

DIH 1.2

ProTraq User Guide

910-6516-001 Revision A

August 2012



**Copyright 2011 – 2012 Tekelec. All Rights Reserved. Printed in USA.
Legal Information can be accessed from the Main Menu of the optical disc or on the
Tekelec Customer Support web site in the *Legal Information* folder of the *Product Support* tab.**

Table of Contents

Chapter 1: Overview.....	6
Overview.....	7
Scope and Audience.....	7
About the Diameter Intelligence Hub (DIH).....	7
User Preferences.....	8
Customer Care Center.....	12
DIH Documentation Library.....	15
Locate Product Documentation on the Customer Support Site.....	15
Diameter Intelligent Hub (DIH) - Copyright, Notice, Trademarks, and Patents.....	16
Chapter 2: Getting Started with ProTraq.....	17
Configuration limits.....	18
Accessing and logging into NSP.....	18
Understanding the ProTraq Screen.....	19
ProTraq Configuration View.....	19
ProTraq Configuration View Work Area.....	19
ProTraq Configuration View Tool Bar.....	20
ProTraq Configuration View Sessions.....	21
Associated Sessions Listing Tool Bar.....	22
Compatible Sessions Listing Tool Bar.....	22
Sessions View.....	23
Sessions View Work Area.....	23
Sessions Listing Tool Bar.....	24
Sessions View Configurations.....	24
Sessions View Configurations Tool Bar.....	25
Statistic Flow View.....	26
Chapter 3: Working with ProTraq.....	27
Managing ProTraq configurations.....	28
Creating a configuration.....	28
Configuring ProTraq.....	29
Configuring Rows and Columns.....	30
Configuring a corner filter.....	38
Configuring threshold alarms.....	40

Scheduling a configuration.....	41
Associating and activating sessions.....	42
Associating xDR Sessions.....	42
Disassociating a Session.....	42
Activating xDR Sessions.....	43
Deactivating xDR Sessions.....	43
Establishing a ProTraq data flow to an affected Server.....	43
Working with existing ProTraq configurations.....	44
Modifying a configuration.....	44
Duplicating a configuration.....	45
Deleting a configuration.....	47
Creating an aggregated configuration.....	47
Using the Edition mode to modify configurations.....	47
Filtering the configuration and session listings.....	48
Importing and exporting files.....	49
Importing a file into ProTraq.....	49
Exporting a ProTraq configuration.....	50
Exporting dependent objects.....	50

Chapter 4: Working with ProTraq Results.....51

Overview.....	52
Principle.....	52
Statistics.....	52
Alarms.....	53
Using the Historical ProTraq application for KPI calculation on historial XDRs.....	53
Turning on troubleshooting drilldown for xDR sessions.....	57

List of Figures

Figure 1: Date/Time Tab Screen.....8
Figure 2: Directory Tab Screen.....9
Figure 3: Mapping Tab Screen.....10
Figure 4: Point Code Tab Screen.....10
Figure 5: Formatting Rules (CIC) Screen.....11
Figure 6: Default Period Tab Screen (ProTrace only).....12
Figure 7: ProTraq Configuration View Tool Bar.....20
Figure 8: Associated Sessions Listing Tool Bar.....22
Figure 9: Compatible Sessions Listing Tool Bar.....22
Figure 10: Sessions Listing Tool Bar.....24
Figure 11: Sessions View Configurations Tool Bar.....25

List of Tables

Table 1: Time Tab Screen.....8
Table 2: Directory Tab Field Description.....9
Table 3: Mapping Tab.....10
Table 4: Point Code Tab.....11
Table 5: CIC Tab Field Descriptions.....11
Table 6: Default Period Tab Field Descriptions.....12
Table 7: NSP ProTraq Configuration Limits.....18

Chapter 1

Overview

Topics:

- *Overview.....7*
- *Scope and Audience.....7*
- *About the Diameter Intelligence Hub (DIH).....7*
- *Customer Care Center.....12*
- *DIH Documentation Library.....15*
- *Locate Product Documentation on the Customer Support Site.....15*
- *Diameter Intelligent Hub (DIH) - Copyright, Notice, Trademarks, and Patents.....16*

Overview

This online help provides information about and procedures for working with ProTraq. It is designed to cover important activities required to use ProTraq.

This help is designed around common tasks that can be performed with headings and subheadings that allow you to scan the pages easily and zoom in on the information you are interested in.

Scope and Audience

This online help is organized into topics that can be viewed independently. These topics provide information about the ProTraq application concepts, and organized around performing common tasks to efficiently and effectively work with the ProTraq application. ProTraq provides xDRs for KPI generation that is used by ProPerf.

About the Diameter Intelligence Hub (DIH)

The Diameter Intelligent Hub (DIH) is used to monitor a LTE network. DIH also creates a small hardware "footprint" for customers who administer 3G and 4G diameter networks. The DIH:

- Is a single blade server and storage blade collocated within a single or dual Diameter Signaling Router (DSR) enclosure(s).
- Provides filtering, data feed, tracing, decoding, and SNMP functions.
- Enables the selective collection and storage of diameter traffic within one or more instances of PMF and IXP.
- Provides nodal diameter troubleshooting.
- Provides data export for diameter messages.
- Supports both IPv4 and IPv6 traffic simultaneously.
- Provides KPI tracking using ProTrace application as well as viewing KPIs in graphic format using ProPerf dashboard configured at installation.
- Provides filtering for alarms using ProTraq Cell filter (see system alarms online help).
- Uses diameter protocol exclusively.

Note: The DIH system can use other protocols if the Diameter mode has not been selected and system is in Standard mode. (Default setting is Standard mode. For more information on selecting Diameter mode, see Centralized Configuration Manager Administration online help, "Setting System to Diameter Mode."

The Diameter Protocol

The diameter protocol has evolved from the Radius protocol and enables diameter applications to extend the base protocol by adding new commands and/or attributes, such as those for use of the Extensible Authentication Protocol (EAP).

The diameter protocol provides for an Authentication, Authorization, and Accounting (AAA) framework that overcomes the limitations of RADIUS, (a protocol that handles AAA and EAP), which cannot effectively deal well with remote access, IP mobility and policy control. The Diameter protocol defines a policy protocol used by clients to perform Policy, AAA and Resource Control. This allows a single server to handle policies for many services.

As mentioned above, Diameter protocol provides AAA functionality, but in addition it is made more reliable by using TCP and SCTP instead of UDP. The Diameter protocol is further enhanced by the development of the 3rd Generation Partnership Project (3GPP) IP Multimedia Subsystem (IMS). Through the use of extensions, the protocol was designed to be extensible to support Proxies, Brokers, Strong Security, Mobile-IP, Network Access Servers (NASREQ), Accounting and Resource Management.

User Preferences

All applications that query xDRs, (or observe their status as in Diagnostic Utility), xDRs use a specific User Preferences option. The description outlined goes over the formatting screens.

Note: All screen shots presented here show default values.

Date/Time tab screen

Format the time parameters.

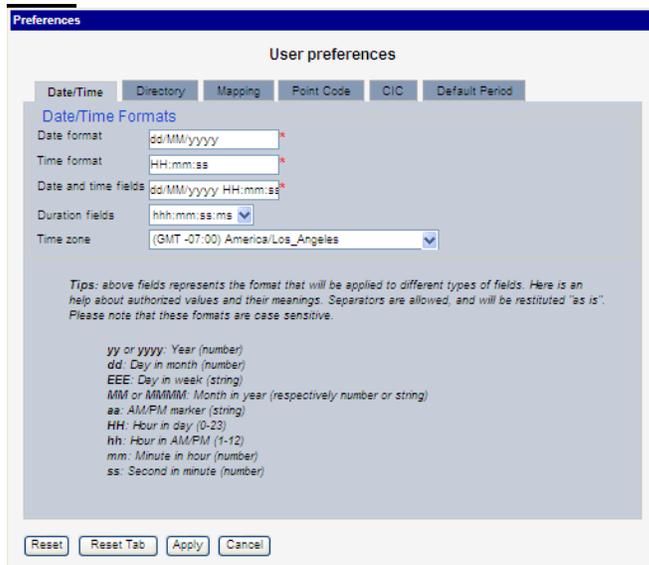


Figure 1: Date/Time Tab Screen

Table 1: Time Tab Screen

Field	Description
Date Format	Required field - Sets date format.
Time Format	Required field - Sets time format.
Date and time fields	Required field - Sets the date and time format.
Duration fields	Sets a duration format.

Field	Description
Time Zone	Pull-down list for selecting the desired time zone.
Reset Button	Resets all the tabs to default values.
Reset Tab Button	Resets to default values for the specific tab.
Apply Button	Applies any changes to the system.
Cancel Button	Exits the screen.

Directory tab

Select the **Directory** tab to set the defaults directories used in transport screen.

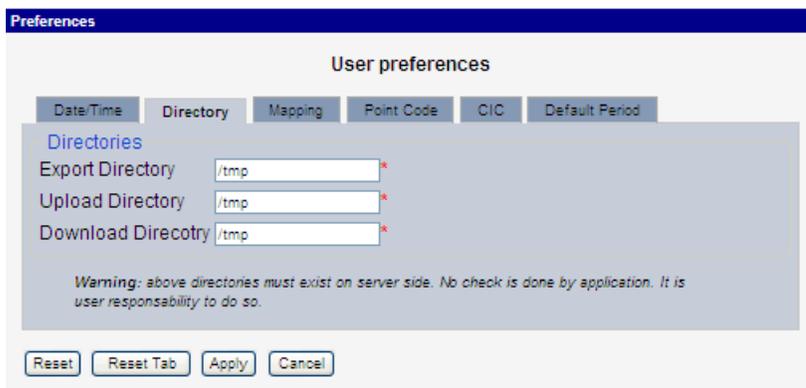


Figure 2: Directory Tab Screen

Table 2: Directory Tab Field Description

Field	Description
Export Directory	Enables you to set the default directory for exporting.
Upload Directory	Enables you to set the default directory for uploads.
Download Directory	Enables you to set the default directory for downloads.
Reset Button	Resets all the tabs to default values.
Reset Tab Button	Resets to default values for the specific tab.
Apply Button	Applies any changes to the system.
Cancel Button	Exits the screen.

Note: The directories must be present on the NSP server side. See warning at the bottom of the Directory tab screen.

Mapping tab

Select the **Mapping** tab to set the xDR display parameters.

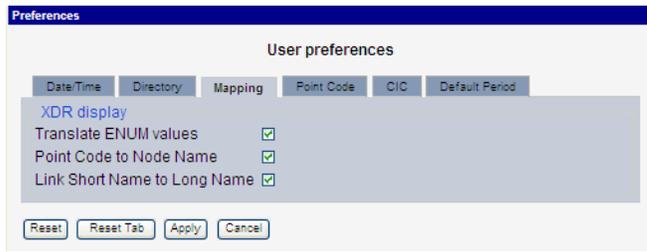


Figure 3: Mapping Tab Screen

Table 3: Mapping Tab

Field	Description
Translate ENUM values	Selects whether ENUM values are translated or not Default is to select ENUM values translation.
Point Code to Node Name	Select this if you want to use the Node Name instead of the Point Code name in the xDR display. Default is to use Node Name.
Link Short Name to Long Name	Selects whether you can use long name (Eagle) for linksets. Default is to use Long Name.
Reset Button	Resets all the tabs to default values.
Reset Tab Button	Resets to default values for the specific tab.
Apply Button	Applies any changes to the system.
Cancel Button	Exits the screen.

Point Code tab

Select the **Point Code** tab, shown and described in the figure and table.

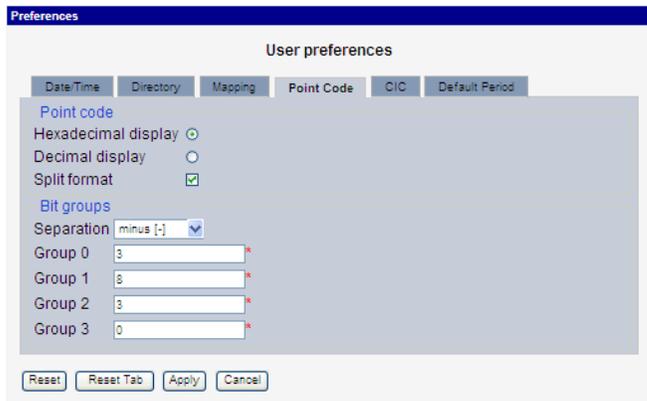


Figure 4: Point Code Tab Screen

Table 4: Point Code Tab

Field	Description
Hexadecimal display	European defaults are hexadecimal and display with Group 0-3, Group 1-8, Group 2-3, Group 3-0.
Decimal display	North American defaults are decimal and display with Group 0-7 and Group 1-5.
Split format	Select or deselect Split format .
Separation	Select a Bit Group Separation .
Group 0	Type a value. (0-7 or 1-5 see hexadecimal or decimal display)
Group 1	Type a value. (0-7 or 1-5 see hexadecimal or decimal display)
Group 2	Type a value. (0-7 or 1-5 see hexadecimal or decimal display)
Group 3	Type a value. (0-7 or 1-5 see hexadecimal or decimal display)
Reset Button	Resets all the tabs to default values.
Reset Tab Button	Resets to default values for the specific tab.
Apply Button	Applies any changes to the system.
Cancel Button	Exits the screen.

CIC tab

Select the **CIC** tab to set the parameters for CIC and Bit groups.

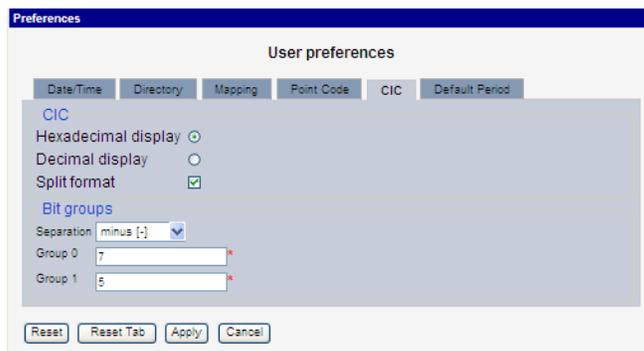


Figure 5: Formatting Rules (CIC) Screen

Table 5: CIC Tab Field Descriptions

Field	Description
Hexadecimal display	European defaults are hexadecimal and display with Group 0-7 and Group 1-5.
Decimal display	European defaults are hexadecimal and display with Group 0-7 and Group 1-5.

Field	Description
Split format	Select or deselect Split format .
Separation	Select a Bit Group Separation : Group 0:8, Group 1:8 .
Group 0	Type a value. (0-7 or 1-5 see hexadecimal or decimal display)
Group 1	Type a value. (0-7 or 1-5 see hexadecimal or decimal display)
Reset Button	Resets all the tabs to default values.
Reset Tab Button	Resets to default values for the specific tab.
Apply Button	Applies any changes to the system.
Cancel Button	Exits the screen.

Default Period tab

Select the **Default Period** tab, for setting the default time period for beginning and ending time for traces (ProTrace only) .

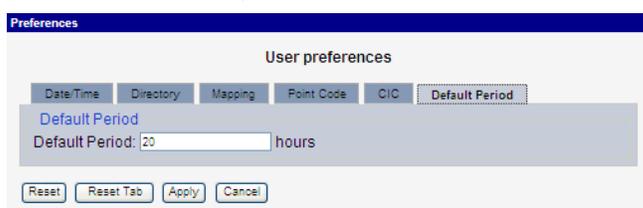


Figure 6: Default Period Tab Screen (ProTrace only)

Table 6: Default Period Tab Field Descriptions

Field	Description
Default Period (in hours)	Sets the default run time period for running traces. Default is 24 hours. Range 1-7200
Reset Button	Resets all the tabs to default values.
Reset Tab Button	Resets to default values for the specific tab.
Apply Button	Applies any changes to the system.
Cancel Button	Exits the screen.

After setting the formatting parameters, click **Next** to move to the next screen in the wizard.

Customer Care Center

The Tekelec Customer Care Center is your initial point of contact for all product support needs. A representative takes your call or email, creates a Customer Service Request (CSR) and directs your

requests to the Tekelec Technical Assistance Center (TAC). Each CSR includes an individual tracking number. Together with TAC Engineers, the representative will help you resolve your request.

The Customer Care Center is available 24 hours a day, 7 days a week, 365 days a year, and is linked to TAC Engineers around the globe.

Tekelec TAC Engineers are available to provide solutions to your technical questions and issues 7 days a week, 24 hours a day. After a CSR is issued, the TAC Engineer determines the classification of the trouble. If a critical problem exists, emergency procedures are initiated. If the problem is not critical, normal support procedures apply. A primary Technical Engineer is assigned to work on the CSR and provide a solution to the problem. The CSR is closed when the problem is resolved.

Tekelec Technical Assistance Centers are located around the globe in the following locations:

Tekelec - Global

Email (All Regions): support@tekelec.com

- **USA and Canada**

Phone:

1-888-FOR-TKLC or 1-888-367-8552 (toll-free, within continental USA and Canada)

1-919-460-2150 (outside continental USA and Canada)

TAC Regional Support Office Hours:

8:00 a.m. through 5:00 p.m. (GMT minus 5 hours), Monday through Friday, excluding holidays

- **Caribbean and Latin America (CALA)**

Phone:

USA access code +1-800-658-5454, then 1-888-FOR-TKLC or 1-888-367-8552 (toll-free)

TAC Regional Support Office Hours (except Brazil):

10:00 a.m. through 7:00 p.m. (GMT minus 6 hours), Monday through Friday, excluding holidays

- **Argentina**

Phone:

0-800-555-5246 (toll-free)

- **Brazil**

Phone:

0-800-891-4341 (toll-free)

TAC Regional Support Office Hours:

8:00 a.m. through 5:48 p.m. (GMT minus 3 hours), Monday through Friday, excluding holidays

- **Chile**

Phone:

1230-020-555-5468

- **Colombia**

Phone:

01-800-912-0537

- **Dominican Republic**

Phone:

1-888-367-8552

- **Mexico**

Phone:

001-888-367-8552

- **Peru**

Phone:

0800-53-087

- **Puerto Rico**

Phone:

1-888-367-8552 (1-888-FOR-TKLC)

- **Venezuela**

Phone:

0800-176-6497

- **Europe, Middle East, and Africa**

Regional Office Hours:

8:30 a.m. through 5:00 p.m. (GMT), Monday through Friday, excluding holidays

- **Signaling**

Phone:

+44 1784 467 804 (within UK)

- **Software Solutions**

Phone:

+33 3 89 33 54 00

- **Asia**

- **India**

Phone:

+91 124 436 8552 or +91 124 436 8553

TAC Regional Support Office Hours:

10:00 a.m. through 7:00 p.m. (GMT plus 5 1/2 hours), Monday through Saturday, excluding holidays

- **Singapore**

Phone:

+65 6796 2288

TAC Regional Support Office Hours:

9:00 a.m. through 6:00 p.m. (GMT plus 8 hours), Monday through Friday, excluding holidays

DIH Documentation Library

DIH customer documentation and online help are created whenever significant changes are made that affect system operation or configuration. Revised editions of the documentation and online help are distributed and installed on the customer system. Consult your NSP Installation Manual for details on how to update user documentation. Additionally, a Release Notice is distributed on the Tekelec Customer Support site along with each new release of software. A Release Notice lists the PRs that have been resolved in the current release and the PRs that are known to exist in the current release.

Listed is the entire DIH documentation library of online help.

- Centralized Configuration Manager Administration Online Help
- Alarm Forwarding Administration Online Help
- Diagnostic Utility Administration Online Help
- ProTrace Online Help
- System Alarms Online Help
- ProPerf Online Help
- ProTraq Configuration Online Help
- Data Feed Export Online Help
- Quick Start Online Help
- System Alarms Online Help

Locate Product Documentation on the Customer Support Site

Access to Tekelec's Customer Support site is restricted to current Tekelec customers only. This section describes how to log into the Tekelec Customer Support site and locate a document. Viewing the document requires Adobe Acrobat Reader, which can be downloaded at www.adobe.com.

1. Log into the [Tekelec Customer Support](#) site.

Note: If you have not registered for this new site, click the **Register Here** link. Have your customer number available. The response time for registration requests is 24 to 48 hours.

2. Click the **Product Support** tab.
3. Use the Search field to locate a document by its part number, release number, document name, or document type. The Search field accepts both full and partial entries.
4. Click a subject folder to browse through a list of related files.
5. To download a file to your location, right-click the file name and select **Save Target As**.

Diameter Intelligent Hub (DIH) - Copyright, Notice, Trademarks, and Patents

© 2012 Tekelec

All Rights Reserved

Printed in U.S.A.

Notice

Information in this documentation is subject to change without notice. Unauthorized use, copying, or translation of this documentation can result in civil or criminal penalties.

Any export of Tekelec products is subject to the export controls of the United States and the other countries where Tekelec has operations.

No part of this documentation may be reproduced, translated, or transmitted in any form or by any means, electronic or mechanical, including photocopying or recording, for any purpose without the express written permission of an authorized representative of Tekelec.

Other product names used herein are for identification purposes only, and may be trademarks of their respective companies.

RoHS 5/6 - As of July 1, 2006, all products that comprise new installations shipped to European Union member countries will comply with the EU Directive 2002/95/EC "RoHS" (Restriction of Hazardous Substances). The exemption for lead-based solder described in the Annex will be exercised. RoHS 5/6 compliant components will have unique part numbers as reflected in the associated hardware and installation manuals.

WEEE - All products shipped to European Union member countries comply with the EU Directive 2002/96/EC, Waste Electronic and Electrical Equipment. All components that are WEEE compliant will be appropriately marked. For more information regarding Tekelec's WEEE program, contact your sales representative.

Trademarks

TEKELEC, EAGLE, G-Flex, G-Port, and CAMIANT are registered trademarks of Tekelec. The Tekelec logo, A-Port, EAGLE 5, EAGLE 5 ISS, IP7, IP7 Secure Gateway, V-Flex, ngHLR, BLUESLICE, and Subscriber Data Server (SDS) are trademarks of Tekelec. All other trademarks are the property of their respective owners.

Patents

This product may be covered by one or more of the following U.S. and foreign patents:

U.S. Patent Numbers:

6,456,845; 6,765,990; 6,968,048; 7,043,001; 7,155,512; 7,206,394; 7,215,748; 7,231,024; 7,286,516; 7,286,647; 7,401,360; 7,706,343; 7,844,033; 7,860,799;

Foreign Patent Numbers:

None.

Chapter 2

Getting Started with ProTraq

Topics:

- *Configuration limits.....18*
- *Accessing and logging into NSP.....18*
- *Understanding the ProTraq Screen.....19*
- *ProTraq Configuration View.....19*
- *Sessions View.....23*
- *Statistic Flow View.....26*

Configuration limits

In order to perform optimally, the NSP platform operates with certain configuration limits. It is recommended to use these limits for efficient system performance. If a limit range is exceeded or unrecognizable, unexpected results and functioning can occur.

Configuration limits for ProTraq are:

Table 7: NSP ProTraq Configuration Limits

Indicator	System Limit	Recommended Value
Maximum ProTraq configuration rows per configuration	1000	< 1000
Maximum number of cells per configuration	10000	< 500
Maximum ProTraq configurations applied to IXP	100	10 per session
Maximum top filter/session	1000	< 10
Maximum results per top	1000	< 100
Maximum field per top filter	10	
Maximum statistics rows per configuration (including TOPS)	20000	< 20000

Accessing and logging into NSP

To access and log into NSP, follow these steps:

1. Open your Web browser.
2. In the Address bar, type the following **Uniform Resource Locator (URL)** for NSP:
http://nspserver/nsp, where the nspserver is the IP address of NSP.

Note: NSP only supports versions of IE 7.0 or later and Firefox 3.6 or later. Before using NSP, turn off the browser pop up blocker for the NSP site.

The NSP login screen opens.

Note: Before you can start NSP, you must first have a userid and password assigned to you by your NSP system administrator.

3. Type your **username** assigned to you in the *Username* field.
4. Type your **password** in the *Password* field.
5. Click **OK**.

The NSP *Application Board* opens.

- Click on the *ProTraq* icon to open the application.

Understanding the ProTraq Screen

When you access *ProTraq*, the Main page displays. It contains the following:

- A menu bar at the top of the screen
- A menu tree at the left of the screen that displays the available views
- The work area

The menu tree at the left of the screen displays the three available ProTraq views: the Configuration view, the Sessions view and the Statistic Flow View. Each of these views is further explained throughout this document.

The ProTraq work area is set up in a table format. The format changes slightly depending on which view is selected.

Note: Do not use the Function Keys (F1 through F12) when using the NSP. Function keys work in unexpected ways. For example, the F1 key will not open NSP help but will open help for the browser in use. The F5 key will not refresh a specific screen but will refresh the entire session and will result in a loss of any entered information.

ProTraq Configuration View

In the Configuration view, ProTraq configurations display at the top of the work area. When a configuration is highlighted, associated and compatible sessions for that configuration display at the bottom of the work area. The number of records that display in the configuration or session listings can be limited by applying a filter.

ProTraq Configuration View Work Area

The ProTraq configuration view work area displays information in a two-tiered display. In this view, the top part of the work area displays all available configurations and shows the following configuration information:

Configuration name	The name of the configuration
Sync Status	<p>Valid statuses are:</p> <p>SYNC - the configuration is identical on NSP and IXP</p> <p>NOT-SYNC - the configuration is not identical on NSP and IXP</p> <p>PARTLY-SYNC - at least one configuration is not identical on NSP and IXP</p> <p>NOT ASSOCIATED - the configuration is not associated with an input session</p> <p>Note: All ProTraq configurations are in a NOT-SYNC state after a major upgrade from a previous release to PIC 7.1.</p>

Statistical session name	The name of the ProTrace statistical session associated with the configuration
Statistical period	The statistical time period, for example, 30 seconds, 1 minute, 5 minutes
Alarms period	The alarm period, for example, 30 seconds, 1 minute, 5 minutes
User information	Any additional user information about the configuration
Owner	The owner of the configuration
Creation time	The time that the configuration was created in DD/MM/YYYY format

Use any of the columns to sort the configurations in the display using the drop down lists at the top of each informational column.

When a configuration is highlighted in the top of the work area, the bottom displays the associated and compatible sessions.

ProTraq Configuration View Tool Bar

The ProTraq application provides a range of operations through the use of icons. Icons exist for the main configuration listing, the associated sessions listing and the compatible session listing.

The following icons are located on the ProTraq Configuration View tool bar.

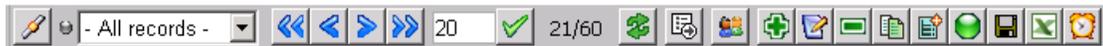


Figure 7: ProTraq Configuration View Tool Bar

- Filter - enables a filter to be built for the configuration listing
- All records - applies a filter to the listing by selecting from the drop-down list
- First page - displays the first page of records
- Previous page - displays the previous page of records
- Next page - displays the next page of records
- Last page - displays the last page of records
- Page Size - shows the number of records on each page.
- Set Size - sets the size for the number of records on each page.
- Record number - shows what page you are on in the listing, for example, 21/60 means you are on the 21st page out of 60 total.
- Refresh - refreshes the listing
- Export - exports screen data
- Permissions - sets user privileges
- Create Configuration - creates a configuration
- Modify Configuration - modifies the selected configuration
- Delete Configuration - deletes the selected configuration
- Duplicate Configuration - copies the selected configuration
- Aggregated Configuration - creates a nested configuration
- Synchronize and Activate Configuration - synchronizes and activates the configuration on all associated sessions
- Export ProTraq Configuration - exports the configuration to .fse format
- Export Dependent Objects - exports all dependent objects in .csv format

- Schedule Configuration - schedules the configuration

ProTraq Configuration View Sessions

While using the Configuration view, when a configuration is highlighted in the top of the work area, the bottom displays the sessions currently associated or compatible with the ProTraq configuration.

The bottom area of the ProTraq Configuration View screen displays the following two tabs:

- Associated Sessions tab - lists all input sessions that are currently associated with the ProTraq configuration. The ProTraq configuration receives data from associated input sessions.
- Compatible Sessions tab - lists all non-associated sessions that are compatible with the ProTraq configuration. Any compatible session can be associated with the configuration by clicking the **Associate Configuration** icon. Once a session is associated, the session moves from the Compatible Sessions listing tab to the Associated Sessions listing tab.

Both tabs include informational columns. Use any of the columns to sort the sessions in the display.

Session	The name of the session associated with the configuration
Start Date	The start date for the session in DD/MM/YYYY format
End Date	The end date for the session in DD/MM/YYYY format
Record Count	The number of records associated with the session
Size (MB)	The size of the records in MBs
Status	The status of the session. This information only displays on the Associated Sessions tab. ACTIVE - ProTraq is generating KPIs IN-ACTIVE - ProTraq is not generating KPIs
Synchronization Status	The synchronization status of the session. This information only displays on the Associated Sessions tab. SYNC - the configuration is identical on NSP and IXP NOT-SYNC - the configuration is not identical on NSP and IXP. Note: All ProTraq configurations are in a NOT-SYNC state after a major upgrade from a previous release to PIC 7.1.
Dictionary Type	Dictionaries describe a session, by providing its column names, titles, syntax, data type, and other information. A dictionary is a text file with an a7d extension that is physically stored on a server. Dictionaries must be present in the NSP database in order for NSP applications to use them. Valid dictionary types are: <ul style="list-style-type: none"> • Capture • Reconstitution • Statistics • SUDR

Format	Archive - Sessions store information in a long-term storage area Single - Sessions store information for a single protocol
Protocol	The protocol of the dictionary
Dictionary	The name of the dictionary used
Subsystem	The subsystem where the session is built and stored
User information	Any additional user information about the configuration
Owner	The owner of the configuration
Creation Time	The time that the configuration was created in DD/MM/YYYY format

Associated Sessions Listing Tool Bar

The following icons are located on the Associated Sessions listing tool bar:



Figure 8: Associated Sessions Listing Tool Bar

- Filter - enables a filter to be built for the sessions listing
- All records - applies a filter to the listing by selecting from the drop-down list
- First page - displays the first page of records
- Previous page - displays the previous page of records
- Next page - displays the next page of records
- Last page - displays the last page of records
- Page Size - shows the number of records on each page.
- Set Size - sets the size for the number of records on each page.
- Record number - shows what page you are on in the listing, for example, 21/60 means you are on the 21st page out of 60 total.
- Refresh - refreshes the listing
- Export - exports screen data
- Permissions - sets user privileges
- Obtain Session Period and Size - displays specific session information
- Synchronize and Activate Configuration - synchronizes and activates the selected session
- De-Activate Configuration - de-activates the selected session
- Disassociate Configuration - disassociates the session with the configuration and moves the session to the Compatible Sessions tab

Compatible Sessions Listing Tool Bar

The following icons are located on the Compatible Sessions listing tool bar:



Figure 9: Compatible Sessions Listing Tool Bar

- Filter - enables a filter to be built for the sessions listing
- All records - applies a filter to the listing by selecting from the drop-down list
- First page - displays the first page of records
- Previous page - displays the previous page of records
- Next page - displays the next page of records
- Last page - displays the last page of records
- Page Size - shows the number of records on each page.
- Set Size - sets the size for the number of records on each page.
- Record number - shows what page you are on in the listing, for example, 21/60 means you are on the 21st page out of 60 total.
- Refresh - refreshes the listing
- Export - exports screen data
- Permissions - sets user privileges
- Obtain Session Period and Size - displays specific session information
- Associate Configuration - associates the compatible session with the configuration and moves the session to the Associated Sessions tab

Sessions View

In the Sessions view, all sessions display in the top of the work area. When the session is highlighted, all associated configurations display at the bottom of the work area. The number of records that display in the session or configuration listings can be limited by applying a filter.

Sessions View Work Area

The Sessions view displays in a two-tiered display similar to the Configuration view, only the information in the listing is reversed.

In this view, the top part of the screen displays all available sessions. When a session is highlighted in the top of the screen, the bottom of the screen displays the configurations applied to the session. You cannot add additional sessions to a configuration from this view but you can manage privacy permissions for any configuration.

The session listing includes informational columns as sort characteristics. Use any of the information to sort the sessions in the display by using the associated drop down lists.

Session	The name of the session associated with the configuration
Start Date	The start date for the session in DD/MM/YYYY format
End Date	The end date for the session in DD/MM/YYYY format
Record Count	The number of records associated with the session
Size (MB)	The size of the records in MBs
Dictionary Type	Capture Reconstitution Statistics

	SUDR
Format	Archive Single
Protocol	The protocol of the dictionary
Dictionary	The name of the dictionary used
Subsystem	The subsystem where the session is built and stored
User information	Any additional user information about the configuration
Owner	The owner of the configuration
Creation Time	The time that the configuration was created in DD/MM/YYYY format

Sessions Listing Tool Bar

The following icons are located on the Associated Sessions listing tool bar:



Figure 10: Sessions Listing Tool Bar

- Filter - enables a filter to be built for the sessions listing
- All records - applies a filter to the listing by selecting from the drop-down list
- First page - displays the first page of records
- Previous page - displays the previous page of records
- Next page - displays the next page of records
- Last page - displays the last page of records
- Page Size - shows the number of records on each page.
- Set Size - sets the size for the number of records on each page.
- Record number - shows what page you are on in the listing, for example, 21/60 means you are on the 21st page out of 60 total.
- Refresh - refreshes the listing
- Export - exports screen data
- Permissions - sets user privileges
- Obtain Session Period and Size - displays specific session information
- Replace Session - disassociates the session with the configuration and replaces the session with another compatible session as selected from a listing

Sessions View Configurations

The sessions view contains a configuration work area that displays information for configurations associated with the sessions in the listing. The work area shows the following configuration information:

Configuration name	The name of the configuration
--------------------	-------------------------------

Status	Valid statuses are: ACTIVE - ProTraq is generating KPIs IN-ACTIVE - ProTraq is not generating KPIs
Statistical session name	The name of the ProTrace statistical session associated with the configuration
Statistical period	The accounting duration that the configuration works before recoding KPIs. Valid values are 30 seconds, 1 minute, 5 minutes, 15 minutes, 30 minutes, 1 hour, 1 day and 1 week.
Alarms period	The time interval between two threshold controls. Valid values are 30 seconds, 1 minute, 5 minutes, 15 minutes or 30 minutes.
User information	Any additional user information about the configuration
Owner	The owner of the configuration
Creation time	The time that the configuration was created in DD/MM/YYYY format

Use any of the columns to sort the configurations in the display using the drop down lists at the top of each informational column.

When a configuration is highlighted in the top of the work area, the bottom displays the associated and compatible sessions.

Sessions View Configurations Tool Bar

The following icons are located on the Sessions View Configurations tool bar.



Figure 11: Sessions View Configurations Tool Bar

- Filter - enables a filter to be built for the configuration listing
- All records - applies a filter to the listing by selecting from the drop-down list
- First page - displays the first page of records
- Previous page - displays the previous page of records
- Next page - displays the next page of records
- Last page - displays the last page of records
- Page Size - shows the number of records on each page.
- Set Size - sets the size for the number of records on each page.
- Record number - shows what page you are on in the listing, for example, 21/60 means you are on the 21st page out of 60 total.
- Refresh - refreshes the listing
- Export - exports screen data
- Permissions - sets user privileges

Statistic Flow View

In the Statistical Flow view, all sessions display in the top of the work area. When a session is highlighted a graphical representation of the ProTraq statistical session name, as well as the related ProTraq configurations and input sessions, displays in the bottom of the work area. From this graphical representation, you can tell which configurations are active (green) or inactive (red) and change configuration settings.

Mouse over each item in the graphical display to view a description of the item. Double clicking on the graphical representation of a configuration opens up the matrix display, in which you can edit the configuration and view filter or alarm information.

Chapter 3

Working with ProTraq

Topics:

- *Managing ProTraq configurations.....28*
- *Creating a configuration.....28*
- *Configuring ProTraq.....29*
- *Associating and activating sessions.....42*
- *Working with existing ProTraq configurations.....44*
- *Filtering the configuration and session listings.....48*
- *Importing and exporting files.....49*

Managing ProTraq configurations

This chapter describes the procedures used for adding, modifying, and deleting configurations in ProTraq, as well as the procedures used to configure ProTraq by adding columns, adding rows, applying filters, activating alarms, scheduling the configuration, associating a session and activating a session.

Creating a configuration

Follow these steps to create a ProTraq configuration.

1. From the ProTraq Configuration View screen, click the **Create Configuration icon** to open the Create a new ProTraq configuration screen. This screen allows you to enter the general parameters that will define your configuration.
2. Type in the **Configuration Name** and any user information. When you've finished, click the **Next** button.

Note: Valid characters for the column name are case-sensitive alphanumeric values (A to Z, a to z, 0 to 9) and the underscore (_). The name must start with a letter and is limited to 29 characters with no spaces allowed.

3. Enter the protocol name using one of the following methods:
 - Type in any protocol name sequence. ProTraq filters the appropriate entries as you type.
 - Select a protocol using the **Select Protocol from** button. Select the protocol from either the Sessions tab (which specifies the protocol associated with the session) or the Protocol tab (which specifies an individual protocol). When the protocol is selected, click the **Done** button.
4. After selecting the protocol, click the **Next** button.
5. Define the statistical storage settings by entering the following information:

Statistical Session Storage	Valid options are Local Storage (a statistical session is created for each associated xDR session on the same storage as the xDR session) or a specific IXP server (a single statistical session is created on this specific IXP server, used for all associated xDR sessions).
Statistical Session Name	Name of the ProTraq Statistical Session used to store KPIs. Valid characters are case-sensitive alphanumeric values (A to Z, a to z, 0 to 9) and the underscore (_). The name must start with a letter and is limited to 30 characters, no spaces allowed.
Statistical Period	The accounting duration that the configuration works before recoding KPIs. Valid values are 30 seconds, 1 minute, 5 minutes, 15 minutes, 30 minutes, 1 hour, 1 day and 1 week.
Statistical Duration	The length of time (from start to finish) the configuration will collect data in weekly increments up to 15 weeks.

After entering statistical session information, click the **Next** button.

6. Define the default Alarm settings by entering the following information:

Alarms Period	The time interval between two threshold controls. Valid values are 30 seconds, 1 minute, 5 minutes, 15 minutes or 30 minutes.
Min Record Count	An alarm is raised if a major or minor threshold is reached (TRUE) and the xDR count in the alarm period is equal or greater than the record count value.
Alarm Termination is Constrained	Checking this box terminates the alarm if a major or minor threshold is not reached (FALSE) and the xDR count in the alarm period is equal or greater than the record count value.

After entering alarm settings, click the **Next** button.

7. **OPTIONAL STEP:** Set the start and end time for the schedule by selecting the **Schedule Activation Period** checkbox. That opens the screen where you can fill in the following information:

Schedule start date	The date when the configuration will begin collecting data in DD/MM/YYYY format.
Schedule start time	The time that the configuration will start collecting data based on a 24 hour clock in HH:MM:SS format.
Period	Start and end times in HH:MM:SS format.
Execute every day	Determines whether the data collection runs on a daily basis. For more complex scheduling, use the Day Scheduling field.
Day Scheduling	Defines more precise scheduling for the data collection. Weekly basic allows you to select specific days of the week, ensuring that the configuration runs from midnight to midnight for the specific day. Monthly basic allows you to select a number of options, for example, a specific day each month (15th, 21st), each day for an entire month, or special days (the 2nd Tuesday of each month).

After entering schedule settings, click the **Next** button.

8. Check the parameter settings listed on the summary page. If all the settings are correct, click the **Finish** button.

The configuration is saved and the matrix screen opens, allowing you to add columns and rows to your configuration. For more information see the section on Configuring rows and columns.

If you will configure rows and columns at a later time, select the **Return to List** button to return to the ProTraq Configuration list.

Configuring ProTraq

After general parameters for the ProTraq configuration have been created, configure the following:

- Rows

- Columns
- Corner Filters
- Alarms
- Scheduling the configuration
- Associating and activating sessions

Configuring Rows and Columns

Using the matrix view, you can easily add rows and columns to a configuration. Various rows and columns can be added:

- Data Rows
- Top Selection Rows
- Automatic Row Additions
- Data Columns
- Cumulative Counter Columns
- Ratio Impossible Columns
- Field Value Columns

Creating a Data Row

Creating a data row allows all xDRs to be selected for the existing lines, or only xDRs that match a given filter. To create a data row, follow these steps.

1. In the Matrix view, right click on an existing row.
2. Select to add a row above or below the existing row.
3. Select **Data** as the row type. A summary of the row displays.
4. Enter the row name.

Note: The row name can include any alphanumeric characters or symbols. The name is limited to 30 characters and can include spaces.

5. Select whether the row is exclusive and select **Next**.
6. Select a filter from the drop down list or build a new filter by entering the following information:

Filter Name	The name of the filter
Description	A description of the filter characteristics

Note: When modifying the filter, the drilldown function is disabled and a warning icon is displayed.

7. Select the **Add** button to add a filter condition. Filter conditions are lettered in capitals. For example, the first one is A, second is B, and the third one is C.
8. Select a field from the drop down listing.

Note: When you select a field, the field description is available by clicking on the question mark next to the field name.

9. Enter an operator. Valid operators are:

<>	Not equal to
----	--------------

<=	Less than or equal to
>=	Greater than or equal to
>	Greater than
=	Equal to
<	Less than

10. Enter a value for the filter or select one from the drop down list.
11. To add a second characteristic, determine the operator (And/Or). Select whether the expression should be enclosed in brackets and select the **Add** button.
12. When you have finished adding filter conditions, select **Finish**. A summary of the row displays, along with a warning icon informing you that the drill down function will be disabled if you save the filter.
13. If all the information is correct, select Finish. The row is added to the configuration.

Creating a Top Selection Row

The top selection line enables you to build a list of ten xDRs with up to ten query fields (filters do not select the xDRs according to given field values). These filters build a list of all encountered values of the selected fields and equally create matching virtual line statistics. Each virtual line is defined by a query filter comparing the top filter fields and, for each field, an encountered value.

You can also group numbers using only a portion of the number. For example, you can group international calls by nationality using only the nation prefix number. You can select part of an address (make sure you give the start position, from left or right, and the length) using the substring function.

When the period (statistics or alarms) ends, these virtual lines are sorted in ascending or descending order according to one of the counter values. The N first virtual lines are kept and saved to the statistics session (at the statistics period ending) or checked for alarms at start or termination (at the alarms period ending).

Note: Top selection filters are dependent on column filters and can only be added if there are column filters present.

Note: You may not add, modify (except to modify the filter) or delete columns while ProTraq is associated with a session. In order to add or delete columns, you must de-activate and disassociate the configuration from the session, add or delete the columns, and then re-associate the session.

To create a TOP selection row, follow these steps. A data counter or cumulative counter column must be created before a TOP row can be added.

1. In the Matrix view, right click on an existing row.
2. Select to add a row above or below the existing row.
3. Select **Top Selection** as the row type. A summary of the row displays.
4. Enter the row name.

Note: The row name can include any alphanumeric characters or symbols. The name is limited to 25 characters and can include spaces.

5. Select whether the row is exclusive and select **Next**.

6. Select the fields to be included in the filter by moving available fields from the left of the screen to the right using the arrow buttons. When you've finished selecting fields, select **Next**.
7. Define the sorting characteristics by selecting the column to sort on and choosing lowest or highest values for the column.
8. Define the counters by entering the number of statistical lines in the Top field and the maximum number of xDRs counted by the system during the session. Select **Next**.
9. Select a filter from the drop down list or build a new filter by entering the following information:

Filter Name	The name of the filter
Description	A description of the filter characteristics

When modifying the filter, the drilldown function is disabled and a warning icon is displayed.

10. Select the **Add** button to add a filter condition. Filter conditions are lettered in capitals. For example, the first one is A, second is B, and the third one is C.
11. Select a field from the drop down listing.

Note: When you select a field, the field description is available by clicking on the question mark next to the field name.
12. Enter an operator. Valid operators are:

<>	Not equal to
<=	Less than or equal to
>=	Greater than or equal to
>	Greater than
=	Equal to
<	Less than

13. Enter a value for the filter or select one from the drop down list.
14. To add a second characteristic, determine the operator (And/Or). Select whether the expression should be enclosed in brackets and select the **Add** button.
15. When you have finished adding filter conditions, select **Finish**. A summary of the row displays, along with a warning icon informing you that the drill down function will be disabled if you save the filter.
16. If all the information is correct, select **Finish**. The row is added to the configuration.

Automatic Row Insertion

Automatic Row Insertion enables you to create multiple data filtering lines using any single filtering condition you have set up previously. This condition is applied to the same xDR field compared to a given value.

To automatically insert rows, follow these steps.

1. In the Matrix view, right click on an existing row.
2. Select **Automatic Row Insertion**.

3. Define the condition applied to the row by selecting a field and operator from the drop down lists.
4. Select **Next**.
5. To define the rows using existing information, select to load values from a CSV file or from ENUM values.
6. To define rows using specific values, select the **Add** icon.
7. Enter the row name syntax. Valid syntax options are:

%n	Name of the item
%v	Value of the filter
%c	Automatic counter

8. Enter a filter value.
9. To add additional rows, repeat Steps 6 through 8.
10. Select **Next**.
11. Verify the information on the Parameter Summary screen. If all the information is correct, select **Finish**. The column is added to the configuration.

Creating a Data Column

The data counter counts the number of xDRs selected by a row. You can also specify filter information, enabling the column to provide the number of xDRs that match the given filter.

To create a data column, follow these steps.

Note: You may not add, modify (except to modify the filter) or delete columns while ProTraq is associated with a session. In order to add or delete columns, you must de-activate and disassociate the configuration from the session, add or delete the columns, and then re-associate the session.

1. In the Matrix view, right click on an existing column.
2. Select to add a column to the right or the left of the existing column.
3. Select **Data** as the column type. Select **Next**.
4. Enter the column name and description. Select **Next**.

Note: Valid characters for the column name are case-sensitive alphanumeric values (A to Z, a to z, 0 to 9) and the underscore (_). The name must start with a letter and is limited to 29 characters with no spaces allowed.

Note: Using the name of a ProTraq default column -- Period End, Duration, Sample, Instance, Corner or Line -- will prevent KPI generation due to duplicate field names. Do not use any of the default names when naming a column.

5. Select a filter from the drop down list or build a new filter by entering the following information:

Filter Name	The name of the filter
Description	A description of the filter characteristics

Note: When modifying the filter, the drilldown function is disabled and a warning icon is displayed.

6. Select the **Add** button to add a filter condition. Filter conditions are lettered in capitals. For example, the first one is A, second is B, and the third one is C.
7. Select a field from the drop down listing.

Note: When you select a field, the field description is available by clicking on the question mark next to the field name.

8. Enter an operator. Valid operators are:

<>	Not equal to
<=	Less than or equal to
>=	Greater than or equal to
>	Greater than
=	Equal to
<	Less than

9. Enter a value for the filter or select one from the drop down list.
10. To add a second characteristic, determine the operator (And/Or). Select whether the expression should be enclosed in brackets and select the **Add** button.
11. When you have finished adding filter conditions, select **Finish**.
12. Verify that the summary information for the column is accurate. If all the information is correct, select **Finish**. The column is added to the configuration.

Creating a Cumulative Counter Column

A Cumulative counter provides the sum for all the xDRs, or the greatest or the smallest value for a single xDR, of the sum of the chosen field(s) of the xDR.

To create a cumulative counter column, follow these steps.

Note: You may not add, modify (except to modify the filter) or delete columns while ProTraq is associated with a session. In order to add or delete columns, you must de-activate and disassociate the configuration from the session, add or delete the columns, and then re-associate the session.

1. In the Matrix view, right click on an existing column.
2. Select to add a column to the right or the left of the existing column.
3. Select **Cumulative Counter** as the column type. Select **Next**.
4. Enter the column name and description. Select **Next**.

Note: Valid characters for the column name are case-sensitive alphanumeric values (A to Z, a to z, 0 to 9) and the underscore (_). The name must start with a letter and is limited to 29 characters with no spaces allowed.

Note: Using the name of a ProTraq default column -- Period End, Duration, Sample, Instance, Corner or Line -- will prevent KPI generation due to duplicate field names. Do not use any of the default names when naming a column.

5. Select the counters to be included in the column by moving available counters from the left of the screen to the right using the arrow buttons. When you've finished selecting counters, select **Next**.

6. Select from the following the result parameters:

All	The sum of the selected counter values for each xDR. Result is the sum of those sums.
Keep Lowest	The sum of selected counter values for each xDR. Result is the lowest of those sums.
Keep Highest	The sum of selected counter values for each xDR. Result is the highest of those sums.

7. Enter the scale multiplier and the conditions of that multiplier. Valid multipliers are:

- Bytes to Kilobytes
- Bytes to Megabytes
- Bytes to Gigabytes
- Seconds to minutes
- Seconds to Hours
- One to a thousand
- One to a million
- One to a billion

8. Select a filter from the drop down list or build a new filter by entering the following information:

Filter Name	The name of the filter
Description	A description of the filter characteristics

Note: When modifying the filter, the drilldown function is disabled and a warning icon is displayed.

9. Select the **Add** button to add a filter condition. Filter conditions are lettered in capitals. For example, the first one is A, second is B, and the third one is C.

10. Select a field from the drop down listing.

Note: When you select a field, the field description is available by clicking on the question mark next to the field name.

11. Enter an operator. Valid operators are:

<>	Not equal to
<=	Less than or equal to
>=	Greater than or equal to
>	Greater than
=	Equal to
<	Less than

12. Enter a value for the filter or select one from the drop down list.

13. To add a second characteristic, determine the operator (And/Or). Select whether the expression should be enclosed in brackets and select the **Add** button.

14. When you have finished adding filter conditions, select **Finish**.
15. Verify that the summary information for the column is accurate. If all the information is correct, select **Finish**. The column is added to the configuration.

Creating a Ratio Column

A ratio column calculates the ratio between two other columns expressed as an integer or as a percentage. In order to create a ratio column, at least two counter columns must be present in the configuration.

To create a ratio column, follow these steps.

Note: You may not add, modify (except to modify the filter) or delete columns while ProTraq is associated with a session. In order to add or delete columns, you must de-activate and disassociate the configuration from the session, add or delete the columns, and then re-associate the session.

1. In the Matrix view, right click on an existing column.
2. Select to add a column to the right or the left of the existing column.
3. Enter the name of the column and the column description. Select **Next**.
4. Select the field name from the drop down list and select **Next**.

Note: Valid characters for the column name are case-sensitive alphanumeric values (A to Z, a to z, 0 to 9) and the underscore (_). The name must start with a letter and is limited to 29 characters with no spaces allowed.

Note: Using the name of a ProTraq default column -- Period End, Duration, Sample, Instance, Corner or Line -- will prevent KPI generation due to duplicate field names. Do not use any of the default names when naming a column.

5. Select the Value column and Reference column from the available listing.
6. To report the ratio as a percentage, select the **Express as percentage** checkbox. Select **Next**.
7. Verify that the summary information for the column is accurate. If all the information is correct, select **Finish**. The column is added to the configuration.

Creating a Field Value Column

Field value columns show the value of a field of an xDR or shows the text of a field chosen in a Top selection line.

To create a field value column, follow these steps.

Note: You may not add, modify (except to modify the filter) or delete columns while ProTraq is associated with a session. In order to add or delete columns, you must de-activate and disassociate the configuration from the session, add or delete the columns, and then re-associate the session.

1. In the Matrix view, right click on an existing column.
2. Select to add a column to the right or the left of the existing column.
3. Select **Field Value** as the column type. Select **Next**.
4. Select the field name from the drop down list and select **Next**.

Note: When you select a field, the field description is available by clicking on the question mark next to the field name.

5. Verify that the summary information for the column is accurate. If all the information is correct, select **Finish**. The column is added to the configuration.

Automatic Column Insertion

Automatic Column Insertion enables you to create multiple data filtering lines using any single filtering condition you have set up previously. This condition is applied to the same xDR field compared to a given value.

To automatically insert columns, follow these steps.

Note: You may not add, modify (except to modify the filter) or delete columns while ProTraq is associated with a session. In order to add or delete columns, you must de-activate and disassociate the configuration from the session, add or delete the columns, and then re-associate the session.

1. In the Matrix view, right click on an existing column.
2. Select **Automatic Column Insertion**.
3. Define the condition applied to the column by selecting a field and operator from the drop down lists.
4. Select **Next**.
5. To define the columns using existing information, select to load values from a CSV file or from ENUM values.
6. To define columns using specific values, select the **Add** icon.
7. Enter the column name syntax. Valid syntax options are:

%n	Name of the item
%v	Value of the filter
%c	Automatic counter

8. Enter a filter value.
9. To add additional columns, repeat Steps 6 through 8.
10. Select **Next**.
11. Verify the information on the Parameter Summary screen. If all the information is correct, select **Finish**. The column is added to the configuration.

Changing Column or Row Order

You can change the order of the columns or rows in your configuration by simply dragging and dropping them into a new position. With the row or column highlighted, hold down the left mouse button until you have the row or column where you want it to be, and then release the mouse button.

Modifying a Column or Row

Follow these steps to modify an existing column or row:

Note: You may not add, modify (except to modify the filter) or delete columns while ProTraq is associated with a session. In order to add or delete columns, you must de-activate and disassociate the configuration from the session, add or delete the columns, and then re-associate the session.

Note: When modifying the filter, the drilldown function is disabled and a warning icon is displayed.

1. Select a **Column** or **Row**.
2. Right click and select the **Edit** option.
3. Modify the **appropriate parameters** by following the same procedures necessary when adding a column or row.
4. When you have finished modifying parameters, select **Finish**.
The column or row is modified.

Deleting a Column or Row

Follow these steps to delete a column or row:

Note: You may not add, modify (except to modify the filter) or delete columns while ProTraq is associated with a session. In order to add or delete columns, you must de-activate and disassociate the configuration from the session, add or delete the columns, and then re-associate the session.

1. Right click on the column or row.
2. Select the **Delete** option.
3. Select **OK** on the confirmation screen.
The column or row is removed from the configuration.

Configuring a corner filter

Adding a corner filter to your configuration will filter your input session to limit the type and amount of xDRs sent to the configuration.

Defining a corner filter

Use the following steps to create a corner filter:

1. In the Matrix view, right click on the corner between the rows and columns.
2. Select **Define Corner Filter**.
3. Enter the name to appear on the statistical xDR in the Corner Label field.
Note: Valid characters for the corner filter name are all alphanumeric values (A to Z, a to z, 0 to 9) and all symbols. The name cannot be longer than 30 characters.
4. Select **Delete accounted records** if you do not want the records passed through the corner filter to be saved.
5. Select **Next**.
Note: When modifying the filter, the drilldown function is disabled and a warning icon is displayed.
6. Select a filter from the drop down list or build a new filter by entering the following information:

Filter Name	The name of the filter
Description	A description of the filter characteristics

7. Select the **Add** button to add a filter condition. Filter conditions are lettered in capitals. For example, the first one is A, second is B, and the third one is C.
8. Select a field from the drop down listing.

Note: When you select a field, the field description is available by clicking on the question mark next to the field name.

9. Enter an operator. Valid operators are:

<>	Not equal to
<=	Less than or equal to
>=	Greater than or equal to
>	Greater than
=	Equal to
<	Less than

10. Enter a value for the filter or select one from the drop down list.
11. To add a second characteristic, determine the operator (And/Or). Select whether the expression should be enclosed in brackets and select the **Add** button.
12. When you have finished adding filter conditions, select **Finish**. The corner filter icon displays, along with a warning icon informing you that the drill down function will be disabled if you save the filter.
13. Select **Save** to save the information.
14. Select **Return to List** to return to the configuration listing.
15. To sync the configuration and activate the drill down function, select the **Synchronize and Activate Configuration** icon.

Modifying a corner filter

To modify an existing corner filter, follow these steps:

1. In the Matrix view, right click on the corner between the rows and columns.
2. Select **Modify Corner Filter**.
3. Modify the name to appear on the statistical xDR in the Corner Label field.

Note: Valid characters for the corner filter name are all alphanumeric values (A to Z, a to z, 0 to 9) and all symbols. The name cannot be longer than 30 characters.

4. Select **Delete accounted records** if you do not want the records passed through the corner filter to be saved.
5. Select **Next**.

Note: When modifying the filter, the drilldown function is disabled.

6. Select a filter from the drop down list or build a new filter by entering the following information: name, description.

Filter Name	The name of the filter
Description	A description of the filter characteristics

7. Select the **Add** button to add a filter condition. Filter conditions are lettered in capitals. For example, the first one is A, second is B, and the third one is C.
8. Select a field from the drop down listing.

Note: When you select a field, the field description is available by clicking on the question mark next to the field name.

9. Enter an operator. Valid operators are:

<>	Not equal to
<=	Less than or equal to
>=	Greater than or equal to
>	Greater than
=	Equal to
<	Less than

10. Enter a value for the filter or select one from the drop down list.
11. To add a second characteristic, determine the operator (And/Or). Select whether the expression should be enclosed in brackets and select the **Add** button.
12. When you have finished adding filter conditions, select **Finish**. The corner filter icon displays, along with a warning icon informing you that the drill down function will be disabled if you save the filter.
13. Select **Save** to save the information.
14. Select **Return to List** to return to the configuration listing.
15. To sync the configuration and activate the drill down function, select the **Synchronize and Activate Configuration** icon.

Deleting a corner filter

To delete a corner filter, follow these steps.

1. In the Matrix view, right click on the corner between the rows and columns.
2. Select **Delete Corner Filter**.
3. Select **Yes** on the confirmation screen.
4. Select **Return to List** to return to the configuration listing.
5. To sync the configuration, select the **Synchronize and Activate Configuration** icon.

Configuring threshold alarms

Alarms configurations are specific to the type of column included in the configuration or session. When configuring alarms, you will see slightly different choices for each column type.

Note: Alarms cannot be configured for a Field Value column since the column is not a counter.

Note: The drill down feature is not available for alarms that occur during an upgrade. Drill down is available on all alarms occurring once the upgrade has been completed.

Use the following steps to configure alarms:

1. Highlight the configuration from the listing and select the **Modify Configuration** icon.
2. In the Matrix view, right click on the cell in the row where you want to insert the alarm.
3. Define the alarm for the cell by selecting the **Plus** icon.
4. Choose the severity, **Min (Minor)** or **Maj (Major)** from the available icons.

Note: You can define only one event per severity.

5. Select the operator. Valid values are:

>	Greater Than
<	Less Than

6. Define the threshold for the alarm event.

The alarm threshold for Cumulative Counter and Data Counter columns are expressed as integers. **If you are configuring an integer alarm, skip Step 7 and go to Step 8.**

The alarm threshold for a Ratio column is expressed as a percentage if the **Express as percentage** checkbox is selected. If it is not checked, the column is expressed as an integer. **If you are configuring a percentage alarm, go to Step 7.**

7. Select whether to use a default constraint or a custom constraint. To define a custom constraint, specify the following information.

Counter	Counter name from the drop down list
Minimum Value	The alarm is raised if the minor or major condition is true and if the counter value is greater than the minimum value.
Alarm Termination is constrained	Checking the box will terminate if the minor and major condition is false and if the counter value is equal to or greater than the minimum value.

8. When you have finished configuring the alarms, select **Finish**.
9. Select the **Save** button to save the configuration.
10. Select **Return to List**.

Scheduling a configuration

Follow these steps to schedule a configuration.

1. Highlight the configuration in the listing.
2. Select the **Schedule Configuration** icon.
3. Set the start and end time for the schedule by selecting the **Schedule Activation Period** checkbox. That opens the screen where you can fill in the following information:

Schedule start date	In DD/MM/YYYY format
Schedule start time	24 hour clock in HH:MM:SS format

Period	Start and end times in HH:MM:SS format
Execute every day	Select to execute the schedule daily
Day Scheduling	Select to define more precise scheduling. Weekly basic allows you to select specific days of the week. Monthly basic allows you to select a number of options, for example, a specific day each month (15th, 21st), each day for an entire month, or special days (the 2nd Tuesday of each month).

When schedule settings are set, click the **Next** button.

4. Check the parameter settings listed on the summary page. If all the settings are correct, click the **Finish** button.
The configuration is saved and added to the list. Select the **Return to List** button to see the new configuration.

Associating and activating sessions

When you have completely specified all necessary information for your configuration, you must associate the ProTraq Configuration with one or more sessions and activate the sessions.

Associating ProTraq configurations and sessions starts the process for the accumulation of statistical information. Associating sessions links the ProTraq configuration to the input sessions that provide xDRs for the ProTraq KPI generation.

Associating xDR Sessions

Use the following steps to associate xDR sessions to a ProTraq configuration.

1. Select a configuration from the listing.
2. Select the Compatible Sessions listing from the bottom of the screen.
3. Select the **Associate Configuration** icon.
The session is associated with the configuration and moves from the Compatible Sessions listing to the Associated Sessions listing.

Disassociating a Session

You can modify the information compiled by a configuration by disassociating a session from a configuration.

Note: You may not add, modify (except to modify the filter) or delete columns while ProTraq is associated with a session. In order to add or delete columns, you must de-activate and disassociate the configuration from the session, add or delete the columns, and then re-associate the session.

Follow these steps to disassociate a session.

1. Select a configuration from the listing.
2. Select the Associated Sessions listing from the bottom of the screen.
3. Select the **Disassociate Configuration** icon.

The session is removed from the associated sessions listing. Data configured in that session will no longer be compiled with the configuration.

Activating xDR Sessions

Use the following steps to activate xDR sessions for a ProTraq configuration.

1. Select a configuration from the listing.
2. Select the Associated Sessions tab from the bottom of the screen.
3. Select the session to be activated and select the **Synchronize and Activate Configuration** icon.
The session status is now active.

Deactivating xDR Sessions

Use the following steps to deactivate xDR sessions.

Note: You may not add, modify (except to modify the filter) or delete columns while ProTraq is associated with a session. In order to add or delete columns, you must de-activate and disassociate the configuration from the session, add or delete the columns, and then re-associate the session.

1. Select a configuration from the listing.
2. Select the Associated Sessions tab from the bottom of the screen.
3. Select the session to be deactivated and select the **De-Activate Configuration** icon.
The session status changes from active to in-active.

Establishing a ProTraq data flow to an affected Server

Complete these steps to establish a ProTraq data flow to an IXP server.

1. Log into Centralized Configuration Manager (CCM).
Note: You log into CCM from the NSP Application Board.
2. Select **IXP**.
3. Select **Distribution**.
The Distribution screen opens.
4. Select the **appropriate server** in the *Affected Server*.
5. Select **Streams** from the *object tree*.
The *Streams* screen opens.
6. Select **DataFlow Processings** from the *object tree*.
The *Data Flows processings* screen opens.
7. Confirm to see if the new data flow records are in the list.

Working with existing ProTraq configurations

After a ProTraq configuration has been created, and additional information has been specified, you can modify, duplicate, delete or create aggregated configurations to further enhance the reporting.

Modifying a configuration

This section outlines how to modify a configuration. Follow these steps to modify a ProTraq configuration.

Note: At any time during this process you may select **Restore initial parameters** to revert to the last saved version.

1. Highlight the configuration in the listing.
2. Select the **Modify Configuration** icon.
The matrix screen opens which displays the details of the configuration.
3. Select **General Parameters**.
This opens up a section where you can modify the configuration details.

Note: While modifying a configuration, the system backs up the configuration information every 5 minutes. Once a backup occurs, the history matrix displays on the screen. The history matrix displays up to 10 automatically backed up versions of the configuration, with the most recent being marked with an asterisk (*). You can revert to a previous version using the drop down list. Regardless of the automatic backup feature, it is recommended that you periodically save your information manually.

4. Modify the following information:

Note: The Configuration name and Dictionary cannot be modified.

User Information	Optional information to describe the configuration.
Statistical Session Storage	Valid options are Local Storage (a statistical session is created for each associated xDR session on the same storage as the xDR session) or a specific IXP server (a single statistical session is created on this specific IXP server, used for all associated xDR sessions).
Statistical Session Name	Name of the ProTraq Statistical Session used to store KPIs. Valid characters are case-sensitive alphanumeric values (A to Z, a to z, 0 to 9) and the underscore (_). The name must start with a letter and is limited to 30 characters, no spaces allowed.
Statistical Period	The accounting duration that the configuration works before recoding KPIs. Valid values are 30 seconds, 1 minute, 5 minutes, 15 minutes, 30 minutes, 1 hour, 1 day and 1 week.
Statistical Duration	The length of time (from start to finish) the configuration will collect data in weekly increments up to 15 weeks.
Alarms Period	The time interval between two threshold controls. Valid values are 30 seconds, 1 minute, 5 minutes, 15 minutes or 30 minutes.

Min Rec Count	An alarm is raised if a major or minor threshold is reached (TRUE) and the xDR count in the alarm period is equal or greater than the record count value.
Alarm Termination is Constrained	Checking this box terminates the alarm if a major or minor threshold is not reached (FALSE) and the xDR count in the alarm period is equal or greater than the record count value.

- When you've finished modifying the parameters, select the **Save** button. The configuration is saved and added to the list.
- Select the **Return to List** button to see the new configuration.

Duplicating a configuration

This section outlines how to copy an existing configuration and save it under a different name. Follow these steps to duplicate a configuration:

- Highlight the configuration in the listing.
- Select the **Duplicate Configuration** icon. The Duplicate Configuration window opens.
- If the new configuration will be an exact duplicate, change the Configuration name and user information and select the **Create Copy** button.

A copy of the successfully created duplicate will appear in the configuration listing.

Note: Valid characters for the configuration name are case-sensitive alphanumeric values (A to Z, a to z, 0 to 9) and the underscore (_). The name cannot be longer than 30 characters.

- To change other parameters besides the name and user information, select the **Change other parameters before duplicate** button.

The Duplicate Configuration window opens.

- Type in the **Configuration Name** of the record and any user information. When you are finished, click the **Next** button.

Note: Valid characters for the configuration name are case-sensitive alphanumeric values (A to Z, a to z, 0 to 9) and the underscore (_). The name cannot be longer than 30 characters.

- The system **does not allow** you to change the protocol name. To continue, select the **Next** button.
- Define the statistical storage settings by entering the following information:

Statistical Session Storage	Valid options are Local Storage (a statistical session is created for each associated xDR session on the same storage as the xDR session) or a specific IXP server (a single statistical session is created on this specific ICP server, used for all associated xDR sessions).
Statistical Session Name	Name of the ProTraq Statistical Session used to store KPIs. Valid characters are case-sensitive alphanumeric values (A to Z, a to z, 0 to 9) and the underscore (_). The name must start with a letter and is limited to 30 characters, no spaces allowed.

Statistical Period	The accounting duration that the configuration works before recoding KPIs. Valid values are 30 seconds, 1 minute, 5 minutes, 15 minutes, 30 minutes, 1 hour, 1 day and 1 week.
Statistical Duration	The length of time (from start to finish) the configuration will collect data in weekly increments up to 15 weeks.

When you've finished entering statistical session information, click the **Next** button.

8. Define the default Alarm settings by entering the following information:

Alarms Period	The time interval between two threshold controls. Valid values are 30 seconds, 1 minute, 5 minutes, 15 minutes or 30 minutes.
Min Record Count	An alarm is raised if a major or minor threshold is reached (TRUE) and the xDR count in the alarm period is equal or greater than the record count value.
Alarm Termination is Constrained	Checking this box terminates the alarm if a major or minor threshold is not reached (FALSE) and the xDR count in the alarm period is equal or greater than the record count value.

When you've finished entering alarm settings, click the **Next** button.

9. Set the start and end time for the schedule by selecting the Schedule Activation Period checkbox. That opens the screen where you can fill in the following information:

Schedule start date	The date when the configuration will begin collecting data in DD/MM/YYYY format.
Schedule start time	The time that the configuration will start collecting data based on a 24 hour clock in HH:MM:SS format.
Period	Start and end times in HH:MM:SS format.
Execute every day	Determines whether the data collection runs on a daily basis. For more complex scheduling, use the Day Scheduling field.
Day Scheduling	Defines more precise scheduling for the data collection. Weekly basic allows you to select specific days of the week, ensuring that the configuration runs from midnight to midnight for the specific day. Monthly basic allows you to select a number of options, for example, a specific day each month (15th, 21st), each day for an entire month, or special days (the 2nd Tuesday of each month).

When you've finished schedule settings, click the **Next** button.

10. Check the parameter settings listed on the summary page. If all the settings are correct, click the **Finish** button.
The configuration is saved and added to the list. Select the Return to List button to see the new configuration.

Deleting a configuration

Follow these steps to delete a ProTraq configuration.

Note: Before deleting a configuration, you must disassociate and deactivate it in the ProTraq Configuration listing.

1. Highlight the configuration in the listing.
2. Select the **Delete Configuration** icon.

A confirmation window opens for the delete request.

3. Select **OK**.

The configuration is deleted.

Creating an aggregated configuration

Using an aggregated configuration nests statistical lines coming from different sessions into the same statistical session. This necessitates the initial Protraq configuration (from which the aggregated configuration is created) to have the parameter Storage for statistical session defined as a value different from Local Storage.

Using an aggregated configuration will generate data combined into a single resulting statistical session (aggregation of the same lines coming from different sessions in one cumulative line).

Follow these steps to create an Aggregated ProTraq configuration.

1. Highlight the configuration in the listing and select the Aggregated Configuration icon. The Create an Aggregated Configuration window displays.
2. Type in the **Configuration Name** of the record and any user information and click the **Next** button.

Note: Valid characters for the configuration name are case-sensitive alphanumeric values (A to Z, a to z, 0 to 9) and the underscore (_). The name cannot be longer than 30 characters.

3. Select the Alarms checkbox to duplicate the alarm settings for the configuration.
4. Select the **Create Copy** button to create the aggregated configuration.

The configuration is saved and added to the list.

Using the Edition mode to modify configurations

The Matrix view offers all users with an Administrative role the capability to use the Editions mode functionality, available by selecting the Editions mode icon. The Editions mode allows the ProTraq configuration to be edited in a text mode, in the fse file format.

Note: The Editions mode icon displays in the upper right hand corner of the Matrix view. It is grayed out unless the user has Administrative rights.

The same restrictions on editing a configuration exist just as if the configuration were being edited in graphic mode. It is the responsibility of the Administrative user to follow the following rules while in Editions mode:

- Do not modify the configuration name or dictionary of an existing ProTraq configuration.

- Do not modify the statistical session storage, statistical session name, statistical duration, column content (except for the column filter), column order, or columns (add or delete) if the ProTraq configuration is currently associated.
- Do not modify the keywords of the .fse file.

The following is an example of a configuration in fse file format:

```
SECTION:MAIN
# ProTraq
# Copyright (c) 1998-2004 Steleus S.A.
# DPIMobileActivity, generated Mon Nov 08 14:50:37 CET 2010
# MobileActivityDPI
VERSION:600
DLL:FSEQOS
MODE:AFTER
DESTINATION::DPIMobileActivity
ALARMPERIOD:30
ALARMSEVER::0
STATPERIOD:60:6048000
COMMENT:MobileActivityDPI
POINTCODEFORMAT:0:0:8:8:8:0
INSTANCE:
INSTANCEOID:

SECTION:COLUMN:0:FIELD:On APN
NAME:APN
TOPFIELD:2

SECTION:COLUMN:1:CUMULATIVE:Packet uplink
NAME:UP
FIELD:UplinkPackets
SCALE:1
FILTER:0

SECTION:LINE:0:TOP:30:0:3
NAME:Service
CRITERIA:Application:1000:99000
ORDER:7:1
FILTER:0
```

Filtering the configuration and session listings

To filter the information that displays in the Configuration and Session listings, follow these steps:

Note: In DIH, ProTraq has the capability to filter and display either IPv4 or IPv6 formats for xDR sessions.

- IPv4 is displayed as four group decimal format separated by periods (.) -- xxx.xxx.xxx.xxx
- IPv6 is displayed as eight group hexadecimal format separated by colons (:) --
xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx

Note: No other abbreviations for IPv6 format are supported in this release.

1. Highlight the configuration from the listing and select the **Filter** icon.
2. Select a filter from the drop down list or build a new filter by entering the following information:

Filter Name	The name of the filter
-------------	------------------------

Description	A description of the filter characteristics
-------------	---

3. Select the **Add** button to add a filter condition. Filter conditions are lettered in capitals. For example, the first one is A, second is B, and the third one is C.
4. Select a field from the drop down listing.

Note: When you select a field, the field description is available by clicking on the question mark next to the field name.

5. Enter an operator. Valid operators are:

<>	Not equal to
<=	Less than or equal to
>=	Greater than or equal to
>	Greater than
=	Equal to
<	Less than

6. Enter a value for the filter or select one from the drop down list.
7. To add an additional characteristic, determine the operator (And/Or). Select whether the expression should be enclosed in brackets and select the **Add** button.
8. When you have finished adding filter conditions, select **Save** to save the filter conditions in the All Records drop down list.
9. When the filter saves, select **Apply**. The filter is applied to the listing and the list refreshes.

Importing and exporting files

ProTraq enables you to import pre-defined ProTraq configuration files. It also allows you to export the ProTraq configuration or dependent objects to a file.

Importing a file into ProTraq

Complete the following steps to import a ProTraq Configuration file:

Note: In DIH, ProTraq has the capability to import and display either IPv4 or IPv6 formats.

- IPv4 is displayed as four group decimal format separated by periods (.) -- xxx.xxx.xxx.xxx
- IPv6 is displayed as eight group hexadecimal format separated by colons (:) --
xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx

Note: No other abbreviations for IPv6 format are supported in this release.

1. From the *Main page*, select **File > Import**.

The Import ProTraq Configuration screen opens.

2. Click the Browse button to search for the **File Name** of the file to import.

3. Enter the protocol name using one of the following methods:
 - Type in any protocol name sequence. ProTraq filters the appropriate entries as you type.
 - Select a protocol using the **Select Protocol from** button. Select the protocol from either the Sessions tab (which specifies the protocol associated with the session) or the Protocol tab (which specifies an individual protocol). When the protocol is selected, click the **Done** button.
4. After selecting the protocol, click the **Next** button.
5. Select the **Is Password Encrypted?** checkbox if working with a password encrypted file. Type in the **Password**, if appropriate.
6. Select **Windows Configuration**.
7. Select the Import button to complete the process. The configuration is imported and appears in the ProTraq configuration screen.

Exporting a ProTraq configuration

Follow these steps to export a ProTraq configuration.

1. Highlight the configuration and select the **Export ProTraq Configuration** icon.
2. Select to save the file or open it in a program of your choice.
3. The ProTraq configuration opens or saves in .fse format.

Exporting dependent objects

ProTraq allows you to export the following dependent objects into a .csv format:

- ProAlarm Map -- uses configuration alarms
- Historical Scenarios -- uses configurations
- ProPerf Dashboards -- uses configuration statistic lines
- Scheduler information

Follow these steps to export dependent objects:

1. Highlight the configuration and select the **Export Dependent Objects** icon.
2. Select to save the file or open it in a program of your choice.
3. The dependent object listing opens or saves in .csv format.

Working with ProTraq Results

Topics:

- *Overview.....52*
- *Principle.....52*
- *Statistics.....52*
- *Alarms.....53*
- *Using the Historical ProTraq application for KPI calculation on historical XDRs.....53*
- *Turning on troubleshooting drilldown for xDR sessions.....57*

Overview

This chapter provides a brief overview of the principles used and statistics created by ProTraq. It also provides information on using the Historical ProTraq application, which allows you to calculate new KPIs on historical xDRs in order to recognize operational trends.

Principle

The Data Server or IXP subsystem produces statistics and alarms based on the KPIs defined in ProTraq configurations.

The statistics are given in the form of either an IXP session or a Data Server session. The alarms appear in the ProAlarm viewer.

Statistics

The statistics session conforms to the start and end times defined during the creation of a ProTraq configuration. Each time a statistics period ends, a set of records is written to the session. Each filter generates a record where **N lines** are generated for each top selection (where **N** is the number of results retained in the final classification). Each counter produces one column (record field). A record contains the counters corresponding to one filter in one statistics time period plus this information:

- the end time of the period
- the real period duration (it can be less than the defined statistics time period)
- a sample rate, which is more than one if the Tool was working in degraded mode (due to processing overhead)
- the main filter name (if one has been defined)
- the filter name (or a compound filter name with the field values, for the top selection lines)

Here is an example of the information included in a record. Assume the configuration contains the following:

- 3 filters - "Not answered calls" (selecting the unanswered calls), "Busy calls" (selecting the busy calls), and a top selection "Cause family" dispatching the calls according to their cause family value (other than unanswered and busy)
- 3 counters for the total number of calls - incoming calls, outgoing calls, and a field for the cause family name.
- 1 field holding the cause family field

From this configuration, the statistics are created and display.

The screenshot displays two tables from the ProTraq application. The top table is a list of call records with columns: Rec No, Period start, Duration, Sample, Cause, and Line. The bottom table is a summary table with columns: Total calls, Incoming calls, Outgoing calls, and Cause family name.

Rec No	Period start	Duration	Sample	Cause	Line
1	30/03/2005 12:53:00	12	1	-	Not answered calls 32
2	30/03/2005 12:53:00	12	1	-	Busy calls 4
3	30/03/2005 12:53:00	12	1	-	Cause family 1 33
4	30/03/2005 12:53:00	12	1	-	Cause family 2 31
5	30/03/2005 12:53:00	12	1	-	Cause family 3 32
6	30/03/2005 12:53:00	12	1	-	Cause family 4 32
7	30/03/2005 12:53:00	12	1	-	Cause family 5 28
8	30/03/2005 12:53:00	12	1	-	Cause family 6 27
9	30/03/2005 12:53:00	12	1	-	Cause family 7 31
10	30/03/2005 12:53:00	12	1	-	Cause family 8 24
11	30/03/2005 12:53:00	12	1	-	Cause family 9 30
12	30/03/2005 12:53:00	12	1	-	Cause family 10 25
13	30/03/2005 12:53:00	30	1	-	Not answered calls 48
14	30/03/2005 12:53:00	30	1	-	Busy calls 10
15	30/03/2005 12:53:00	30	1	-	Cause family 1 76
16	30/03/2005 12:53:00	30	1	-	Cause family 2 68
17	30/03/2005 12:53:00	30	1	-	Cause family 3 73
18	30/03/2005 12:53:00	30	1	-	Cause family 4 74
19	30/03/2005 12:53:00	30	1	-	Cause family 5 74
20	30/03/2005 12:53:00	30	1	-	Cause family 6 73

Total calls	Incoming calls	Outgoing calls	Cause family name
202	74	128	SSS hand specific line interm...
4	0	0	CGI circuit group congestion
33	14	8	FL SDN call failure
31	13	6	Other
32	13	13	HE hang up during establishment
32	13	9	SSB subscriber busy
28	12	4	ACB access barred
27	11	9	UNN unallocated number
31	10	6	CFI call failure
24	10	5	NA no answer
30	10	7	LOS line out of service
25	10	6	Normal clearing
488	187	172	CFI call failure
16	6	9	CGI circuit group congestion
76	30	23	NA no answer
69	29	20	SSB subscriber busy
72	28	27	SRB radiated trunk traffic
74	25	24	Other
74	25	25	CGI circuit group congestion
73	24	22	Normal clearing

You must first log into the Network Software Platform (NSP) that uses the ANSI-ISUP protocol. To log into NSP navigate to NSP using your Web browser, and then log in using your NSP userid and password.

Alarms

Alarm events are sent to the management platform through the agent. Each time an alarm period ends, captured events can be sent to the management platform. Each event is attached to one statistic counter.

An event can be:

- a major alarm due to a counter overflow (or underflow), in comparison with a high threshold, that appeared in the current alarm period
- a minor alarm due to a counter overflow (or underflow), in comparison with a low threshold, that appeared in the current alarm period
- a clearing of an alarm because all overflow or underflow conditions disappeared in the current alarm period

The following information is also transmitted with each event:

- session name, line number and reference, column number
- event severity (major, minor, clear)
- threshold value, counter value

Using the Historical ProTraq application for KPI calculation on historical XDRs

Calculating new Key Performance Indicators (KPIs) on historical xDRs allows you to recognize abnormal traffic conditions through the generated alarms. ProTraq's ability to calculate and store xDRs while the system is in operation provides you with an advantage in recognizing trends.

Access to these stored xDRs is available by using the **Historical ProTraq** application. This application is available in the Configuration section on the main PIC application listing screen.

The ability to calculate KPIs on historically stored xDRs can be used in the following scenarios:

- Historically stored xDRs can help troubleshoot in order to fine-tune the KPI calculation. For instance, if there is a failure in the network but none of the KPIs generated an alarm, you can replay the xDRs around the failure time and update the existing KPI (or create a new one). In this scenario, the same failure will now produce an alarm.
- If the KPIs for a period of time are missing or are partial, you can recalculate the missing KPIs.
- For older KPIs, it may be necessary to reduce the granularity, which can be scheduled to occur automatically. For example, each day you can aggregate the KPIs that are one week old to change the granularity from 5 min to 1 hour.

Note: Since calculation of partial KPIs is not available, ProTraq suspends the calculation of KPIs if one of the sources becomes inactive. To ensure accurate reporting, all input streams should be set to Critical and be active and on-time.

Perform the following steps to calculate new KPIs on historical xDRs:

1. Select **Historical ProTraq** from the main PIC application listing screen. Historical ProTraq is listed under Configuration applications.

The Historical ProTraq application opens.

2. Select the **Add Record** icon.

The Historical KPI parameters screen opens.

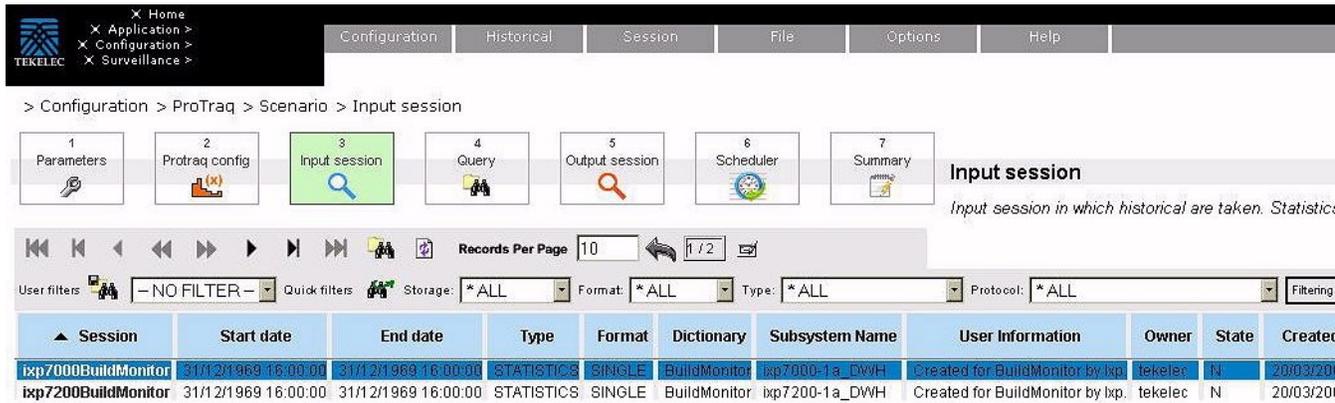
3. Enter a scenario name and select whether you want ProTraq to purge the selected period before generating new KPIs.
4. Select **Next**.

The Historical KPI Protraq config screen opens.



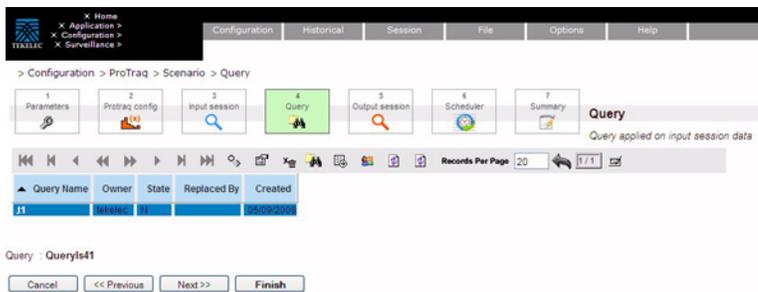
5. Select the configuration to use from the list.
6. Select Next.

The Historical KPI Input screen opens.



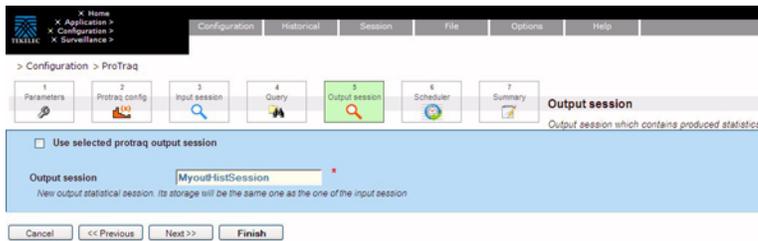
7. Select the input session to use from the list.
8. Select Next.

The Historical KPI Query screen opens.



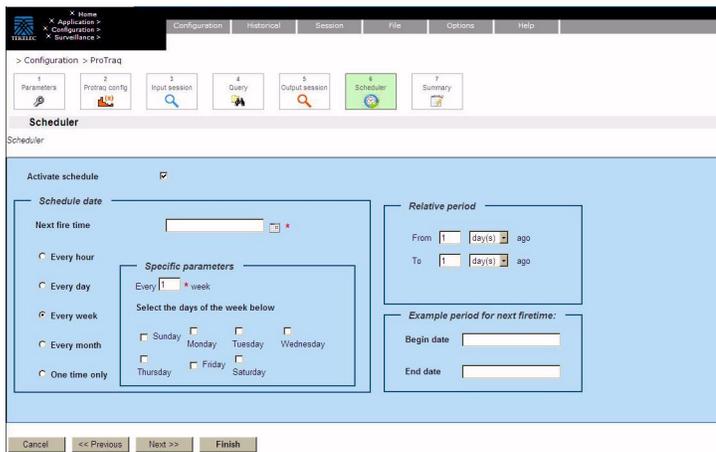
9. Select the query to use from the list.
10. Select Next.

The Historical KPI Output session screen opens.



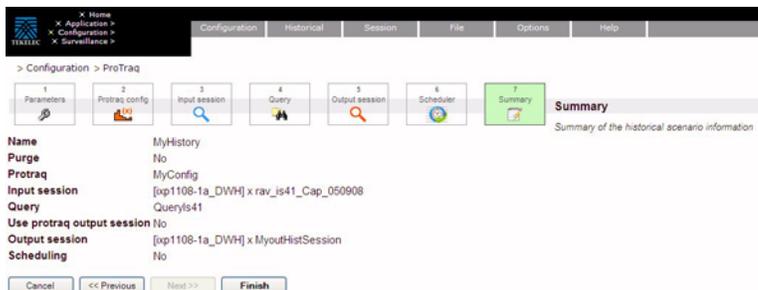
11. Enter a name for the output session or select to use an existing output session.
12. Select Next.

The Historical KPI Scheduler screen opens.



13. Select to activate the schedule using the checkbox. Fill in the appropriate schedule information.
14. Select Next.

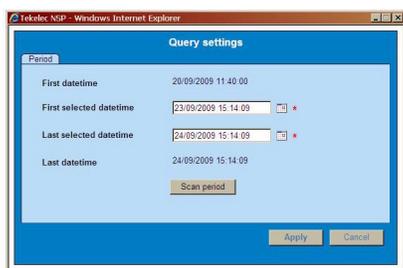
The Historical KPI Summary screen opens.



15. Check to confirm that all the information for the scenario are correct.
16. Select **Finish**.

ProTraq saves the scenario and returns you to the Scenario screen.

17. To run the KPI calculations on historical xDRs, highlight the scenario and select the **Run** icon.
The Query Settings window opens and allows you to select the First selected date and time, and Second selected date and time for the scenario.



18. After choosing the First and Second date and time, select **Apply** to run the scenario.

While the scenario is running, you can get updated processing information by hovering your mouse over the Status section (which shows Begin date and End date) and the Current Progress section (which shows the percentage of the scenario processed, the number of xDRs processed and the number of KPIs processed).

Note: It is important to take note of privacy settings related to historical scenarios. To allow other users to view a scenario, all four components (the scenario, the configuration, the input session and the output session) must be set with READ permission. To allow other users to edit or start/stop a scenario, all four components must be set with a WRITE/EXECUTE permission.

Note: If you have scheduled to run historical KPI information for 30 days, your session may experience a crash. If the procedure crashes, the session will not be recovered but will be finished with FAILED state. To recover a session from a failed state either rerun the same scenario with the purge parameter set to ON, which will delete already created KPIs, or check the ProTraq/ProScan timetag of the last created KPI and create a new scenario for the remaining period.

Turning on troubleshooting drilldown for xDR sessions

ProAlarm Viewer gives you the capability to use the troubleshooting drilldown functionality as an efficient means to diagnose an issue on a telecom network. Before using this functionality, you must activate it using ProTraq.

Note: In DIH, ProTraq has the capability to display either IPv4 or IPv6 formats.

- IPv4 is displayed as four group decimal format separated by periods (.) -- xxx.xxx.xxx.xxx
- IPv6 is displayed as eight group hexadecimal format separated by colons (:) -- xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx:xxxx

Note: No other abbreviations for IPv6 format are supported in this release.

With this functionality, starting from an alarm on a KPI threshold violation, the user will be able to:

- Drill down to the KPI trend on a chart
- Drill down to the list of KPIs

With this functionality, starting from KPIs sessions, the user will be able to:

- Drill down to the list of xDRs that were used to calculate that KPI, with the protocol decoding associated

Using this drilldown functionality allows the user to easily search the root causes of a failure without needing to know exactly where the problem occurred. Instead, it is possible to simply follow the drill down path from the alarm to the faulty xDRs and error root cause on the network.

Perform the following steps to turn on the troubleshooting drilldown function:

1. From the ProTraq Configuration screen, highlight the session for which you need to turn on drilldown..
2. Select the Show Details icon.

The bottom half of the screen shows the details for the xDR session.

3. Select Apply from that detailed section.

The troubleshooting drilldown functionality is now active for that xDR session, allowing you to use the drilldown function in ProAlarm Viewer or System Alarms.