load data. Please note that you need multiple CPUs and adequate RAM in the system to support more than one loader and commander process.

To set parallel data loading

1. If the Sentry is active, monitor its activity to ensure that data loading has completed before you continue to the next step.

    a. See if any `loader` processes are active by using the following command.

        `$ run-sentry watch`

    b. Ensure that data loading is complete by looking for active log files, using the following command. If you find lines with the term "active" (for example: `(run-sentry) sentry logs -- status 'active'`), it means that loading has not finished. Wait until the loading has finished.

        `$` **`run-sentry logs`**

2. Stop the Sentry.

    `$` **`run-sentry stop`**

    When you issue the `run-sentry stop` command, the Sentry is stopped after all current processes have finished running.

3. Modify the MAX_COMMANDERS parameter by running the following command. This command updates the Sentry environment settings.

    `$` **`run-sentry max=`**n

    where n is the number of MAX_COMMANDERS.

    Example: **`run-sentry max=2`**

Important: Increasing MAX_COMMANDERS to more than twice the number of CPUs is not recommended.

---

4. Restart the Sentry to enable loading.

    `$` **`run-sentry start`**

    `$` **`run-sentry watch`**

Loading Exception Messages

The IBM Prospect server may not load some data because the data was not mapped. The IBM Prospect server can track the skipped data, but you must first enable the feature before you can use it.

Use the `log_error_msg.sh` script, in the `$PROSPECT_HOME/scripts` directory, to configure the logging for exception messages.

Syntax

log_error_msg.sh [Y|N] [-p *<directory>*] [-d *<days_to_keep>*]

The following table describes options for `log_error_msg.sh`.

Table 17:   Options for log_error_msg.sh

Option	*Description*
`[Y|N]`	Turns the logging feature on (Y) or off (N).
`-p <directory>`	Specifies the location of the logs. This option is required the first time `log_error_msg.sh` is run. After that, it is optional.
`-d <days_to_keep>`	Specifies the number of days to keep the logs. Default is three days.

Example

```
log_error_msg.sh Y -p /tmp -d 3
```

Note: Be sure that the directory used by `log_error_msg.sh` has write and execute permissions for the UNIX user for the Oracle database `oracle` and IBM Prospect UNIX user `flexpm`.

If a file is successfully loaded, the log file is moved to the `<switch_release>/fail` directory in `$PROSPECT_HOME/../ftpIN/`.

EVDO Data Loading

New Concatenated file features of EVDO 8.0

The Nortel EVDO traffic data was cumulative in nature in EVDO release 7.0 and earlier. The template data files at the EMS are written to each sampling period, and then the file size grows and becomes large towards the end of the day. This format of data is referred to as Non-concatenated EVDO data. This imposed a heavy load on the EMS and the Data Acquisition (DA) server. Due to these reasons, Nortel has introduced the concatenated file feature which is available for EVDO 8.0 and later releases. This feature concatenates OMs from all nodes (RNC and DOM) for the same EMS and generates only one OM file per RNC/DOM template per collection interval. The collection interval can be 15, 30 or 60 minutes. A file generated on the EMS with **concat** feature turned on is called concatenated EVDO data.

Due to the **concat** feature, there are some changes in IBM Prospect side. When the **concat** feature is turned on at the EMS, the file format produced by Nortel is slightly different from EVDO 7.0. This results in smaller files coming into the `1xRaw` directory. The IBM Prospect code is updated to handle this new data format.

Changes in callPreparse.sh

For non-concatenated data `callPreparse.sh` is invoked on the command line as follows:

```
[flexpm]$ cd $PROSPECT_HOME/1xEVDO/scripts
[flexpm]$ callPreparse.sh <RNCNAME> N
```

`RNCNAME` is the name in the `NE-Name` field in the `msc_list`.

The "N" indicates concat option is turned off.

For concatenated data, `callPreparse.sh` is invoked on the command line as follows:

```
[flexpm]$ cd $PROSPECT_HOME/1xEVDO/scripts
[flexpm]$ callPreparse.sh <EMSIP> Y
```

EMSIP is the IP Address of the EMS as specified for this RNC in the `msc_list`.

The "Y" indicates concat option is turned on.

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Data Loading

Changes in cron job for callPreparse.sh

In the Nortel AMPS/TDMA/CDMA/MTX17 Release Point 16.5 (for CONCAT =Y or N both), the `callPreparse.sh` will process one raw file in the `$PROSPECT_HOME/../ftpIN/MTXnn/` `1xRaw` directory. Prior to this release, the `callPreparse.sh` processed all the files in a sequential manner for a certain RNC. In Nortel AMPS/TDMA/CDMA/MTX17 Release Point 16.5, the `callPreparse.sh` script will process more than one file for a certain RNC, thereby enabling parallel pre-parsing and loading. The current approach allows the script to make a better use of all the available CPU resources in the system. It is advised that customers make appropriate cron entries to call the `callPreparse.sh` every minute. If there is a backload situation, the `callPreparse.sh` will be started each minute and process a file. The number of files processed could be close to the number of CPUs in the IBM Prospect server. However this depends on the load on the server at that time. (For example, Number of loaders / reports running).

Note: Due to the changes for parallel loading of files for same RNC, it is important that the value of `PREPARSER_LIMIT` is slightly less than the number of CPUs in the system. Otherwise, it is possible that there are too many perl pre-parser processes spawned. This can result in a block. The value of `PREPARSER_LIMIT` can be set to two less than the number of CPUs in the system. For example, for a 24 CPU server, set this value to 22. Then monitor the server for load times. If it is too high you may have to reduce this number further.

Updating the scenario label with RNCName

Nortel AMPS/TDMA/CDMA/MTX17 Release Point 16.5 can update the RNC scenario label with RNCNAME. The steps to update the scenario are as follows:

1. Upgrade the Prospect server to RP16.5 and load at least one datafile for all RNCs in `msc_list`.

2. Stop the **Sentry** program and make sure EVDO data load is complete.

Important: All the logs for EVDO should show that the data load is complete. Do not proceed to next step if loaders are hanging or logs are incomplete due to some other reason. Halt the middleware if necessary and let all the loader processes complete.

3. Get the `system_id` and `msc_id` from the `msc_list` for the RNC for which you need to update the scenario. Both `SYS_ID` and `MSC_ID` should be numeric values. Use the following command to determine this:

Substitute <*RNCNAME*> with actual name of the RNC. RNCNAME is the prefix for the files in the `1xRaw` directory.

```
grep <RNCNAME> $PROSPECT_HOME/msc_list
```

4. Login as `flexpm` user, and then run the following script.

```
[flexpm]$ cd $PROSPECT_HOME/1xEVDO/scripts
[flexpm]$ ./del_key_lookup.pl <SYS_ID> <RNC_ID>
```

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5. Repeat steps 2 and 3 for all the RNCs for which the label needs to be updated.

6. Start the **Sentry** program.

7. Load the pre-parsed data for all the RNCs that are being worked on.

8. Start the Client or Pweb to see the scenario name updated with RNCNAME as seen in the `msc_list`. Earlier it would be the label DO_RNC for all RNCs.

Interface changes between DA and IBM Prospect Server for Concat option

There are two important changes to the interface between DA and IBM Prospect when the concat option is turned on.

- The filename that is sent from DA server to IBM Prospect `1xRaw` is called

  `<EMSIP>.<TSTAMP>.30.RNCpm.gz` (`TSTAMP` is in the format `YYYYMMDDHHMI`)

  Sample file: `9.127.97.74.200903101100.30.RNCpm.gz`

- The `<EMSIP>.candidateRncQuery<tstamp>.txt.` is now sent to `$PROSPECT_HOME/../ftpIN/evdo_cfg` directory for the IBM Prospect pre-parser to make the association between RNCs and DOMs. In Nortel AMPS/TDMA/CDMA/MTX17 Release Point 16.4 and earlier, this file was used by the DA code. This file will be sent to IBM Prospect server only for EMSs that have the concat feature turned on. The file is collected and transferred to IBM Prospect server by the `rnccfg` datatype DAT script.

  Sample file:

  `9.127.97.74.candidateRncQuery09112009.txt`

  This file should be readable by `flexpm`

Note: After the Nortel AMPS/TDMA/CDMA/MTX17 Release Point 16.5 upgrade, if the customer plans to use the CONCAT=Y option in `callPreparse.sh`, then it is important that there is a `<EMSIP>.candidateRncQuery<tstamp>.txt` file (for current day or the prior day) in the `$PROSPECT_HOME/../fptIN/evdo_cfg` directory before EVDO data loading can start. If the file is not present, the file will not be pre-parsed. Therefore, the file is not loaded.

New flag in set_evdo_option script

There is a new flag called `chan` for the `set_evdo_option` script. This affects customers who collect the following DOM Sector templates:

- `RNCPerfBySectorCarrier`
- `HHOInhibit`
- `AirlinkResourceAllocationPerfBySectorCarrier`

The flag can take two values 0 or 1. The default value is 0.

Sample usage:

```
$ set_evdo_option chan="1"
$ set_evdo_option chan="0"
```

The `chan` option =1 tells the pre-parser to load data by using the channel number from the `IS856` file and is the correct value to use though the older reports have different key values compared to the new ones you will generate. Use this value if you are not looking at historical EVDO data for the counters in the above templates.

The `chan` option=0 tells the pre-parser to continue by using the `channelRecordSc` as in Nortel AMPS/TDMA/CDMA/MTX16 Release Point 16.3. This is the default value. Use this value if you have historical data being used for busy hour /summation reports based on the counts in the above templates.

Previously, for the DOM_Sector templates that were indexed by `rnIpAddress`, `channelRecord` and `pnOffset` (the 3 templates listed above), the following was true:

`<DOM_ChanNo_ID>` in the key was same as `channelRecord` which was obtained from data file. The `channelRecord` contains the channel number in its 11 lowest significant bits. Its not the channel number itself.

However other RNC DOM_Sector templates use channel number from the `IS856ChannelElement` Config data file. Hence reports that contain both RNC Sector and DOM Sector counters result in 2 rows for each key value like the table below. After the change in Nortel AMPS/TDMA/CDMA/MTX17 Release Point 16.4, there will be one row for channel 625 in the IBM Prospect report as described in the table below.

System/DO_RNC/DO_BTS/DOM/DOM_ChanNo/ DOM_Sector	*DO_BTS*	*DOM_Sector*	*Counter1*
TOTALS			84,275.02
4384 6 1 RNCNAME_BSC1/MC1900BTS001/8 2673 X	1	X	
4384 6 1 RNCNAME_BSC1/MC1900BTS001/8 2673 Y	1	Y	
4384 6 1 RNCNAME_BSC1/MC1900BTS001/8 2673 Z	1	Z	
4384 6 1 RNCNAME_BSC1/MC1900BTS001/8 625 X	1	X	359.6687012
4384 6 1 RNCNAME_BSC1/MC1900BTS001/8 625 Y	1	Y	328.869751

The `chan=1` option uses the `IS856CHANNELELEMENT` configuration file to get the channel number for a particular `pnOffset` and `DOM_IP` combination.

This will cause a change in key formation at the DOM_Sector entity level and will invalidate old data for customers. Hence the change is optional and can be set using the script `set_evdo_option` (`$PROSPECT_HOME/scripts`)

Monitoring the Data Loading Processes

This section describes various tasks that are part of managing data loading process:

The run-sentry Program

Data Loading Log Files

The run-sentry Program

The `run-sentry` program manages the data loading processes. The syntax for `run-sentry` is the following:

```
run-sentry start|stop[normal|immediate]|suspend|resume|restart|watch|
    check|status|files|logs|fail|scan|max=<nn>|find[-ls|-<nn>|-rm ]
    |-list|-links [<directory>]
```

The following table describes the options for `run-sentry`.

Table 18: Options for run-sentry

Option	*Description*
start	Start the Sentry.
stop	Requests a shut down for the Sentry and associated processes.
normal	Shut down with normal wait conditions.
immediate	Shut down with no waiting.
suspend	Inhibit the Sentry from starting.
resume	Allow normal processing for the Sentry.
restart	Start and stop the Sentry and associated processes.
watch	Repeat the display of Sentry and associated processes.
check	Use ${DB_CONNECT} to check the database service status.
status	Show status of wmpm et al using ps and ptree
space	Monitor available space in the disk/volume storage pool.
files	Show directory entries for ok, fail, and in files.
logs	Show directory entries for log files generated by Loader.
fail	Show failed files and related logs.
scan	Scan for errors/messages in the directory log files.
max=<*x*>	Set the MAX_COMMANDERS value in .prospectrc.
find	Locate files and related logs.
-<*nn*>	Number of entries to show from a directory
-ls	List the files and related logs.
-rm	Remove the files and related logs.
-list	Examine links for Sentry and rcp-transfer.
-links	Maintain links for Sentry and rcp-transfer.
<*directory*>	Specify a directory under the ftpIN directory.

Data Loading Log Files

The following table lists the log files created for data loading:

Table 19: Data Loading Log Files

Log Type	*Directory Name*
Sentry	$PROSPECT_HOME/../ftpIN/sentryLogs/
Loader	$PROSPECT_HOME/../ftpIN/<*subdirectory*>/logs

The Sentry creates a log file each time it runs. If a Commander starts more than one loader for a job, it combines all loader logs into one file when the job completes.

Loader log files contain more than just errors. You can encounter the following types of messages in a Loader log file:

- Informational messages. The log file lists the name of each table in the database and how many rows Loader added to it.

- Loader errors.

- Oracle database errors. For more information about an error, use the **oerr** command at the UNIX shell prompt. Use the syntax **oerr ora** *<errnum>*.

  Example

  ```
  oerr ora 01400
  ```

Troubleshooting Data Loading

The following table describes types of errors that might occur and possible solutions:

Table 20: Troubleshooting Data Loading

When this happens	*Do this*
Data for a particular location is missing.	Check the `$PROSPECT_HOME/../ftpIN/<subdirectory>/fail` directory to see if an error has occurred. If no data is received, check the connection between the managed network and the IBM Prospect server.
Data is missing or corrupt.	Check Loader log files to see what the error message is and where it is located. Check the connection between the managed network and the IBM Prospect server. Retransmit the file if necessary.
A file remains in the `/in` directory.	Verify that the file is named correctly. Check the Sentry log file to see whether the file is being loaded.
The Sentry does not attempt to load a file.	Check to make sure that the Sentry is running.
Some files might not load in the first attempt. Error messages are logged if this occurs.	Deadlocks can occur occasionally when data is loaded while partition maintenance is running. This problem is generated in the Oracle database code that is not under IBM Prospect development control. The loaders automatically retry these failures.

7   IBM Prospect Server Processes

The IBM Prospect server middleware provides a number of processes that perform important functions in IBM Prospect software:

- Shell Environment for Server Processes
- Server Process Management
- Report Generation
- Time Zone Support for Reporting
- Data Aggregation

Shell Environment for Server Processes

The shell environment for the IBM Prospect middleware is established by means of profile files. The profiles are structured in the following layers. You can find these profiles in the directory `$FLEXPM_HOME`.

- A `.profile` file that sets basic shell control variables, such as `PATH`, `LD_LIBRARY_PATH`, and `ORACLE_HOME`.
- A `.profile.flexpm` file that sets more detailed controls for IBM Prospect programs in the second layer.
- A `.profile.connect` file that sets variables that affect connections to port numbers and the database schema.

Important: These profile files should not be modified. Any predefined environment setting needs to be overwritten by using `.profile.vendor` only. This file is located in the directory `$FLEXPM_HOME/vendor/Common`.

The environment is designed to persist and does not need to be refreshed. Once you set up the shell properly, it requires no additional steps or intervention.

You can add to two additional profiles, `.profile.local`, and `.kshrc.local`, that are preserved during installations and upgrades. The `.profile.local` file is read first, so the environment settings persist. For more information, see the comments in the `.profile*` file.

Server Process Management

Two programs work together to set up, control, and monitor IBM Prospect server processes. These tools are installed on the IBM Prospect server and run from a Korn shell:

- **wmpm**—Process manager daemon. Performs most of the underlying management functions.
- **ps-mgr**—Process control program. Works as a user interface to wmpm, including mechanisms to start and stop wmpm.

The ps-mgr Program

Run ps-mgr to manage IBM Prospect server processes. This tool keeps track of commands, process IDs, and log files. You can use ps-mgr to do the following:

- List running processes
- Start and stop processes
- Examine log files and history entries

Each call to ps-mgr is recorded in a history file named ps-mgr.history. The usage for ps-mgr is as follows:

```
ps-mgr [start | stop [normal | immediate]] [tag]
ps-mgr [-help | -tags]
ps-mgr [suspend | resume | restart] [tag]
ps-mgr [watch [-1 | -v]]
ps-mgr [check | ports]
ps-mgr [status | halt | init]
ps-mgr [logs | space | purge  | reset ]
```

The following two tables describe the options for ps-mgr and the tag options.

Option	*Description*
start	Starts the middleware tasks/processes.
stop	Stops the middleware tasks/processes.
normal	Shuts down tasks/processes with normal wait conditions.
immediate	Shuts down tasks/processes immediately.
suspend	Suspends any new task and allows old tasks to finish.
resume	Resumes normal processing of tasks.
restart	DataServer closes its connections to clients and then shuts down. The wmpm starts another DataServer immediately.

Option	*Description*
`watch`	Displays tasks/processes at specified intervals.
`check`	Checks status of database connection using `${DB_CONNECT}`.
`ports`	Uses `netstat` to show ports in `${PORT_GROUP}`
`status`	Checks status of middleware processes.
`halt`	Shuts down the middleware tasks/processes using the UNIX signal options `TERM` or `QUIT`.
`init`	Starts up the middleware using `/etc/init.d/wmpm`
`logs`	Lists accumulated log files.
`space`	Monitors available disk space in disk/volume.
`purge`	Eliminates old, unwanted log files except for the current day.
`reset`	Resets the size of today's log files to zero.
`save`	Creates a sub-directory and copies the current log file to `$FLEXPM_HOME/pm/log/save-logs.YYYY.MM.DD`.

Option	*Description*
`fx`	Client DataServer.
`rs`	Report generation DataServer, which may be shown as `rs#####`.
`sn`	Sentry control
`al`	Queue named `wm_alert`.
`sc`	Queue named `schedule`.
`mq`	Message queue.
`tm`	Task manager and Scheduler.
`qc`	Queue controllers.
`ag`	Data aggregation processor

Option	Description
eh	Event handler processor
sa	Soft alarm processor
`all`	All processes

If you enter `ps-mgr` at the UNIX prompt, it displays the help text for the command, which contains additional options for `ps-mgr`.

The following table lists files maintained and monitored by `ps-mgr`:

Directory	File(s)	Description
`${PM_LOGS}`	`$FLEXPM_HOME/pm/log/`	Directory that holds process logs.
`${PM_LOGS}`	`ps-mgr.history`	Records each `ps-mgr` request.
`${RG_LOGS}`	`wmtm.log`	Task Manager log file.
`${RG_LOGS}`	`wmtm-T-J.log`	Output for task type T and job ID J.

Note: Elapsed times noted in the ${RG_LOGS} log files are correct, even though they might not match the start and finish times displayed in the Status Monitor. Times displayed in the Status Monitor are approximate.

Starting the Middleware

Follow these steps to start the middleware. See the topic <u>The ps-mgr Program</u> on page 112 for more information on using `ps-mgr`.

To start the middleware

This procedure assumes that the middleware is completely shut down.

1. Log on to the IBM Prospect server as `flexpm`.

2. Start the process manager and middleware.

   $ **ps-mgr init**

   Review the current status output from the command. The first panel shows the `wmpm` status. The second panel shows manager-agent connections.

Shutting Down the Middleware

To upgrade and maintain IBM Prospect software, you probably will want to stop the middleware processes.

This guide offer two methods for shutting down the middleware. The first is the recommended method in that it gracefully stops the system by allowing running reports and loaders to finish. The second method immediately cancels any running reports, and the middleware exists before the Loader finishes.

For instructions on recommended method, see <u>Shutting Down the Middleware Safely</u> on page 115. For instructions on the other method, see <u>Shutting Down the Middleware Immediately</u> on page 115.

Shutting Down the Middleware Safely

Use the following procedure to allow the reports and loaders to finish before the middleware processes exit. Specifically, this procedure allows:

- Any reports currently being generated to finish
- Loaders to complete the process of loading data.

To shut down the middleware safely

1. Log on to the IBM Prospect server as `flexpm`.

2. Enter the following command:

   ```
   $ ps-mgr stop all
   ```

   You see a list of stopped processes scroll on the screen. The command has successfully executed when you see the following:

   ```
   command complete: stop all
   ```

3. Enter the following command, which stops the `ps-mgr` process.

   ```
   $ ps-mgr halt
   ```

   The middleware is completely down.

To restart the middleware, see <u>Starting the Middleware</u> on page 114.

Shutting Down the Middleware Immediately

When you immediately shut down the middleware, the following occurs:

- Any running reports are cancelled.
- The middleware processes exit before the `loader` processes complete loading data files, which include moving data files from the `ftpIN` directory, inserting them in the database, and then moving them to the appropriate output directory.

In shutting down the middleware immediately, you risk canceling reports that users are expecting and risk that the Loader will load only partial data.

To shut down the middleware processes immediately

1. Log on to the IBM Prospect server as `flexpm`.

2. Enter the following command:

```
$ ps-mgr halt
```

Let the middleware remain down for several minutes as `loader` processes can still be running.

3. To see whether `loader` processes are still running, enter the following:

```
$ ps -Af | grep loader
```

If no `loader` processes are running, the middleware is completely shut down, and it is safe to restart it.

To restart the middleware, see <u>Starting the Middleware</u> on page 114.

Setting the Maximum Number of Simultaneous Jobs

An administrator can set the maximum number of jobs that run at any one time.

Note: You can only modify the maximum number of jobs for the following job types: IMM, SCH, and RGFP. The default values for the remaining job types are static and cannot be changed.

The following table lists job types, their description, and default values.

Table 21: Descriptions of Job Types

Job Type	Description	Defaults
IMM	Number of immediate reports that can be run at a time	2
SA	Number of soft alarm jobs that can be run at a time	4
AGGR	Number of aggregator jobs that can be run at a time	4
SCH	Number of scheduled reports that can be run at a time	2
RGFP	Number of report groups that can be run at a time	1
MISC	Number of internal clean processes that can run at one time	1
SS	Number of summary update jobs that can be run at one time	1
BH	Number of busy hour update jobs that can be run at one time	1

To set the maximum number of simultaneous jobs

1. Log on to the IBM Prospect server as `flexpm`.

2. Run the `schedule_limits` script located in the directory `/pm/run` using the following syntax:

`schedule_limits [-i <N>] [-s <N>] [-<jobtype> <N>] [-v]`

The following table describes options for the `schedule_limits` script.

Table 22: Options for schedule_limits

Option	*Description*
`-i <N>`	Limits the number of immediate jobs running at one time to *N*
`-s <N>`	Limits the number of scheduled jobs that run at one time to *N*
`-<jobtype> <N>`	Limits the selected job type to run at one time to *N*
`-v`	Displays usage.

Important: If you run the script without arguments, the return values are the current settings for all job types.

Report Generation

Three programs are responsible for sending report data to the client:

- Scheduler
- Report Group Processor (`rgp`)
- Report Server

Report generation involves the concepts of *job* and *task*. A job includes a report group while a task includes one report in that report group.

Configuration parameters that control the scheduling algorithms and resource allocations are set automatically when the IBM Prospect server is installed, and cannot be changed.

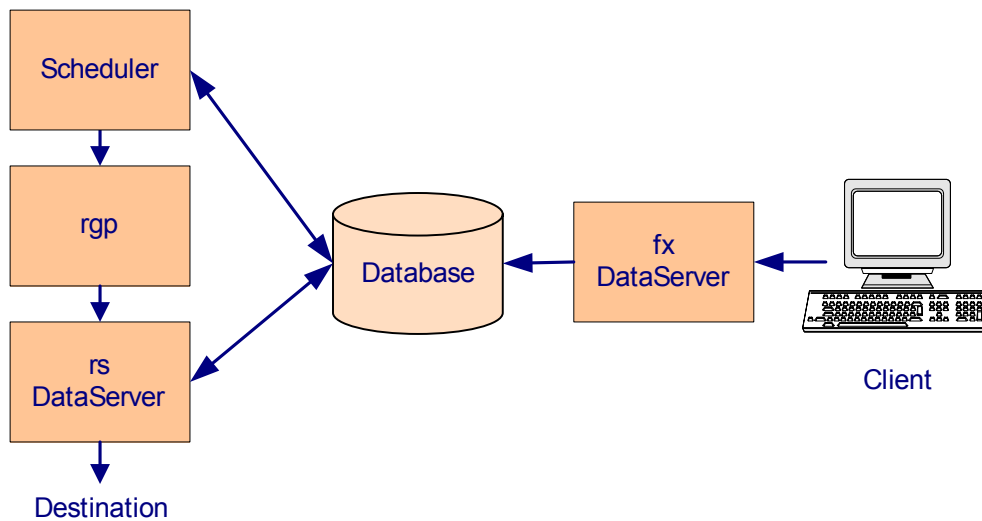### Topics

Report Generation Process

Report Group Processor

Report DataServer

Troubleshooting Report Generation

Report Generation Process

The following figure shows the report generation process.

Figure 23:   Report Generation Process

When a user schedules a report, the following events occur:

1. The IBM Prospect client submits a schedule request to the client `fx` dataserver.

2. The `fx` dataserver creates a schedule entry in the database. The schedule entry contains the scheduled run time and repetition, if any.

3. Scheduler starts an `rgp` job when the report group is scheduled to run.

4. The `rgp` process asks the `rs` DataServer to run the report against the Oracle database.

5. The `rs` DataServer runs the queries requested in the reports against the Oracle database.

6. Finally, the data is shipped to the destination—either held in a file for later retrieval or sent directly to a waiting target process, such as Excel.

Related Topics

[Report Group Processor](#)

[Report DataServer](#)

[Troubleshooting Report Generation](#)

Report Group Processor

When Scheduler starts a job, `rgp` starts a Report Server task for each report in the group and stores report status information in appropriate Oracle tables.

Scheduler is started automatically at system startup, and should always be running. To learn whether a process is running, use `ps-mgr`.

Use `ps-mgr watch` to monitor running reports.

Related Topics

[Report Generation Process](#)

[Report DataServer](#)

[Troubleshooting Report Generation](#)

Report DataServer

The Report (`rs`) DataServer receives task information from `rgp`. The `rs` DataServer composes the necessary database queries, executes the queries, and passes the resulting data into the report output.

The IBM Prospect server is configured to simultaneously run two `rs` DataServers. You can change the number of concurrent `rs` DataServers by changing the `RS_DS_LIST` variable in the `.profile.custom` file in the `$FLEXPM_HOME` directory.

Important: Increasing the number of `rs` DataServers may hurt your system performance. Make sure you study the impacts on memory usage, CPU usage, and swapping.

To change the number of RS DataServers

1. Stop the Middleware. (See [Shutting Down the Middleware Safely](#) on page 115.)

2. If the `.profile.custom` file does not exist, copy `.profile.custom_` to `.profile.custom`

3. Edit `.profile.custom` and uncomment the following section:

```
# Uncomment these lines to provide custom DB configuration, port group, and
# number of RS data servers. Note pweb is the default userid/passwd for
# Prospect Web.
#
#    export RS_DS_LIST="2"
#
#    DB_CONNECT="flexpm/flexpm@flexpm"  \
#    PORT_GROUP="6440"  \
#    . ${FLEXPM_HOME}/.profile.connect
```

For example, to use 4 RS data servers, but leave the same default database/port configuration, change the `.profile.custom` file to:

```
# Uncomment these lines to provide custom DB configuration, port group, and
# number of RS data servers. Note pweb is the default userid/passwd for
# Prospect Web.
#
    export RS_DS_LIST="4"

    DB_CONNECT="flexpm/flexpm@flexpm"  \
    PORT_GROUP="6440"  \
    . ${FLEXPM_HOME}/.profile.connect
```

If you already have a `.profile.custom` file, you might need to add or change the lines manually using `.profile.custom_` as a guide.

4. Change to the `FLEXPM_HOME` directory:

   ```
   cd $FLEXPM_HOME
   ```

5. Resource the `.profile` file:

   ```
   . ./.profile
   ```

6. Run the `setup-connects` command:

   ```
   pm/adm/setup-connects -make all
   ```

7. Restart the middleware. (See)

Related Topics

> Report Generation Process
>
> Report Group Processor
>
> Troubleshooting Report Generation

Troubleshooting Report Generation

Occasionally report generation may seem slow, or it may even fail. The following sections review the situations in which this action might occur and what you can do to correct it.

Loader and rs DataServer Loading the Same Data

Inconsistent results can be generated by the `rs` DataServer when Loader is loading the same data. The inconsistent results are caused by locks used while data loads. The locks only affect reports that overlap the data for both date-time scope and network elements.

For example, loading data for a network element does not lock reports on another element. Loading today's data will not lock reporting on yesterday's data. The exception to this is configuration data and reporting. Since configuration reports can span multiple network elements—regardless what the scenario may be, the system is compelled to lock all of the network elements.

Reports still start or run when data is locked. For new reports, the report generation process waits until the data is unlocked. Reports that are being generated restart and wait until the data is unlocked. If the report generation process waits too long, then the report fails and generates the following message:

```
Failed: Loaders are taking too long -- Giving up
```

If reports continue to fail, reschedule them for a later time when the `loader` processes are not running. To determine whether `loaders` are running, use the command `ps-mgr watch`.

Setting the RS_ENABLE_PROBE Variable

If report generation fails for a prolonged period of time (for example, a half an hour or more), it may be caused by the process manager (`wmpm`) not waiting long enough before restarting an unresponsive `rs` DataServer. This problem is most apt to occur immediately after a IBM Prospect software upgrade. To resolve this problem, you need to change the value for the RS_ENABLE_PROBE variable.

The RS_ENABLE_PROBE variable determines how long the process manager waits before restarting an unresponsive `rs` DataServer. To find and set the optimal value for the RS_ENABLE_PROBE variable, perform the following procedure.

Before You Begin

Step 7 in the following procedure refers to a time stamp showing when the Data Dictionary finished loading. By default, tracing is turned off. In order to see the message "DD Configuration finished", follow these steps:

- Edit the file `ds.trace` in `$FLEXPM_HOME/ds/rs` directory.

```
% cd $FLEXPM_HOME/ds/rs
% vi ds.trace
```

- Look for the following line, and set the value to **yes**:

```
STRING DataQuery yes
```

- Then, restart the middleware:

```
% ps-mgr stop all
% ps-mgr halt
% ps-mgr init
```

To find and set the RS_ENABLE_PROBE variable

1. Make sure no reports are running or scheduled to run within the next 20 minutes.

2. Reset the value of the RS_ENABLE_PROBE variable and export it to the environment:

   ```
   $ export RS_ENABLE_PROBE=750
   ```

3. Restart the middleware to update it with the new RS_ENABLE_PROBE value:

   ```
   $ ps-mgr halt
   $ ps-mgr init
   ```

4. Wait 12 minutes.

5. Find a running `rs` DataServer process:

   ```
   $ ps-mgr watch
   ```

   Example: `rs19311`. Take the first rs DataServer process in the list.

6. Look for the time stamp showing when this process last started:

   ```
   $ grep -i "logging started" $FLEXPM_HOME/pm/log/<rsnnnn.log.yyyy.mm.dd>
   ```

   Where *nnnn* is the rs DataServer number from the previous step, and *yyyy.mm.dd* is the current date.

   You should see something like this:
   ```
   << DataServer: LOGGING STARTED AT 2003.06.22 09:57:50 >>
   ```

7. Look for the time stamp showing when this process last finished loading the Data Dictionary (DD):

   ```
   $ grep "DD configuration finished" $FLEXPM_HOME/pm/log/
   <rsnnnn.log.yyyy.mm.dd>
   ```

   Where `<rsnnnn.log.yyyy.mm.dd>` is the same file from the previous step.

   You should see something like this:
   ```
   Th27|2003/06/22 10:00:47|DDQuery::doStartup()   |DD configuration finished
   ```

8. Determine the difference between the two time stamps, and add 150 seconds as a margin of error (recommended). The result is the new value for the RS_ENABLE_PROBE variable.

   Example: 10:00:47 - 09:57:50 = 177 seconds
   177 + the recommended 150 seconds = **327**

9. Update the value of the RS_ENABLE_PROBE variable in the `.profile.custom` file in the directory `$FLEXPM_HOME`. Or, if the file does not contain command lines for RS_ENABLE_PROBE, add the following:

   ```
   export RS_ENABLE_PROBE

        RS_ENABLE_PROBE=<nnn>
   ```

   Where `<nnn>` is the value you determined in the previous step.

   More information on the `profile.custom` is provided after the last step in this procedure.

10. Log out and log in again as `flexpm`.

11. Restart the middleware to update it with the new RS_ENABLE_PROBE value.

```
$ ps-mgr halt
```

```
$ ps-mgr init
```

If the `profile.custom` file does not exist, copy `profile.custom_` to `profile.custom`, disable any example lines that are executable by commenting them out, and then add the RS_ENABLE_PROBE lines in step 9.

Related Topics

Report Generation Process

Report Group Processor

Report DataServer

Time Zone Support for Reporting

The IBM Prospect report scheduler offers users the option of running reports according to a different time zone than the one where the server is located. For example, if the IBM Prospect server is located in California (Pacific time zone) and the user is running reports in Colorado (Mountain time zone). To set up this feature, the administrator needs to do the following:

- Set up Daylight Saving Time (DST) rules
- Define time zone regions, and assign DST rules to them

The following sections describe these procedures.

About Daylight Saving Time Rules

A DST rule defines the boundaries (starting and ending point) and the amount of DST savings, in minutes. A DST boundary is a date time reference that excludes a time zone region. A single DST rule can be referenced by more than one time zone region.

You must explicitly create a daylight saving time rule if one is not available. A default rule is assigned at installation time, but you can add others at any time.

You can define several different types of rules. Usually the entries follow a day-of-the-week-in-month form, for example, "first Sunday in April." You can also define a rule by specifying any of the following forms:

- Exact day of the month
- The day of the week occurring on or after an exact day of the month
- The day of the week occurring on or before an exact day of the month

The interface assigns numeric values to the days of the week. Sunday is defined as 1, Monday is defined as 2, and so on.

The following table shows an example of a DST rule for Seattle. It defines daylight saving time as starting the first Sunday in April at 2:00 a.m., and ending the last Sunday in October at 2:00 a.m.

Table 23: Example of DST rule for the Seattle region

	attribute	*example*
Starting	Month	April
	Day	first
	day of Week	Sunday
	Time	2:00 AM
Ending	Month	October
	Day	last
	day of week	Sunday
	Time	2:00 AM
Savings	Savings	60 Minutes

Defining Daylight Saving Time Rules

Use the dst_rule.sh script to manage rules for time zone regions. This script allows you to perform the following tasks:

- Create a DST rule
- Delete a DST rule
- List all defined DST rules

Syntax

```
dst_rule.sh [ [start] [end] -s minutes] | [ -r [id] ] | [-x id]
```

The *start* attribute can take any of the following forms:

- -m MM -a dayofweek -d DD -t HH:MI
- -m MM -b dayofweek -d DD -t HH:MI
- -m MM -f dayofweek -t HH:MI
- -m MM -l dayofweek -t HH:MI
- -e MMDD -t HH:MI

The *end* attribute can take any of the following forms:

- -M MM -A dayofweek -D DD -T HH:MI
- -M MM -B dayofweek -D DD -T HH:MI
- -M MM -F dayofweek -T HH:MI
- -M MM -L dayofweek -T HH:MI
- -E MMDD -T HH:MI

Table 24:   Key to attributes

attribute	description
a/A	First (1=Sun, ...) on or after
b/B	Last (1=Sun, ...)or before
d/D	Day of the month DD
f/F	First (1=Sun, ...)
l/L	Last (1=Sun, ...)
m/M	Month, 01-12
e/E	Exact day, specify month (MM) and day (DD) For example, 0415 represents April 15.
t/T	Time, hours (HH) and minutes (MI)
s	Savings, in minutes
r	Dump the rule specified (if *id* is specified), or all rules if *id* is not specified
x	Delete the DST rule

DST Rule ID

The *id* attribute represents the rule's identifier, which you can find by using the -r argument. Use the following command to list all DST rules in the system:

```
$ dst_rule.sh -r
```

When you create a DST rule using the dst_rule.sh script, the IBM Prospect software automatically assigns a number to the rule, and displays it after the rule is created. The identifier is always an integer, and cannot be changed.

About Time Zone Regions

A time zone region is different from a time zone. In the Mountain time zone of the United States, for example, the state of Arizona does not observe Daylight Saving Time, whereas the majority of the rest of the time zone does. The administrator defines time zone regions, which the user can then select when scheduling reports.

The following are the default regions available at installation time; you can add others at any time:

- America/Anchorage
- America/Buenos Aires
- America/Caracas
- America/Chicago
- America/Denver

- America/Honolulu
- America/Indianapolis
- America/Lima Peru
- America/Mexico City
- America/New York
- America/Noronha
- America/Phoenix
- America/Puerto Rico
- America/San Francisco
- America/Santiago
- America/Sao Paulo
- America/Seattle
- Asia/Bangkok
- Asia/Calcutta
- Asia/Dubai
- Asia/Hong Kong
- Asia/Jerusalem
- Asia/Riyadh
- Asia/Tokyo
- Australia/Adelaide
- Australia/Brisbane
- Australia/Perth
- Australia/Sydney
- Europe/Athens
- Europe/Berlin
- Europe/Brussels
- Europe/Helsinki
- Europe/London
- Europe/Madrid
- Europe/Moscow
- Europe/Paris
- Europe/Rome
- Europe/Vienna
- Europe/Warsaw
- Europe/Zurich
- Greenwich Mean Time

- Pacific/Auckland

It is more convenient to define a Daylight Saving Time (DST) rule before defining a time zone region (TZR), but it is not mandatory.

Defining Time Zone Regions

You can set the current time zone region for your computer as well as define new regions to fit your business needs. IBM Prospect software provides two scripts to define and control the time zone regions on your system:

- timezoneregion.sh
- set_tzr.sh

Use the `timezoneregion.sh` script to create, update, delete, and list time zone regions. You can use any of the following formats for the script:

- Create a TZR by providing a name, GMT offset in minutes, and optionally assigning a DST rule to it.
- Create a TZR by providing a name and DST rule.

If you enter the command without any arguments, then `timezoneregion.sh` displays the usage.

Syntax

```
$ timezoneregion.sh [ -n name -g gmt_offset [ -r dst_id ] ] | [ -N name -R
dst_id ] | [ -t [name] ] | [ -x name ]
```

Table 25:   Options for the timezoneregion.sh script

Option	*Description*
name	Name of the time zone region (64 characters maximum)
gmt_offset	GMT offset in minutes (-720 to 720). Longitudes west of GMT are negative, and longitudes east of GMT are positive.
dst_id	DST Rule ID
-t	Display the rule and its DST information
-x	Delete the specified time zone region

Example

If you enter the command:

> **$ timezoneregion.sh -t**

The system will respond with all the time zone regions that are currently loaded and their DST settings.

```
flexpm@mycomputer ; timezoneregion.sh -t
Connected.
America/Anchorage    -540 [1] First Sunday in Apr at 02:00 ... Last
```

```
Sunday in Oct at 02:00, 60 minutes
America/Buenos Aires -180
America/Caracas      -240
America/Chicago      -360 [1] First Sunday in Apr at 02:00 ... Last
Sunday in Oct at 02:00, 60 minutes
America/Denver       -420 [1] First Sunday in Apr at 02:00 ... Last
Sunday in Oct at 02:00, 60 minutes
America/Honolulu     -600
America/Indianapolis -300
...
```

Use the set_tzr.sh script to display or reset the database time zone region.

Syntax

```
$ set_tzr.sh [ -n 'name' | -t ]
```

Table 26: Options for the set_tzr.sh script

Option	Description
-n name	Name of the time zone region (64 characters maximum)
-t	Display the rule and its DST information

Examples

If the current time zone region is set for London and you enter:

$ set_tzr.sh -t

The system will return:

```
Connected.
Europe/London
```

If it is set for GMT it would show:

```
Greenwich Mean Time
```

If you want to change the setting to Seattle time, you would enter:

$ set_tzr.sh -n 'America/Seattle'

The system will return:

```
Connected.
OK: America/Seattle
```

Warning! Existing schedules that deliver reports based on time zone regions could be impacted when you change the region on a computer. The schedules are based on the number of hours dif-

ference between two computers and are not linked dynamically to a region's name. When you change a time zone region for a computer, the hour relationship will not change.

Related Topics

[About Time Zone Regions](#)

[Defining Daylight Saving Time Rules](#)

Data Aggregation

Optional Feature

Important: The material in this section applies to your installation only if you have the optional Data Aggregation feature included in the IBM Prospect software. If you do not know whether or not your installation includes the optional Data Aggregation feature, contact your customer support representative.

The IBM Prospect server aggregates certain data prior to report generation, for the following reasons:

- to extract key performance metrics from the data
- to reduce the volume of data which the report generation process handles

The following figure illustrates the data aggregation process.

Figure 24: Data Aggregation Process
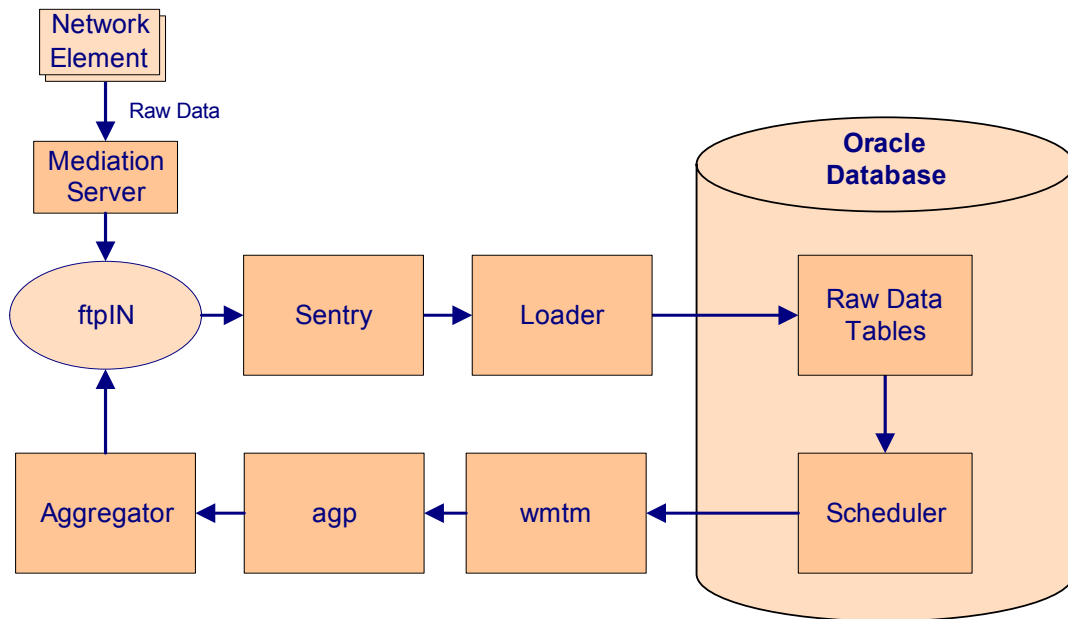
The following provides details of the data aggregation process.

Topics

Scheduling Aggregation Jobs

Aggregating Raw Data

Loading Aggregated Data into the IBM Prospect Server

Scheduling Aggregation Jobs

Optional Feature

Aggregation jobs are scheduled in two ways. The first way is for the Loader process to detect that an hour of data for a network element has been loaded, and schedule an aggregation job. The second way occurs when a complete hour's worth of data is not loaded into the database, but enough time has elapsed that it is unlikely that the data will be complete.

In this case, the Scheduler process waits for two hours before scheduling the aggregation of incomplete data. If, at a later time, the complete hour's worth of data is available to load, the incomplete data is automatically overwritten by the complete data. When the Task Manager process (`wmtm`) receives an aggregation job from the Scheduler, it sends the job information to the `agp` process.

Aggregating Raw Data

Optional Feature

The `agp` process sends aggregation tasks to the Aggregator in much the same way that a Report Group Processor sends a task to the Report Server. Aggregated data is then returned by the Aggregator to the `ftpIN` directory. The following table lists the location and naming conventions for the various aggregation files.

Table 27: Aggregation Files

File Type	*File Name*
Aggregator job (`agp`) log	`$FLEXPM_HOME/rg/log/wmtm-3-`[*job ID*]`.log`
Aggregator task log	`$FLEXPM_HOME/rg/log/AG_`[*job ID*]`_`[*task ID*]`.log`
Aggregator log	`$FLEXPM_HOME/pm/log/ag.log`[*date*]
Aggregated data	`$PROSPECT_HOME/../ftpIN/`<*vendor_release*>`/in/`[*element ID*]`.`[*task ID*]`.`[*date*]`.aggr`

Aggregation jobs and tasks are displayed in the Status Monitor. You can use the Status Monitor to see the status of an aggregation job and to access log information for a specific job or task.

Loading Aggregated Data into the IBM Prospect Server

Optional Feature

Aggregated data is written as a file to the `$PROSPECT_HOME/../ftpIN/`<*vendor_release*>`/in` directory. The Sentry process detects when an aggregated data file is added, and signals the Loader to load the data for use in IBM Prospect software. Aggregated data is loaded like traffic data for use in reports. The Data Availability tool displays the availability of aggregated data. For more information on the Data Availability tool, refer to the *User Guide*.

8 IBM Prospect System Maintenance

Maintenance of the IBM Prospect system includes using scripts, processes, and programs that enable the IBM Prospect server to run at optimal performance levels. System maintenance tasks include the following:

- Scheduling IBM Prospect System Maintenance
- Reporting on the Server Status
- Starting and Shutting Down the Database
- Maintaining Tablespaces
- Maintaining Partitions
- Managing Disk Space Usage
- Backing up the Database
- Backing up the File System
- Working With Log Files
- Importing and Exporting IBM Prospect Documents

Scheduling IBM Prospect System Maintenance

When the IBM Prospect server is installed, the Scheduler process is configured to run certain standard administrative jobs on scheduled dates and times. For example, the Scheduler process runs the bh_summary script daily at 01:00:00. You can change the date and time a job is run.

To reschedule a job, log on as flexpm and use the schedule_maint tool located in the directory /db/Oracle8i/scheduler/sched, in a Korn shell on the IBM Prospect server. The syntax is the following:

```
schedule_maint [-v] [pm_daily|pm_weekly|pm_monthly|daily_summary|
                bh_summary|bh_clean|summary_clean|rgfp|misc_clean|
                scenario_activation|event_clean]
                [<schedule_date> <schedule_time>] [I] [on|off]
```

The options for schedule_maint are described in the following table.

Table 28: Options for schedule_maint

Option	Description
-v	Displays usage.
pm_daily	Daily partition maintenance. Default scheduled time is 21:00:00.
pm_weekly	Weekly partition maintenance. Default scheduled time is 20:00:00.
pm_monthly	Monthly partition maintenance. Default scheduled time is 20:01:00.
daily_summary	Traffic summary maintenance occurs daily. Default scheduled time is 01:00:00.
bh_summary	Busy-hour summary maintenance occurs daily. Default scheduled time is 01:00:00.
bh_clean	Busy-hour maintenance and cleanup occurs daily. Default scheduled time is 17:00:00.
summary_clean	Traffic summary maintenance and cleanup occurs weekly. Default scheduled time is 19:00:00 on Monday.
rgfp	Report group file purge and log files cleanup occurs three times per hour.
misc_clean	Task-status, active-task, active-job, schedule, pm-schedule logs (located in $FLEXPM_HOME/rg/log) are purged every two hours.
event_clean	Removes handled-events from the database that are older than a the 30-day retention period on a daily basis. Default scheduled time is 22:00:00.
<schedule_date> *<schedule_time>*	Format for date is YYYYMMDD Format for time is HHMMI
-I	Schedule a one-time job to run immediately.
on|off	Activates or deactivates a scheduled job.

The following table shows the default maintenance schedules that are set up when the IBM Prospect software is installed:

Table 29: Default maintenance schedules

Job name	Default run time
pm_daily	daily @ 21:00
pm_weekly	daily @ 20:00
pm_monthly	weekly (Friday) @ 20:01
bh_summary	daily @ 01:00
daily_summary	daily @ 01:00
bh_clean	daily @ 17:00

Table 29: Default maintenance schedules (Continued)

Job name	Default run time
summary_clean	weekly @ 19:00
rgfp	every 20 minutes
misc_clean	every 2 hours
event_clean	daily @ 22:00

For more detailed information about partition maintenance, see Maintaining Partitions. For more detailed information about stored busy hour maintenance, see Traffic Busy Hours and Summations.

You can also be notified about the success or failure of many of these options by activating the event notification feature. For more information, see Monitoring with Event Notifications on page 173.

Related Topics

Updating the Active Status of Entities

Adjusting Job Clean-Up Times

Because some jobs can remain on the system for 24 hours before they are removed, you might want to change the default removal time. The script `set_job_cleanup_time.sh` adjusts the clean-up times for certain jobs.

The options for `set_job_cleanup_time.sh` are described in the following table.

Table 30: Options for Job Clean-Up

Option	Description
-l	Displays available jobs and their cleanup time in seconds.
-t	Specifies a job type for action. A job type can be "Soft Alarm" or "Aggregator" and so on. • Quotes are required if the job type name contains spaces. • Cleanup time is in seconds; it can be an expression.
-v	display usage

Examples:

Use the `-l` option to determine which job types on your system the script applies to.

```
set_job_cleanup_time.sh -l
Connected.
JobType id JobType Name          schedule cleanup time(seconds)
---------- ---------------------- -------------------------------
2         Soft Alarm            8640000
```

```
3          Aggregator          86400
4          File Missing        691200
15         rgfp                10
20         doproc              14400
25         smupdate
30         bhupdate
8          ScenarioActivation  691200
```

Use the `-t` option to set a job to a new clean-up schedule. Thus, if you want to have soft alarm jobs cleaned up every two hours, you can enter:

```
set_job_cleanup_time.sh -t "Soft Alarm" 7200
```

or

```
set_job_cleanup_time.sh -t "Soft Alarm" 2*60*60
```

Reporting on the Server Status

The `healthcheck` program helps diagnose problems—and prevents loss of service—by providing a number of concise reports about the IBM Prospect server's status. The syntax for `healthcheck` is the following:

```
healthcheck [-v] [-check|-errors|-status|-desc <report>...]... [-a]
```

The options for `healthcheck` are described in the following table.

Table 31:   Options for Healthcheck

Option	*Description*
-v	Display the usage, including a list of reports.
-check	Displays only the report name and the report outcome (OK/WARN/FAIL). Default.
-errors	Displays the report outcome and the problems that caused a WARN or FAIL notification.
-status	Displays the report outcome and all the information used in the report.
-desc	Displays the outcome of the check and suggests changes.
<report>	Run only the specified report at the current output level. See Reports for healthcheck for more information.

Example

```
$ healthcheck rep1 -s rep1 rep2 -e -a
```

This example runs `rep1` at the `check` output level (the default), then `rep1` and `rep2` at the `status` output level, and then switches to `errors` output level and runs all the reports.

If a report has a WARN or FAIL outcome, `healthcheck` exits with a non-zero exit code. This allows `healthcheck` to be integrated into various automated scripts.

You may occasionally see something like the following when you are running the `healthcheck` report `part_maint_run` (covered in [Reports for healthcheck](#)).

```
part_maint_run               FAIL
    JOB_TYPE    JOB_ID     STATUS    MESSAGE
    --------    ------     ------    -------
    PM_DAILY    49358       OK       Completed successfully
    PM_WEEKLY   49342      FAIL      Cleanup of CDSU_T1PORT_DBH failed
    ORA-0000: normal, successful completion
    PM_WEEKLY   49342      FAIL      Cleanup of  CARRIER_DBH failed
    ORA-0000: normal, successful completion
```

You can ignore this message.

Reports for healthcheck

The following table lists the available healthcheck reports and describes them.

Table 32:   Reports for Healthcheck

Report	*Description*
`prospect_rel_patch_info`	Displays the IBM Prospect release and patch information.
`prospect_config`	Displays the IBM Prospect system configuration; for example, the total number of entities. To display the system, add the option `-s` before the report name: Example: `healthcheck -s prospect_config`
`host_config`	Checks the host configuration including the proper operating system release. • Returns OK if the release is 5.8. • Returns FAIL if the release is not 5.8.
`reasonable_firstneeded`	Checks whether `FirstNeeded` is set to a reasonable date. • Returns OK if `FirstNeeded` is equal to or greater than `FirstAvailable`. • Returns OK if FirstAvailable is NULL. (NULL means that there is a new busyhour definition that has not yet been processed by a bhupdate.sh; therefore healthcheck has no way of evaluating it.) • Returns WARN if `FirstNeeded` is less than `FirstAvailable` by one day. • Returns FAIL if `FirstNeeded` is less than `FirstAvailable` by more than one day. A possible cause for failure is a middleware shut down.

Report	Description
`future_partitions_create`	Checks whether current and future partitions are created for the partitioned tables. • Returns OK if future partitions are created for all tables. • Returns FAIL if future partitions are not created for any tables. Possible causes of failure are a middleware shut down or no more tablespace. The results of this report may refer to a N/A table type. The N/A table type is used for the tables that do not fall under any known table type categories; for example, 1XEV, 5ESTRIP, CPFAIL, etc.
`part_maint_run`	Checks whether partition maintenance ran the previous night. • Returns OK if partition maintenance successfully ran the previous night. • Returns FAIL if partition maintenance failed or did not run the previous night. Possible causes of failure are a middleware shut down or no more tablespace. Use the `schedule_maint` script to schedule partition maintenance. See [Scheduling IBM Prospect System Maintenance](#) for information.
`past_part_set`	Checks whether `past_part_maint.sh` is set for dbh/dsm tables. • Return OK if partition retention is set for all tables. • Returns FAIL if partition retention is not set for any of the tables. Use `past_part_maint.sh` to set the number of days/weeks of data retained in the tables. If data retention is not set for a table type, then the table is going to keep the data for unlimited days. See [Maintaining Partitions](#) for information about partition retention.
`failed_data`	Displays files that were not loaded. Check the Loader log files for more information. When the problem is fixed, you can move the files in the `fail` directory to the `in` directory. See [Report Generation](#) for more information.
`files_age`	Checks how long files have been in the `in` directory. • Returns OK if the file has been in the `in` directory for less than 20 minutes. • Returns WARN if the file has been in the `in` directory between 20 and 60 minutes. • Returns FAIL if the file has been in the `in` directory for more than 60 minutes. See [Report Generation](#) for more information.

Report	*Description*

`commander_cpu`	Checks the `MAX_COMMANDER` value and number of CPUs.
	
	 • Returns OK if the `MAX_COMMANDERS` value is less than or equal to the number of CPUs:
	 `MAX_COMMANDERS <= CPUs`
	
	 • Returns WARN if the `MAX_COMMANDERS` value is greater than the number of CPUs but less than twice the number of CPUs:
	 `CPUs < MAX_COMMANDERS < (2 x CPUs)`
	
	 • Returns FAIL if the `MAX_COMMANDERS` value is greater than twice the number of CPUs:
	 `MAX_COMMANDERS > (2 x CPUs)`
	
	 See Parallel Data Loading on page 100 for more information about setting the `MAX_COMMANDER` value.

`prospect_data_availability`	Reports about IBM Prospect data availability.
`sbh_ssum_run`	Checks whether `bhupdate.sh` ran the previous night. • Returns OK if it successfully ran the previous night. • Returns FAIL if it did not run the previous night. Possible causes of failure are a middleware shut down or no more tablespace. See Traffic Busy Hours and Summations for information about `bhupdate.sh`.
`sbh_2300`	Checks whether all stored busy hours are 23:00 for all days. • Returns OK if all busy hours are not 23:00. • Returns WARN if one or more busy hour is 23:00. • Returns FAIL is all the busy hours are 23:00 for all days. Possible causes for failure are invalid busy hour determiners or invalid data. See Traffic Busy Hours and Summations for information about managing busy hours.
`missing_bh_days`	Reports days that have missing busy hour data. • Returns OK if there are no missing busy hour days. • Returns FAIL if there are missing busy hour days. Possible causes for failure include the following: • No data for the days reported. • `bhupdate.sh` script stopped due to Oracle database failures. • DataServer failures. See Maintaining Stored Busy Hours and Summations for information on the `bhupdate.sh` script.

Report	*Description*
`db_tablespace`	Checks tablespace usage. The TEMP tablespace is not checked. • Returns WARN if any tablespace has less than 10 percent free disk space. • Returns FAIL if any tablespace has less than 5 percent free disk space. Problems may be resolved by either reducing the amount of data stored in the database or increasing the size of the tablespace. See Maintaining Tablespaces for information about maintaining tablespaces.
`disk_usage`	Checks the disk usage for log and trace files for both the IBM Prospect server and the Oracle database. • Returns OK if the free space is greater than 1024 MB. • Returns WARN if the free space is less than 1024 MB but greater than 500 MB. • Returns FAIL when the free space is less than 500 MB. A possible solution is to archive the log files. See Working With Log Files for more information.
`ds_logging`	Checks the DataServer log settings. Searches for a `ds.trace` file in the `$FLEXPM_HOME/ds` directory and subdirectories. Also searches for any `.trace` file in the `$FLEXPM_HOME/pm` directory and subdirectories. • Returns OK if logging is not set anywhere. • Returns FAIL if logging is set. DataServer logging is generally used for diagnostic purposes. You can turn logging off by setting the `*.trace` files to `no`.

Starting and Shutting Down the Database

The IBM Prospect server contains a script that starts the Oracle database automatically and initializes the appropriate database service processes. You can configure these settings or manually start and shut down the database.

Important: Administrators should not, without prior consultation and agreement from IBM/Vallent, make any changes to the Index Organized Tables or database schema. Changes to the Index Organized Tables or schema may result in corruption of data and failure of the IBM Prospect System. This applies to all releases of IBM Prospect using all versions of interfaces.

Automatically Starting and Shutting Down the Database

By default, whenever you start or shut down the system, the system is configured to automatically start and shut down the Oracle database. If you want to manually start the database on system bootup and manually shut it down when shutting down the system, you must disable the automatic settings.

To disable the automatic settings for starting and shutting down the database

1. Log on as `oracle`, the UNIX user for the Oracle database.

2. Open the `/var/opt/oracle/oratab` file.

   Database entries in the `oratab` file appear in the following format:

   `ORACLE_SID:ORACLE_HOME:{Y|N}`

   `Y` signifies that you want the system configured so that the database is automatically started upon system bootup and automatically shutdown when the system is shutdown.

   `N` signifies that you want the manually start and shutdown the database.

3. Find the entries for all the databases that you want to change. They are identified by the *sid* in the first field. Change the last field for each entry to `N`.

   Example: `flexpm:/u01/apps/oracle/product/8.1.7:N`

   Typically, you should only have one entry for the SID `flexpm`.

Manually Shutting Down and Re-starting the Database

This section contains streamlined procedures for shutting down and starting the database.

To shut down the database

1. Display the processes currently running:
   ```
   $ ps-mgr watch
   ```

2. Shut down the middleware including the Sentry:
```
$ ps-mgr stop all
```
Monitor the watch process and wait for all processes to stop.

3. Shut down the process manager:
```
$ ps-mgr halt
```

4. Switch to the UNIX user for the Oracle database:
```
$ su - oracle
```

5. Start SQL*Plus, and connect to the database as the DBA administrator:
```
$ sqlplus /nolog
SQL> connect / as sysdba
```

6. Shut down the database and exit:
```
SQL> shutdown immediate
SQL> exit
```

This section contains streamlined procedures for shutting down and starting the database.

To start the database

1. Switch to the UNIX user for the Oracle database:
```
$ su - oracle
```

2. Start SQL*Plus, and connect to the database as the DBA administrator:
```
$ sqlplus /nolog
SQL> connect / as sysdba
```

3. Start the database:
```
SQL> startup
SQL> exit
```

4. Start the middleware including the Sentry (optional):
```
$ ps-mgr init
```


Maintaining Tablespaces

This section provides information that enables you to do the following:

- Increase tablespace size
- Recover from a full tablespace
- Compress tablespace data

Increasing Tablespace Size

You might need to increase tablespace size under the following circumstances:

- If you anticipate loading large amounts of data
- If current tablespace usage cannot hold the anticipated load
- If you encounter Oracle error messages indicating that certain tablespaces are out of space

You can increase tablespace size by means of the `add_datafiles` tool, by using the following syntax.

```
add_datafiles.sh -t <tablespace> -s <size> [-l <location>] [-u] [-v]
```

The options for `add_datafiles.sh` are described in the following table.

Table 33:   Options for add_datafiles.sh

Option	*Description*
-t <tablespace>	Tablespace name
-s <size>	Size, in megabytes
-l <location>	Path to data file. The default is `/u04/flexpm`
`-u`	Displays current tablespace usage
`-v`	Displays usage for the tool

Generally, the size of the TEMP tablespace is not a problem; the Oracle database reuses space in the TEMP tablespace without freeing it. This means that TEMP can appear to be full or almost full and still be large enough. The TEMP tablespace is undersized and you should increase it, if the following error appears while running reports:

```
ORA-01652: unable to extend temp segment by "x" in tablespace TEMP
```

Recovering from a Full Tablespace

If tablespace size is increased due to a full tablespace, then you must set the IBM Prospect server to restart Scheduler. This procedure is not necessary if tablespace size is increased for preventative reasons.

To recover from a full tablespace

1. Log on as `flexpm`.

2. Connect to the Oracle database.

   $ sqlplus $DB_CONNECT

3. Type the following commands:

   **UPDATE schedule SET start_time = start_time+1, needs_msg_update='Y'
   WHERE period NOT IN ('I', 'O');**

   COMMIT;

   **UPDATE schedule SET start_time = start_time-1, needs_msg_update='Y'
   WHERE period NOT IN ('I', 'O');**

   COMMIT;

Compressing Tablespace Data

Automatic partition maintenance compresses tablespaces. Use the tool `compress_data.sh` to compress all tablespaces for a larger range of dates. Compressing data reclaims space and improves loading performance.

Use the following syntax located in the directory `/db/Oracle8i/part_maint`:

`compress_data.sh -d` *startdate* `-D` *enddate* `[-v]`

The *startdate* and *enddate* parameters are in the form YYYYMMDD; for example, 20000715 for July 15, 2000.

Use the optional **-v** argument to display usage for this tool.

Note: If you run `compress_data.sh` after backloading data, it might run for several hours. Automatic partition maintenance, which is scheduled to run at night, accomplishes the same results without using resources unnecessarily.

Maintaining Partitions

The IBM Prospect server uses a number of scripts that to maintain partitioned tables. The procedures and functions in the partition maintenance scripts use both Oracle tables and the data dictionary to determine which objects to maintain. The IBM Prospect server uses Oracle partitions for several reasons:

- To allow for partition pruning in Data Manipulation Language (DML) statements.
- To perform faster and more consistent inserts and updates.
- To allow easy and efficient daily maintenance of data, tables, and indexes.

The IBM Prospect server automatically sets partition maintenance scripts to run at a specified time every night. Partition maintenance scripts automatically perform the following tasks:

- Purge data older than a specified number of days.
- Compress the partition disk. Compressing a disk reorganizes daily data and reclaims as much as 40 percent of the disk. It also improves query time by 25 percent to 70 percent.
- Create new partitions to store data. The partitions are sized to accommodate a specified number of days in advance of the system date. The value for number of days is set at installation time.

Warning: Partition maintenance does not perform any backups. If you need to retain data offline in Oracle export format for possible later restoration, use the Oracle `export` command before partition maintenance runs.

Determining Partition Maintenance Defaults

Changing the Number of Days of Data to Keep Online (Retention Time)

Adding and Deleting Partitions

Optimizing the Schema

Determining Partition Maintenance Defaults

To find out how often tablespaces are purged, type `past_part_maint.sh` with no parameters. The `past_part_maint.sh` script displays a list of tablespaces.

When you modify a parameter, `past_part_maint.sh` displays the updated information.

Changing the Number of Days of Data to Keep Online (Retention Time)

Use the `past_part_maint.sh` tool to change the number of days of data to keep online. The script is located in the `$FLEXPM_HOME/pm/adm` directory.

The retention time for data is set when the database is built at the time of installation. If you increase the number of days of data to save, you require additional disk space to store that data.

The `past_part_maint.sh` procedure updates a field in the partition maintenance table. This field stores the value used by the partition maintenance tool to drop partitions older than the system date minus a value you specify.

Caution: Reduce only one week at a time. Do not reduce the number of days to keep data online more than one week's worth of partitions at one time. Between one week and the next, run the command `schedule_maint`, or wait for the nightly `schedule_maint pm_daily` to run. Then check the logs to verify that reductions was successful before reducing another week's worth of partition.

Syntax

The syntax for running `past_part_maint.sh` is the following:

```
past_part_maint.sh [<table_type> <time_to_keep>] | [-dtabletype] | [-v]
```

The options for `past_part_maint.sh` are described in the following table.

Table 34: Options for past_part_maint.sh

Option	Description
<table_type>	Some of the table types are `traffic`, `sBHDaily`, `sSUMDaily`, `sSUMWeekly`, and `sSUMMonthly`. To find the table types that are specific to your system, use the `-dtabletype` option.
<time_to_keep>	Length of time to keep data online. Enter an integer number that represents the time unit for the table type: hours, days, weeks, or months. The `-dtabletype` option displays the time unit for each table type.
`-dtabletype`	Displays the following: • All available table types. • Time units of the table type (hours, days, weeks, or months). • Current `past_partition_maint.sh` settings

Example 1

```
past_part_maint.sh -dtabletype
```

The above example displays each table type, its time unit, and current `past_partition_maint.sh` setting.

Example 2

```
past_part_maint.sh sBHDaily 2
```

The above example retains the last two weeks (14 days) of busy hour data online. (The data for table type `sBHDaily` is saved in weekly time units.)

Caution: Monitor free space regularly to make sure the unpurged data does not fill up the available space.

When you run `past_part_maint.sh` with no parameters, it displays the defaults for all partitions.

Note: If the partition maintenance job is taking too long because of a large volume of data (large networks), contact your Support representative. The partition maintenance job can be configured so that it runs multiple sessions.

Adding and Deleting Partitions

Two tools allow you to manually add or delete temporary partitions to tables. You can use these tools to load and examine old data:

- **`add_part.sh`**—adds temporary partitions to tables
- **`delete_part.sh`**—deletes temporary partitions from tables
- **`show_part`**—displays available partitions

To add partitions to a table

1. Run `add_part.sh` located in the `$FLEXPM_HOME/pm/adm` directory by using the following syntax:

   ```
   add_part.sh [<table_type> <start_date> <end_date>]
               [-dexception <table_type>...] | [-dtabletype] | [-v]
   ```

   The options for `add_part.sh` are described in the following table.

Table 35: Options for add_part.sh

Option	*Description*
`<table_type>`	One of the table types is `traffic`. To find the remaining table types that are specific to your system, use the `-dtabletype` option.
`<start_date>`	Start date in the format `YYYYMMDDHH24`.
`<stop_date>`	Stop date in the format `YYYYMMDDHH24`.
`-v`	Displays usage.
-dexception	All partitions added by the `add_part.sh` script are placed in the exception table in the database. The `-dexception` option displays all the partitions in the exception table for a table type.
`-dtabletype`	Displays available table types.

The `add_part.sh` tool adds partitions for the specified table type and dates. It then adds the dates and their associated table IDs to the exception table.

Example:

```
add_part.sh traffic 20010715 20031016
```

The above example adds partitions for table type "traffic" for the dates of October 15th and 16th, and adds these dates and their associated table IDs to the exception table.

2. When you are finished with the data, delete the partitions using `delete_part.sh`. This script removes the associated table IDs and dates from the exception table. The actual partitions are removed during the nightly partition maintenance.

To delete partitions from a table

1. Run `delete_part.sh` located in the `$FLEXPM_HOME/pm/adm` directory using the following syntax:

```
delete_part.sh [<table_type> <start_date> <end_date>]
                [-dtabletype] | [-v]
```

The options for `delete_part.sh` are described in the following table.

Table 36:   Options for delete_part.sh

Option	*Description*
<table_type>	One of the table types is `traffic`. To find the remaining table types that are specific to your system, use the `-dtabletype` option.
<start_date>	Start date in the format YYYYMMDDHH24.
<stop_date>	Stop date in the format YYYYMMDDHH24.
-dtabletype	Displays available table types.

Caution! Delete only one week at a time. Do not delete the number of days to keep data online more than one week's worth of partitions at one time. Between one week and the next, run the command `schedule_maint`, or wait for the nightly `schedule_maint pm_daily` to run. Then check the logs to verify that the deletion was successful before deleting another week's worth of partition.

2. The `delete_part.sh` tool schedules the partition for removal during the next scheduled maintenance.

After deleting a partition, the tablespaces are available immediately after the next scheduled maintenance.

Optimizing the Schema

The `analyze_schema` tool optimizes the database. The `analyze_schema` job runs when the partition maintenance jobs, `pm_daily` and `pm_weekly`, run. If partition maintenance jobs have not run, run `analyze_schema` before `smupdate.sh` and `bhupdate.sh`.

To run analyze_schema

1. Log on as `flexpm`.

2. Connect to the Oracle database.

$ sqlplus $DB_CONNECT

3. Type the following command:

SQL> exec dbms_utility.analyze_schema('*<DB_USER>*', 'COMPUTE')

SQL>COMMIT;

Note that *<DB_USER>* is capitalized.

Example:

SQL> exec dbms_utility.analyze_schema('FLEXPM', 'COMPUTE')

SQL>COMMIT;

Managing Disk Space Usage

The processes `ps-mgr`, `wmpm`, and the Scheduler swap space usage. If disk use reaches 100%, the middleware processes might be blocked. Use the following procedure to monitor and control disk space usage.

You can use the `ps-mgr` program to obtain various types of information about log files, disk space, and table space. For complete information about how to use the `ps-mgr` program, see The ps-mgr Program on page 112.

To manage disk-space usage using ps-mgr

1. Obtain a summary of disk space available to the middleware using the following command:

   ```
   $ ps-mgr space
   ```

   This shows a directory-based summary of the disk-space volume that the middleware uses.

2. Check the accumulated log files regularly to confirm that old, unwanted files are purged, and that current logs do not cause disk-space shortage.

   Type the following command to obtain a summary of the accumulated log files:

   ```
   $ ps-mgr logs
   ```

   Note: Most of the files are daily logs that the software closes at midnight and replaces with new files for the next day's activity. This rollover helps control disk usage because the older logs can be removed.

   ---

3. When problems arise, copy the daily logs files to a separate directory for safekeeping. The log files may contain information that support staff can use for troubleshooting. Type this command to save files:

   ```
   $ ps-mgr save
   ```

   This save operation creates a subdirectory and copies the current log files. A summary listing is presented that shows the resulting logs.

   Find saved log files by typing the following commands:

   ```
   $ cd ${FLEXPM_HOME}
   $ ls -ltr pm/log/save-logs.*
   ```

   The subdirectory is named save-logs.YYYY.MM.DD where YYYY.MM.DD is the current date.

4. If daily logs begin to occupy too much disk space, type the following command to reduce their size to zero:

   ```
   $ ps-mgr reset
   ```

   This size reduction is useful after saving logs, or when there is a loss of history and the status information is not a concern.

5. To obtain a history that is on the middleware, type the following command:

   ```
   $ ls -ld pm/log/*.history
   ```

History files for `ps-mgr` and for `run-sentry` show when requests and status messages are submitted. The history entries are useful when troubleshooting.

When the history files begin to occupy too much space, the programs truncate the files, so that only the most recent history files are available.

6. To monitor disk usage by database tablespaces, type the following commands:

```
$ cd ${FLEXPM_HOME}
$ ./sw/oracle/setup-oracle-db -review ${DB_CONNECT}
```

The result presents a summary of database service connections, database tablespace data files, and disk volume (file system) usage.

7. To monitor usage of memory and physical disk space, type the following command:

```
$ top | grep Memory:
```

The result summarizes the memory and swap disk-space usage.

Related Topics

[Working With Log Files](#)

Backing up the Database

Database backup is an important process initiated and carried out on the IBM Prospect server on a regular basis. Because data is constantly being read from and written to the database, you need to take special precautions to accurately archive your data.

Important: Back up the database more frequently than you back up the system.

Methods of Backing up the Database

Oracle software offers at least two options for backing up the data server: offline or online backups. With an offline backup, you shut down the database before archiving data. Before you can determine which is appropriate for your installation, you need to consider several factors:

- Size of available auxiliary storage.
- Cost of auxiliary storage required by the backup scheme.
- Level of server availability to users during backup.
- Ease of data restoration.

For any of these backup modes, the auxiliary storage should be large enough to hold the backup image without operator intervention.

For complete information about performing online and offline backups, see the Oracle documentation.

Online Backups

When you request an online backup (also called a hot backup), Oracle software begins writing changed blocks to the redo logs, and stops only when you finish copying files and take the tablespace out of backup mode. Online backup mode has these advantages:

- The database remains available to users and data loading at all times.
- You do not need to back up the entire database all at once.
- This backup mode allows the quickest and most flexible recovery.

Related Topics

Online Database Backup

Offline Backups

Offline backup takes down the whole database and backs it up. During this time, data cannot be loaded and users cannot query the database. Offline backups have the following advantages and disadvantages:

- A complete backup is simple because nothing is running on the system.
- Restore time is usually not as fast as in online mode.
- Restoring from an offline backup is not as flexible as restoring from online backups.

Related Topics

Offline Database Backup

Online Database Backup

If you plan to use the online (hot) method of backing up your database, you can choose to back up a different set of data files each night; you do not need to back up all the data files at once. The hot backup method uses the `alter tablespace` command to toggle a tablespace between read-only and read-write mode.

Caution: The database needs to have Archive Log Mode turned on in order for this procedure to work. For instructions on how to turn on Archive Log Mode, see the *Oracle 8i Backup and Recovery Guide* published by the Oracle company.

To back up the database while the Oracle database is running

1. Switch to the UNIX user for the Oracle database:
    ```
    $ su - oracle
    ```

2. Start SQL*Plus, and connect to the database as the DBA administrator:
    ```
    $ sqlplus /nolog
    SQL> connect / as sysdba
    ```

3. Begin the backup procedure and exit:
    ```
    SQL> alter tablespace <tsname> begin backup
    SQL> exit
    ```

4. Back up the files for the *<tsname>* tablespace, using operating system commands. For a summary of various system backup options, see Backing up the File System on page 158.

5. Restart SQL*Plus, and connect to the database as the DBA administrator.

6. Enter the following commands:
    ```
    SQL> alter tablespace <tsname> end backup
    ```

7. Repeat steps 3 through 6 for each tablespace in the database.

8. After you have backed up all files, enter the following commands and exit:

```
SQL> alter system switch logfile;
SQL> exit
```

Be sure to keep archived redo logs that date back to the oldest archived data file in the backup cycle.

Offline Database Backup

When you perform an offline (cold) backup, you back up the entire database at once. Consequently, when you need to restore data, you need to restore the entire database in order to recover a part of it.

To shut down Oracle software and back up the database

1. Log on to the IBM Prospect server as `flexpm`.

2. Shut down all processes and queues using the following command:

```
$ ps-mgr stop all
```

3. Log on as `oracle`, the UNIX user for the Oracle database.

4. Stop Oracle software, using the method recommended in the Oracle documentation.

5. Back up all the data files, redo log files, and control files using your preferred backup system. For a summary of various backup options, see [Backing up the File System](#) on page 158.

6. When the data files are backed up, restart the Oracle software while logged on as user `oracle` (UNIX user for the Oracle database).

7. Log on as `flexpm` and restart all processes and queues using the following command:

```
$ ps-mgr start all
```

Using Export and Import

The Oracle software provides another method of backing up your data, by using the `exp` (export) command. Export makes a copy of data and data structures in an operating system file. You can use the file created by `exp` to move data to another instance of the Oracle database, or to move data from one tablespace into another.

If you export data from the database, you can import all or part of it again at a later time if necessary. For example, you may wish to reexamine data from a particular day or week after it has been archived. You can restore historical data from archives using Oracle software's `imp` (import) feature, without overwriting other data in your database.

Log on to the IBM Prospect server as user `flexpm` to use `export` and `import`. Make sure the path includes the `$LD_LIBRARY`, `$ORACLE_HOME`, and `$ORACLE_BASE` directories.

For complete information on using `export` and `import`, see the Oracle documentation.

Parameters for Export

The `export` command expects you to specify values for certain parameters, offering you the flexibility to export only certain parts of a database rather than backing up the entire file system. To run `export` interactively, simply type `exp` at the UNIX prompt. You can also specify the parameters at the command line, as in the following example:

```
exp buffer=10240 file=expdata0617.dmp
```

For a list of keywords, their description and default values, type `exp help=y` at the operating system prompt.

If you run `export` with no parameters, Oracle software prompts you for the following information:

- **User name**—the user name username and password of the person running export.
- **Enter array fetch buffer size**—the size of memory to use while writing data to the export file. Typical values are between 10240 and 10485760.
- **Export file**—the name of the file to which to write. The default is `expdat.dmp`.
- **Entire database, users, or tables**—allow you to specify names of table owners, or certain tables, to export only a part of the database.
- **Export table data**—Oracle software's export command by default only writes SQL statements to create objects. This option allows you to export the data as well.
- **Compress extents**—allows you to specify whether the **create table** statements written to the export file should include initial extent size. Oracle software's default is **compressed=Yes**; we recommend you set this value to **No**.
- **Table or partition to export**—allows you to specify the name of a table or partition to export.

For more detailed information on how to export and import data, see the Oracle Utilities Guide.

Parameters for Import

The `import` command expects you to specify values for certain parameters, offering you the flexibility to import only certain parts of a database rather than the entire file system. To run import interactively, simply type `imp` at the operating system prompt. You can also specify the parameters on the command line, as in the following example:

```
imp userid=user1/passwd file=expdata0617.dmp
```

For a list of keywords, their description and default values, type `imp help=y` at the UNIX prompt.

If you run `import` with no parameters, Oracle software prompts you for the following information:

- **Username**—the user name and password of the person running export.
- **Import file**—the name of the import file.

- **Enter insert buffer size**—the size of memory to use as a work area. The minimum is 4096. Typical values are between 10240 and 10485760.

- **List contents of import file only**—entering yes displays the list of SQL statements written to the import file.

- **Ignore create error due to object existence**—allows you to replace or preserve existing tables.

- **Import grants**—allows you to specify whether or not to run grant statements (user privileges) after importing an object.

- **Import table data**—allows you to import data, or simply create objects.

- **Import entire export file**—allows you to import only certain parts of an export file.

For more detailed information on how to export and import data, see the Oracle Utilities Guide.

Troubleshooting Export and Import

The three most common errors when using export and import are:

- Oracle database not available—this error means the database is not open. The Oracle database must be running to use export and import.

- Only a DBA can import a file exported by another DBA—this error results if a user with no Oracle DBA permissions tries to open an import file.

- Must be a DBA to do full database export—this error results if you start a full database export without Oracle DBA permissions.

Redo Logs

Oracle software creates log files called *redo logs* that each contain a sequential log of actions applied to the database. These redo logs accumulate daily and contain up-to-the-minute details on database operations. By default, the IBM Prospect server installs the Oracle database in archive log mode. Although archive log mode requires more disk space for daily operations, it provides point-in-time recovery in case of data loss. You can restore data from the last online backup, then restore data from all archive logs since that date to return your database to its most current state.

Note: Archive logs can take up large quantities of disk space if you do not regularly back them up. If you set up a backup schedule with only one or two full backups per week, you need to check the archive logs if you are not backing them up regularly.

Archiving Redo Logs

Transactions that make changes to the database are stored in a redo log buffer in memory, then flushed to a redo log file on disk. The IBM Prospect server by default is installed in automatic archiving mode, meaning that automatic archiving is turned on. Once a redo log is full, Oracle software automatically archives it on a different disk. The archived redo logs together with the

online redo logs contain a complete history of database transactions. Once the archiving process is done, Oracle software recycles the redo logs.

Certain parameters set in the `init.ora` initialization file also control archive logging. These are:

- Set `log_archive_start` to TRUE.
- Store the archive log destination path in the parameter `log_archive_dest`.
- Specify the pattern for archived redo log file names in `log_archive_format`.
- For additional security, specify an additional location for redundant redo logs in `log_archive_duplex_dest`. If you specify a value for this parameter in `init.ora`, Oracle software writes redo logs to multiple destinations.

Performing Hardware Diagnostics

It is generally a good idea to run diagnostic checks on your hardware before restoring data, if you encounter a problem such as a corrupt database. Other database errors can surface when you restore a missing or corrupt file. For example, when mounting a database, Oracle software stops when it encounters the first error, even though more than one error might exist. If you perform hardware diagnostics before restoring the missing file, you might find other corrupt databases as well.

Restoring Data From Backups

How you restore data depends on the procedures you used to back it up, as well as what you need to restore. For complete information on data restoration procedures, please refer to the Oracle documentation.

Backing up the File System

On a server, file system backups preserve and save the most current version of operating system files.

Use backups to guard against:

- A system crash or hard drive failure
- Operator errors
- Problems with system upgrades or modifications (you can go back to the previous files)

Use backups to arrange for:

- Transporting software to another platform
- Archiving for historical record and offline analysis

System backups provide safeguards against lost or damaged data, mainly original software, the loss of which would result in down time and gaps in the database. In case of human error, hardware failure, or disaster, you can use backup tapes to restore lost files. System backups are a crucial administrative function. You should plan, regularly schedule, and carefully execute them.

It is recommended that you use two backup levels:

- Weekly full system backup (also known as a "level 0" backup)
- Daily incremental backup

By using both of these levels, you can reconstruct your files with a minimal loss.

With either full or incremental backups, do not back up the Oracle database files. For database backups, use the procedures described in [Backing up the Database](#).

Selecting a Backup Method

You can choose from many different backup applications and utilities offered by several other vendors such as Legato or Veritas. The software you use to back up your system is your choice.

Solstice provides two backup administration tools:

- `nwadmin`—a GUI-based tool for X-Window system environments. Using `nwadmin`, you can register, configure, and monitor the backup servers, clients, storage nodes, and devices in your network.
- `nsradmin`, a character-based interface. You can use the `nsradmin` interface on any display, including those that do not support graphics.

You can also enter certain commands at the UNIX prompt.

Solstice Backup is a storage management product. If you have installed Solstice Backup on a workstation and connected it to your network, you can administer a backup server from it, no

matter what the operating system is. Additionally, a backup client on one platform can back up its data to a backup server of a different platform.

Solstice Backup can direct and conduct administration services for any client or server on the network that has the backup software installed and is recognized by the backup server. The Solstice Backup interface offers you only the options that are relevant to a particular backup client, so you do not need to know the configuration of individual machines before you start a monitoring session.

The `nwadmin` and `nsradmin` tools do the following:

- Back up entire file systems (complete backup)
- Back up individual files (incremental backup)
- Support multiple volumes (more than one tape)
- Support remote drives

You can find complete Web-based documentation on Solstice backups at <u>http://docs.sun.com/</u>.

Preparing for a Backup

Before you start a backup, you need to have answers to the following questions:

- Will you do a full file-system backup or incremental backup?
- Which file systems do you want to back up?
- Which server is the backup server?
- Which tape drive will you use (default or other)?
- Will you need more than one tape?
- Which device names will you use for the files and the tape drive?
- Will you do a multiple backup on the same tape (for example, for incremental backup)?

What Not to Back Up

When you are backing up your system, do not back up these:

- The Oracle database—the backup utilities provided with the IBM Prospect server are designed to back up a database in active use.
- The `~flexpm` directory—Most of the files in this directory, with the exception of the `ftpIN` subdirectory, are static and do not change. Your regular backups only need to include files in the `ftpIN` subdirectory.

See Also

<u>http://www.sun.com/storage/white-papers/backup-article.html</u>

Working With Log Files

Server log files can be useful when troubleshooting; however, accumulations of log files can unnecessarily take up disk space. This section gives an overview of the types of log files stored on the server, and describes utilities available for archiving them.

Note: Log files are helpful when you need to contact your technical support representative.

Topics

About Log Files

The IBM Prospect software saves the following types of logs on the server:

Table 37: Server logs

Log File Directory	Description
`$PROSPECT_HOME/../ftpIN/sentryLogs`	Directory that holds Sentry logs
`${PM_LOGS} $FLEXPM_HOME/pm/log/`	Directory that holds process logs
`${PM_LOGS} ps-mgr.history`	Records each ps-mgr request.
`${RG_LOGS} wmtm.log`	Task Manager log file
`${RG_LOGS} wmtm-`T`-`J`.log`	Output for task type T and job ID J, from `schedule_maint` jobs. Task types are described in the next table.
`${RG_LOGS} SA_`J`_`K`.log`	Soft Alarm job task log file output for job ID J and task ID K. Contains detail about the processing of an individual task.

The value of T in `wmtm-`T`-`J`.log` in the `${RG_LOGS}` directory is defined based on the task type associated with each option in the following tables.

Table 38: Logs Produced by Schedule_maint Jobs

Option	Task Type	Description
pm_daily	20	Daily partition maintenance
pm_weekly	20	Weekly partition maintenance
pm_monthly	20	Monthly partition maintenance
daily_summary	25	Daily traffic summary maintenance
bh_summary	30	Daily busy-hour summary maintenance

Table 38: Logs Produced by Schedule_maint Jobs

Option	Task Type	Description
bh_clean	30	Daily busy-hour maintenance and cleanup
summary_clean	25	Traffic summary maintenance and cleanup
rgfp	15	Report group file purge and log files cleanup
misc_clean	20	Task-status, active-task, active-job, schedule, pm-schedule log cleanup (located in $FLEXPM_HOME/rg/log)
event_clean	20	Job to remove handled-events from the database that are older than the 30-day retention period

In addition to the log files from schedule_maint jobs, the following report log files in directory `${RG_LOGS}` also follow the `wmtm-`T`-`J`.log` naming format.

Table 39: Report Log Task Types

Task Type	Report Type
1	Immediate report log output
10	Scheduled report log output
2	AGP log (one per job)

Sentry Logs

The directory `$PROSPECT_HOME/../ftpIN/sentryLogs` contains Sentry log files, named according to the following pattern:

sentry.{YYYY}.{MM}.{DD}

These files record Sentry processing information during data file loading. Where {YYYY}, {MM}, {DD} are used to indicate date information of 4 digit year, 2 digit month, and 2 digit day.

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 has all the logs of these tasks appended. 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.

Archiving Log Files

Archive log files by compressing them into daily archives and combining daily archives into weekly units. The weekly units are kept for a specified amount of time before being deleted. The archiving process purges units older than a specified amount of time. Original log files are deleted only after they are successfully archived.

You can archive log files using either of the following:

- The `lar` command.
- The `log-archiver.sh` script.

The `log-archiver.sh` script is an alternate method for scheduling and executing the `lar` command.

Using the lar command

The `lar` command can run at any time; however, additional invocations on the same day do not perform any tasks. The syntax for `lar` is the following:

```
lar [-v] -bd <directory> -ad <directory> -d <directory> -nd -p <pattern> [-i]
    -dl <days> -wk <weeks> [-h]
```

The options for `lar` are described in the following table.

Table 40: Options for lar

Option	*Description*
-v	Turns on the verbose mode.
-bd *<directory>*	Identifies the base directory where the daily operation occurs.
-ad *<directory>*	Identifies the archive directory relative to the current working directory. It is recommended that the archive directory be established at the top of the installation, such as `$FLEXPM_HOME\archives`.
-d *<directory>*	Specifies a search directory, relative to the base directory. All directories under the given directory are searched. Multiple -d arguments can be specified.
-nd	Sets the command to not search subdirectories specified by -d.
-p *<pattern>*	Specifies a file matching pattern. This must be a true regular expression, not a shell file pattern match. Multiple pattern arguments can be specified. This argument is used to control which files are managed by lar. Use the -i option when developing patterns for use.
-i	Runs the program in an informative mode, explaining what the script would do, rather than doing it.
-dl	Days-to-leave. Specifies the age of the youngest file to be archived.
-wk	Weeks-to-keep. Specifies the number of weeks, from the youngest age of interest, for which archives are maintained.
-h	Displays the usage.

Example

```
exec lar -v -bd /home/dev/2.1 -ad archives -d pm/log -d rg/log -p '.*\.log'
-dl 2 -wk 2
```

The `-dl` and `-wk` arguments determine which log files are archived and the length of time the archives are kept. Archives are dated based on the week's start date, which is Sunday or Monday depending on your installation.

Using the log-archiver.sh script

You can use the `log-archiver.sh` script and `log-archiver.list` file to schedule (using `crontab`) and run the log archiving process (using `lar`). The `log-archiver.sh` script is in the `$FLEXPM_HOME/pm/adm` directory and uses the following syntax:

```
log-archiver.sh -h | -s [-i][-v][-w][-t <t>] | -e [-i][-v]
```

The options for `log-archiver.sh` are described in the following table.

Table 41: Options for log-archiver.sh

Option	Description
-h	Shows options.
-s	Schedules the log archiving process.
-e	Executes the log archiving process.
-w	Overwrites the existing `crontab` entry.
-i	Sets `log-archiver.sh` to information-only execution.
-v	Sets `log-archiver.sh` to verbose mode.
-t *<t>*	Sets the scheduled time to *<t>* (HH:MM).

The `log-archiver.sh` script uses `log-archiver.list` file to specify the archive directory, search directory, and matching patterns. By default, the `log-archiver.sh` script uses the following settings.

- Archived files are placed in the `$FLEXPM_HOME/archive` directory.
- Log files older than two days are not archived.
- Archived files older than two weeks are deleted.

You can modify these settings by editing the `log-archiver.sh` script.

Related Topics
Managing Disk Space Usage

Purging Log Files

Check the accumulated log files regularly to confirm that old, unwanted files are purged, and that current logs do not cause disk-space shortage.

Type the following command to obtain a summary of the accumulated log files:

```
$ ps-mgr logs
```

For more complete information on conserving disk space, see Managing Disk Space Usage on page 150.

Importing and Exporting IBM Prospect Documents

Using the two scripts, `import_docs.sh` and `export_docs.sh`, you can copy user documents from one IBM Prospect server to another. User documents are definitions, templates, and groups that can be saved under the `Users` folder in IBM Prospect Explorer.

Two additional scripts, `export_busy_hours.sh` and `import_busy_hours.sh`, allow you to copy busy hour definitions and their associated entities and UDCs from one server to another, or to import definitions when installing a new server.

Note: Be careful when transferring exported files to and from a Microsoft Windows computer. Some Windows text editors automatically insert carriage returns in the file. You can remove the carriage returns by using the `unix2dos` program on a Solaris computer.

Topics

Prerequisites

In order to export a set of user documents to another IBM Prospect server, both servers must be running the same version of IBM Prospect software.

Exporting Documents

Use the scripts `export_docs.sh` and `import_docs.sh` together to export (copy) IBM Prospect documents from one IBM Prospect server to another. Use the `export_docs.sh` script to download IBM Prospect documents to a file, and the `import_docs.sh` script to load that file into another IBM Prospect system. You can export an entire folder, a template, or a report.

The scripts are located in the `$FLEXPM_HOME/pm/adm` folder.

The documents you export frequently contain dependencies on other IBM Prospect documents. For general rules on how these items are treated, see .

Part of the import/export process requires you to identify the following:

- The *source* IBM Prospect folder or document you want to export
- The *target* IBM Prospect folder into which you want to import the documents.

You identify a IBM Prospect folder or document by providing the path in the IBM Prospect Explorer folder pane. The path name syntax is as follows:

```
'/<2nd-level_folder_name>/<3rd-level_folder_name>...'
```

Where the first forward slash (/) represents the top folder in the IBM Prospect Explorer folder pane.

Note: Although you can export non-user folders, such as Traffic Templates, because these folders contain a high number of System Templates, the export will frequently fail (see Document Dependencies on page 168).

Example of a IBM Prospect Explorer Path

Assume that you want to export the folder JAYA, which is located under USERS (as shown in the following figure). You would identity the folder to the scripts as `'/Users/jaya'`. If you wanted to export the report *myReport* (not shown in the figure), which is located in the folder JAYA, the path would be `'/Users/jaya/myReport'`.

Figure 25: IBM Prospect Explorer Folder Pane
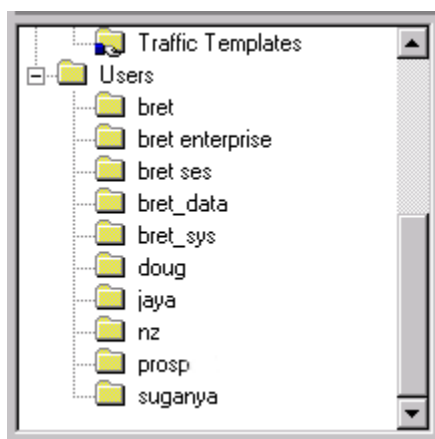
To export documents to another system:

1. You must be logged in as flexpm to run the scripts import_docs.sh and export_docs.sh.

2. Run the export_docs.sh command (see Syntax for export_docs.sh on page 167).

3. Run the import_docs.sh command (see Syntax for import_docs.sh on page 168).

Including Scenarios in Exported Documents

User scenarios are not exported by default, since the import/export tool is used mainly to move documents from one server to another server whose set of network elements is unique. The export_docs.sh script includes an option that enables the exporting of scenarios to another server. If you specify the -r option, the script exports scenarios that are in the folders being exported, as well as any that are referenced by other documents that are exported, such as reports, schedules, or alarm definitions. The import_docs.sh script imports all scenarios present in the export file.

When exporting the scenarios, the server-specific IDs are replaced with server-independent representations. These are translated back to IDs when importing the scenarios into the new server. If the translation does not find the object on the new server, then a warning is produced, and the object is ignored.

Note: Active and Complete system scenarios are not exported, but references to them are retained if they exist on the importing server.

Syntax for export_docs.sh

```
export_docs.sh -p <IBM Prospect_path> | -d <report/template>
              -f <target_file> -l <log_file> | -r | -h
```

The options for `export_docs.sh` are described in the following table:

Table 42: Options for export_docs.sh

Option	Description
-p	The path in the IBM Prospect Explorer window that specifies the source folder you want to export (see Exporting Documents on page 165).
	Note: The documents you want to export frequently contain dependencies on other IBM Prospect documents. See Document Dependencies on page 168.
-d	The path in the IBM Prospect Explorer window that specifies which report or template is exported (see Exporting Documents on page 165).
	Note: The report or template you want to export frequently contains dependencies on other IBM Prospect documents. See Document Dependencies on page 168.
-f	The full path of the target file to which export data is written. Required for the options -p and -d.
-l	Causes a log file to be written to the name specified in <log_file>. Required for the options -p and -d.
-r	Indicates that user scenarios in the exported folders, or referenced by documents in the exported folders, will be exported to the new server. System scenarios (such as the Active and Complete scenarios) will not be exported.
-h	Help. Optional.

Example of Exporting a Folder

```
export_docs.sh -p '/Users/myDocs' -f /home/me/export_user -l export.log
```

The above example exports all the documents in the myDocs folder to the target file export_user.lst

Example of Exporting the Entire IBM Prospect Tree

```
export_docs.sh -p '/' -f /home/me/export_user -l export.log
```

The above example exports the entire IBM Prospect Explorer tree to the target file
`export_user.lst`

Example of Exporting a Report

```
export_docs.sh -d '/Users/jaya/myReport' -f /home/me/export_user -l
export.log
```

The above example exports the report `myReport` to the target file `export_user.lst`

Syntax for import_docs.sh

```
import_docs.sh -p <IBM Prospect_path> -f <source_file> -l <log_file> |
    -r | -h
```

Each option is described in the following table.

Table 43: Options for import_docs.sh

Option	*Description*
-p	The path that specifies the target IBM Prospect Explorer folder into which the source documents are imported. This path can be different than the one specified in the `export_docs.sh` command. Required.
-f	The full path of file that contains the exported data. Required.
-l	Causes a log file to be written to the name specified in `<log_file>`. Required.
-r	Indicates that the imported folders contain user scenarios. The scenarios are imported into the same folder as other imported documents or, in the case of a scenario referenced by another document, into a dependencies folder.
-h	Help. Optional

Example

```
import_docs.sh -p '/Users/IBM Prospect/myDocs' -f /home/me/export_user -l
export.log
```

The above example imports the contents of the `file export_user` and copies them to the
IBM Prospect Explorer folder *Users/IBM Prospect/myDocs*.

Document Dependencies

In addition to exporting the documents specified by the `<IBM Prospect_path>` option, the
`export_docs.sh` script exports the following documents:

- All user-defined calculations (UDCs)

- Other required documents, except scenarios and System Templates

When an exported document depends upon items that are located in other folders that are not part of the export, the script creates a folder named `Dependencies` and places the items there.

The scripts do not export or import scenarios because a scenario is dependent on the network configuration loaded into a IBM Prospect server. References to scenarios in documents are replaced by an empty scenario. Therefore, you must update the scenario reference, where necessary, in every imported document.

If a busy hour determiner or stored summation definition is imported, it is imported with the first needed date from the source server. The IBM Prospect server that imports the busy hour determiner or stored summation definition might need to calculate the busy hours or stored summations for every day between the first needed date and the current date. The first needed date value should be adjusted to a reasonable date. See Traffic Busy Hours and Summations for information about setting the first needed date.

Related Topics

Exporting Busy Hours

Importing Busy Hours

Document Precedence

The `import_docs.sh` script does not override existing documents when you import a document. For example, a traffic summation determiner is not imported if a determiner already exists at the same entity level.

Exporting Busy Hours

The `export_busy_hour.sh` command-line script creates a file that you can use to export busy hour definitions and their associated UDCs to a different system. This script runs without user interaction, so you can include it in another job or script.

Syntax

```
export_busy_hours -f <data filename> [-l <log filename>] [-n <busy hour
name>] [-h]
```

Table 44: Parameters for export_busy_hours.sh script

Parameter	Description
-h	Help. Displays a usage message for the script.
-f <data filename>	(Required) The name of the file to hold the exported data.
-l <log filename>	(Optional) the name of a log file to capture error messages. Error messages are displayed on the screen, if you are running this interactively and do not specify the `-l` option.
-n <busy hour name>	(Optional) the name of an individual busy hour definition to export. If this parameter is not specified, all busy hour definitions are exported.

Once you have created the output file (specified in the -f parameter), you can email, ftp, or copy it to another destination. See [Importing Busy Hours](#).

The script exits with status value 9 in case of failure.

Related Topics

[Importing Busy Hours](#)

Importing Busy Hours

The `import_busy_hour.sh` command-line script creates a file that you can use to import busy hour definitions and their associated UDCs from a different system. This script runs without user interaction, so you can include it in another job or script, for example, as part of an installation package.

Before you import busy hours, make sure that the UDC names and the busy hour names listed in the input file do not exist on the target system.

Syntax

```
import_busy_hours -f <data filename> [-l <log filename>] [-sn <scenario
name>] [-a <action>] [-h]
```

Table 45: Parameters for import_busy_hours.sh script

Parameter	*Description*
-h	Help. Displays a usage message for the script.
-f <data filename>	(Required) The name of the file that contains the data to import.
-l <log filename>	(Optional) the name of a log file to capture error messages. Error messages are displayed on the screen, if you are running this interactively and do not specify the -l option.
-sn <scenario name>	(Optional) the name of the scenario to associate with the imported busy hour data. The scenario name is in the form <NAME>-<SYSTEM ID>. You can locate the system ID in the SYSTEMID column of the PM_SCENARIO table in the database. If you select this option, all busy hours in the import file are associated with the named scenario.
	If you do not specify a scenario name, the script associates the imported busy hours with a temporary scenario named UNDEFINED SCENARIO; you will then need to move this to an existing scenario using the IBM Prospect Classic Client.

Table 45: Parameters for import_busy_hours.sh script

Parameter	Description
-a <action>	Action is one of IGNORE, FAIL, or OVERWRITE. IGNORE—if you specify this option, then if a busy hour being imported already exists, it is not replaced, and the import action continues. FAIL—if you specify this option, then the import fails if a busy hour being imported already exists, and the changes are rolled back. OVERWRITE—if you specify this option, then if a busy hour being imported already exists, it is replaced with the one in the import file.

You can verify that the busy hours and UDCs were created by using the IBM Prospect Classic Client.

The script exits with status value 9 in case of failure.

Some Import Constraints

Note the following constraints when importing busy hours:

- The FIRST AVAILABLE and LAST AVAILABLE fields are set to null, since these values are not portable between the source and target systems.
- The FIRST NEEDED date is calculated as the most recent of:
  - sysdate minus the retention period in the imported busy hour. The retention period is the daily retention period of the busy hour definition.
  - the earliest available data on the target system (based on the earliest timestamp value).

  If no data is available in the target system, sysdate is used, since this stops the busy hour being activated for periods where there is no data.
- If the username associated with the busy hour definition does not exist in the target system, the busy hour definition is associated with the default system user.

Related Topics
Exporting Busy Hours

9 Monitoring with Event Notifications

Event notification allows users and third-party software to receive e-mail notification on one or more system event types. The advantages of using the event notification feature are as follows:

- It provides a proactive way of receiving feedback on system events
- It is an additional way of monitoring the system

This section contains the information you need to set up your users to receive event notifications.

Topics:

Event Notification - Overview

Prerequisites

Preparing for Event Notification

Notification Editor

Creating an Event Notification

Event Notification - Overview

The following topics introduce the event notification feature and review the event notification types and content.

Topics

About Event Notification

Event Notification Types

Notification Content

About Event Notification

You can use the event notification feature to alert users to system events and to send event notifications to third-party software for further processing. These features are e-mail notification and event handling, respectively.

The e-mail and the event handling functions use different communication protocols:

- E-mail notification — Uses SMTP (Simple Mail Transfer Protocol) to send e-mail to users of the IBM Prospect system.
- Event handling — Uses SNMP (Simple Network Management Protocol) to send a message to a third-party software indicating that an event has occurred.

You can use the e-mail notification function or the event handling function, or both, assuming your system meets the prerequisites (see Prerequisites).

Event Notification Types

Event notifications can be grouped into three main types:

- **Reporting** — Provides information about the success or failure of scheduled groups.
- **Administration** — Delivers information about the success or failure of IBM Prospect system maintenance tasks.
- **Data Loading** — Provides information on whether the loading of raw data into the Oracle database was successful.

The following table lists each event notification type and its description.

Table 46: Event Notification Types

Group	Event Type	Description
Reporting	Busy Hour Success / Busy Hour Failure	Based on the script `bhupdate.sh`. There is one event notification for each busy hour determiner.
	Report Group Success / Report Group Failure	Reports whether scheduled report generation was successful. One notification per job.
	Summation Success / Summation Failure	Based on the script `smupdate.sh`. There is one event notification for each summation.
Administra-tion	Analyze Table Success / Analyze Table Failure	Based on the `analyze_schema` tool, which optimizes the database. This tool runs every eight hours.
	Auto Clean Success / Auto Clean Failure	Reports whether the `misc_clean` option of the `schedule_maint` script ran successfully, or whether it failed. The `misc_clean` option deletes job logs. For more information on `misc_clean`, see Scheduling IBM Prospect System Maintenance on page 133.

Table 46:   Event Notification Types

Group	Event Type	Description
	Busyhour Clean Success / Busyhour Clean Failure	Reports whether the busy hour data has been successfully removed from the database, or if the removal failed. Based on the `bhclean_clean.sh` script. For information on this script, see [Maintaining Stored Busy Hours and Summations](#) on page 46.
	Daily Partition Maintenance Success / Daily Partition Maintenance Failure	Based on the `pm_daily` option of the `schedule_maint` tool. Reports whether the scheduled process that runs on a partition was successful.
	Event Clean Success / Event Clean Failure	Reports whether the `event_clean` option of the `schedule_main` script successfully ran, or whether the option failed. The `event_clean` option deletes event-handling records from the database. For more information on `event_clean`, see [Scheduling IBM Prospect System Maintenance](#) on page 133.
	File Purge Success / File Purge Failure	Based on the `rgfp` option of the `schedule_maint` tool. Reports whether the report group file purge and log file cleanup was successful.
	Softalarm File Missing	Reports soft alarm data that has not been received during the soft alarm schedule timeout period. For more information about soft alarm schedule timeout period, see [Scheduling Soft Alarm Groups](#) on page 209.
	Monthly Partition Maintenance Success / Monthly Partition Maintenance Failure	Based on the `pm_monthly` option of the `schedule_maint` tool. Reports whether the scheduled process that runs on a partition is successful.
	Softalarm Success / Softalarm Failure	Reports whether the soft alarm generation processes completed successfully, or whether the process failed. For more information on the soft alarm processes, see [Monitoring Soft Alarm Processes](#) on page 217.

Table 46: Event Notification Types

Group	Event Type	Description
	Summary Clean Success / Summary Clean Failure	Reports whether the summary data has been successfully removed from the database, or if the removal failed. Based on the `summary_clean.sh` script. For information on this script, see [Maintaining Stored Busy Hours and Summations](#) on page 46.
	Weekly Partition Maintenance Success / Weekly Partition Maintenance Failure	Based on the `pm_weekly` option of the `schedule_maint` tool. Reports whether the scheduled process that runs on a partition is successful.
	Data Load	Generates a notification when a data load event is successful, and the available data is updated. A data load event is defined as the loading of data for a single time interval.
	File Load Success / File Load Failure	Reports whether a file load is successful. A file load event is defined as the loading of a file containing one or more intervals of data, depending on the frequency of file load.The "success" and "failure" correspond to whether the data ends up in the `ok` or `fail` directory, respectively.
	File Failed To Arrive	Based on the scripts `add_filetype_timeout.sh` and `override_default_timeout.sh`. Reports if a file does not arrive during a specified period. You use the `add_filetype_timeout.sh` script to set the time during which a file is expected. For detailed script syntax information, see [Defining Data Load Expectations](#) on page 97.

Notification Content

Each event type has its own message, which displays information related to the event type. For example, the File Load Failure event shows the file type, data time stamp, data file name and log file information.

For e-mail notifications only, you can customize the subject line and add additional message content.

Related Topics:

[Creating an Event Notification](#)

Prerequisites

There are two sets of prerequisites: one for e-mail notification, and one for event handling.

E-mail Notification Prerequisites

The following conditions must be met:

- Your messaging system uses the SMTP protocol
- The IBM Prospect server has access to a mail server

Event-Handling Prerequisites

The following conditions must be met:

- Your system must monitor network activity using SNMP
- Your system must have third-party software with an SNMP Manager into which IBM Prospect MIBs (Management Information Base) can be imported (see Event-Handling Preparation)

    The IBM Prospect server hosts the SNMP agent that is responsible for forwarding information from traps to the SNMP manager, indicating that an event has occurred on the IBM Prospect server.

Preparing for Event Notification

The e-mail notification and the event-handling functions each have different tasks you must perform to enable them. These tasks are covered in the following sections.

Topic

E-Mail Notification Preparation

Event-Handling Preparation

E-Mail Notification Preparation

To enable the e-mail function, you must first run the script `configure-smtp.sh`, which places SMTP values into the IBM Prospect database.

The `configure-smtp.sh` script is interactive, which means you enter SMTP values when the script prompts you. You can run the script as many times as necessary to enter SMTP values. The script requires the information described in the following table.

Table 47: Values for the configure-smtp.sh Script

Field	Values
SMTP Mail Server	The name or IP address of the mail server (required)

Table 47: Values for the configure-smtp.sh Script (Continued)

Field	*Values*
SMTP From Address	E-mail address of the sender (required). Example: **IBM Prospect@company.com** **Note**: The address does not have to exist. However, a non-existing address does not have the capability to receive responses.
SMTP Mail Port	The server port for SMTP (optional). Default 25
SMTP User	UserID to login as in the mail server (optional)
SMTP Password	Login password to login with in the mail server (optional)
SMTP FirewallHost	Name or IP address of the firewall (optional)
SMTP Firewall Type	Determines the type of firewall to connect through (if you enter a value for SMTP Firewall Host, this field is required) Default 0
SMTP Firewall User	User name if authentication is to be used connecting through a firewall (optional)
SMTP Firewall Password	Password if authentication is to be used connecting through the firewall (optional)
SMTP Firewall Port	Port of the firewall to connect to (if you enter a value for SMTP Firewall Host, this field is required)

To prepare the database for the event notification feature

1. Run `configure-smtp.sh` located in the `$FLEXPM_HOME/pm/adm` directory.

2. Enter the appropriate values for your system when prompted by the script.

3. If desired, review the values entered using the `configure-smtp.sh -l` option:

   `configure-smtp.sh -l`

   This displays all of the current SMTP values, as in the following example:

   ```
   SMTP server configuration details ::

           SMTPFirewallHost = none
       SMTPFirewallPassword = ~WM+sg
           SMTPFirewallPort = none
           SMTPFirewallType = 0
           SMTPFirewallUser = none
            SMTPFromAddress = from-addr@ps.net
               SMTPMailPort = 2557
             SMTPMailServer = testing
   ```

```
SMTPPassword = ~Wt&y0wSvC
     SMTPUser = perot
```

4. Shut down and restart the event handler using the command `ps-mgr restart eh`.

Event-Handling Preparation

To enable the event-handling function, you need to import IBM Prospect MIBs into the SNMP manager on your system. The MIBs are located in `$FLEXPM_HOME/mibs/EventNotification`.

The procedure for importing MIBs into an SNMP manager differs from one software vendor to another. As such, please check your vendor documentation.

Notification Editor

Use the Notification Editor in the IBM Prospect client to create a notification definition. The definition contains event types that you select, notification recipients, and customized subject and message text. The following figure shows the Notification Editor. The legend explains the main parts of the dialog box.

Figure 26: Notification Editor Dialog Box
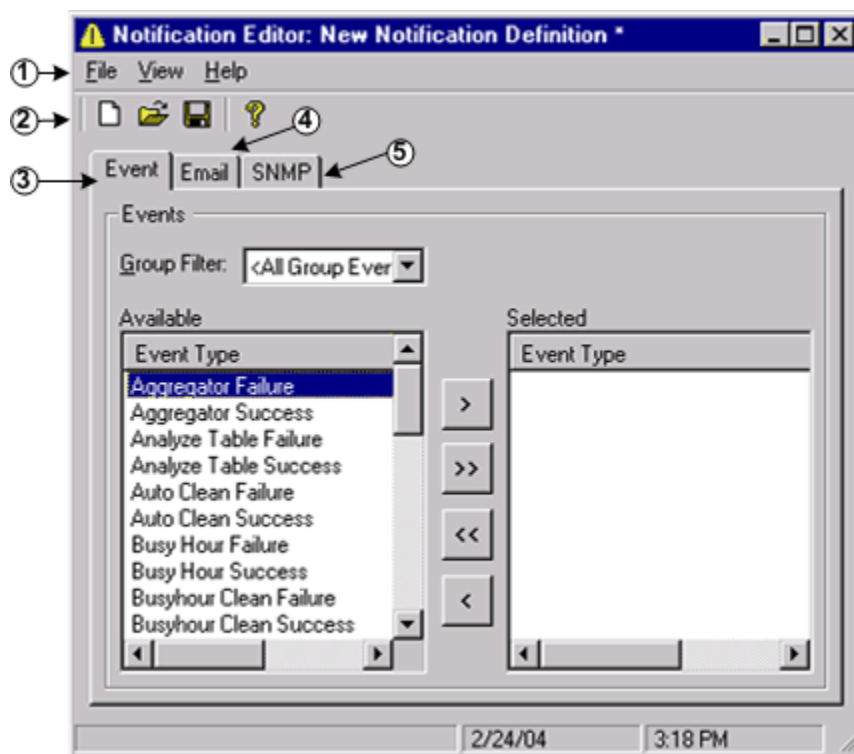
Legend:

No.	Description
1	Menu bar — Use the menu commands to create a Notification Definition document. This document contains all the setting for an event notification. For more information, see Creating an Event Notification on page 183.
2	Toolbar — Displays icons that are shortcuts for commonly used menu commands.
3	EVENT tab — Allows you to select event types.
4	E-MAIL tab — Allows you to add e-mail recipients and customize notification content.
5	SNMP tab — Allows you to list SNMP managers for your system.

Related Topics:

Event Tab Settings

Event Tab Settings

Use the EVENT tab to select event types. The users listed in the E-MAIL tab receive notification on the events that you select here. The following table describes the various event settings.

Table 48: Event Tab Settings

Setting	Description
GROUP FIL-TER list box	Allows you to see only events in that group. For example, data load-ing. You can also list all event types.
AVAILABLE pane	Lists the available events types. Click the single-right arrow to select a single event type or the double-right arrow to select all event types. Change the ascending/descending sort order by clicking the EVENT TYPE column heading.
SELECTED pane	Lists the selected events types. Click the single-left arrow to dese-lect an event type or the double-left arrow to de-select all event types. Change the ascending/descending order by clicking the EVENT TYPE column heading.

Related Topics:

E-mail Tab Settings

Use the E-MAIL tab to add users, and customize subject and message text if desired. The users you add here receive notification of the events you selected in the EVENT tab. The following table describes the various settings.

Table 49: Descriptions of E-mail Tab Settings

Setting	Description
SUBJECT text box	Allows you to customize the content of the subject portion of the notification. `<Default>` indicates that the event notification will use the default text message. Specifying a subject overrides the default IBM Prospect subject text. Customizing the subject is not recommended. Clicking the RESET button (at the right of the text box), clears the customized text and restores the default text.

Table 49: Descriptions of E-mail Tab Settings

Setting	Description
MESSAGE text box	Allows you to customize the content of the message portion of the notification. `<Default>` indicates that the event notification will use the default text message.
	Any message you add is added to the IBM Prospect-generated message.
	Clicking the RESET button (at the right of the text box), clears the customized text and restores the default text.
RECIPIENTS list box	Lists the e-mail addresses of the users who will receive the event notifications selected in the EVENT tab.
	Clicking the DELETE button, deletes a users from the Recipients pane; the DELETE ALL button, all the users.
ADD RECIPI- ENTS text box	Enter the e-mail address of a users to receive event notifications. Example: John.Doe@company.com. The e-mail address is the name of the user followed by the domain name.
	If you specify an alias, it must also be known to the SMTP server.
	Clicking the ADD button, lists the entered e-mail address in the RECIPIENTS pane.

Related Topics:

    Adding E-mail Recipients for Event Notifications

    Customizing E-Mail Notification Content

SNMP Tab Settings

Use the SNMP tab of the Notification Editor to list SNMP managers for your system. The SNMP managers listed on the SNMP tab receive notifications from the IBM Prospect server, for the events you selected in the EVENT tab You need to select at least one event before you can add an SNMP manager. The following table describes the various settings on the SNMP tab.

Setting	Description
SNMP Host	Enter the host name or IP address for the SNMP manager
SNMP Port	Enter the Port number for the SNMP manager
SNMP Version	Enter the SNMP version number. Supported versions are SNMP v2c, or SNMP v1.
Time format	Enter the time format used by the SNMP manager: UTC, or UNIX.

The NEW button clears the entry fields. Use the APPLY button to add an SNMP host to the list.

Related Topics

    Adding SNMP Managers

Creating an Event Notification

When creating an event notification, you create a Notification Definition document. The Notification Definition document encompasses the settings for the following:

- Event types
- E-mail recipients or SNMP managers
- Any customized message content (e-mail notification only)

You can create one or more Notification Definition documents depending on the information needs of your users.

Before you can create an event notification, you must first prepare for its use. See Preparing for Event Notification on page 177 for more information.

Note: The IBM Prospect server generates a large number of events during normal opertion. It is often desirable to register only for failures.

Use this procedure to create a Notification Definition document.

To create a Notification Definition document

1. From the FILE menu, point to NEW, and click NOTIFICATION.

2. Select one or more event types.

3. Add one or more e-mail recipients

   - and / or -

   Add one or more SNMP managers

4. Optional — Customize e-mail notification content.

5. From the FILE menu of the NOTIFICATION EDITOR, click Save.

6. In the NOTIFICATION NAME text box, enter a name and click the SAVE button.

Once you have completed the above steps, the users and/or SNMP managers you selected will start receiving e-mail and SNMP events, respectively.

Related Topics:

Selecting an Event Type

Customizing E-Mail Notification Content

Adding SNMP Managers

Selecting an Event Type

Use this procedure to select an event type. The users listed in the E-MAIL tab and the SNMP Managers listed in the SNMP tab receive notification of the events that you select here. For an explanation of event types, see [Event Notification Types](#) on page 174.

Note: This procedure assumes that the Notification Editor is open (see [Creating an Event Notification](#) on page 183).

To select an event type

1. Click the EVENT tab.

2. Select one or more event types. From the AVAILABLE pane, select a single event type and click the single-right arrow (or double-click the desired type).

   - or -

   Select all types by clicking the double-right arrow.

   The selected entities are listed in the SELECTED pane.

   If you want deselect an event type, select the event type in the SELECTED pane and click the single-left arrow (or double-click it).

Note: The IBM Prospect server generates a large number of events during normal operation. It is often desirable to register only for failures.

Adding E-mail Recipients for Event Notifications

Use this procedure to specify which users are to receive the event notifications selected in the EVENT tab.

Note: This procedure assumes that the Notification Editor is open (see [Creating an Event Notification](#) on page 183).

To add e-mail recipients

1. Click the EMAIL tab.

2. In the EMAIL text box, enter the e-mail address of the user. The e-mail address is the name of the user followed by the domain name.

   Example: John.Doe@company.com

   If you specify an alias, it must also be known to the SMTP server.

3. Click the APPLY button. The name is listed in the RECIPIENTS pane.

4. To stop sending event notification to users, select their e-mail addresses from the RECIPIENTS pane and click the DELETE button.

Or

To delete all the e-mail addresses, click the DELETE ALL button.

Customizing E-Mail Notification Content

Use this procedure to customize the content in the subject and message portions of an e-mail notification.

Note: This procedure assumes that the Notification Editor is open (see [Creating an Event Notification](#) on page 183).

To customize E-mail notification content

1. Click the E-MAIL tab.

2. In the SUBJECT text box, enter the content of the notification subject line.

The text you enter here replaces the default subject line.

3. In the MESSAGE text box, enter the content of the message.

The text you enter here is added to the default message text.

4. To restore the default notification content, click the RESET button by the respective text box. The custom text is replaced with the term `<Default>`, and the default text will be used.

Related Topics

[Prerequisites](#)

Adding SNMP Managers

Use this procedure to specify which SNMP managers will receive the notifications you selected in the EVENT tab.

Note: This procedure assumes that the Notification Editor is open (see [Creating an Event Notification](#) on page 183.

At any time, you can click the NEW button to clear the fields you have entered.

To add an SNMP manager

1. Click the SNMP tab.

2. In the SNMP HOST text box, enter the name or IP address of the SNMP manager host.
Example: `server1.wa.somecompany.com` or `192.167.10.220`.

3. In the SNMP PORT text box, enter the number of the port on the SNMP manager host that is listening for SNMP traps. Typically this is port 162, but it can be any port number between 1 and 65535, depending on how your SNMP manager is configured.

4. From the SNMP VERSION drop-down list box, select the version of SNMP that is running on your system.

5. From the TIME FORMAT drop-down list box, select a time standard. You can select either UTC time or UNIX time.

6. Click the APPLY button. The information on the SNMP manager is displayed in the SNMP MANAGERS box.

To delete an SNMP manager

1. From the SNMP MANAGER box, select the entry you want to delete.

2. Click the DELETE button. The selected entry is deleted from the SNMP MANAGER box.

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10 General Troubleshooting

This chapter addresses general troubleshooting information for the IBM Prospect server. See Appendix B: Error Messages for a description of error messages and error codes for IBM Prospect server processes.

Troubleshooting Process

When analyzing a IBM Prospect server problem, it is good practice to start with the following steps:

1. Ping the network element to check the connection.

2. Verify that the client is connected to the IBM Prospect server.

3. Check the profile connection using the Connection Manager.

4. Verify that all the server processes are running.

5. Check all available logs to determine where the problem began.

Server Troubleshooting

This section describes additional troubleshooting information for the IBM Prospect server.

Checking Configuration Parameters

Log File Errors When Starting the Middleware

ENDOFFETCH Errors for the tm Process

sc Process Failure

Active Queue Heartbeat Failure

Bad UDC Fields

Checking Configuration Parameters

Confirming that the IBM Prospect server is configured properly is an important step to take when troubleshooting the IBM Prospect server.

To confirm the IBM Prospect server configuration

1. Log on as `flexpm`, the IBM Prospect UNIX user.

2. Verify that the FLEXPM_HOME variable is set to the most current revision:

   a. Print the path towhich FLEXPM_HOME is currently set:

   ```
   $ echo $FLEXPM_HOME
   ```

   b. If the path is out of date, update it as follows:

   ```
   $ export FLEXPM_HOME = <path_to_latest_revision>
   ```

3. Make $FLEXPM_HOME the current directory:

   ```
   $ cd $FLEXPM_HOME
   ```

4. Verify that the key environment variables PATH, LD_LIBRARY_PATH, and ORACLE_HOME are set, using the following commands:

   ```
   $ echo $PATH | tr : \\n
   $ echo $LD_LIBRARY_PATH | tr : \\n
   $ env | grep -i oracle
   ```

5. Verify that the key connection parameters are set, using the following commands:

   ```
   $ env | grep PORT_GROUP=
   $ env | grep _DS_PORT=
   $ env | grep ^DB
   ```

6. Use the `setup-connects` program to confirm details of the PORT and DB connection parameters. The values are part of the middleware configuration files. Use the following command:

   ```
   $ ./pm/adm/setup-connects -list all
   ```

7. If these connection parameters values have changed, or if they do not match the current values necessary for the current installation, use the `setup-connects` program to update them, using the following commands:

```
$ ./pm/adm/setup-connects -make all
```

Important: Do not change the DB instance or services names unless you are an experienced Oracle DBA with a detailed understanding of the IBM Prospect server and middleware configuration.

Log File Errors When Starting the Middleware

In some cases, when starting up the middleware, you might see the following message in log files in the `${PM_LOGS} $FLEXPM_HOME/pm/log` directory:

```
ClientSocket::setup(...) connectingConnection refused
```

This is typically due to the `wmpm` process trying to verify whether FX/RS is running, before the DataServer has opened the port that `wmpm` is trying to communicate with. Once base initialization is complete and the middleware is running, this error can be ignored.

ENDOFFETCH Errors for the tm Process

Occasional errors may be noted in the `wmtm` log files indicating an ENDOFFETCH error followed by termination of the `tm` process. The `tm` process automatically restarts after this event allowing the system to continue processing.

sc Process Failure

If the sc middleware process hangs, it can no longer update the `wmtm<date>.log` file. When this happens, the following Oracle error is shown in the wmtm log file:

```
ORA - 04031 - Unable to allocate nnn bytes of shared memory
```

The problem occurs when the shared pool is too small. To increase the size of the shared pool, ask your database administrator to raise the values of the shared_pool_size and shared_pool_reserved_size parameters in `initflexpm.ora`. If the large pool is out of memory, the value of parameter large_pool_size must be increased.

Active Queue Heartbeat Failure

You may see the following message in the `wmtm` log files:

```
Status message - Active queue heartbeat failure
```

This message can occur when the `wmtm` is busy and does not necessarily indicate a failure on the IBM Prospect server. This message can also occur when there are Oracle errors related to the queues that are used. In this case, a series of error message would be in the log file.

Bad UDC Fields

Sometimes, report generation can fail because the `rs` logs contain too many UDC errors. Use the `find_bad_UDC.sh` script to locate invalid UDCs and find out what the errors are. Before

running the script, resize your screen to the maximum size, so that you can see all the columns of the output without wrapping.

Syntax

```
find_bad_UDC.sh [v]
```

Database Troubleshooting

This section describes additional troubleshooting information for the IBM Prospect server's database.

Finding Database Errors

Minimizing Trace Logs

Verifying Database Connections

Oracle Errors Causing 'rs' Process Failures

Resolving Database Locks

Important: Administrators should not, without prior consultation and agreement from IBM/ Vallent, make any changes to the Index Organized Tables or database schema. Changes to the Index Organized Tables or schema may result in corruption of data and failure of the IBM Prospect System. This applies to all releases of IBM Prospect using all versions of interfaces.

Finding Database Errors

When Oracle software encounters problems, it responds with a message and error code. The error code is the first nine characters of the error message. An example error code is `ORA-01157`.

The client application receives Oracle errors through the DataServer. The DataServer stores alert logs in `/u01/apps/oracle/admin/flexpm/bdump/`.

Use Oracle software's `oerr` command to learn more about the error.

Minimizing Trace Logs

Running the `initflexpm.ora` file creates a great number of trace logs that rapidly deplete space on the server.

To minimize the number of trace logs

1. Open the file `spfileflexpm.ora` in an editor.

2. Edit the `event` statement as shown.

```
#event = "10049 trace name context forever, level 2" # memory protect cur-
sors
```

Verifying Database Connections

Two files, `tnsnames.ora` and `listener.ora`, contain details that configure the database connection. Check these two files if you cannot connect to the database. You can find both of them on the server in the `${ORACLE_HOME}/network/admin/` directory.

Verifying the tnsnames.ora File

Verify that the `tnsnames.ora` file contains correct port number and connection string information by comparing the `PORT` attribute in the `tnsnames.ora` file to the `PORT` attribute in the `listener.ora` file. If no `PORT` attribute is listed, the default of `1521` is used.

Verifying listener Connectivity

The Listener process runs on the server and accepts database connections from the IBM Prospect middleware and other Oracle client programs. To check Listener connectivity, use the `tnsping` utility.

`tnsping` *<service_name>*

The default service name is `flexpm`, so enter the following command.

```
$ tnsping flexpm
```

The `tnsping` utility should return an OK and a ping time.

Oracle Errors Causing 'rs' Process Failures

Oracle software occasionally generates an error, `ORA-0600 [4881]`, that terminates the `rs` DataServer that receives this error. All reports running on the DataServer that terminates fail and need to be run again. The terminated `rs` process auto-restarts and processes any new reports.

Resolving Database Locks

As Loader loads data, it locks the range of data it is attempting to load. Report Generator also locks the range of data as it reads data. In the event Loader and Report Generator attempt to simultaneously access the same data, write actions have priority to read actions. In this case, the following events occur:

- If Report Generator is reading the data, it stops and the report is rescheduled.
- If Report Generator cannot access the locked data after two minutes, Report Generator produces the error message `Loaders are taking too long to complete. Giving up.`

If you see this error message in the log file, check to see whether Loader is still running. Certain abnormal conditions (such as a system crash) can cause the lock to remain in place. Stopping and restarting the middleware clears all data locks.

Consolidating Files for Customer Support

The `fetchfiles` utility gathers log files, spool files, and UDCs for a specific task ID into a single file, making it easier to send information to customer support. The script is located in the `$FLEXPM_HOME/pm/adm` directory and has the following syntax.

```
fetchfiles -t <nnn> -ddts <cccccnnnnn>
```

The following table describes the options for the `fetchfiles` utility:

Table 50:   Options for fetchfiles

Option	*Description*
`-t <nnn>`	Task ID.
`-ddts <cccccnnnnn>`	DDTS record ID provided by customer support.

Excel Worksheet Troubleshooting

Large Number of Rows

Excel reports cannot exceed 65,536 rows. If a report is greater than 65,536 rows, which is most likely to occur with PCMD reports, the report is downloaded as a `.txt` file. This returns the message

```
Too many rows for Excel to process. Saved to file.
```

By default, the number of rows in the `.txt` files is not limited. If you want to limit the number of rows, you can specify a maximum by setting the variable ROW_NUMS in the file `DSRun`. This constraint will then apply to all files downloaded to Excel except Standard Summary Report and Failure Rate Summary Report. (These are row count reports and therefore require that the actual number of rows be downloaded.) Since you will typically set the limit to a size applicable to PCMD reports, other reports, like CPFail Message and UDR reports, are not likely to be affected.

To set the ROW_NUMS variable

1. Open the file `$FLEXPM_HOME/pm/run/DSRun` in an editor.

2. Add the line `addexport ROW_NUMS=<max>`, where `<max>` is the maximum nunber of rows to be written to the `.txt` file. For example:

```
addexport ROW_NUMS=500000
```

Note: The ROW_NUMS value applies only to actual rows. In the case of the PCMD file, header and pace control information add approximately 60 lines to the file.

3. Save the file.

4. Restart the RS DataServers:

```
ps-mgr restart rs
```

Saving of Scheduled Reports

Scheduled reports, whether they are automatically or manually downloaded, are processed by Excel, saved to a file, and closed. Excel reports do not stay open when they are associated with scheduled reports.

The location of the stored report follows these rules:

1. In the directory specified in the report definitions destination tab.

2. If that directory is not available, Excel uses the directory specified in the registry entry `HKEY_CURRENT_USER\Software\Vallent\Prospect\AppGroupRootVBObject\OverrideS tateRoot\Path`. The default location is the user's `My Documents` directory.

3. If that directory is not available, the report is stored in the user's temporary directory:

```
c:\documents and settings\<user name>\Local Settings\Temp
```

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 has all the logs of these tasks appended. 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 IBM Prospect Alarm

IBM Prospect Alarm generates performance data messages that you use to actively monitor network performance. The messages, called soft alarms, are similar to hardware alarms, except soft alarms are based on network performance data rather than on hardware performance.

A message's content, criteria by which it is generated, and severity are all configurable by a system administrator or data administrator. A soft alarm is raised based on a soft alarm definition, which has a number of parts, outlined in the following figure.

Figure 27: Soft Alarm Definition
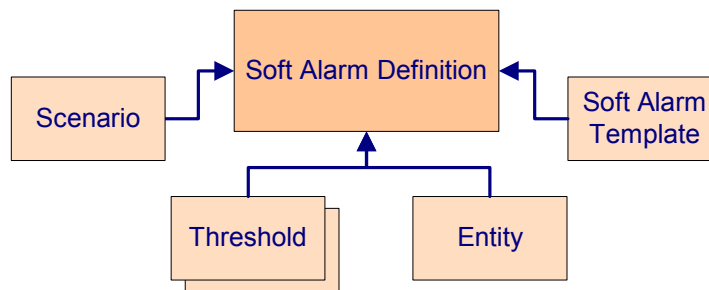
Like a report definition, a soft alarm definition contains a scenario, template, and entity. Soft alarm definitions also include one or more thresholds, which determine when a soft alarm is raised.

Soft Alarm Concepts

Soft Alarm Viewer

Setting Soft Alarms

Soft Alarm Processes

Using Third-Party Alarm Software

Soft Alarm Concepts

Soft alarms are messages, based on performance data, for monitoring network performance. A message's content, criteria by which a message is generated, and severity are configurable by a system administrator or data administrator. See Viewing Soft Alarms on page 212 for information on viewing soft alarms.

Important: Incomplete data can produce erroneous soft alarms. For example, IBM Prospect Alarm does not raise an error if the data required to reach the threshold is missing from the database.

Topics

About Soft Alarm Thresholds

Thresholds are formulas that define when a soft alarm is raised. A soft alarm definition can contain one or more individual thresholds. Crossing a threshold can raise an alarm with a specified severity or clear an alarm. When multiple thresholds in a soft alarm definition evaluate to TRUE, only the alarm with the highest severity is raised. A definition that contains a threshold to clear an alarm clears only an alarm of the lowest severity that matches the definition.

Threshold Types

You can use three types of thresholds. Each type determines how a field is evaluated.

- Absolute (None)
- Mean
- Standard deviation

Absolute thresholds, referred to as NONE in the Soft Alarm Definition Editor, compare the current value of a field against a fixed value. This threshold type is not dependent on any additional calculations. Using absolute thresholds, you can raise an alarm based on the evaluation of a threshold over a defined period of time. For example, you can raise an alarm only if a threshold is evaluated to TRUE for the last three of four time periods. Use the Hyst Range and Hyst Count columns in the Soft Alarm Definition Editor to set these values. (see About Hysteresis Values for more information)

Mean thresholds compare the current value of a field against a mean.

Standard deviation thresholds compare the current value of a field against a specified number of standard deviations above and below the mean. To use the standard deviation threshold in IBM Prospect Alarm, you need to specify the upper and lower boundaries of the mean as separate thresholds. For example, if you want to raise an alarm when OrigAcc is 2 standard deviations above or below the mean, you would use thresholds defined as follows:

```
OrigAcc > 2 * Stddev OR
OrigAcc < -2 * stddev
```

This is the equivalent of the following. In the second case, notice the negative sign on the multiplier:

```
OrigAcc > 2 * Stddev => OrigAcc > mean + (2 * stddev) = Right outliers
OrigAcc < -2 * stddev => OrigAcc < mean + (-2* stddev) = Left outliers
```

The following figure shows an example of two standard deviation thresholds. Threshold *A* is set at two standard deviations below the mean and two standard deviations above the mean. Threshold *B* is set at one standard deviation below the mean and three standard deviations above the mean.

Figure 28: Standard Deviation Thresholds
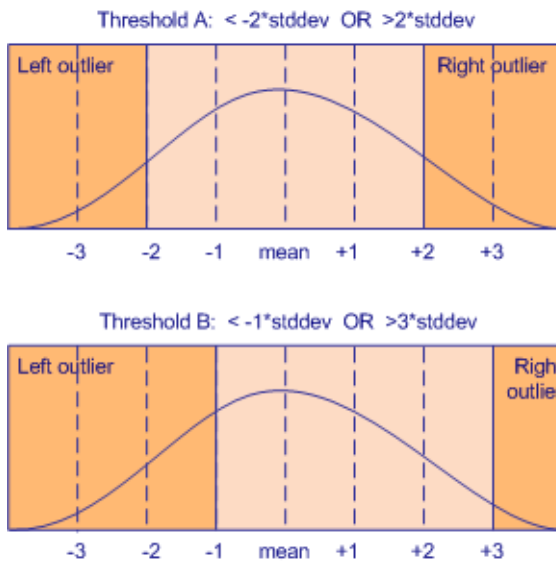
The following figure shows how a standard deviation threshold is entered in the Soft Alarm Definition Editor. It uses Threshold *A* from the previous figure as an example.

Figure 29: Entering a Standard Deviation Threshold

About Hysteresis Values

The Soft Alarm Definition Editor allows you raise or clear an alarm when a field value passes a threshold for an extended period of time. This is referred to as *hysteresis*.

If you want an alarm raised every time a field value crosses a threshold, you do not need to use hysteresis values. Set hysteresis values when you want an alarm raised only when a field value

remains above a threshold for a certain period of time or when the threshold is crossed for a number of times.

You set hysteresis values using the following columns in the Soft Alarm Definition Editor:

- Value—Determines the threshold value
- Aggregator—Set to `None`
- Hyst Count—Determines the number of times the value must pass the threshold for an alarm to raise
- Hyst Range—Determines the period of time used to evaluate the HYST COUNT value

---

Note: The time unit inferred for the hysteresis range corresponds to the maximum common frequency of the data fields used in the soft alarm definition. For example: if three of four fields in an alarm definition report at 15-minute intervals, and the fourth field reports at 30-minute intervals, the hysteresis range value will be interpreted to be in 30-minute units.

Consider the following hysteresis values:

- Value is `100`
- Aggregator is `None`
- Hyst Count is `4`
- Hyst Range is `6`

A soft alarm is not raised in the scenario shown in the following figure.

Figure 30:   Example 1 for Hysteresis Values

Time Periods
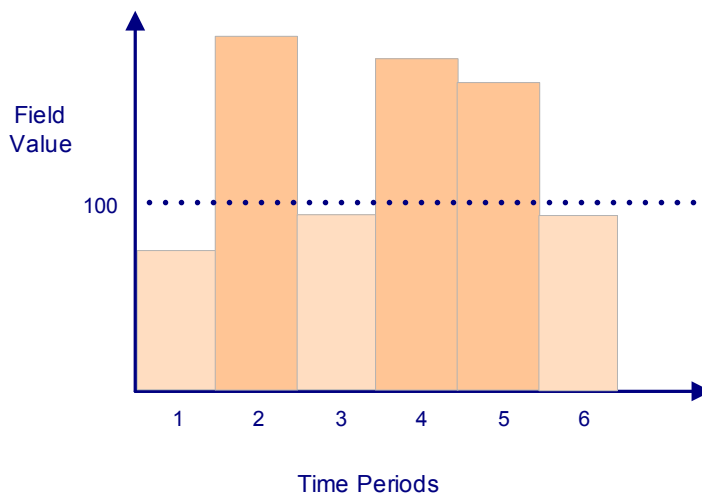
In this scenario, the threshold is crossed only three times, so there is no alarm raised after period 6. However, a soft alarm is raised in the scenario shown in the following figure.

Figure 31: Example 2 for Hysteresis Values
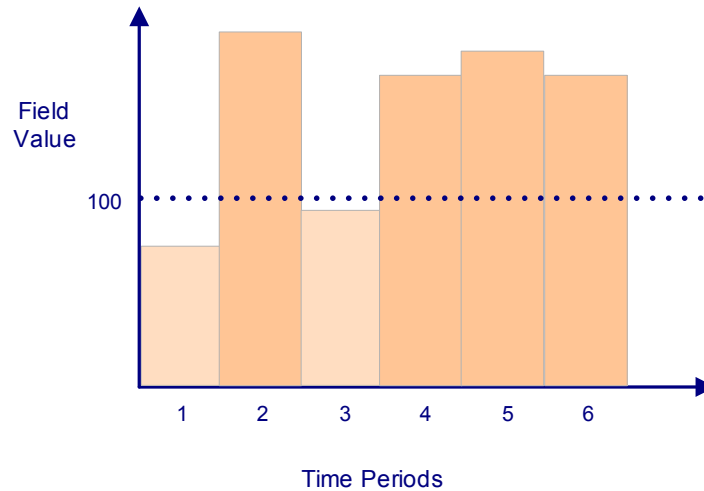
A soft alarm is raised after period 6 because the threshold is crossed four times out of the last six periods, which can indicate a reoccurring problem.

About Time Periods and Ranges

Soft alarm definitions that depend on the comparison of multiple time periods include a TIME RANGE specification in the DEFINITION EDITOR. Integral to any time range comparison is the concept of *periods*. A *period* is the maximum common frequency of the data fields used in the soft alarm definition or group. For example, if three out of four fields in an alarm definition report at 15-minute intervals, and the fourth field reports at 30-minute intervals, the *period* is interpreted to be a 30-minute unit. Soft alarm groups should include only fields that report at similar intervals.

Alarm definitions that calculate means and standard deviations require you to specify a time range for the calculation. You have the following choices for time range:

- **Last N periods**—this option calculates statistics based on the most recent specified number of periods. For example, if the period is 30 minutes and you set N to three, the mean or standard deviation is calculated based on the most recent three half-hour periods, as shown in the following diagram. The current period is not included in the statistical calculation.

Figure 32: Illustration of Last N Periods Time Range (N=3)
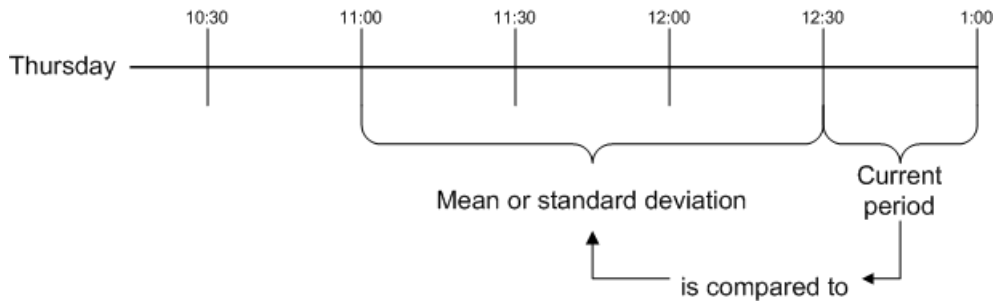
- **Same period, last N days**—this option calculates statistics based on data from the same time period over the last N days. The following diagram shows an example that compares the same period for the last 3 days. The calculation does not include the current period.

Figure 33: Illustration of Same Period, Last N days Time Range (N=3)
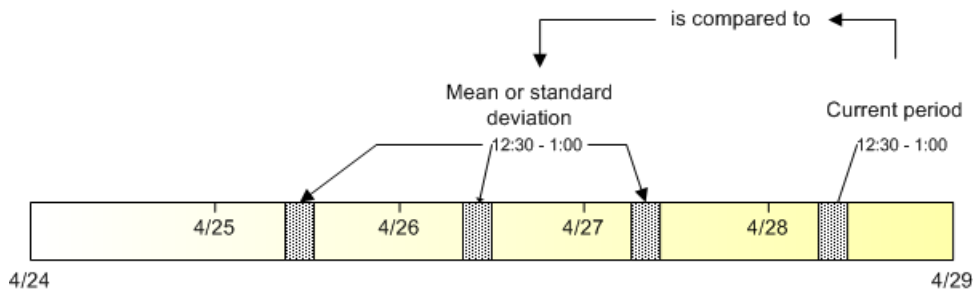
- **Same period, same day, last N weeks**—this option compares data from the current period to data from the same time period and same day for the preceding N weeks. For example, if today is April 28, the current period is 12:30 to 1:00, and N is three, then data for the current period would be compared to data for the 12:30 to 1:00 time period for April 21, April 14, and April 7. The following diagram illustrates this example.

Figure 34: Same Period, Same Day, Last N Weeks (N=3)
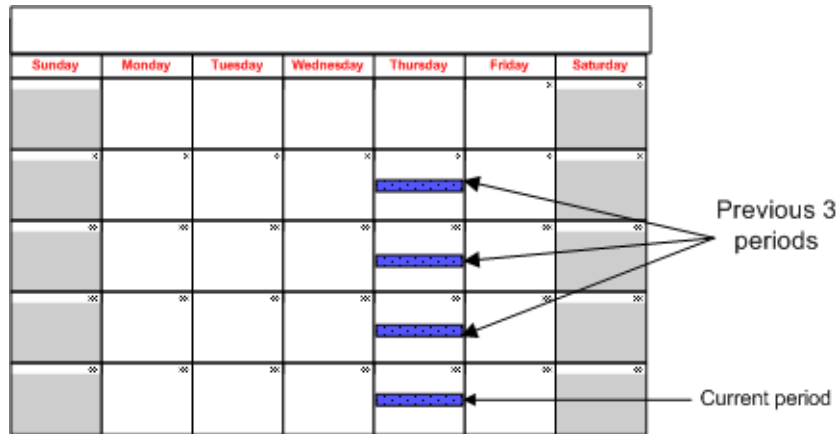
The choice of time range specification for soft alarm definitions is up to you; however, the SAME PERIOD, SAME DAY, LAST N WEEKS option is the most likely to compare similar circumstances.

About Soft Alarm Time-Outs

There are two kinds of time-outs that control soft alarm scheduling:

- Schedule time-outs—accessible through the user interface, that a user with administrative permissions sets
- System time-outs—a system-wide value that the IBM Prospect administrator sets

Schedule Time-Outs

A time-out period, when applied to a schedule, controls how long the system waits for all data to arrive. The purpose of defining a time-out period is to insure that the alarm group runs after a reasonable amount of time, if any part of the data set arrives. The following apply:

- Some data must load, otherwise the soft alarm group does not run.
- If the time-out expires, then an alarm group is scheduled with whatever data is available. The result is that some data might not be present when a soft alarm group runs, and it is possible that some tasks in the alarm job may fail due to `No Data`.
- If you do not set a time-out for a group, then no alarm messages are sent until all data has arrived for the group.
- If some data never arrives and no time-out is set for the group, then the soft alarm is never scheduled.

The following diagram shows an example timeline for a soft alarm group that loads three files, which contain data for fields that report in 30-minute segments. The schedule time-out period is set for 10 minutes.

Figure 35: Sample Soft Alarm Timeline
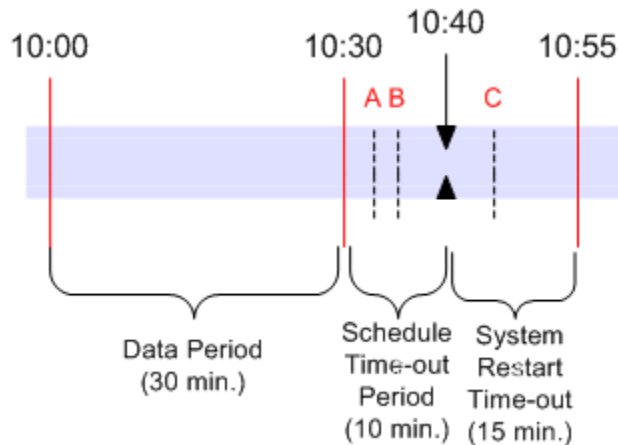
The example timeline shows the data period (from 10:00 until 10:30), the time-out period (10 minutes), and a system restart time-out period (15 minutes). The soft alarm group consists of three files reporting data time stamped *10:00*. File A arrives at 10:36, file B arrives at 10:37, and file C arrives at 10:48.

Note: The data period represents the maximum common frequency of all the data used in the alarm group. If some data is reported in 15 minute increments and other data in the same group is reported in 30 minute increments, the data period is still 30 minutes.

Because a time-out is set, the soft alarm group is scheduled to run at approximately 10:40, or ten minutes after the end of the data period. The arrival of file C does not create a new schedule.

Because the event handler only processes schedules or events every two minutes by default, it is possible that a data file might be loaded between the time the scheduler adds a soft alarm job to the queue and the time the job actually runs. If this occurs, then the data is included in the threshold analysis, but is also is reported as missing data. The missing file event is sent at the time the job is scheduled, not when the soft alarm process runs the job.

Define schedule time-outs using the Soft Alarm Schedule Editor, as described in Scheduling Soft Alarm Groups on page 209.

System Time-Outs

In addition to setting schedule time-outs, the IBM Prospect administrator can set system time-outs using a script provided with the IBM Prospect software.

It may happen that a server is down, such as during a network upgrade or system outage, when the schedule time-out expires for a pending soft alarm schedule. In such a case, you might not want to receive the outdated soft alarm when the server reboots. The administrator can define a system time-out period, which specifies the maximum delay period for a soft alarm. Soft alarms are not processed after the schedule time-out period plus the system time-out period passes. In

the sample timeline shown in the figure Sample Soft Alarm Timeline on page 202, if the system goes down during the schedule time-out period and does not come back up until after 10:55, the soft alarm group for files A, B, and C does not run.

The default system time-out period is 900 seconds (15 minutes). You can set the time-out period to any amount of time using the script `sa_system_restart_timeout.sh`. The syntax is as follows:

```
sa_system_restart_timeout.sh [-t <seconds>]|[-d]|[-v]
```

The options for `sa_system_restart_timeout.sh` are described in the following table:

Table 51:   sa_system_restart_timeout.sh Options

Option	*Description*
`-t` *<seconds>*	Sets the system time-out in seconds. The default is 900.
`-d`	Displays the current system time-out period.
`-v`	Displays the script usage.

Related Topics

> Monitoring with Event Notifications

> Viewing Soft Alarm Missing Data Notifications

Setting Soft Alarms

Use soft alarms to actively monitor network performance. Setting a soft alarm involves a number of steps, which are described in the sections which follow.

> Creating a Soft Alarm Template

> Creating a Soft Alarm Definition

> Modifying and Deleting Soft Alarm Definitions

> Creating Soft Alarm Groups

> Scheduling Soft Alarm Groups

After setting a soft alarm, start the Soft Alarm Viewer to view generated alarms.

Creating a Soft Alarm Template

You must create a soft alarm template before you can create a soft alarm definition. A soft alarm template defines the type of alarm raised when a threshold is matched and contains the following information:

- Description
- Alarm type
- Probable cause
- Additional Text
- Summary

All fields are required; none are optional. You can configure the ADDITIONAL TEXT field to contain information for a specific instance of an alarm by using tokens in the ADDITIONAL TEXT text box of the Soft Alarm Template Editor. The table Soft Alarm Message Tokens on page 204 lists the available tokens.

To create a soft alarm template

1. On the FILE menu in IBM Prospect Explorer, point to NEW, and click ALARM TEMPLATE. The ALARM TEMPLATE EDITOR dialog box opens.

Figure 36: Alarm Template Editor
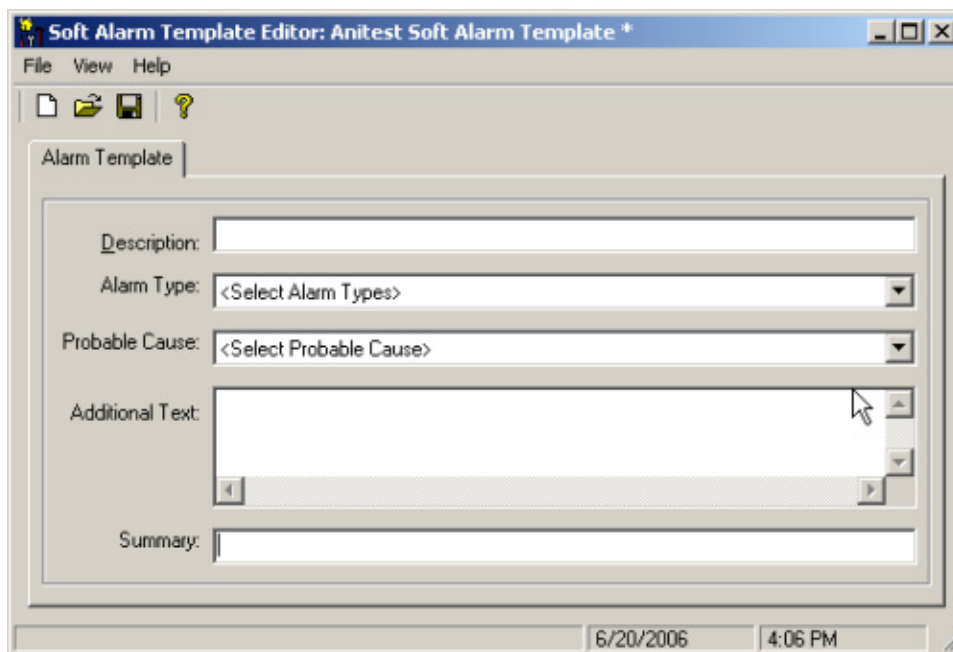
2. In the DESCRIPTION text box, enter a description.

3. From the ALARM TYPE drop-down list box, select an alarm type. Alarm types conform with and are defined by the CCITT X.733 standard.

4. From the PROBABLE CAUSE drop-down list box, select a probable cause. Alarm probable causes are those defined by the CCITT X.733 standard.

5. Enter a message for the alarm in the ADDITIONAL TEXT box. The text you enter here becomes the ADDITIONAL TEXT field described in SNMP Trap Fields on page 213. You can use a combination of text and tokens, for example, "The alarm $DEF_NAME for $ENTITY occurred at $ALARM_TIME."

The following table lists tokens you can use to build a message.
Table 52: Soft Alarm Message Tokens

Token	Description
$DEF_NAME	Soft alarm definition name

Table 52: Soft Alarm Message Tokens (Continued)

Token	Description
$ENTITY	Entity name
$OBJECT_NAME	Name of the object
$FDN	Fully distinguished name of the object
$ALARM_TIME	Data time
$GENERATION_TIME	Time the alarm was generated
$THRESHOLD	Threshold which caused the alarm to be raised (displays actual values)
$USER	User name

6. Enter a summary of the alarm in the SUMMARY box.

7. Save the template by clicking SAVE on the FILE menu.

Creating a Soft Alarm Definition

Soft alarm definitions are composed of an entity, a scenario, a soft alarm template, and one or more thresholds. Like reports, each soft alarm definition sets a focal entity for the basis of a soft alarm.

For information about scenarios, see Scenario Management. For information on soft alarm templates, see Creating a Soft Alarm Template.

Note: A soft alarm template file must exist before you can create a soft alarm definition.

To create a soft alarm definition

1. On the FILE menu in IBM Prospect Explorer, point to NEW, and click SOFT ALARM. The CREATE NEW SOFT ALARM dialog box opens.

2. Select a focal entity type from the OF TYPE drop-down list box and click OK. The Soft Alarm Definition Editor opens. The following figure shows the definition editor for type System.

Figure 37: Soft Alarm System Definition Editor
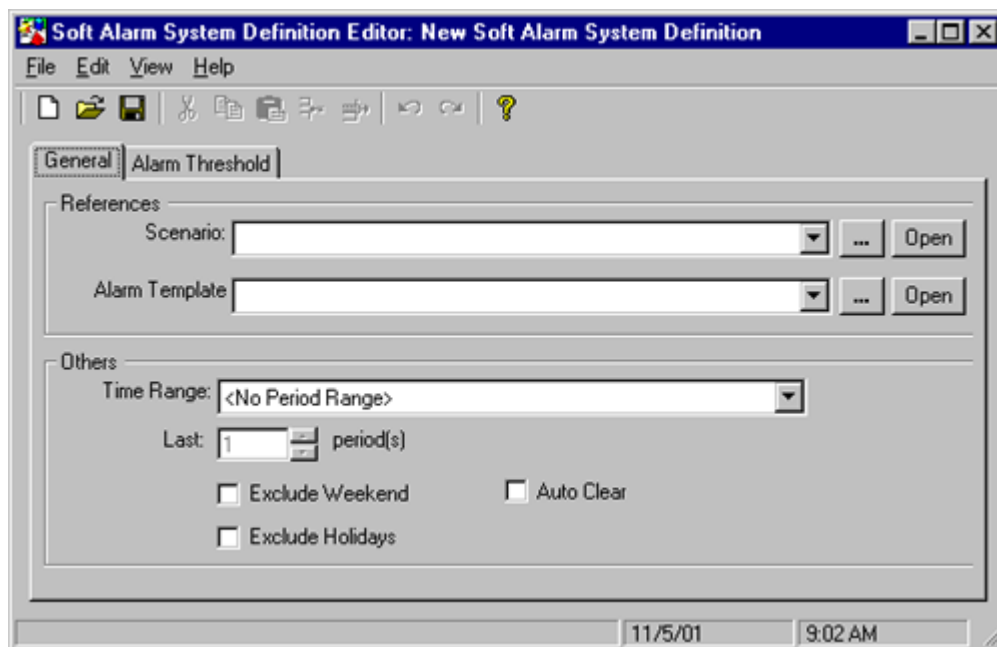
3. To choose a scenario, select one from the SCENARIO drop-down list box or click the BROWSE button (...) next to the list.

4. Select an alarm template by choosing one from the ALARM TEMPLATE list or clicking the BROWSE button (...) next to the list.

5. If you plan to use either Aggregator type Mean or StdDev in an alarm threshold, select a time range from the TIME RANGE drop-down list box and enter a value for N in the LAST spin box. For more information about how to select time ranges and the effect of your selection, see About Time Periods and Ranges on page 199.

6. Select the EXCLUDE WEEKEND or EXCLUDE HOLIDAYS check boxes to exclude weekends and holidays from a soft alarm process, respectively.

7. Select the AUTO CLEAR check box to automatically clear an alarm the next time the alarm definition is processed.

8. Click the ALARM THRESHOLD tab. The ALARM THRESHOLD page opens.

9. Select an entity from the ENTITY HIERARCHY list.

10. Select a field from the list of available fields for the selected entity. You can restrict the list of fields displayed by using the Field Type and Technology Type drop-down list boxes.

11. Enter one or more thresholds in the available columns. See Defining Alarm Thresholds for more detailed information about setting thresholds.

12. Save the soft alarm definition by clicking SAVE on the FILE menu.

Defining Alarm Thresholds

Use the ALARM THRESHOLD tab of the Soft Alarm Definition Editor to enter thresholds for soft alarm definitions. The following figure shows an example of the Soft Alarm Definition Editor.

Figure 38: Soft Alarm Definition Editor
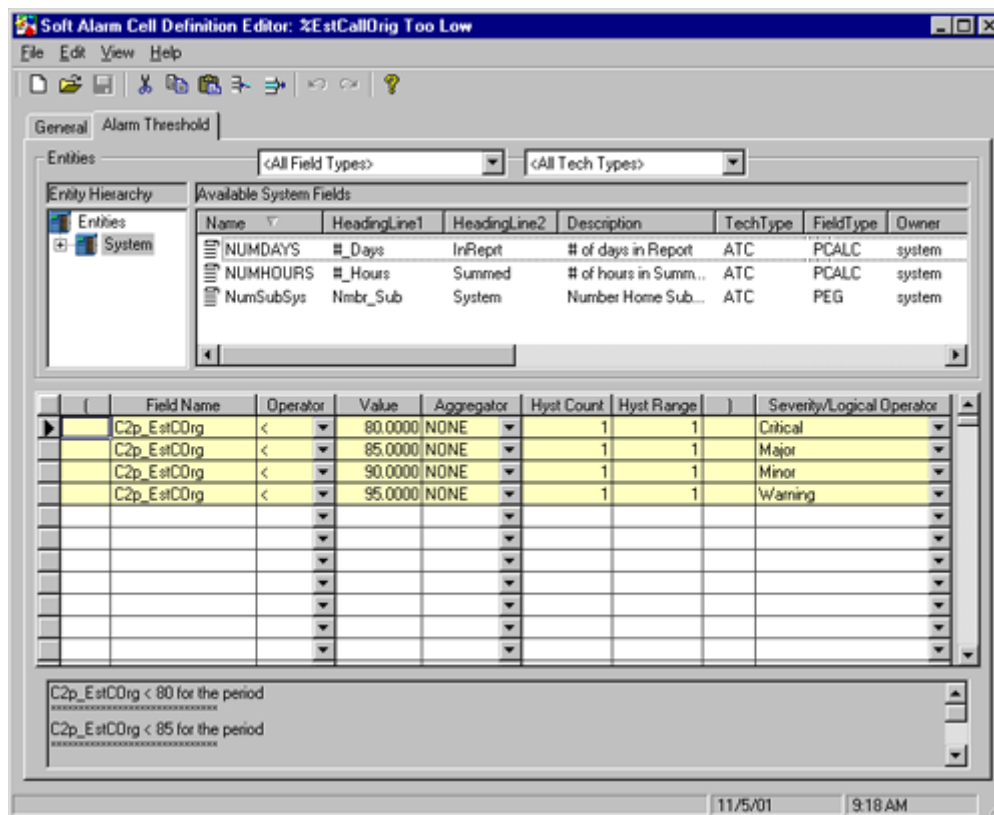
The following table explains the columns of the Soft Alarm Definition Editor.

Table 53: Soft Alarm Definition Editor Alarm Threshold Definition

Column	Description
Parenthesis	Used to group individual thresholds when specifying a logical operator. The opening parenthesis is the first column, the closing parenthesis follows the HYST RANGE column.
Field Name	Name of the peg count or calculation used in the threshold.
Operator	Mathematical operator used to compare the field name with the value.
Value	The value has multiple purposes: • Compared to the field name for aggregation type None. • Multiplied by the value for aggregation type Mean. • Number of the standard deviations away from the mean for aggregation type StdDev.
Aggregator	Determines what the field is compared against. • None—The field is compared to a fixed value. • Mean—The field is compared to the value multiplied by a mean value. • StdDev—Standard deviation. The field name is compared to a number of the standard deviations away from the mean.
Hyst Count	Used only for aggregation type "None" where the threshold is evaluated for the last N of M periods. Hyst Count specifies the value for N.
Hyst Range	Used only for aggregation type "None" where the threshold is evaluated for the last N of M periods. Hyst Range specifies the value for M.
Severity/Logical Operator	Determines the severity of a threshold, sets a logical operator used to evaluate the threshold against the threshold in the next row, or mandates when an alarm clears in the viewer.

In most cases, a soft alarm is raised when a threshold formula evaluates to TRUE. When multiple thresholds in a soft alarm definition evaluate to TRUE, only one alarm is raised, based on the threshold with the highest severity.

Related Topics

> About Soft Alarm Thresholds
>
> About Hysteresis Values

Modifying and Deleting Soft Alarm Definitions

You can modify or delete a soft alarm definition. If a soft alarm is scheduled, it is recommended that you delete the schedule before removing a soft alarm definition or template.

To modify a soft alarm definition

1. In IBM Prospect Explorer, move through the folder tree until the definition you want to modify appears in the list pane.

2. Double-click the definition in the list pane.

3. Follow To create a soft alarm definition, starting with step 2.

To delete a definition

1. In IBM Prospect Explorer, move through the folder tree until the definition you want to delete appears in the list pane.

2. Right-click the definition in the list pane and click DELETE.

See the *User Guide* for more information on IBM Prospect Explorer.

Creating Soft Alarm Groups

You must have a soft alarm definition before you can group and schedule soft alarms. See Creating a Soft Alarm Definition.

To create a soft alarm group

1. On the FILE menu in IBM Prospect Explorer, point to NEW, and click DOCUMENT GROUP. The CREATE NEW DOCUMENT GROUP dialog box opens.

2. Select SOFT ALARMS GROUP from the OF TYPE list and click OK. The SOFT ALARMS GROUP EDITOR opens.

3. Add soft alarm definitions to the group by clicking the INSERT button.

4. Save the soft alarms group by clicking SAVE on the FILE menu.

Scheduling Soft Alarm Groups

You must create a soft alarm group before you can schedule soft alarms. See Creating Soft Alarm Groups.

Use the SCHEDULE ENTRY EDITOR to schedule soft alarm groups. The SOFT ALARM SCHEDULE EDITOR includes the following pages:

- A GENERAL page, which allows you to identify the soft alarm group.
- A SCHEDULE page, which allows you to set the duration and frequency for soft alarms, and to specify a time-out period. The schedule options are described in Schedule Options on page 210.
- A SCENARIO page, which allows you to select an override scenario for the soft alarm.

For more detailed information on the Schedule Entry Editor, refer to "Scheduling Report Generation" in the *User Guide*.

To schedule a soft alarm group

1. On the FILE menu in IBM Prospect Explorer, point to NEW and click SCHEDULE ENTRY. The CREATE NEW SCHEDULE ENTRY dialog box opens.

2. Select SOFT ALARM SCHEDULES from the OF TYPE drop-down list box and click OK. The SOFT ALARM SCHEDULES EDITOR dialog box opens.

3. In the SOFT ALARM GROUP area, select a soft alarm group.

4. Click the SCHEDULE tab. The following table lists the options available on this page. Setting duration and frequency are required, but defining a time-out period is optional.

Table 54: Schedule Options
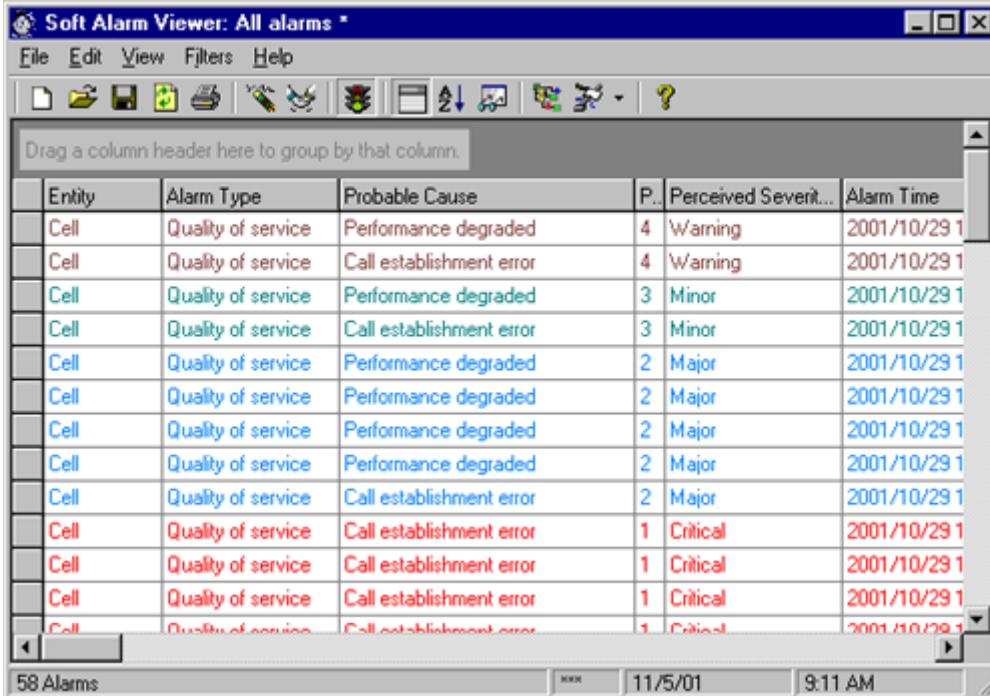
Option	*Description*
Schedule Duration	Enter the start and end dates to schedule the soft alarm group. You can do one of the following: • Enter the dates in MM/DD/YY format • Select the dates using the START DATE spin box. • Select the dates from the drop-down calendar
Schedule Frequency	The schedule frequency is ON DATA LOAD only.
Exclude Periods	Specify any periods to be excluded between the start and end times by clicking the corresponding grid squares for the period. A blue dot will show that the period has been excluded.
Exclude Day(s)	Specify any days to be excluded between the start and end dates by clicking the corresponding boxes for the days.

5. If you wish to override the soft alarm's scenario, click the SCENARIO tab and select the OVERRIDE SCENARIO check box.

    Select a new scenario in the SCENARIO area.

6. Save the soft alarm group by clicking SAVE on the FILE menu.

Soft Alarm Viewer

The Soft Alarm Viewer, shown in the following figure, displays soft alarms.

Figure 39: Soft Alarm Viewer

Use the Soft Alarm Viewer for performing these basic tasks:

- Creating Soft Alarm Views
- Viewing Soft Alarms
- Acknowledging Soft Alarms
- Clearing Soft Alarms in Soft Alarm Views

You can also use the Soft Alarm Viewer to organize and format Soft Alarm Views. See the *User Guide* for more information.

Creating Soft Alarm Views

Creating a Soft Alarm View allows you to view soft alarms for entities in a specified scenario. You can create multiple Soft Alarm Views to view alarms for different scenarios. See Scenario Management for more information on scenarios.

To create a Soft Alarm View

1. On the FILE menu in IBM Prospect Explorer, point to NEW, and click SOFT ALARM VIEW. The BROWSE FOR SCENARIO dialog box opens.

2. Select a scenario to use for the view and click OK. The SOFT ALARM VIEWER window opens.

3. Edit the view to your desired grouping, filtering, sorting, and formatting.

4. On the FILE menu, click SAVE.

Viewing 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 IBM Prospect Explorer to find the view you wish to open.

2. Double-click the view.

Acknowledging Soft Alarms

Acknowledging a soft alarm refers to the process of telling IBM Prospect Explorer that you have seen a specific alarm, but do not wish to clear the alarm from a Soft Alarm View. Soft Alarm Views mark acknowledged alarms with ![icon].

Note: Only a system administrator or data administrator can acknowledge soft alarms.

To acknowledge a soft alarm

1. Open the Soft Alarm View from which you want to clear an alarm.

2. Right-click the alarm to acknowledge and select ACKNOWLEDGE.

Clearing Soft Alarms

There are three ways that a soft alarm can be cleared:

*   Manually clearing the alarm using a Soft Alarm View.
*   Setting the Auto-Clear option for a soft alarm definition.
*   Setting an explicit Clear option for a threshold in the Soft Alarm Definition Editor.

See Clearing Soft Alarms in Soft Alarm Views for more information on clearing an alarm using a Soft Alarm View. Setting the Auto-Clear option for a soft alarm definition automatically clears an outstanding alarm if the specific alarm does not exist for the current time period. Setting an explicit Clear option in the Soft Alarm Definition Editor overrides the Auto-Clear option and allows you to determine when an alarm is cleared. If neither the Auto-Clear option nor the explicit Clear option is used, an alarm can only be cleared by using a Soft Alarm View in the IBM Prospect client.

Note: Use hysteresis values to clear an alarm only if a condition is met over a set period of time. See <u>About Hysteresis Values</u> for more information.

Clearing Soft Alarms in Soft Alarm Views

The following lists the steps necessary to clear a soft alarm by using a Soft Alarm View. See <u>Clearing Soft Alarms</u> for more information.

To clear an alarm using a Soft Alarm View

1. Open the Soft Alarm View from which you want to clear an alarm.

2. Right-click the alarm to clear, and select CLEAR. The alarm is cleared from the view.

Monitoring Sent Traps

You can use the `salistener` command, the `$FLEXPM_HOME/pm/bin/` directory, to display traps that are sent to a specific port.

Syntax

```
salistener -port <port>
```

Because other SNMP programs use port 162, you may need to temporarily configure the SARun script to send traps to a free port. Then, when you are done using the `salistener` command, set the SARun script to send traps to your SNMP manager.

SNMP Trap Fields

The following fields are included in soft alarm SNMP traps.

- **alarmEventType** - an integer representing the event type. Event types conform with and are defined by the CCITT X.733 standard. The `alarmEventType` is taken from the Soft Alarm template document associated with the Alarm definition raising the alarm. The following values are supported:
  - communications(1)
  - qualityOfService(2)
  - processingError(3)
  - equipment(4)
  - environmental(5)
- **alarmTime** - The time at which the threshold was crossed. This value is expressed in seconds since 00:00:00 UTC, January 1, 1970. This is the timestamp of the data which caused the threshold to be crossed (usually hourly, half-hourly or 15 minute timestamps, depending on the system configuration)
- **alarmSeverity** - an integer representing the alarm severity (defined by the CCITT X.733 standard). The following values are supported:

- cleared(0)
- critical(1)
- major(2)
- minor(3)
- warning(4)
- indeterminate(5)
- **alarmProbableCause** - an integer representing the alarm probable cause (defined by the CCITT X.733 standard). This is taken from the Soft Alarm template document, associated with the Alarm definition raising the alarm. The following values are supported:
  - none(0)
  - adapterError(1)
  - applicationSubsystemFailure(2)
  - bandwidthReduced(3)
  - callEstablishmentError(4)
  - communicationsProtocolError(5)
  - communicationsSubsystemFailure(6)
  - configurationOrCustomizationError(7)
  - congestion(8)
  - corruptData(9)
  - cpuCyclesLimitExceeded(10)
  - dTEDCEInterfaceError(11)
  - dataSetOrModemError(12)
  - degradedSignal(13)
  - enclosureDoorOpen(14)
  - equipmentMalfunction(15)
  - excessiveVibration(16)
  - fileError(17)
  - fireDetected(18)
  - floodDetected(19)
  - framingError(20)
  - heatingOrVentialtionOrCoolingSystemProblem(21)
  - humidityUnacceptable(22)
  - inputOutputDeviceError(23)
  - inputDeviceError(24)
  - lANError(25)
  - leakDetected(26)

- localNodeTransmissionError(27)
- lossOfFrame(28)
- lossOfSignal(29)
- materialSupplyExhausted(30)
- multiplexerProblem(31)
- outOfMemory(32)
- outputDeviceError(33)
- performanceDegraded(34)
- powerProblem(35)
- pressureUnacceptable(36)
- processorProblem(37)
- pumpFailure(38)
- queueSizeExceeded(39)
- receiveFailure(40)
- receiverFailure(41)
- remoteNodeTransmissionError(42)
- resourceAtOrNearingCapacity(43)
- responseTimeExcessive(44)
- retransmissionRateExcessive(45)
- softwareError(46)
- softwareProgramAbnormallyTerminated(47)
- softwareProgramError(48)
- storageCapacityProblem(49)
- temperatureUnacceptable(50)
- thresholdCrossed(51)
- timingProblem(52)
- toxicLeakDetected(53)
- transmitFailure(54)
- transmitterFailure(55)
- underlyingResourceUnavailable(56)
- versionMismatch(57)

- **generatedTime** - the time at which the alarm was raised by IBM Prospect. This value is expressed in seconds since 00:00:00 UTC, January 1, 1970.

- **objectInstance** - the Fully Distinguished Name (FDN) of the IBM Prospect object which the alarm was raised against. For example, `System=1/MSC=1/Cell=210`.

- **objectClass** - the entity name for the `objectInstance`. For example, `Cell`.

- **summary** - short description of the alarm.This is taken from the soft alarm template definition associated with the raised alarm. For example, `"Dropped Calls Threshold Exceeded"`.

- **additionalText** - long description for the alarm. This is taken from the soft alarm template definition associated with the raised alarm, with actual values replacing the token values in the template. See [Soft Alarm Message Tokens](#) on page 204 for a list of supported tokens.

  For example, if the template's ADDITIONAL TEXT field uses the `$THRESHOLD` token, the `additionalText` field might be similar to the following (for a single absolute threshold):

  `"DroppedCalls > 20 for 3 out of the last 4 periods"`

Configuring the Fully Distinguished Name

By default, IBM Prospect Alarm creates the fully distinguished name (FDN) in the traps sent to your SNMP manager using available entity information. You can customize the FDN in the trap for an entity using the `change_entity_fdn.sh` script. The script syntax is as follows:

`change_entity_fdn.sh [-v|-d [<entity_name>] | [-n|-l|-k] <entity_name>]`

The options for `change_entity_fdn.sh` are described in the following table:

Option	*Description*
`-v`	Displays the script usage.
`-d` <entity_name>	Displays all of the current values, or just the current value for the optional entity name.
-n	Changes the FDN sent in the trap to the entity name attribute.
-l	Changes the FDN sent in the trap to the label entity attribute.
-k	Changes the FDN sent in the trap to the local key (default).

Example

`change_entity_fdn.sh -l Cell`

Important—You must restart the data servers after changing an FDN.

`ps-mgr restart rs`
`ps-mgr restart fx`

Related Topics

[SNMP Trap Fields](#)

Soft Alarm Processes

Soft alarms are generated by the process outlined in the following figure.

Figure 40:   Soft Alarm Generator Processes
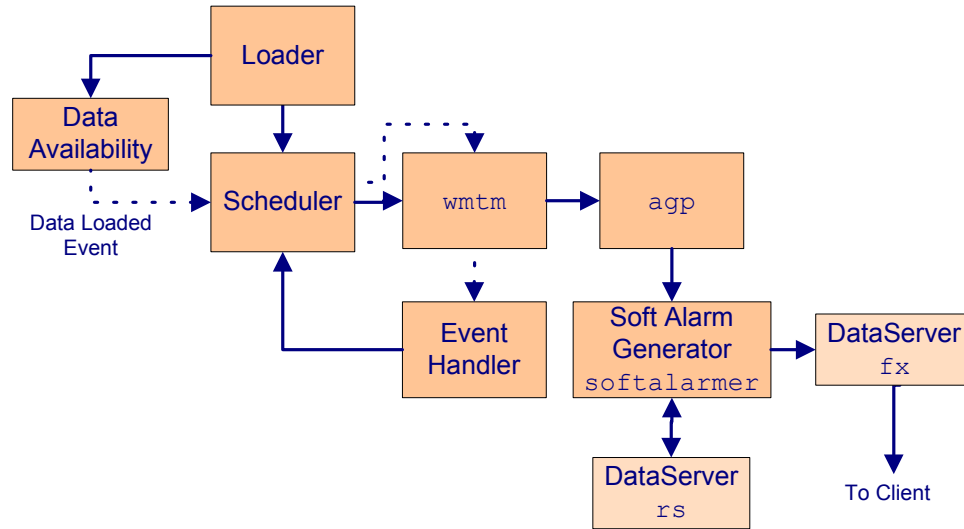
The soft alarm generation process resembles the report generation process:

1. The Task Manager (wmtm) receives a soft alarm job from Scheduler at a specified time.

2. The wmtm process starts an agp process.

3. The agp process sends task information to Soft Alarm Generator (softalarmer), which queries Report Server (rs), determines whether an alarm is raised, and forwards raised alarms to the client.

An additional option for scheduling soft alarms, which you cannot currently use with reports, is to schedule soft alarms when data needed for soft alarm generation is loaded. This occurs when the data availability table forwards a data-loaded message to the event handler, through the scheduler and the wmtm process. The event handler then determines whether all the data required to run a particular soft alarm group is available and, if necessary, schedules the soft alarm process to run immediately.

Monitoring Soft Alarm Processes

You can monitor the status of soft alarm processes, using the following:

- Activating the event notification types Softalarm Success and Softalarm Failure
- Viewing soft alarm missing data notifications
- Viewing the softalarmer process jobs and tasks in the Status Monitor
- Viewing soft alarm logs, which are a subset of the Status Monitor log files

Activating the Event Notification Types Softalarm Success and Softalarm Failure

Using the event notification feature, you can enable either the `Softalarm Success` and `Softalarm Failure` event types, which automatically sends you an e-mail if the soft alarm generation processes succeed or fail, respectively. For instructions on activating event types, see [Monitoring with Event Notifications](#) on page 173.

For information about event notification types, see [Event Notification Types](#) on page 174.

Viewing Soft Alarm Missing Data Notifications

The Event Handler reports missing data that impacts soft alarm functionality. If you have set soft alarm time-outs, then any data that has not arrived by the time the time-out expires is reported as missing. Notifications are available both through e-mail (SMTP) and SNMP. Look for the event type "Softalarm File Missing".

The following table shows the circumstances when missing data notifications are sent.

If...	*Then...*
No schedule time-outs are set for the soft alarm group	The IBM Prospect software waits until all data arrives before scheduling the group. No missing data alarm is sent. If some data never arrives, then the soft alarm is never scheduled.
A schedule time-out is defined for a soft alarm group	The Event Handler reports as missing any files not present when the alarm group is scheduled due to a timeout.

Missing data notifications contain the data time of the alarm schedule, and the list of files, instances and timestamps that were missing. The format of the notification is as follows:

```
<TIMESTAMP> <DATATYPE> <ENTITY>: Id1, ID2, ..., IDn
```

Example:

```
2005/03/27 14:00 MSCTRAF MSC: 1-2, 1-3, 1-4
2005/03/27 14:00 BSCTRAF MSC: 1-2-1, 1-2-2, 1-3-1, 1-4-1
2005/03/27 14:15 BSCTRAF MSC: 1-2-1, 1-4-1
```

If the size of the list of information exceeds 4000 characters, it is truncated, and a message explaining the truncation is displayed in the notification.

Related Topics

[About Soft Alarm Time-Outs](#)

Viewing the softalarmer Process Through the Status Monitor

The `softalarmer` process jobs and tasks are displayed in Status Monitor. Use Status Monitor to see the status of all jobs and to access log information for a specific job or task. See the *User Guide* for more information about Status Monitor.

Viewing Soft Alarm Logs

You can also review Status Monitor log files, which are listed in the following table.

Table 55: Soft Alarm Log Files

Log Type	*File Name*
Soft alarm job (`agp`)	`$FLEXPM_HOME/rg/log/wmtm-2-`<*job ID*>`.log`
Soft alarm task	`$FLEXPM_HOME/rg/log/SA_`<*job ID*>`_`<*task ID*>
Soft alarm	`$FLEXPM_HOME/pm/log/sa.log`<*date*>
Event Handler	`$FLEXPM_HOME/pm/log/eh.log`<*date*>

Using Third-Party Alarm Software

The IBM Prospect server uses Simple Network Management Protocol (SNMP) and Management Information Base (MIB) to store and deliver soft alarms. You can set up the IBM Prospect server to send soft alarm messages to a third-party alarm software package by using the `sa_snmp_manager.sh` script found in the `$FLEXPM_HOME/pm/adm` directory.

Refer to [SNMP Trap Fields](#) on page 213 for a description of the fields sent in soft alarm SNMP traps.

Adding SNMP Managers for Soft Alarms

Use the `sa_snmp_manager.sh` script in the `$FLEXPM_HOME/pm/adm` directory to send soft alarm messages to a third-party alarm software package. This script allows you to set up SNMP manager parameters for the `softalarmer` program.

Syntax

```
sa_snmp_manager.sh [-h | -l | -a <host port version> | -r <mgr_id>]
```

The parameters are described in the following table

Table 56: Parameters for sa_snmp_manager.sh

Parameter	*Description*
-h	Shows usage information
-l	Displays the currently registered Soft Alarm SNMP managers
-a	Add a new SNMP manager, specifying host, port and version.
-r	Removes the SNMP manager with ID *mgr_id.*

Example

The following example adds two SNMP managers:

```
sa_snmp_manager.sh -a 192.168.10.20 162 2
sa_snmp_manager.sh -a hostname.mydomain.com 162 1
```

Appendix A: Server File Structure

This section describes files and directories that are of interest to the IBM Prospect administrator when maintaining and administering the IBM Prospect server. This section is not a comprehensive guide to all directories and files found on the IBM Prospect server.

Environment Variables

The logon process uses `.profile.vendor` to set key variables as shown in the following table.

Table 57: Environment Variables

Variable	*Description*	*Value*
install	Directory for HOME, ~flexpm	/u01/apps/WatchMark/FlexPM/
release	System release cycle number	*<release_number>*
FLEXPM_BASE	IBM Prospect release parent directory	${install}
FLEXPM_HOME	Location for the current installation	${install}
PROSPECT_HOME	Parent directory for loaders	$FLEXPM_HOME/vendor/ *<vendor_name>*/*<network_element>*/ 1.3
JAVA_HOME	The directory in which the Java SDK is installed	By default, the Java installation included with the IBM Prospect product installs the SDK in the directory /usr/ j2se/bin, which is where IBM Prospect software expects it. If you installed the SDK in a different directory, you must set the value of the JAVA_HOME variable in the .pro- file.vendor file ($FLEXPM_HOME/ vendor/Common) to the directory in which the SDK was installed. The middleware needs to be restarted after the change.

Server Directories

The following table shows the general directory structure and some of the more important files on the IBM Prospect server.

Table 58: Server Directories and their Contents

Directory Name	*Contains*
$FLEXPM_HOME/db	Subdirectories and files used to make the schema. This directory is encrypted and does not contain elements you can modify.
$FLEXPM_HOME/dbuser	Scripts used to create the Oracle user account.
$FLEXPM_HOME/ds	Data server-related objects. Do not modify items in this directory.
$FLEXPM_HOME/etc	Database schema.

Table 58: Server Directories and their Contents (Continued)

Directory Name	*Contains*
`$FLEXPM_HOME`/pm	Files for process management tools. This directory contains the following notable subdirectories: • `run`—contains scripts for process management tools. • `adm`—contains Korn shell scripts and the `setup-connects` program to confirm details of the PORT and DB connection parameters.
`$FLEXPM_HOME`/rg	Files and data that support the Report Generator processor. This directory contains the following notable subdirectories: • `log`—contains report generator log files. • `spool`—contains report generator spool files.
`$FLEXPM_HOME`/sw/server	Software and documentation for IBM Prospect server software setup, configuration, and update. This directory includes the following notable directories: • `docs`—contains the entire IBM Prospect documentation set. Documentation is available in Adobe Acrobat PDF and text file format. • kits—contains the files necessary to install and set up the IBM Prospect server software.
`$FLEXPM_HOME`/update	Installed patches and updates to the IBM Prospect server.
`$PROSPECT_HOME/../`	Data that has been or will be loaded, and supporting files for the loading process.
`$PROSPECT_HOME/../missingData`	Objects for data availability.
`$PROSPECT_HOME/../Network`	Objects for the data dictionary.
`$PROSPECT_HOME/../part_maint`	Partition maintenance files.
`$PROSPECT_HOME/../ftpIN`	Contains data acquired from the network element.

Appendix B: Error Messages

This section lists and describes error messages and error codes produced by the IBM Prospect server.

Loader Error Codes

The following table lists the Loader error codes.

Table 59: Loader Error Codes

Error Code	*Description*
AOE	ActionOnError notice
BCV	Bad calendar variable
BDS	Bad data stream
BGD	Bad gateway digest
BLF	Bad log file; Cannot open for writing
BPF	Bad package format
BTF	Bad time argument for -seekTo
CFG	-configSet is not correctly specified
CNA	Concatenating to a null attribute
DCN	Duplicate column name
DPF	Data parse failed
ECS	Empty call stack
FCT	Failed to configure table
FLG	Failed to load configuration gateway
FWE	File write error (disk full?)
ILA	Invalid LoadAction
IPN	Invalid package name
ISO	Illegal stack operation
ITS	Invalid target state
KGG	Partial link <link> restored to list <list>
LUN	License unavailable
NAA	No argumentId argument
NDA	No -def argument
NDE	No DatabaseTable entry for table
NFA	No file name argument
NLA	No loaderId argument
NTA	No tableLoadId argument
PFF	Parse failed for file
PKN	Primary key is null
PKS	Primary key is only <space>
PNF	Package not found

Table 59: Loader Error Codes (Continued)

Error Code	Description
PSA	Parser Say Action
SCF	System(...) command failed
TAE	Undefined table action
TME	Too many errors
UBE	Unbalanced braces in expression
URA	Unrecognized argument
UTN	Unrecognized token
WME	IBM Prospect Expression error

Glossary

This glossary describes a number of terms used in this guide. The terms are organized in alphabetical order.

active entity

A network element that is in service.

Active scenario

The scenario that shows the current state of the network. It contains primarily active entities, but can also contain inactive entities and placeholder entities.

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*.

busy hour

The busiest hour in each day, week, and month for some performance metric.

busy hour criterion

Criterion that establishes the busy hour that will be used in analysis. The type of criterion changes with the type of busy hour processing.

child

An entity directly below an entity in a hierarchy. See also *descendant*.

Complete scenario

The most comprehensive overview of all entities in the network, past and present, showing the current state of both active and inactive entities.

cron

A UNIX command that starts a process which executes commands at specified dates and times. Regularly scheduled commands can be specified according to instructions found in **crontab** files.

data availability

A term referring to the completeness of data.

Data Availability Tool

A tool showing whether data was loaded into the database for the network elements and for the selected date-time constraints.

data dictionary

Generally, a database table that stores the names, types, lengths, and other characteristics of the fields in the database tables. In IBM Prospect software, a collection of data object descriptions.

data loader

The server software that loads the data collected from the network elements into the appropriate database tables.

day

In IBM Prospect software, from midnight to midnight.

daylight savings time rule

A rule that specifies when daylight saving time begins and ends. Once you associate a daylight saving time rule with a time zone region, the IBM Prospect software uses the rule to calculate the current time for the region.

descendant

An entity at a lower level in a hierarchy. The child entity is a special case of a descendant entity.

document

In IBM Prospect software, a building block for generating reports (for example, scenario, template, report definition, and schedule entry).

entity

A particular type or class of something. In IBM 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 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.

field

The performance measurements or configuration parameters that appear in a report. A user designates fields in a template.

healthcheck

A tool that enables IBM Prospect administrators to check their servers for any possible problems before the servers cause a loss of service.

hot backups

One method to back up the Oracle database. In contrast to cold backups, you do not have to shut down the database to back it up. Under this method, the database remains available to users and data loading at all times. Hot backups are also know as *online* backups.

hysteresis

The Soft Alarm Definition Editor allows you raise or clear an alarm when a field value passes a threshold for an extended period of time. This is referred to as *hysteresis*.

Grade of Service

GOS. 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.

hour

In IBM Prospect software, an hour is x:00 to x+1:00.

inactive entity

An element that is out of service.

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.

month

In IBM Prospect software, a month is a calendar month.

multi-rehome

The ability to rehome instances more than once.

multi-level rehome

The ability to rehome instances on more than one entity level. Each instance remains within its respective entity level.

network element

A portion of the telecommunications 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.

parent entity

An entity directly above an entity in a hierarchy. Each entity can have only one parent. See also *ancestor entity*.

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.

IBM Prospect Explorer

The interface to the IBM Prospect client application, and the bridge between the parts of the software.

scenario

A graphical representation of a network element hierarchy. It describes all or part of a system. As part of a report definition, a scenario specifies which network elements are included in a report.

start of week

IBM Prospect software allows *start of week* to fall on any weekday. This option is configured once for the entire system when it is installed and must never be modified after that.

Weeks in the U.S. are often considered to start on Sunday, whereas the ISO standard identifies Monday as the first day of the week.

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

Component of a Traffic report that takes every data field, aggregates it per day, and stores the results in the database.

system administrator

(1) 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 the IBM Prospect software and applications in addition to managing system users and security.

(2) A class of IBM Prospect user who is authorized to access database objects created by any other user, and who sets up user profiles and privileges.

time zone region

A specific area or city that shares a common time throughout. For example, a region can be America/Denver, where the time zone is either Mountain Standard Time or Mountain Daylight time. America/Phoenix is a different region, because Arizona does not follow Daylight Saving Time. The definition of a time zone region specifies the region, the offset time (+/-) to GMT in minutes, and the related Daylight Saving Time rule.

user-defined calculation

UDC. 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.

user scenario

A personal scenario that the user creates by dragging and dropping entities or blocks of entities from an existing scenario.

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