Oracle® Communications Performance Intelligence Center

Data Feed Export User Guide

Release 9.0

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Oracle Communications Performance Intelligence Center Data Feed Export User Guide, Release 9.0

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Topics:

Scope and Audience

This guide is designed to assist the users with the role designations NSPBusinessUser, NSPBusinessPowerUser and NSPBusinessManager in working with the Data Feed Export application. Beginners and experienced users alike should find the information they need to cover important activities required for working with this application.

About the Performance Intelligence Center

The Performance Intelligence Center (PIC) is a monitoring and data gathering system that provides network performance, service quality and customer experience - across various networks, technologies, protocols, etc. Beyond monitoring performance and gathering data, the solution also provides analytics, actionable intelligence and potentially an intelligent feedback mechanism. It allows Service Providers to simultaneously look across the Data Link, Network, Transport and Application layer traffic to better correlate and identify the impact of network problems on revenue generating applications and services.

PIC functionality is based on the following general flow. The Integrated Message Feeder (IMF) is used to capture SS7 and SigTran traffic. The Probed Message Feeder (PMF) is used to capture both SS7 and IP traffic. Both products forward Probe Data Units (PDUs) to the Integrated xDR Platform (IXP). The IXP stores this traffic data and correlates the data into detailed records (CDRs, IPDRs, TDRs, etc.). The IXP then stores the data on the system for future analysis. The Network Software Platform (NSP) provides applications that mine the detailed records to provide value-added services such as network performance analysis, call tracing and reporting.

PIC centralized configuration tasks fall into one of two categories:

- Data Acquisition and Processing - the configuration of the probes, routing of PDUs to the xDR builder setup, KPI generation, data feeds, etc.
- PIC System Administration - the configuration of monitoring sites, configuring PIC servers, setting up permissions, etc.

Note: For more information see Centralized Configuration Manager Administration Guide. This is a graphic overview of the PIC system.

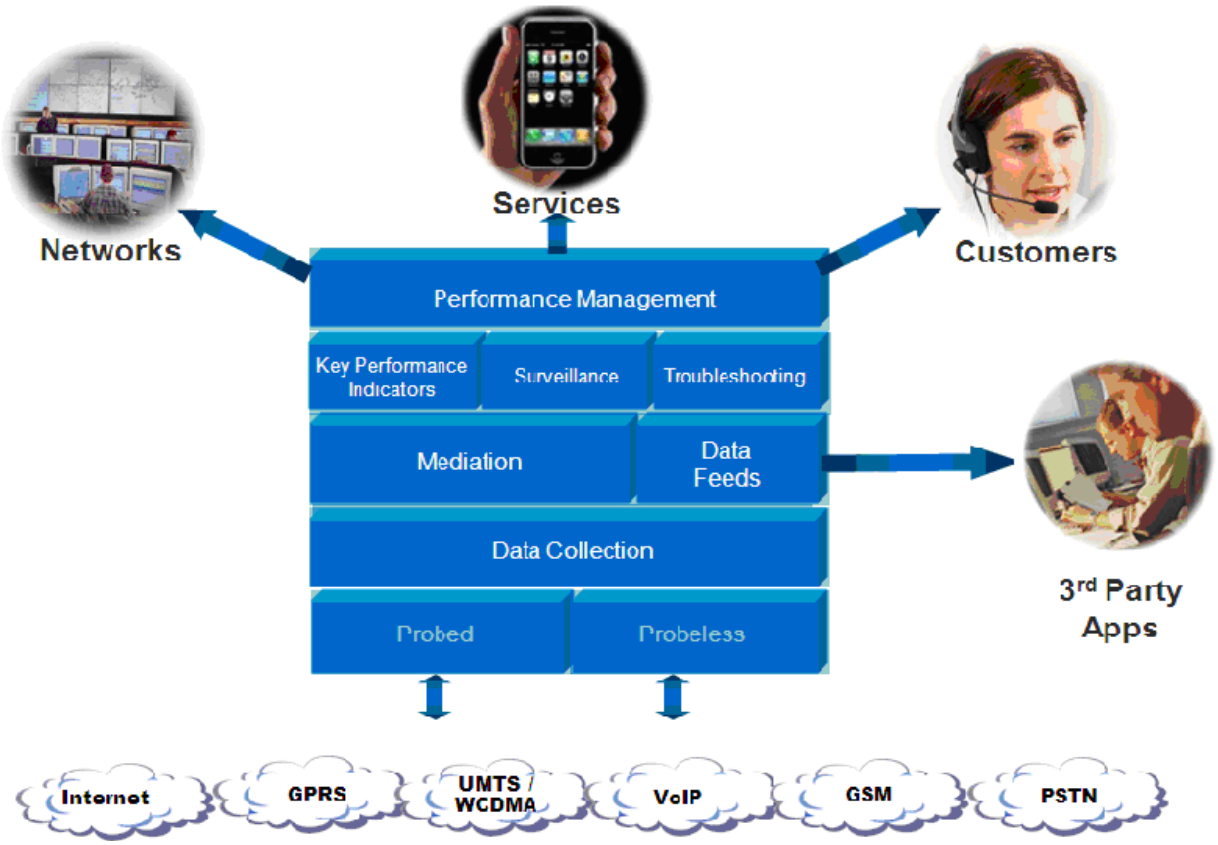


Figure 1: PIC Overview

User Preferences

All applications that query 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.

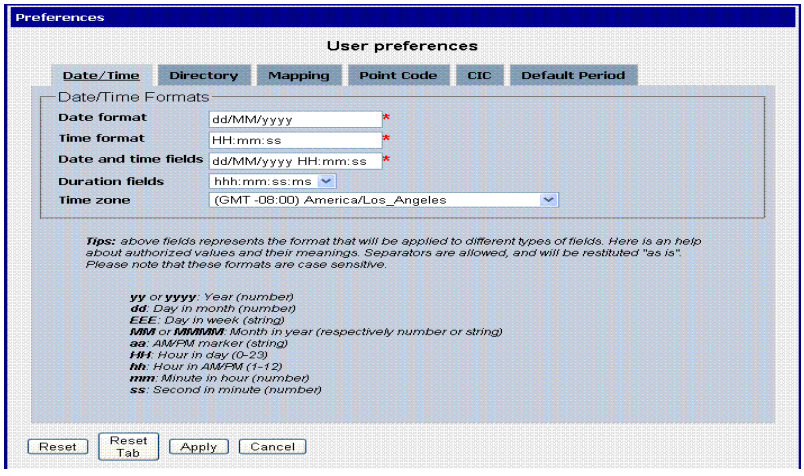


Figure 2: Date/Time Tab Screen

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.
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.

Table 1: Time Tab

Directory tab

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

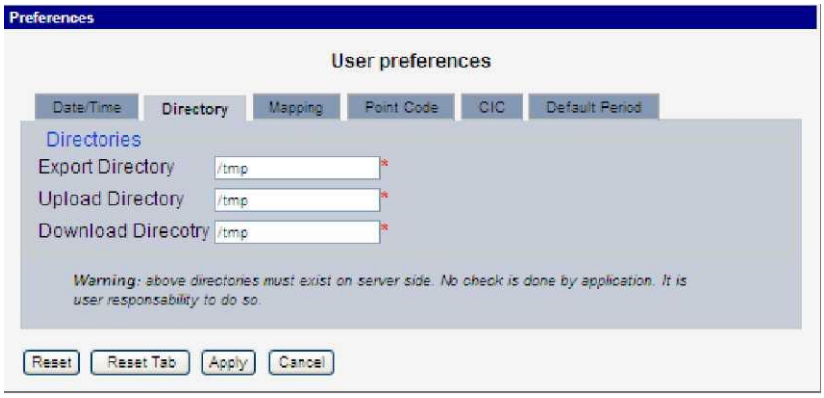


Figure 3: Directory Tab Screen

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.

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.

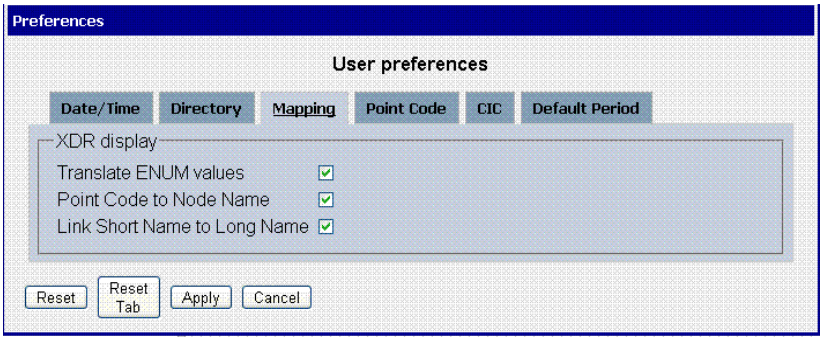


Figure 4: Mapping Tab Screen

Point Code tab

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

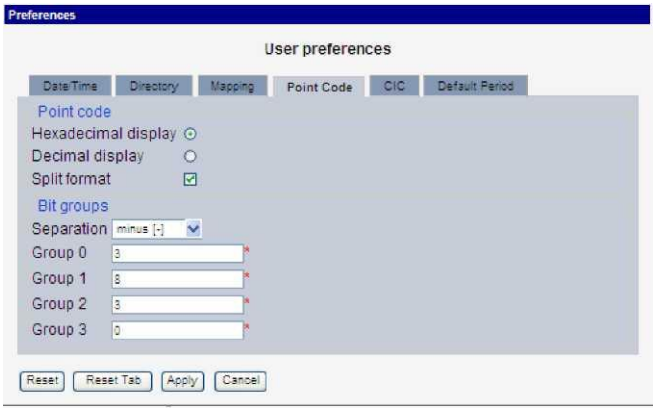


Figure 5: Point Code Tab Screen

Note: if Session Point Code feature is enabled the Point Code tab will look like

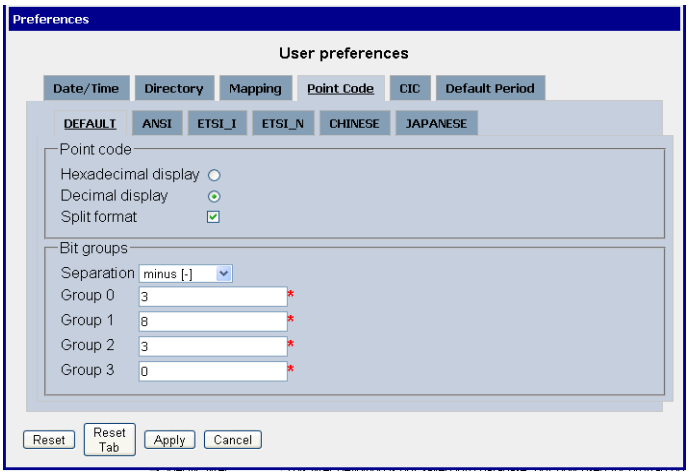


Figure 6: Point Code Tab with Session Point Code Enabled

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, and 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.

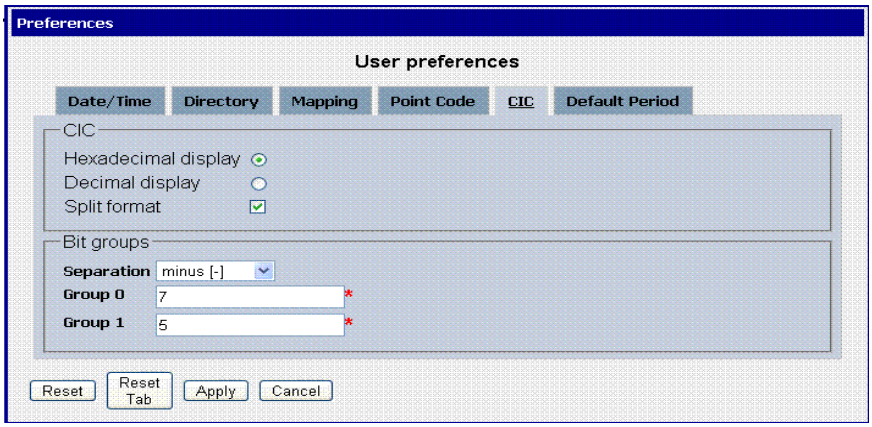


Figure 7: Formatting Rules (CIC) Screen

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.
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.

Table 5: CIC Tab Field Descriptions

Default Period tab

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

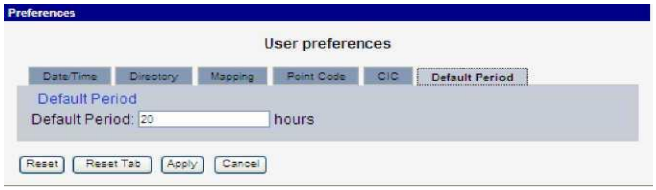


Figure 8: Default Period Tab Screen (ProTrace only)

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.

Table 6: Default Period Tab Field Descriptions

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:
  800-891-4341 (toll-free)
  TAC Regional Support Office Hours:
  8:30 a.m. through 6:30 p.m. (GMT minus 3 hours), Monday through Friday, excluding holidays

- **Chile**
  Phone:
  1230-020-555-5468

- **Colombia**
  Phone:
  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

PIC Documentation Library

PIC 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 PIC documentation library of user guides.

- Security User Guide
- Alarms User Guide
- ProAlarm Viewer User Guide

- ProAlarm Configuration User Guide
- Centralized Configuration Manager Administration Guide
- Customer Care User Guide
- Alarm Forwarding Administration Guide
- Diagnostic Utility Administration Guide
- ProTraq User Guide
- ProPerf User Guide
- ProPerf Configuration User Guide
- System Alarms User Guide
- ProTrace User Guide
- Data Feed Export User Guide
- Audit Viewer Administration Guide
- ProDiag User Guide
- SigTran ProDiag User Guide
- Report Server Platform User Guide
- Reference Data User Guide
- Exported Files User Guide
- Scheduler User Guide
- Quick Start User Guide

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".**

Chapter 2: Introduction to DataFeed

Topics:

About Data Feed Export

The Data Feeds feature consists of two basic components.

- The configuration application that is part of the NSP toolkit that stores the feeds in the NSP Oracle database and is replicated into the primary IXP IDB tables.
- The working process Data Export that runs on IXP which reads the configuration and creates a feed thread that reads, (and stores), the data from the source xDR/KPI session or sessions located on a selected IXP server.

You use the DataFeed Object Tree located on the left side of the screen to navigate through the objects that are part of the IAS system and perform the required operation using the context menu associated with the object.

Getting Started

The Data Feed application resides on the Network Software Platform (NSP) server. You must first log into NSP before you can open Data Feed.

Note: Only the NSPConfigManager can have access to the Data Feed Export application.

Logging in to NSP

Complete these steps to log into NSP.

1. Using a Web browser, type the following URL:

   http://nspserver_IPAddress/nsp

2. To log into **NSP,** enter the following

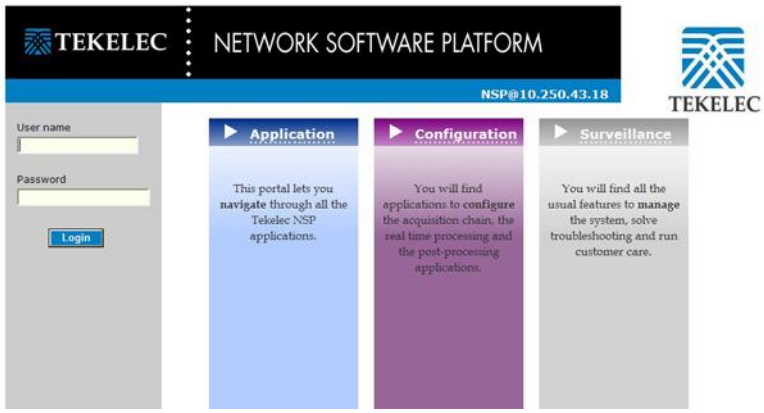


Figure 9: NSP Portal Login Screen

Note: Contact your system administrator to find out the IP address for the NSP portal.

a) **Your Userid**
b) **Your Password**

Note: You must have a username and password assigned to you by your system administrator. The

NSP Application Board opens, presenting the three application boards:

- Application boards
- Configuration boards
- Surveillance board

Opening Data Feed Export

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.

To open DataFeed, complete these steps:

From the NSP *Application Board* , in the Configuration screen segment, click the **DataFeed** icon.

The About *DataFeed* screen opens.

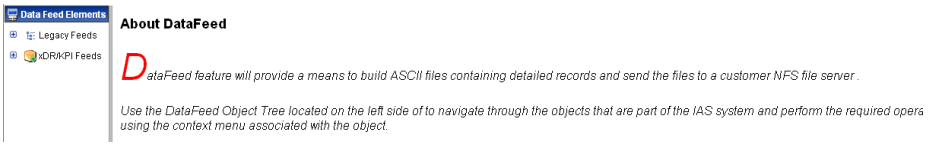


Figure 10: About DataFeed Screen

The *About DataFeed* screen is divided into two main sections:

a) Object Tree

The Object Tree is located on the left-hand side of the screen. It initially contains the two DataFeed Elements (Legacy Feeds and xDR/KPI Feeds). To open the elements, right-click the box (containing the "+" sign) besides the intended DataFeeds heading to drill down to the most detailed element options.

The three elements of DataFeed include:

- Legacy Feeds - This for feeds from previous versions that contains:
  - Fixed Format xDRs (that replaces Detailed Records in previous releases and opens the configuration wizard for xDR feeds)
  - Usage Measurements (for KPI configuration wizard)

  Note: Legacy Feeds is only visible if there are Feeds from a previous release and the option has been activated. Contact Tekelec representative for more information.
- xDR/KPI Feeds - Opens the xDR/KPI export configuration wizard

b) Page body

The Page body is located on the right-hand side of the screen and initially provides a synopsis of the DataFeed application. As you work your way through the different elements of DataFeed, the Page body provides wizard specific to each type of feed.

Understanding the DataFeed Screen

This section provides a brief overview of the screens for the Data Feed Export application.

Main Screen Features

This section discusses the main features on the *Data Feed Export* screen. Each configuration parameter is discussed in its own section. The main screen features include:

- Login/Logout - shows current user.
- Screen Menu Bar - shows pull-down menus for Sessions, Applications, Platform and Help.
- Object tree - selecting one of the elements on the left-hand section opens the appropriate screen.
- Directory Path (Railway) - enables you to see where you are located in the application site map. To open a page on the railway, just click on the part of the railway you want to view.
- Tool bar functions - enables you to perform various procedures (modify, add, delete, etc.).
- Right-click menu - using the right-click feature on an object icon opens a menu that has the following options:
  - Add - enables you to add a new feed record
  - List - list all the sessions in table format
  - Refresh - refreshes the screen to show any recent changes

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.

List Toolbar and Pop-up Menu Functions

The list page and pop-up menu have similar toolbar functionality. The functionality is divided into two sections:

- Select fields - enable you to perform operations on multiple records
- Buttons - provide a means of performing the same operations listed on the pop-up menu
- Column functions - enable you to sort records (ascending/descending) or show/hide columns

Buttons

Buttons are located either on a List page toolbar (from left to right), actions column or on the pop-up menu. They are:

	**First page - enables you to move to the first record on the first page**
	**Next record - enables you to move to the next record**
	**Previous record - enables you to move to the previous record**

	**Last page - enables you to move to the first record on the last page**
	**Add - enables you to add a record**
	**Modify - enables you to modify the selected record**
	**Delete - enables you to delete the selected record**
	**Refresh - refreshes t he screen on the List page**

Show statistics enables you to show the statistics on a data feed record

Note: If a button on the screen is grayed out it means that the button will not function until the certain requirements have been met. For example, when creating a xDR/KPI session the Next button in the General screen will be grayed out until a Name has been entered. The same rule holds for previous button and other navigation buttons.

Column Functions

These are descriptions of the icons present in the column headings.

	Record select - enables you to select a specific record(s)
	Display/remove columns - enables you to select what column headings are visible
	Ascending order - enables you to view record names from A-Z
	Descending order - enables you to view record names from Z-A
	Refresh - enables you to refresh the page to view any changes

User Preferences

All applications that query 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.

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.
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.

Table 7: Time Tab Screen

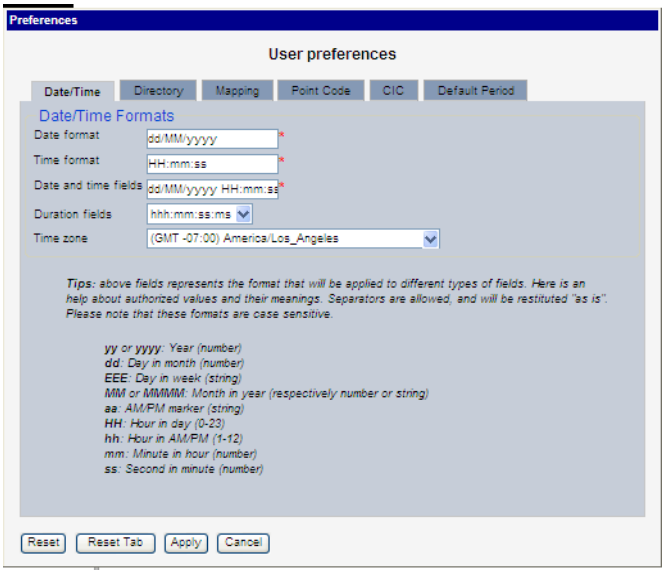


Figure 11: Date/ Time Tab Screen

Directory tab

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

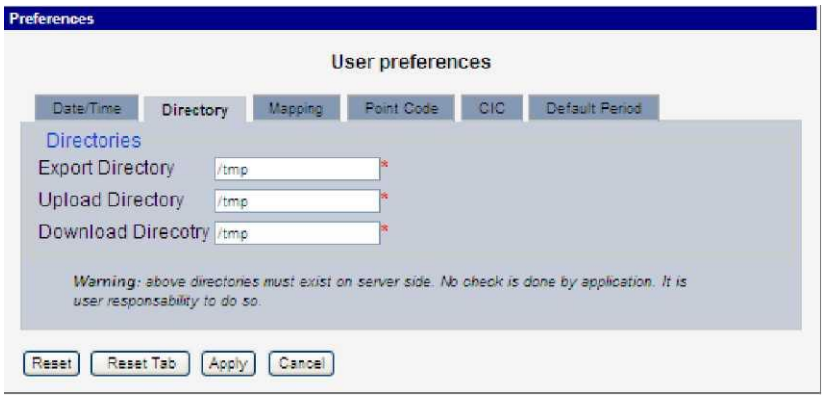


Figure 12: Directory Tab Screen

Table 8: 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.

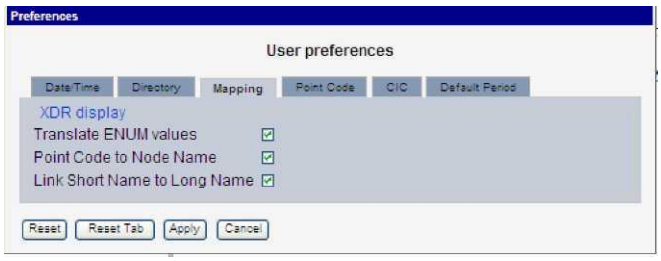


Figure 13: Mapping Tab Screen

Table 9: 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

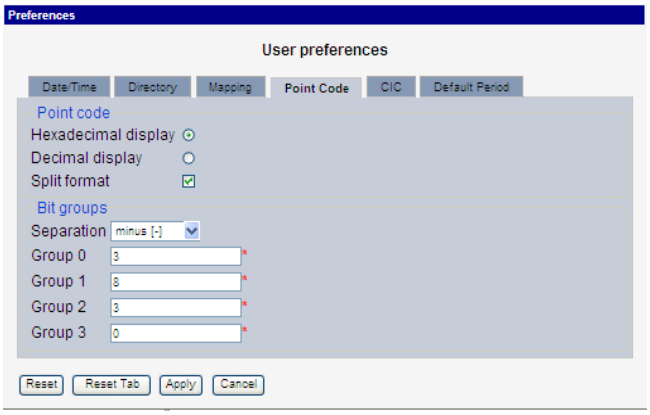


Figure 14: Point Code Tab Screen

Note: if Session Point Code feature is enabled the Point Code tab will look like

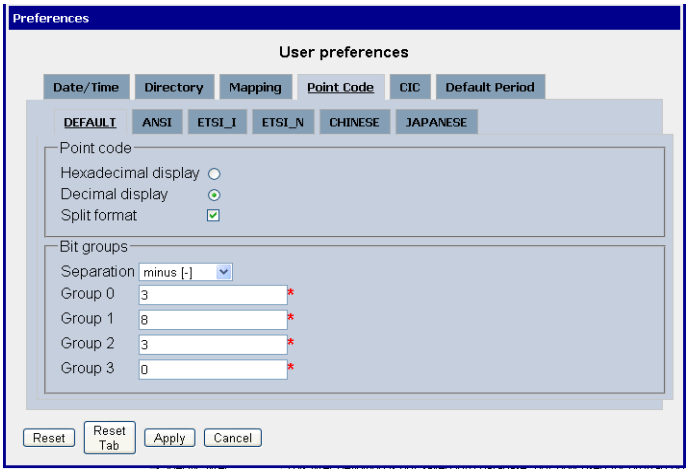


Figure 15: Point Code Tab with Session Point Code Enabled

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

Table 10: 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.

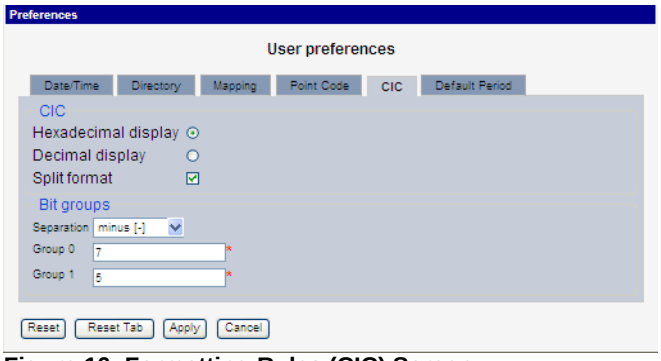


Figure 16: Formatting Rules (CIC) Screen

Table 11: 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.
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.

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

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

Table 12: 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.

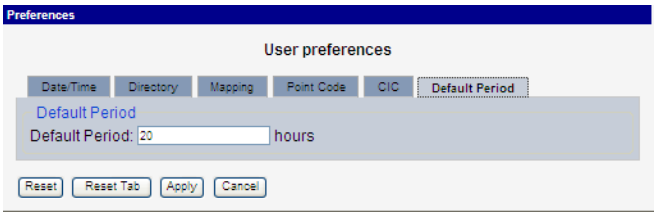


Figure 17: Default Period Tab Screen (ProTrace only)

Chapter 3: Exporting xDR/KPI Feeds

Topics:

About xDR/KPI Feeds

xDR/KPI feeds allow xDRs or KPIs to be exported at scheduled intervals from different IXP subsystems to an Export Server that gathers and stores them in CSV or TXT format for later retrieval.

Note: Export Server is a server provided by Tekelec. If you do not choose to use Tekelec provided server, then you must provide a server and use a name other than Export server (for example, Depository server).

The overall export process runs in the following order:

1. IXP extracts the xDRs or KPIs, and sends them to an export server.
2. The server stores the files on predefined folders and assures a circular update (elimination of older files to maintain the chosen retention time).
3. Files on the server are in CSV (comma separated) or TXT (tabulation or semi-colon separated) format and can be compressed using a *.gzip* format
4. External application servers pull the files from the server through FTP/SFTP protocol
5. The Export Server features backup/restore of exported data on embedded mass storage devices.
6. A data feed application wizard assures the administration and configuration of the xDR export.

Creating an xDR/KPI Feed Session Record

Complete these steps to create an xDR/KPI feed session record.

1. In the Home page select **xDR/KPI Feeds** from the

Object Tree. The xDR/KPI List screen opens.

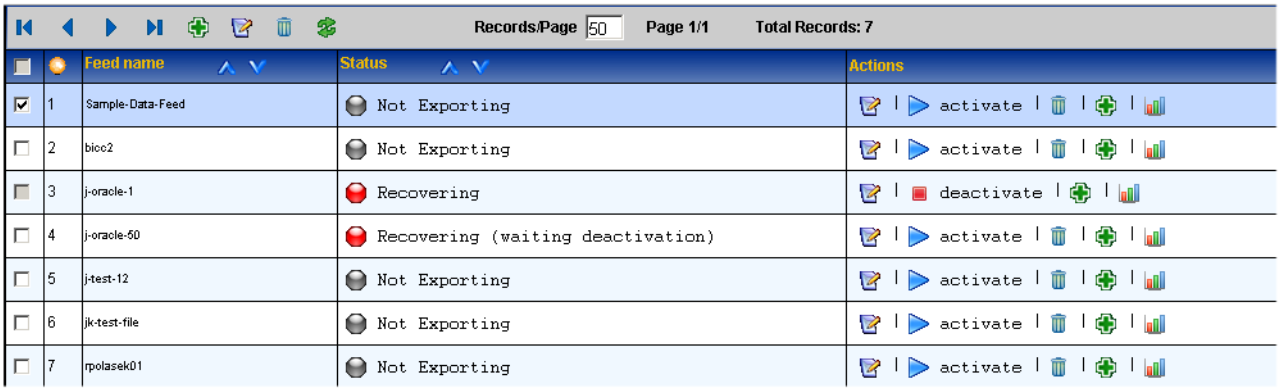


Figure 18: XDR/KPI List Screen

Screen

Table 13: List Screen Field Definitions

Field/Element	Description
First record	Clicking on this icon takes you to the first filter in the list.
Previous record	Clicking on this icon takes you to the previous filter in the list .
Next record	Clicking on this icon takes you to the next filter .
Last record	Clicking on this icon takes to the last filter record on the list .
Add record	Clicking on this icon opens the add filter screen.
Modify record	Selecting a record and clicking modify enables you to modify a data feed export record.
Delete record	Selecting a record(s) and clicking this icon deletes the filter(s)
Refresh	Clicking on this icon refreshes the screen to show any changes that have occurred.
Records/page	Shows the number of records listed on a screen.
Page	Shows the record number and page number (useful in very long lists).
Total Records	Shows the total number of existing records
Selection box	Enables you to select that record and provides a way to select multiple records in performing a function
Display/remove column	Enables you to display or remove specific columns from the screen
Feed Name	Shows the name of the data feed export record
Sort arrows	Enables you to sort the filters in ascending or descending order.
Status	Shows the status of the record. (Exporting, Not Exporting, Unknown)
Actions	Shows what actions you can perform on the filter (modify, activate, deactivate, delete, copy or show statistics).

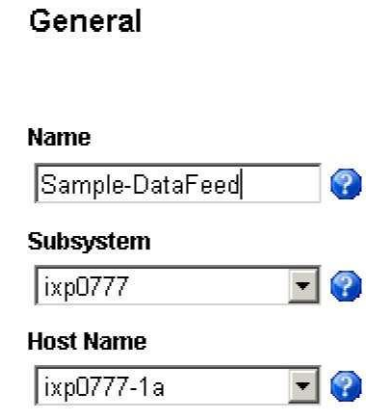


Figure 19: Create XDR/KPI Feed

2. Click **Add** from the List screen tool bar. The

Create xDR/KPI *Feed* page opens

3. Enter the **name** of the feed in the

Name field. **Note:** The feed name

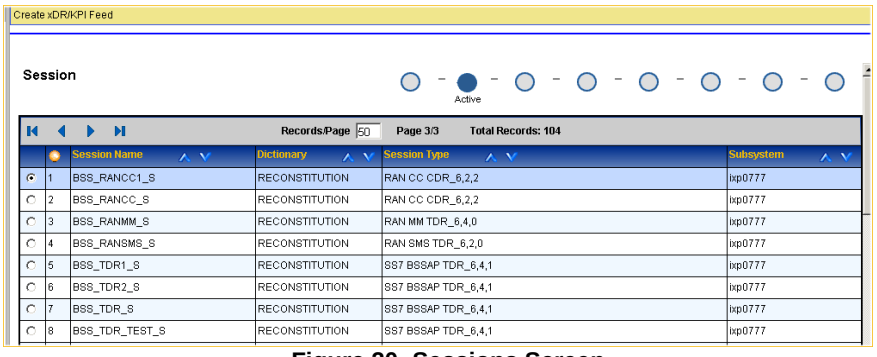
should be unique.

4. Select the **IXP subsystem** from the drop-down list.

5. Select the **Host Name** from the drop-down list.

Note: The host name should be allocated according to load sharing rules and it is strongly recommended NOT to use the storage server for data feed exports. Please contact your Tekelec representative for details on load sharing and using servers during data export.

6. Click **Next** to open the *Sessions* screen shown and described in the figure and table.



	Session Name	Dictionary	Session Type	Subsystem
1	BSS_RANCC1_S	RECONSTITUTION	RAN CC CDR_6,2,2	ixp0777
2	BSS_RANCC_S	RECONSTITUTION	RAN CC CDR_6,2,2	ixp0777
3	BSS_RANMM_S	RECONSTITUTION	RAN MM TDR_6,4,0	ixp0777
4	BSS_RANSMS_S	RECONSTITUTION	RAN SMS TDR_6,2,0	ixp0777
5	BSS_TDR1_S	RECONSTITUTION	SS7 BSSAP TDR_6,4,1	ixp0777
6	BSS_TDR2_S	RECONSTITUTION	SS7 BSSAP TDR_6,4,1	ixp0777
7	BSS_TDR_S	RECONSTITUTION	SS7 BSSAP TDR_6,4,1	ixp0777
8	BSS_TDR_TEST_S	RECONSTITUTION	SS7 BSSAP TDR_6,4,1	ixp0777

Figure 20: Sessions Screen

Table 14: Sessions Screen Field Definitions

Field/Element	Description
First record	Clicking on this icon takes you to the first filter in the list.
Previous record	Clicking on this icon takes you to the previous session in the list .
Next record	Clicking on this icon takes you to the next session.
Last record	Clicking on this icon takes to the last session record on the list .
Selection box	Enables you to you to select a session for the data feed export. You can only select one session
Records/page	Shows the number of records listed on a screen.
Page	Shows the record number and page number (useful in very long lists).
Total Records	Shows the total number of existing records
Display/remove column	Enables you to display or remove specific columns from the screen.
Session Name	Shows the name of the session
Sort arrows	Enables you to sort any column in ascending or descending order.
Dictionary	Lists the name of the dictionary being used in the session
Session Type	Lists the type of session (reconstitution, statistical, capture).
Subsystem	Lists the subsystem where the session resides
Previous button	Takes you to the previous step in the setup sequence
Next button	Takes you to the next step in the setup sequence
Cancel button	Cancels the procedure
Finish button	Saves the data feed to the system (grayed out until the final step of the system).

7. Select the **Session** you want to use.
8. Click **Next** to open the Schedule screen, shown and described in the figure and table.

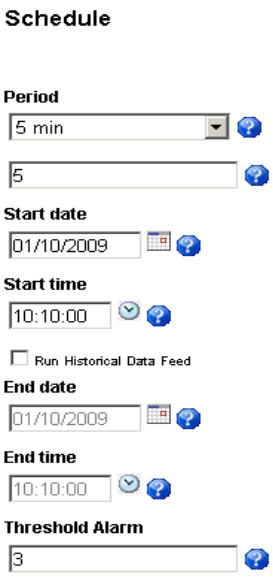


Figure 21: Schedule Screen

Field	Description
Period	Select the available period in the drop down list: 1 *min,* 5 min, 15 min, 30 min, 1 hour (default is 5 min). **Note:** If you want to enter a specific time period not in the drop-down field, you can use the bottom period field to enter the specific period.
Start Date	The starting edition from the current date
Start Time	The starting edition from the current time
Run Historical Data Feed	This option is for manually recovering data more than six hours before the current time (automatic recovery time). Or if you want limited data window for export. Selecting this option enables the End Date and End Time boxes.
End Date	The ending edition from the current date
End Time	The ending edition from the current time
Threshold Alarm	Type how many maximum periods you want the system to delay before raising the alarm.

Table 15: Schedule Screen

9. Click **Next.**

The Transport screen opens.

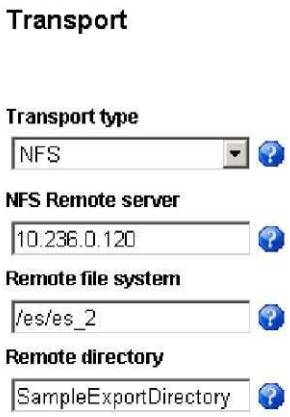


Figure 22: Transport Screen

10. Select if the transport will be **NFS or Oracle** and enter the appropriate information.

Note: This procedure (and all further information in this procedure) is showing a data feed with NFS used as a transport type.

Note: For detailed information on using NFS or Oracle transport parameters, see *Configuring NFS Transport* or *Configuring Oracle Transport Parameters*.

11. Click Next**.**

The Filter screen opens.

Note: In the Filter screen, you are prompted that a filter must be added. At this stage, you can either select an existing filter or add a filter.

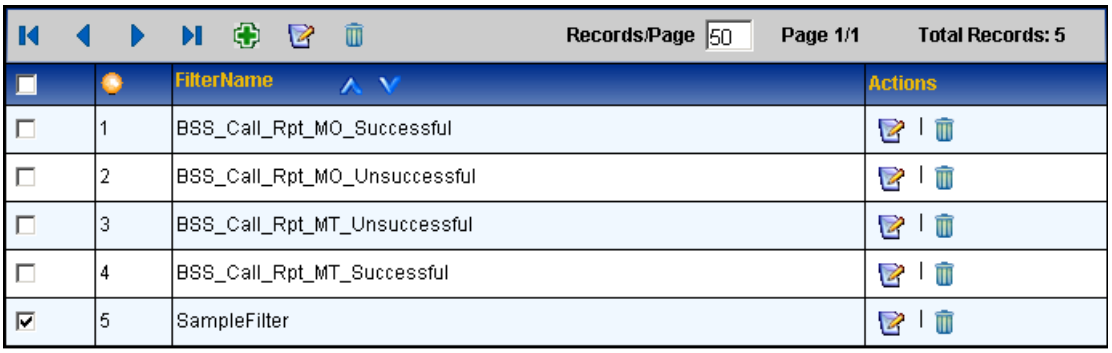


Figure 23: Filter Screen

Field/Element	Description
First record	Clicking on this icon takes you to the first filter in the list.
Previous record	Clicking on this icon takes you to the previous filter in the list).
Next record	Clicking on this icon takes you to the next filter.
Last record	Clicking on this icon takes to the last filter record on the list.
Add record	Clicking on this icon opens the add filter screen.
Modify record	Selecting a record and clicking modify enables you to modify the filter for the data feed export record.
Delete record	Selecting a filter(s) and clicking this icon deletes the filter(s)
Records/page	Shows the number of records listed on a screen.
Page	Shows the record number and page number (useful in very long lists).
Total Records	Shows the total number of existing records
Selection box	Enables you to select that record and provides a way to select multiple filters in performing a function
Display/remove column	Enables you to display or remove specific columns from the screen
Filter Name	Shows the name of the filter
Sort arrows	Enables you to sort any column in ascending or descending order.
Actions	Shows what actions you can perform on the filter (modify or delete).
Previous button	Takes you to the previous step in the setup sequence
Next button	Takes you to the next step in the setup sequence
Cancel button	Cancels the procedure
Finish button	Saves the data feed export to the system (grayed out until the final step).

Table 16: Filter Screen Field Definitions

12. Select a **Filter.**
13. Click **Next.**

    The Formatting rules screen appears.

14. Set the appropriate **Formatting rules.** For a complete description of setting format rules (see *Formatting an xDR/KPI Export*).
15. Click **Next.**

    The File format screen appears.

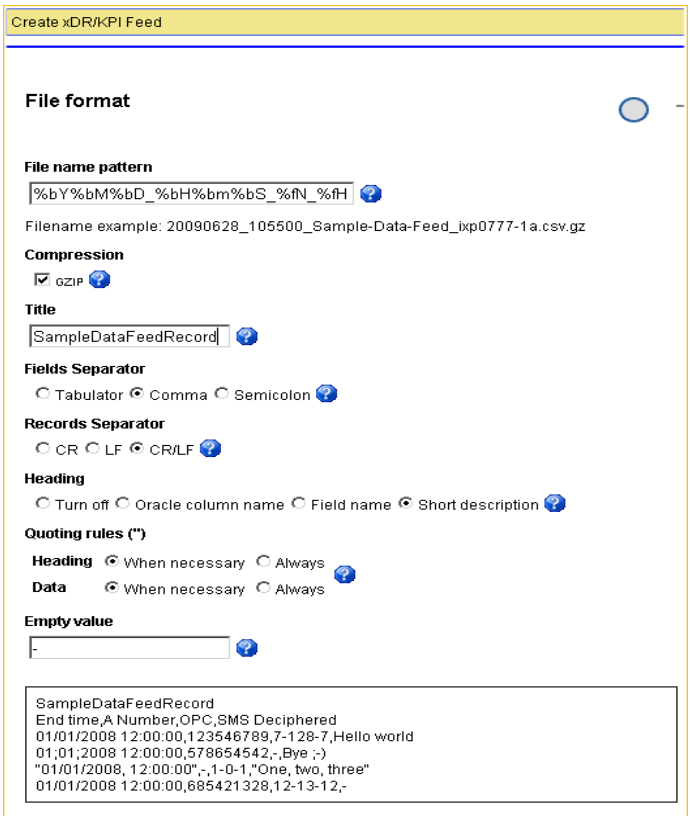


Figure 24: File Format Screen

Subheading	Field/Element	Description
File Name Pattern		Defines the name of the generated files. The pattern can include several variables that are filed in with actual values during the generation of the files. The values are: • %fN - Feed name • %fS - Session name • %fH - Host name • %bY - Beginning of the period - year (4 digits displayed) • %bM - Beginning of the period - month (2 digits displayed) • %bD - Beginning of the period - day (2 digits displayed) • %bH - Beginning of the period - hour (2 digits displayed) • %bm - Beginning of the period - minute (2 digits displayed)

		• %bS - Beginning of the period - second (2 digits displayed) • %eY - End of the period - year (4 digits displayed) • %eM - End of the period - month (2 digits displayed) • %eD - End of the period - day (2 digits displayed) • %eH - End of the period - hour (2 digits displayed) • %em - End of the period - minute (2 digits displayed) • %eS - End of the period - second (2 digits displayed) Note: The file name example (shown in the figure) is automatically generated from the data input.
Compression		Select if you want to compress the file into Linux-based compression file, extension for exported files is ".gzip"
Title		Enables you to specify the title. The default value is empty (no title).
File Comment (Optional)		Text field that provides a place to write a description about the file.
Field Separator		
	Tabulator	Select if you want the extension for exported files to be ".txt" if compression disabled
	Comma	Select if you want the extension for exported files to be ".csv" if compression disabled
	Semicolon	Select if you want the extension for exported files to be ".csv" if compression disabled
Records Separator		
	CR	Select if you want each record separated by a new line (MAC OS convention)
	LF	Select if you want each record separated by a new line (Linux/Unix convention)
	CR/LF	Select if you want each record separated by a new line (Microsoft Windows convention)
Heading		Enables you to select the rules of heading in the output files.
	Turn off	The output file will not contain the first line with the column headings
	DB column name	The names of the columns from the database schema on IXP session will be in the first row of the output files
	Dictionary Field Name	The names of the fields defined in the .a7d dictionary will be in the first row of the output files
	Dictionary Short Description	the short descriptions defined in the .a7d dictionary files are in the first row of the output files. The default value will be "short description."
Quoting rules		Enables you to define the rules of double quoting in the output files. There are two rules for the quoting for Heading and for Data.
	When necessary	The value is quoted only when the value contains the field separator or the quote
	Always	The value is always quoted
Empty value		Enables you to define the string value that is stored in the generated files when the data value is empty. The default value is:

		"-"
File Output Format		Provides an example of the format based on the entered rules.

Table 17: File Format Screen Field Definitions

Select or de-select if you want **file compression.**

16. Enter the **File Title.**

    The title shows up in the first line (File Name Pattern).

18. (Optional) Enter a **File comment.**
19. Select the **Fields Separator** you want to use.
20. Select the **Records Separator** to use.
21. Select the **Heading** format you want to use.
22. Select the **Quoting rules (")**.
23. Enter the type of **Empty**

    value you want to use.

    The default is a "-"

    An example of the readout is shown in the bottom field.

24. Click **Next** to see the summary screen or **Finish** to add the record.

Configuring NFS Transport

Complete these steps to configure NFS transport

parameters for a data feed.

1. In the Transport page select **NFS** from the Transport

type field.

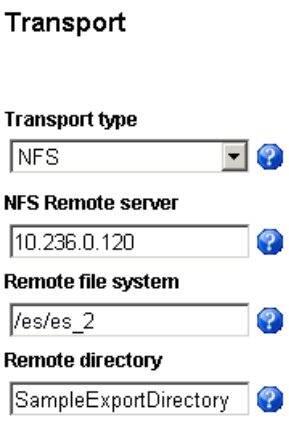


Figure 25: Transport Screen

2. Enter the **Remote server** of the NFS.
3. Enter the **Remote file system** that will be the destination for the feed.
4. Enter the **Remote directory** that will be the destination directory for the feed.
5. Click **Next** to move to the next wizard screen.

Field/Element	Description
Transport Type	A pull-down list the gives you the option of selecting either NFS or Oracle.
NFS Remote server	The IP address of the destination server for the data feed.
Remote file system	The directory path that serves as the destination for the data feed
Remote directory	The specific directory that will be the destination for the data feed.

Table 18: NFS Transport Field Definitions

Configuring Oracle Transport Parameters

Complete these steps to configure Oracle transport parameters for a data feed.

1. In the Transport screen, select **Oracle** from the pull-down list. The screen changes to show the Oracle transport parameters.

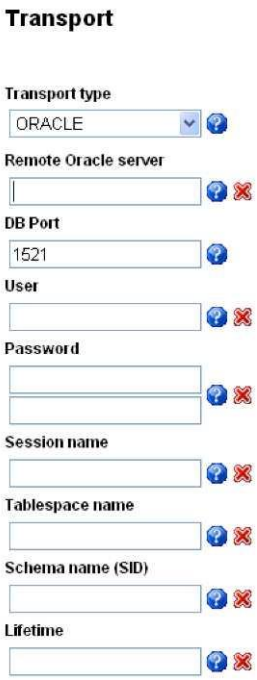


Figure 26: Oracle Transport Screen

Field/Element	Description
Transport Type	A pull-down list the gives you the option of selecting either NFS or Oracle.
Remote Oracle server	The IP address of the Oracle server that will serve as the destination server for the data feed.
DB Port	The database port for the server (Default Port Number is 1521)
User	User ID for logging into the server.
Password	Enter the password for the server (corresponding to the user ID).
Password Confirm	Enter the password again to confirm it.
Session name	Name of the session created on the database during the transport
Tablespace name	Enter the tablespace name where the table will be created, for example, DATA_CDR.
Schema name (SID)	Enter the name, for example DTO, of the schema to be used.
Lifetime	Enter the life time (in hours) that the data feed will reside on the server before being overwritten. (Range 1-1,000,000 hours)

Table 19: Oracle Transport Field Definitions

2. Click **Next** to move to the next screen.

Creating a Filter

Complete these steps to create a filter and its associated conditions and expressions.

1. Click **Add.**

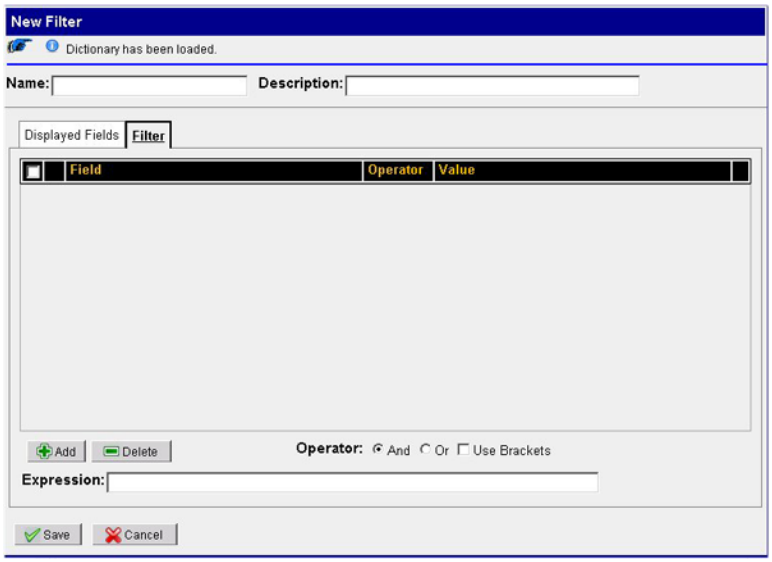


Figure 27: Create Filter

2. Type in the **Name** of the filter.
3. (Optional) Type in a **Description** of the filter.
4. (Optional) Click the **Displayed Fields** tab the *Displayed Fields* screen opens shown in the figure below.

   Note: By default all fields are selected, but certain formats can require only a few specific fields.

   Note: For legacy feeds all fields are selected. The selection is only informative and it cannot be changed.

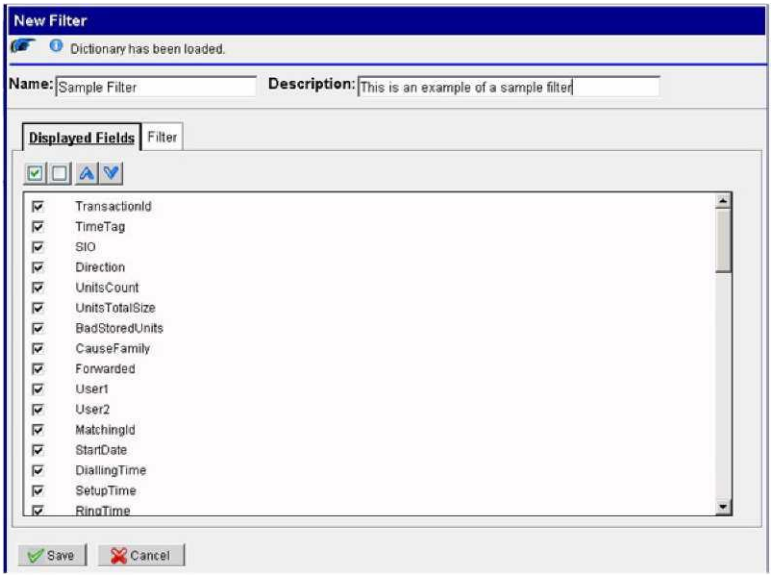


Figure 28: Displayed Fields Tab

5. (Optional) Select the **Fields** that will be used in the filter.

   Note: To de-select all field selections click on the blank square icon (second from the left). To select all fields click the checked icon (far-left).

   Note: You can also change the order of fields by selecting a field and using the "up/down" arrows.

6. Click the **Filter** tab.
7. Create the **Condition** parameters.
   a) Click **Add.**
   b) Select the **Field.**
   c) Select an **Operator** (=, <, >, etc.)

      Note: There are default operators for each field, but you can select another operator. **Note:** If the condition is incorrect, you are prompted.

   d) Select a **Value.**

      Note: By default all fields are selected. Use caution when de-selecting any fields.

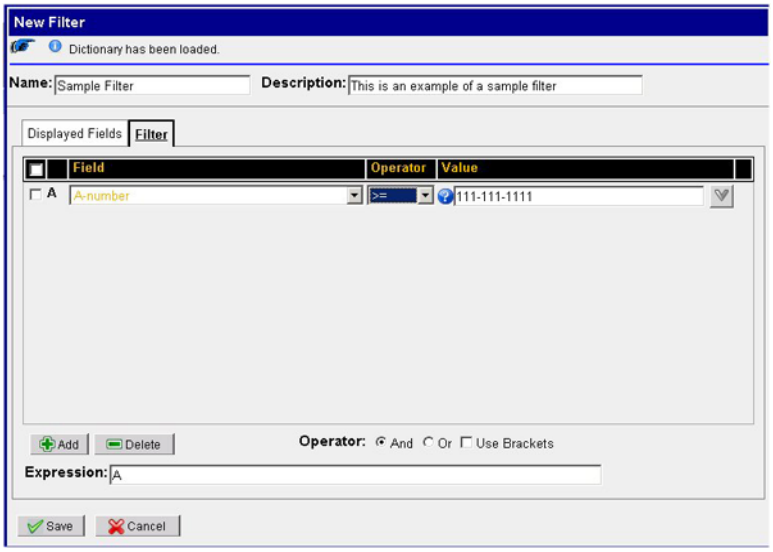


Figure 29: Single Condition Filter

e) Repeat steps **A-D** to create multiple conditions. The Figure shows multiple conditions created with an expression.

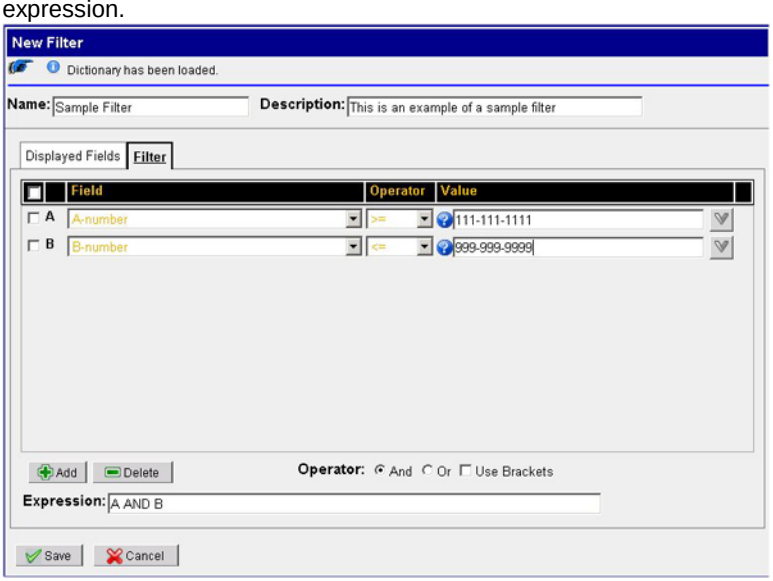


Figure 30: Filter Screen Showing Multiple Conditions

Note: The default *expression* is AND, you can change it to another expression such as OR / Use Brackets.

8. Select an **Operator** for multiple condition filters.
9. Click **Save** to save the filter to the filter list. The filter is added to the Filter List table.

Formatting an xDR/KPI Export

Data Feeds has a formatting option. The description outlined covers the content of the formatting screens.

Note: All screen shots presented here show default values.

Format the time parameters.

Formatting values

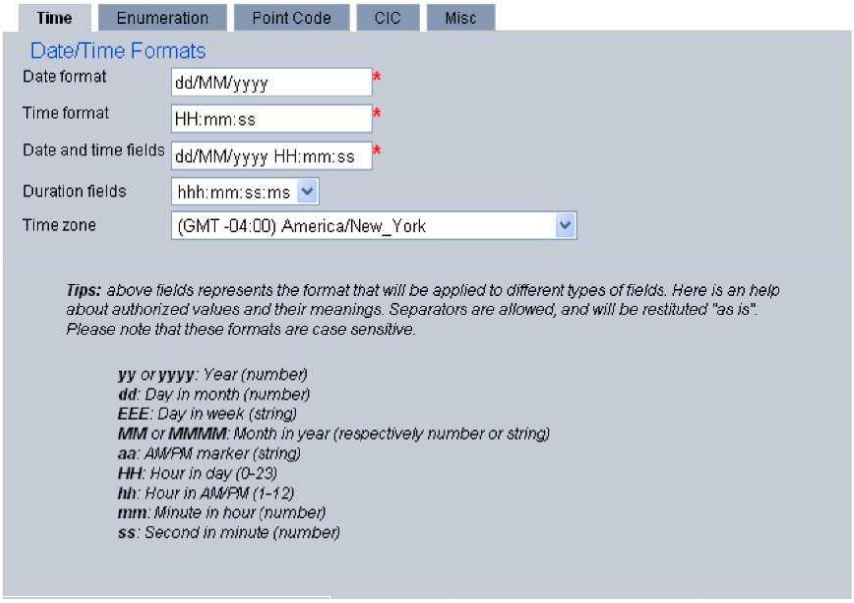


Figure 31: Time Tab Screen

Field	Description
Date Format	Required field - Enables you to set a date format
Time Format	Required field - Enables you to set a time format
Date and time fields	Required field - Enables you to set the date and format
Duration fields	Lets you set a duration format
Time Zone	Pull-down list where you can select the desired time zone

Table 20: Time Tab Screen

Enumeration tab

Select the **Enumeration** tab to set the default for the xDR display.

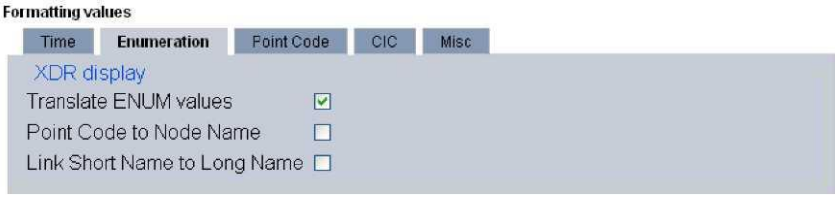


Figure 33: Enumeration Tab Screen

Field	Description
Translate ENUM values	Enumeration settings are used by xDRs to display text values instead of numeric values. Check the check box if you want the system to display text values in the xDR display.
Point Code to Node Name	Select this to use the Node Name instead of the Point Code Name
Link Short Name to Long Name	Select this to use Short Name instead of the Eagle name (long name)

Table 21: Enumeration Tab Field Description

Point Code Tab

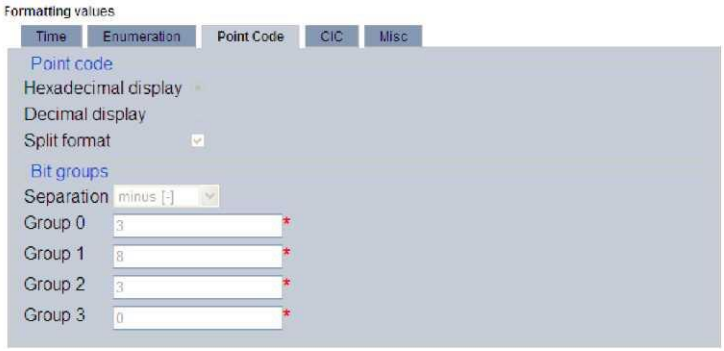


Figure 32: Point Code Tab Screen

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.
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 display)
Group 1	Type a value. (0-7 or 1-5 see hexadecimal display)
Group 2	Type a value. (0-7 or 1-5 see hexadecimal display)
Group 3	Type a value. (0-7 or 1-5 see hexadecimal display)

Table 22: Point Code Tab

Select the **Point Code** tab, to set the point code parameters.

CIC Tab

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

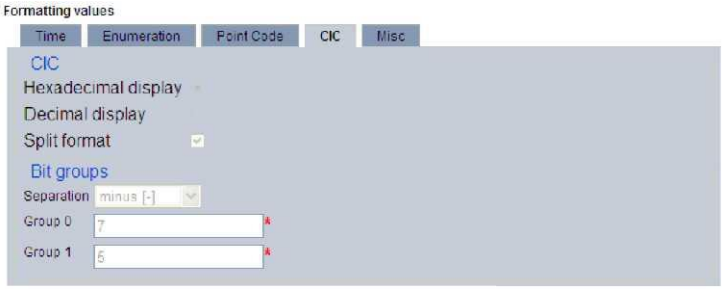


Figure 34: Formatting Rules (CIC) Screen

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.
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 display)
Group 1	Type a value. (0-7 or 1-5 see hexadecimal display)

Table 23: CIC Tab Field Descriptions

MISC Tab

Select the **MISC** tab, for setting the miscellaneous parameters.

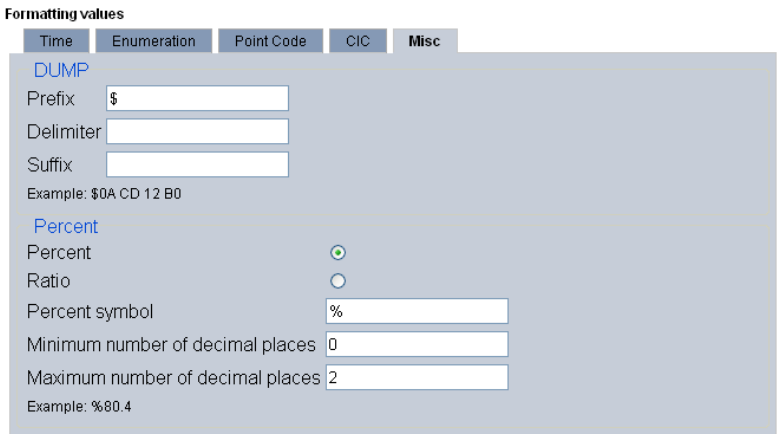


Figure 35: MISC Tab Screen

	Field	Description
DUMP		For binary values as well as formatting the binary data. The bytes are represented as hexadecimal values.
	Prefix	Enables you to enter a prefix for the binary values
	Delimiter	Enables you to enter a specific delimiter included for each value.
	Suffix	Enables you to select a suffix for the binary values.
Percent		Enables you to choose between a percent value or a ratio.
	Percent	Select this field if you want the value to be shown as a percentage.
	Ratio	Select this field if you want the value to be shown as a ratio.
	Percent symbol	Default is the "%" sign, but you can select to use another symbol to represent percent.

	Minimum number of decimal places	Sets the minimum number of decimal places shown in the value (default is 1).
	Maximum number of decimal places	Sets the maximum number of decimal places shown in the value (default is 2, range is: 1-1,000,000).

Table 24: MISC Tab Field Descriptions

Modifying xDR/KPI Feeds

Complete these steps to modify an existing xDR/KPI session.

1. Select **xDR/KPI.**
2. Select the **Session** to be modified.

   Note: Data feeds can be modified only when the feed is in the *Deactivated* and in the *Not Exporting* states.

3. Select **Modify** from the pop-up menu.
4. Make the necessary modifications.

   Note: Not all fields are modifiable. Refer to the table below for which fields can be changed. The available fields are listed in the table below.

   Table 25:

Panel	**Field**
General	Host
Filter	Filter
File Format	Field Separator Record Separator Compression
Schedule	End Time Threshold Arm
Transport	Remote Server Remote File System Remote Dictionary

5. Click **Modify.**

   The feed is modified.

Deleting xDR/KPI Feeds

Complete these steps to delete a xDR/KPI feed.

1. Select **xDR/KPI.**
2. Select the **feed** to be deleted.
3. Select **Delete** from the pop-up menu.
4. Click **OK** at the prompt. The feed is deleted.

Managing xDR/KPI Feeds

Once you have created xDR/KPI feeds you can perform the following actions on them

- Activate the feed for export
- De-activate the feed to stop the export
- Copying a feed
- Check on the status of the feed
- View the statistical status of a feed

Activating Data Feeds (Starting Export Process)

The initial state for a data feed is "de-activated." You must *activate* a data feed record to be able to export the data. Complete these steps to activate a data feed record.

1. Select **Data Feeds> xDR/KPI Exports.**

The *List* page opens shown in the figure below.

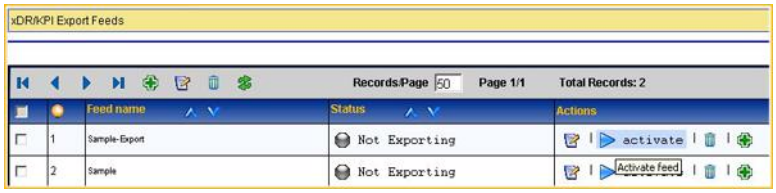


Figure 36: List Page

2. Select the record you want to activate and click the **Blue Arrow** (Activate Feed).

The Status column changes to show the status of the export process and the blue arrow in the Actions column changes into a red square shown in the figure below.

Figure 37: Activated Feed

De-activating a Data Feed Record (Stopping an Export Process)

Complete these steps to de-activate or stop exporting data.

1. Select **Detailed Records > List.**

   The *Export List* page opens.

2. Click the Red square (showing that the feed is activated) on the record you want to de-activate.

Note: There is a mouse rollover feature that shows below the record, see the figure below.

Note: De-activation is not immediately recognized by the IXP engine (it can be few seconds for NFS if a specific Long param is set in IXP) and that the status will read waiting de-activation instead of deactivation.

Figure 38: De Activate Export Page

3. Click **OK** at the prompt

Figure 39: Export Stopped Successfully

Copying a Feed

The Data Feeds application has a Copy Feed function where you can create a copy of an existing feed and modify it for a specific use. Complete these steps to copy an existing feed using the copy feed function.

1. Click the **Copy Feed** icon (+ sign located in the actions column at the far right side) The configuration wizard is initiated and the General screen opens.
2. At this point you can customize the data feed.

Data Feed Status

The table shown here lists the status that is possible when exporting a feed.

Status	Description
Gray Icon	Not Exporting or Unknown - Feed Deactivated
Red Icon	Recovering - There was an error during export and the export recovery is in progress. The text can be either "Recovering" or as a transition "Recovering (waiting deactivation)", when the stop button is pressed and the command waiting to be taken into account.
Green Icon	Finished - The Historical manual export has successfully finished Exporting - The export is in progress without any error during current export. The text can be either "Exporting" or as a transition "Exporting (Waiting deactivation)", when stop button has been pressed and command waiting to be taken into account. Waiting - Status during waiting time between 2 exports.

Table 25: Data Feed Status

Viewing Statistical Status (Extraction History)

The Data Feeds application has a Statistical Status function where you can view the extraction history of a data feed. Complete these steps to view the statistical status of a KPI feed.

1. Select the **Data Feed** to be viewed.
2. Click the **Bar Chart** icon located in the actions column (far right side).

Status	Description
Status	An LED that shows the status of the session • Green - "OK" • Yellow - In progress • Red - KO or KO_CLEAN
Start period	Data and time of the start of the period.
End period	Date and time of the end of the period.
Start extraction	Data and time of the beginning of the extraction for the relevant period.
End extraction	Date and time of the end of the extraction for the relevant period.
Record Count	Indicates the number of records extracted.
Delay	In case of the file based transport it corresponds to the delay between the last timestamp in the period and the time when the file was copied to the target server.

Table 26: Export Status States

Chapter 4: Managing Legacy and Integrated Feeds

Topics:

About Exporting Legacy xDR Feeds

For users who have export feeds created in legacy releases (prior to 6.0), there is a Legacy Feeds option that allows for the management of those feeds.

The procedures used to export legacy xDR feeds to a data feed export server are grouped into two transport categories:

- Single
- Round Robin

Creating a Fixed Format xDR Feed

Complete these steps to begin the sequence of creating a fixed format xDR feed.

1. Select **Legacy Feeds > Fixed Format xDRs.**
   The Add screen opens.

Figure 40: Session Screen

2. Click **Add** on the tool bar. The
   General screen opens.

Figure 41: General Screen

3. Enter the **Name** of the Feed.
   Note: No spaces or special characters are accepted.
4. Select the **Subsystem.**
5. Select the **Host Name.**
   Note: Selecting a Host enables you to load share across an IXP subsystem to reduces processing time.

6. Click **Next** to move to the session screen.

Selecting a Session

Once you have named the feed, selected the subsystem and host, you need to associate a session with the feed.

Complete these steps to select a session for a legacy feed. **1.** In the

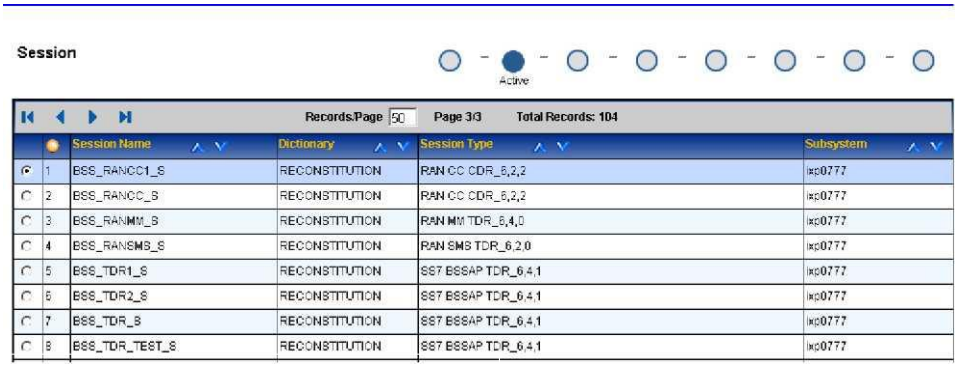


Figure 42: Session Screen

2. Click **Next** to move to the Schedule screen

Session screen, select a **session** from the session list.

Setting the Schedule and Transport Parameters

Complete these steps to set the schedule and transport parameters.

1. Select the **Start date** and **Start time** by clicking the icons next to the fields.

.

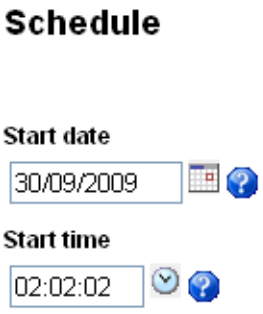


Figure 43: Schedule Screen

2. Click **Next**.

The Transport screen opens.

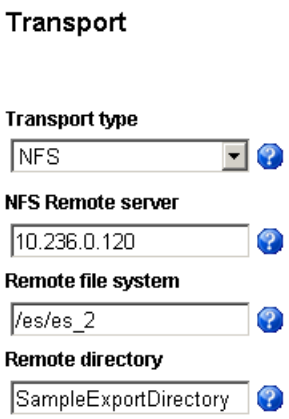


Figure 44: Transport Screen with NFS Selected

3. Select the **Transport type** from the pull-down menu.

NFS (shown in first figure) or NFS Round Robin (shown in second figure).

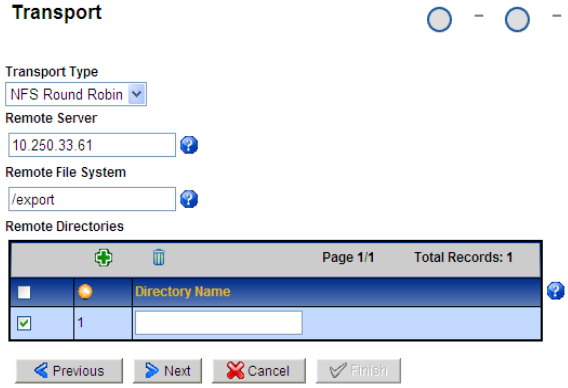


Figure 45: Transport Screen with Round Robin Selected

4. Enter the IP Address of the **Remote Server**.
5. Enter the name of the **Remote File System**.

   Indicates the path for the remote file system. The directory path must start with a "/"
6. Enter the name of the **Remote Directory**.
7. (For NFS Round Robin transport type) Add or Select **Remote Directories**.
8. Click **Next** to move to the Filter screen.

Creating a Filter

Complete these steps to create a filter and its associated conditions and expressions.

1. Click **Add**.

   The *Create* Filter screen opens.

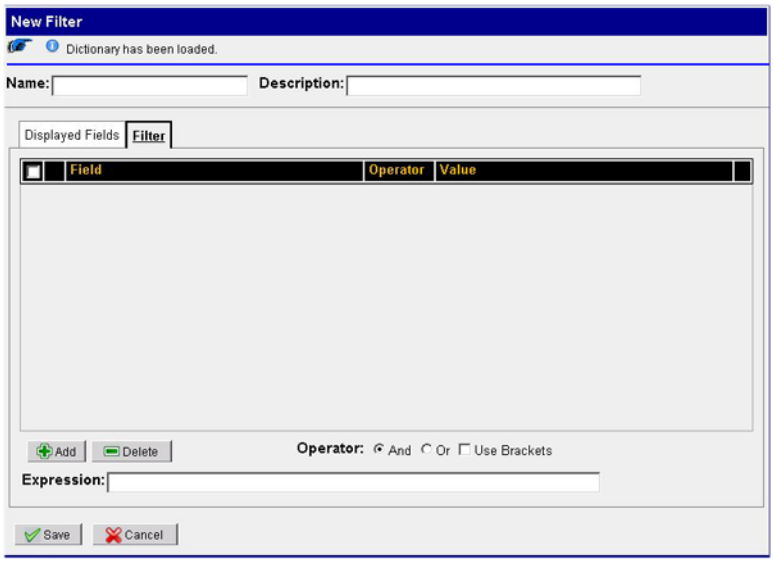


Figure 46: Create Filter

2. Type in the **Name** of the filter.
3. (Optional) Type in a **Description** of the filter.
4. (Optional) Click the **Displayed Fields** tab the *Displayed Fields* screen opens shown in the figure below.

Note: By default all fields are selected, but certain formats can require only a few specific fields. **Note:** For legacy feeds all fields are selected. The selection is only informative and it cannot be changed.

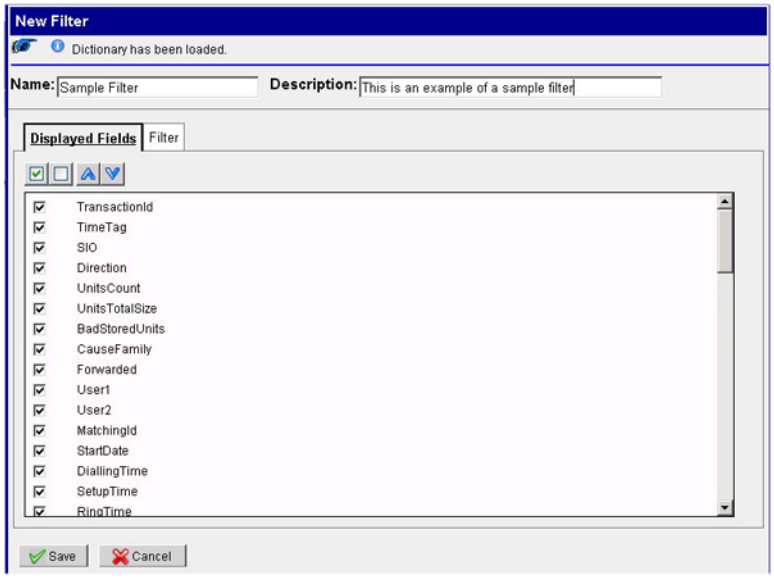


Figure 47: Displayed Fields Tab

5. (Optional) Select the **Fields** that will be used in the filter.

Note: To de-select all field selections click on the blank square icon (second from the left). To select all fields click the checked icon (far-left).

Note: You can also change the order of fields by selecting a field and using the "up/down" arrows.

6. Click the **Filter** tab.

7. Create the **Condition** parameters.

a) Click **Add**.

b) Select the **Field**.

c) Select an **Operator** (=, <, >, etc.)

Note: There are default operators for each field, but you can select another operator.

Note: If the condition is incorrect, you are prompted.

d) Select a **Value**.

Note: By default all fields are selected. Use caution when de-selecting any fields.

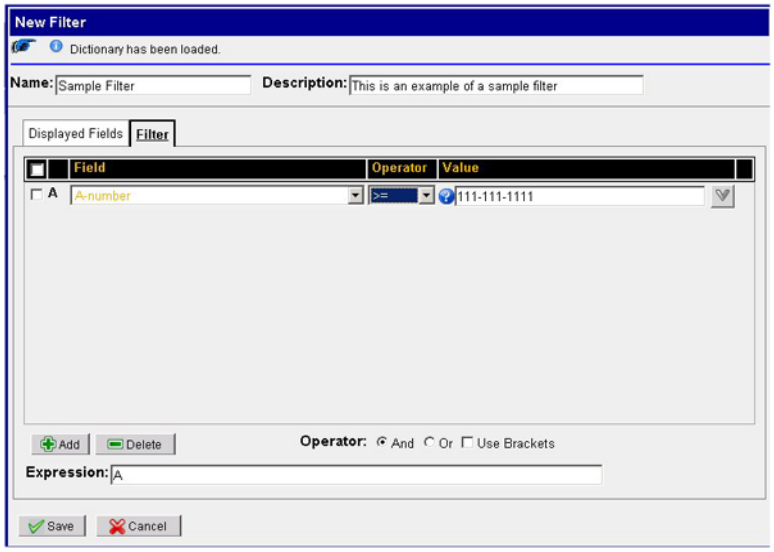


Figure 48: Single Condition Filter

e) Repeat steps **A-D** to create multiple conditions.

The figure shows multiple conditions created with an expression.

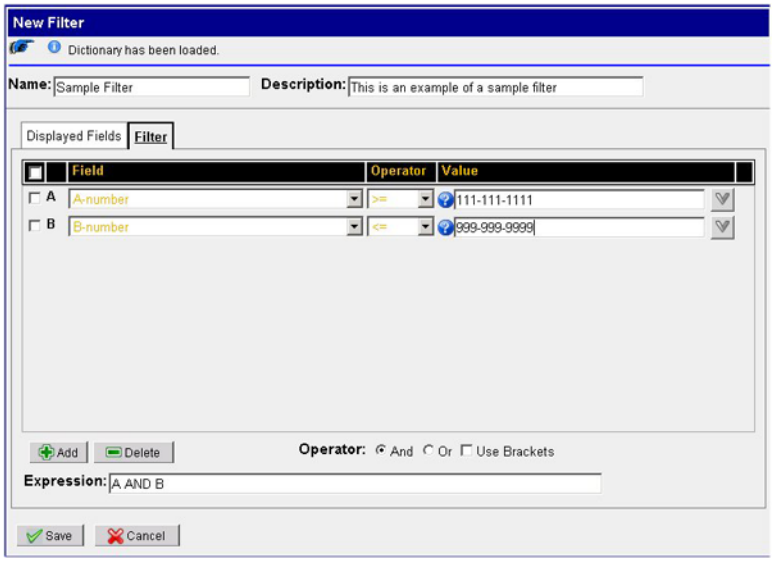


Figure 49: Filter Screen Showing Multiple Conditions

Note: The default *expression* is AND, you can change it to another expression such as OR / Use Brackets.

8. Select an **Operator** for multiple condition filter.
9. Click **Save** to save the filter to the filter list.
   The filter is added to the Filter List table.

Formatting an xDR/KPI Export

Data Feeds has a formatting option. The description outlined covers the content of the formatting screens.

Note: All screen shots presented here show default values.

Time tab screen

Format the time parameters.

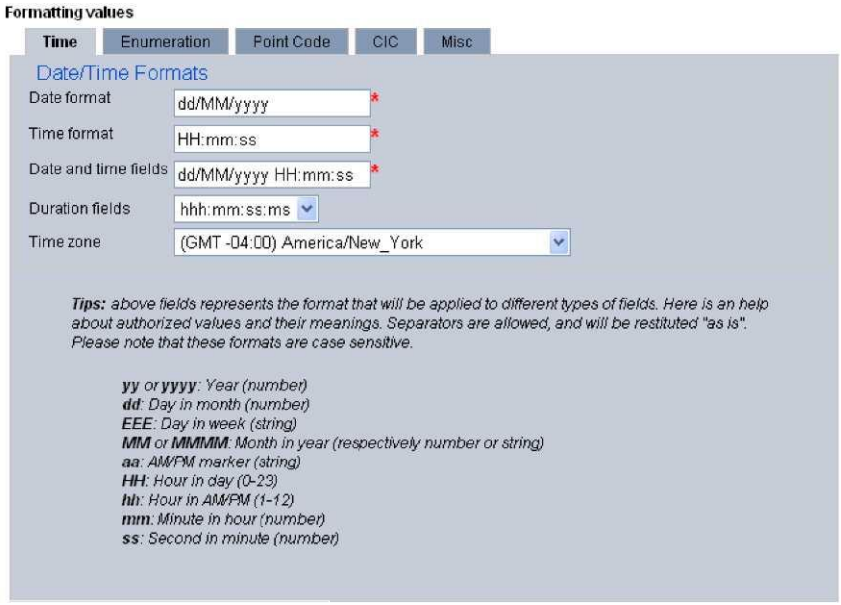


Figure 50: Time Tab Screen

Field	Description
Date Format	Required field - Enables you to set a date format
Time Format	Required field - Enables you to set a time format
Date and time fields	Required field - Enables you to set the date and format
Duration fields	Lets you set a duration format
Time Zone	Pull-down list where you can select the desired time zone

Table 27: Time Tab Screen

Enumeration tab

Select the **Enumeration** tab to set the default for the xDR display.

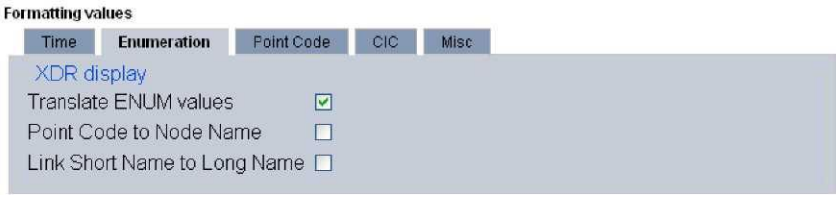


Figure 51: Enumeration Tab Screen

Field	Description
Translate ENUM values	Enumeration settings are used by xDRs to display text values instead of numeric values. Check the check box if you want the system to display text values in the xDR display.
Point Code to Node Name	Select this to use the Node Name instead of the Point Code Name
Link Short Name to Long Name	Select this to use Short Name instead of the Eagle name (long name)

Table 28: Enumeration Tab Field Description

Point Code Tab

Select the **Point Code** tab, to set the point code parameters.

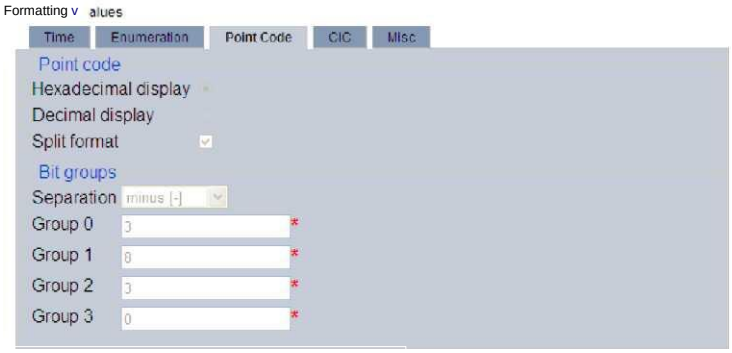


Figure 52: Point Code Tab Screen

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.
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 display)
Group 1	Type a value. (0-7 or 1-5 see hexadecimal display)
Group 2	Type a value. (0-7 or 1-5 see hexadecimal display)
Group 3	Type a value. (0-7 or 1-5 see hexadecimal display)

Table 29: Point Code Tab

CIC Tab

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

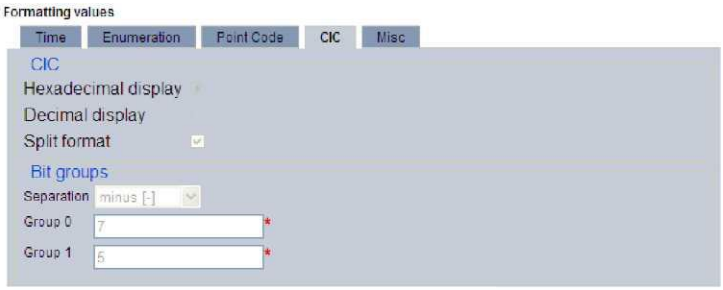


Figure 53: Formatting Rules (CIC) Screen

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.
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 display)
Group 1	Type a value. (0-7 or 1-5 see hexadecimal display)

Table 30: CIC Tab Field Descriptions

MISC Tab

Select the **MISC** tab, for setting the miscellaneous parameters.

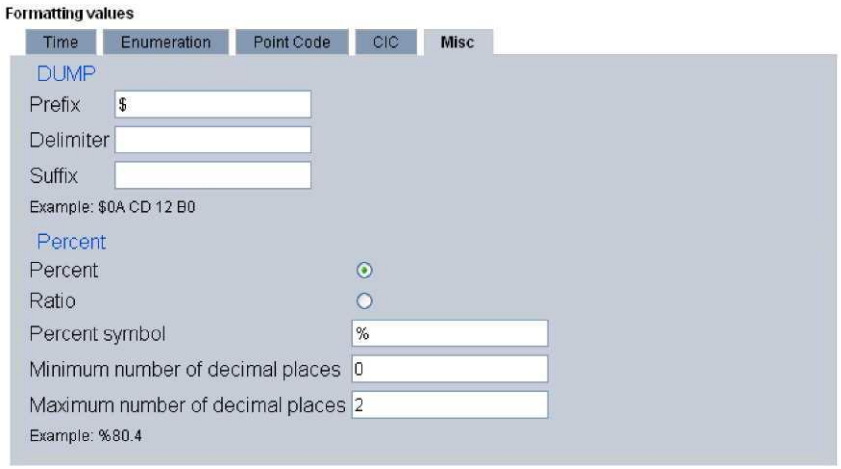


Figure 54: MISC Tab Screen

	Field	Description
DUMP		For binary values as well as formatting the binary data. The bytes are represented as hexadecimal values.
	Prefix	Enables you to enter a prefix for the binary values
	Delimiter	Enables you to enter a specific delimiter included for each value.
	Suffix	Enables you to select a suffix for the binary values.
Percent		Enables you to choose between a percent value or a ratio.
	Percent	Select this field if you want the value to be shown as a percentage.
	Ratio	Select this field if you want the value to be shown as a ratio.
	Percent symbol	Default is the "%" sign, but you can select to use another symbol to represent percent.
	Minimum number of decimal places	Sets the minimum number of decimal places shown in the value (default is 1).
	Maximum number of decimal places	Sets the maximum number of decimal places shown in the value (default is 2, range is: 1-1,000,000).

Table 31: MISC Tab Field Descriptions

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

Setting the Protocol Format

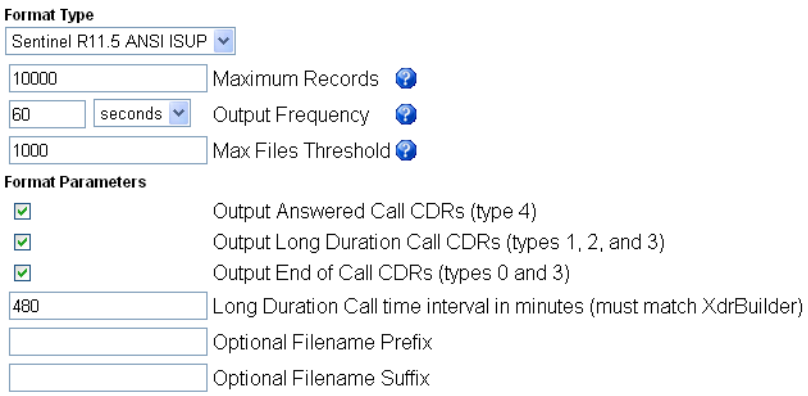
Complete these steps to set the protocol format for a data feed.

1. Select the **Format Type.**

Note: The protocol format type also depends upon which session was selected. For example, if you have selected an ISUP session, then you will see the Sentinel R11.5 and R9 ISUP ANSI formats. For more information on protocol formats see *Supported ISUP and LIDB Protocols*.

2. Enter the **appropriate information** (described in the tables) for the format you have selected. **Note:** For complete

3. Click **Next** to view Summary screen or **Finish** to add the session to the system



Supported ISUP and LIDB Protocols

The following formats are supported in the Data Feed Export application:

- Sentinel R9 ANSI ISUP
- Sentinel R11.5 ANSI ISUP
- Sentinel R9 LIDB
- Sentinel R11.5 LIDB

Note: The format type should be the same as the protocol type. For example, ISUP protocol needs to have an ISUP format and the LIDB protocol needs to have a LIDB format.

Note: Depending upon the option selected the page changes to the following configurations described in these tables.

Table 32: Sentinel R9 ANSI ISUP Format

Field	Description
Maximum Records	The maximum records that can be contained in a file
Output Frequency	Combined field showing the length (integer) and the unit (hours, minutes, seconds). This is the maximum amount of time to wait if the maximum records per file is not reached before sending the file to the remote server.
Max Files Threshold	This is the maximum number of files that can remain in the Remote Directory before the feed pauses. Once the files are consumed such that the number of files is below the threshold, the feed will resume operation. This parameter is designed to avoid over-running a file consumer.
Output Answered Call CDRs (type 4)	A check box to select whether to include output answered call CDRs.
Output Long Duration Call CDRs (types 1, 2 and 3)	A check box to select whether to include output long duration call CDRs for types 1, 2 and 3.
Output End of Call CDRs (types 0 and 3)	A check box to select whether to include output end of call CDRs for types 0 and 3.
Long Duration Call time interval in minutes (must match xDR Builder)	Numeric Field

Table 34: Sentinel R11.5 ANSI ISUP Format

Field	Description
Maximum Records	The maximum records that can be contained in a file.
Output Frequency	Combined field showing the length (integer) and the unit (hours, minutes, seconds). This is the maximum amount of time to wait if the maximum records per file is not reached before sending the file to the remote server.
	will resume operation. This parameter is designed to avoid over-running a file consumer.
Output Answered Call CDRs (type 4)	A check box to select whether to include output answered call CDRs.
Output Long Duration Call CDRs (types 1, 2 and 3)	A check box to select whether to include output long duration call CDRs for types 1, 2 and 3.
Output End of Call CDRs (types 0 and 3)	A check box to select whether to include output end of call CDRs for types 0 and 3.
Long Duration Call time interval in minutes (must match xDR Builder)	Numeric Field
Optional Filename Prefix	The prefix pre-pended to every generated file.

Table 33: Sentinel R9 LIDB Format

Field	Description
Maximum Records	The maximum records that can be contained in a file
Output Frequency	Combined field showing the length (integer) and the unit (hours, minutes, and seconds). This is the maximum amount of time to wait if the maximum records per file are not reached before sending the file to the remote server.
Max Files Threshold	This is the maximum number of files that can remain in the Remote Directory before the feed pauses. Once the files are consumed such that the number of files is below the threshold, the feed will resume operation. This parameter is designed to avoid over-running a file consumer.
Output Complete Transaction TDRs (type 0)	A check box to select whether to include output complete transaction TDRs.
Output Timeout Transaction TDRs (type 1)	A check box to select whether to include output complete transaction TDRs (type 1).
Output Error Transaction TDRs (type 2)	A check box to select whether to include output error transaction TDRs (type 2).

Table 35: Sentinel R11.5 LIDB Format

Field	Description
Maximum Records	The maximum records that can be contained in a file
Output Frequency	Combined field showing the length (integer) and the unit (hours, minutes, seconds). This is the maximum amount of time to wait if the maximum records per file is not reached before sending the file to the remote server.
Max Files Threshold	This is the maximum number of files that can remain in the Remote Directory before the feed pauses. Once the files are consumed such that the number of files is below the threshold, the feed will resume operation. This parameter is designed to avoid over-running a file consumer.
Output Complete Transaction TDRs (type 0)	A check box to select whether to include output complete transaction TDRs.
Output Timeout Transaction TDRs (type 1)	A check box to select whether to include output complete transaction TDRs (type 1).
Output Error Transaction TDRs (type 2)	A check box to select whether to include output error transaction TDRs (type 2).
Optional Filename Prefix	The prefix pre-pended to every generated file.

Other Management Tasks

In general, you can modify or delete a data feed. In addition, you must activate a feed for the feed to function and de-activate a feed to stop the scheduled export process.

Modifying a Detailed Feed Record

Follow these steps to modify a detailed feed record.

1. Select **Data Feeds > Detailed Records > List.**
2. Select the **record** that needs to be modified.
3. Click **modify** on the toolbar. The modify page opens.
4. Make the appropriate modifications.
5. Click **Modify.**
   The record is modified.

Deleting a detailed Feed Record

Follow these steps to delete a detailed feed record.

1. Select **Data Feeds > Detailed Records > List.**

2. Select the **record** that needs to be deleted.
3. Click **delete** on the toolbar.
4. Click **OK** at the prompt.

   The record is deleted.

Activating Data Feeds (Starting Export Process)

You must *activate* a data feed record to be able to export the data. Complete these steps to activate a data feed record.

1. Select **Detailed Records > List.**

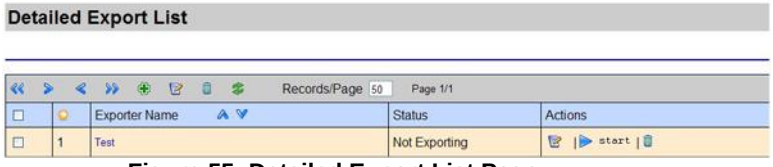


Figure 55: Detailed Export List Page

2. Select the record you want to activate and click the **Blue Arrow** (Start Export).

The *Status* column will change to *Exporting* (Red Square shown in the figure below) and a prompt appears stating *Export Started Successfully.*

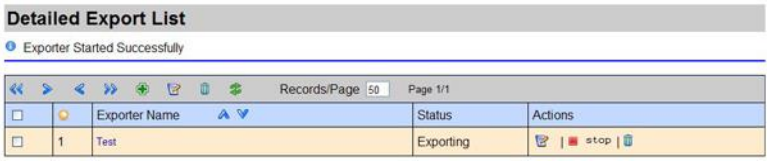


Figure 56: Start Export Page

De-activating a Data Feed Record (Stopping an Export Process)

Complete these steps to de-activate or stop exporting data.

1. Select **Detailed Records > List.**

   The *Export List*page opens.
2. Click the **Red square** on the record you want to de-activate shown in the figure below.

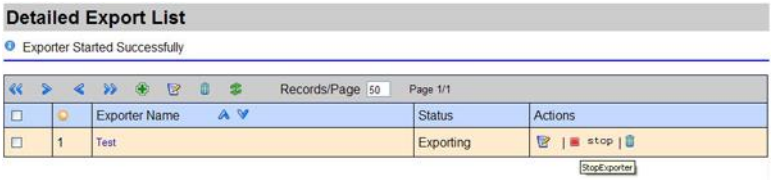


Figure 57: Stop Export Page

3. Click **OK** at the prompt.

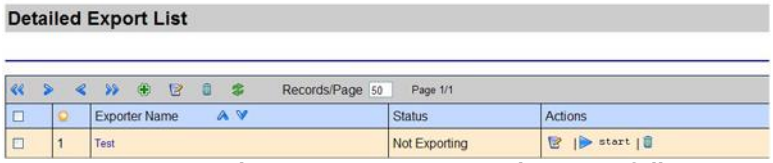


Figure 58: Export Stopped Successfully

The export process is stopped and a message appears stating, "Export Stopped Successfully" shown in the figure below.

About Usage Measurement Exports

Usage measurements (KPIs) are those sessions that can be exported from ProTraq for statistical analysis.

Usage Measurements File Feed Format

The usage measurement file feed function provides a means of scheduling jobs that read KPI records from a data warehouse and exporting these records to external servers. KPIs are fed in the following formats:

• PEG (Sentinel Format))

Format	xDR Builder
Sentinel PEG Counter file	SS7 Usage Measurements SUDR

Table 36: Usage Measurement (KPI) Format-xDR Builder Associations

Creating a Usage Measurement File Feed

Complete these steps to create a usage measurement data feed.

1. Select **Legacy Feeds > Usage Measurements** from the object tree.
2. Select **Add** from the pop-up menu.

   The General page opens.

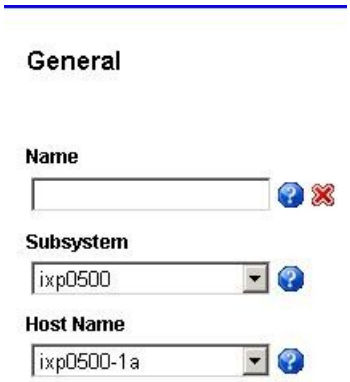


Figure 59: General Screen

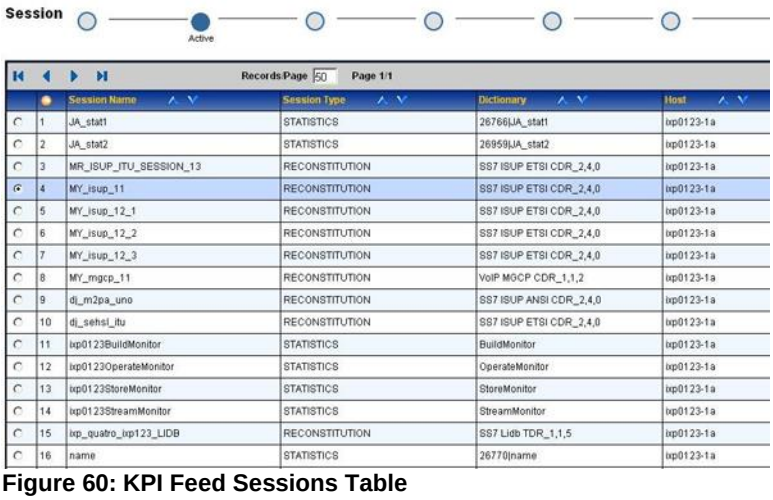
3. Enter the **Name** of the usage measurement.

4. Select the **Subsystem.**
5. Select the **Host Name.**

   Note: The host name should be allocated according to load sharing rules and it is strongly recommended NOT to use the storage server for data feed exports. Please contact your Tekelec representative for details on load sharing and using servers during data export.

6. Click **Next.**

   The sessions on the site appear in the sessions table.



		Session Name	Session Type	Dictionary	Host
○	1	JA_stat1	STATISTICS	26766|JA_stat1	ixp0123-1a
○	2	JA_stat2	STATISTICS	26959|JA_stat2	ixp0123-1a
○	3	MR_ISUP_ITU_SESSION_13	RECONSTITUTION	SS7 ISUP ETSI CDR_2,4,0	ixp0123-1a
◉	4	MY_isup_11	RECONSTITUTION	SS7 ISUP ETSI CDR_2,4,0	ixp0123-1a
○	5	MY_isup_12_1	RECONSTITUTION	SS7 ISUP ETSI CDR_2,4,0	ixp0123-1a
○	6	MY_isup_12_2	RECONSTITUTION	SS7 ISUP ETSI CDR_2,4,0	ixp0123-1a
○	7	MY_isup_12_3	RECONSTITUTION	SS7 ISUP ETSI CDR_2,4,0	ixp0123-1a
○	8	MY_mgcp_11	RECONSTITUTION	VoIP MGCP CDR_1,1,2	ixp0123-1a
○	9	dj_m2pa_uno	RECONSTITUTION	SS7 ISUP ANSI CDR_2,4,0	ixp0123-1a
○	10	dj_sehsl_itu	RECONSTITUTION	SS7 ISUP ETSI CDR_2,4,0	ixp0123-1a
○	11	ixp0123BuildMonitor	STATISTICS	BuildMonitor	ixp0123-1a
○	12	ixp0123OperateMonitor	STATISTICS	OperateMonitor	ixp0123-1a
○	13	ixp0123StoreMonitor	STATISTICS	StoreMonitor	ixp0123-1a
○	14	ixp0123StreamMonitor	STATISTICS	StreamMonitor	ixp0123-1a
○	15	ixp_quatro_ixp123_LIDB	RECONSTITUTION	SS7 Lidb TDR_1,1,5	ixp0123-1a
○	16	name	STATISTICS	26770|name	ixp0123-1a

Figure 60: KPI Feed Sessions Table

7. Select the **Session** you want to use.
8. Click **Next** to open the Scheduling page.

Field	Description
Name	Required field - Enables you to type in a name of the Feed Name for future reference
Start Date	Shows the date that the feed will start
Start Time	Enables you to set the time that the feed will start. **NOTE:** The time is based on a 24-hour clock
Host Name	Pull-down list where you can select the IXP server where the session will run
Schedule Options	Pull-down list where you can select the interval: minute (range 1-60), hour (see treatment period), day (range 1-365), week (you must pick a specific day), month (you can select the month and day, ie. June 1 or the week interval, ie 2nd Monday of June), or one time only
Treatment period	Is the time period of the data that will be exported. The period is relative to the execution time of the export. The end period selected must be less than the start period, for example, start period is 0 days, 2 hours and end period is 0 days and 0 hours.

Table 37: Scheduling Page Fields

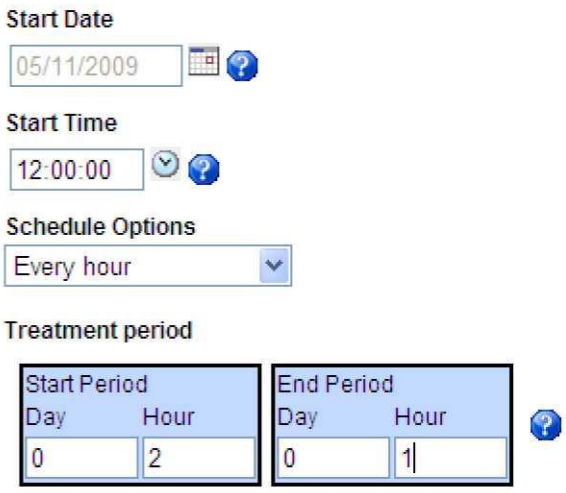


Figure 61: Scheduling Page

9. Select the **Start Date.**
10. Select the **Start Time** (defaults to current day).
11. Select the **Schedule Option.**

    The selections are: minute, hour, day, week, month, one time only.
12. Enter the **interval** (integer).
13. Enter the **treatment period**

Note: The settings shown in the figure signifies that first export will be on 12:00 and it will export the data from 10:00 to 11:00. The next export will start on 13:00 and it will export the data from 11:00 to 12:00.

14. Click **Next** to open the Transport screen.

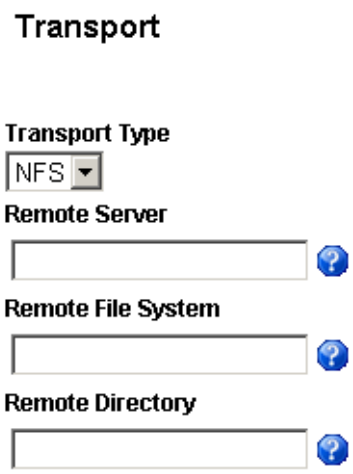


Figure 62: Transport Screen

15. Select the **Transport Type** (only NFS is available).
16. Enter the **Remote Server.** IP Address of the server.
17. Enter the **Remote File System.**
18. Enter the **Remote Directory.**
19. Click **Next** to open the Filter screen.

20. Select or create a **Filter.** (Add step to say click Next to show the Format screen.)
21. Click **Next** the Format screen opens.

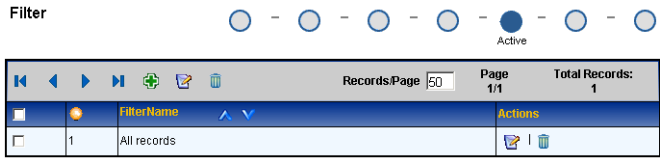


Figure 63: Filter Screen

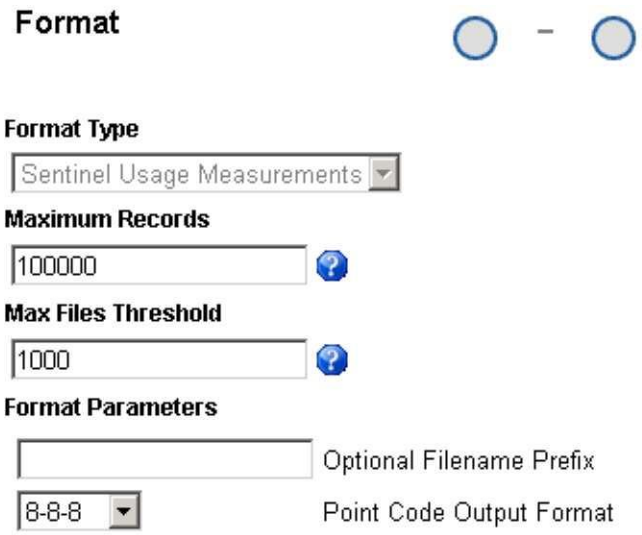


Figure 64: Format Screen

22. Select the **Format Type** (Sentinel Usage Measurements is only selection for legacy feeds).
23. Enter the **Maximum records.** (an integer with range 1-999999)
24. Type in the **Maximum Files Threshold** that can be contained in a remote directory before feed pauses. (an integer with range 1-1,000,000.)
25. (Optional) Type in a **File prefix** that is attached to each file.
26. Type in a valid **Point Code Output Format.** (The default is 8-8-8).
27. Click **Next** to open the KPI Aggregation screen.

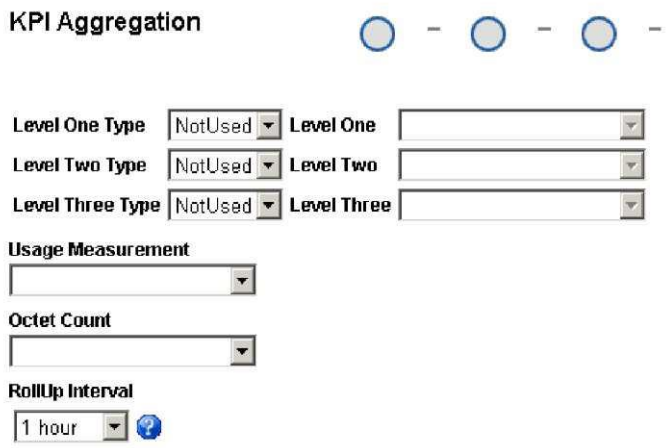


Figure 65: KPI Aggregation Screen

Table 39: KPI Aggregation Screen

Field	Description
Level One Type	(Optional) Used for grouping the grouping choices are: • Not Used • OPC • DPC • CgGTA • CdGTA **NOTE:** Former Sentinel users the corresponds to OPC
Level One	(Optional) The field that is used for grouping with level one type. The choice must correspond to the dictionary entry for Level One
Level Two Type	(Optional) The field that is used for grouping choices which are: • Not Used • OPC • DPC • CgGTA • CdGTA **NOTE:** Former Sentinel users the corresponds to DPC
Level Two	(Optional) The field that is used for grouping with level two type. The choice must correspond to the dictionary entry for Level Two
Level Three Type	(Optional) The field that is used for grouping is for former Sentinel users which corresponds to Linksets. The choices are: Not used Linksets
Level Three	(Optional) The field that is used for grouping is for former Sentinel users which corresponds to Linksets. The choice must correspond to the dictionary entry for Level Three Type.
Usage Measurement	Pull-down list that provides the format for the KPI matching a specific condition. The choices depend on the dictionary being used.
Octet Count	Pull-down list that provides the format matching the octets for counted KPIs. The octet chosen needs to correspond with the dictionary being used.
RollUp Interval	Pull-down that lists the range of hours per peg counter rollup interval. The range is 1,2, 3, 4, 6, 8, 12, 24 and 168 hours

28. (Optional) Select the **Level Type** and **Level protocol** for the levels needed
29. Select the **Usage Measurement** protocol.
30. Select the **Octet Count** protocol.
31. Select the **RollUp Interval**
32. Click **Finish** to create the feed.

    Note: You can also click NEXT which will open the Summary page showing all the feed parameters in table form.

Modifying a Usage Measurement Feed

Complete these steps to modify and existing usage measurement feed.

1. Select **IAS Elements > Data Feeds > Usage Measurements.**
2. Select the **feed** that needs to be modified.
3. Select **Modify** from the pop-up menu.
4. Make the necessary modifications.
5. Click **Modify.**

   The feed is modified.

Deleting a Usage Measurement Feed

Complete these steps to delete a usage measurement session.

1. Select **IAS Elements > Data Feeds > Usage Measurements.**
2. Select the **Session** that needs to be deleted.
3. Select **Delete** from the pop-up menu.
4. Click **OK** at the prompt.

   The session is deleted.

Appendix A: DataFeed File Formats

Topics:

Sentinel 9ANSI ISUP CDR field Definition

The output CDR file format shall be a simple ASCII encoded CDR format consisting of a fixed size header terminated with a new-line followed by a variable number of records. Following is the organization of the CDR records within a file containing N records:

File Format
CDR Header NL
CDR Record #1
f1, f2, f4,fn NL
CDR Record #3
CDR Record #N

Table 38: CDR File Organization for #N Records

The CDR/TDR file header shall contain two fixed length fields; the Version Number and the Number of Records (terminated with a NL - Newline) as described below:

Field Name	Data Type	Field Length	Comments
Version Number	Digits	2	The current CDR format version number (=2)
Number of Records	Digits	6	Number of CDR records in the file.

Table 39: CDR Header Format

It is not possible to predict the field offsets in the CDR record structure. However, the fields in a CDR record are positional and comma-separated, while the CDR records in a file are separated by newline (NL) character (e.g. f1,f2,f3,f5,.. .fn NL). For the fields/parameters that are missing or not present (optional), a comma shall be present in the CDR (e.g. f1,,,f4,f5,).

ISUP CDR Format

A collection of discrete fields from the SS7 ISUP messages are decoded and formatted to generate a CDR. These CDRs can be Answer intermediate CDR, Long duration call CDR, or Call completion CDR. Following is a list of all the elements contained within a CDR record for the different types of CDRs for ANSI and ITU specification:

Table 40: ISUP CDR Fields

Field Name	Data Type	Max Size (Octets)	Call Answered CDR	LCD/End of Call CDR	Comments
Sequence ID	Digits	10		X	Begins at "1" and is incremented by "1" for each CDR sent. Reset to "1" after 2147483647 (0x7FFFFFFF)
ISUP Variant	Digits	1	X	X	ANSI = 1 ITU = 2
Originating Point Code	Alpha Numeric	11	X	X	The Point Code contained in the OPC of the IAM, with format as 12-11-123 (dashes included). ANSI = Network - Cluster -Member ITU = Zone - Area - Signaling Point
Destination Point Code	Alpha Numeric	11	X	X	The Point Code contained in the DPC of the IAM, with format as 12-11-123 (dashes included). ANSI = Network - Cluster -Member ITU = Zone - Area - Signaling Point
Trunk Circuit Id Code	Digits	5	X	X	The Circuit Identification Code contained in the IAM of the CDR
IAM Time	Digits	13	X	X	The time at which the Initial Address Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
ACM Time	Digits	13	X	X	The time at which the Address Complete Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
CPG Time	Digits	13	X	X	The time at which the Call Progress Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)

Field Name	Data Type	Max Size (Octets)	Call Answered CDR	LCD/End of Call CDR	Comments
ANM Time	Digits	13	X	X	The time at which the Answer Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
SUS Time	Digits	13		X	The time at which the Suspend Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
RES Time	Digits	13		X	The time at which the Resume Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
REL Time	Digits	13		X	The time at which the Release Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
RLC Time	Digits	13		X	The time at which the Release complete Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
EXM Time	Digits	13		X	The time at which the Exit Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
COT Time	Digits	13		X	The time at which the Continuity Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
UCIC Presence[2]	Digits	1		X	0 if no UCIC has been received in the signaling 1 if UCIC has been received in the signaling
RSC Presence[2]	Digits	1		X	0 if no RSC has been received in the signaling 1 if RSC has been received in the signaling
REL Direction	Digits	1		X	=0 if same as IAM, =1 if opposite IAM

Field Name	Data Type	Max Size (Octets)	Call Answered CDR	LCD/End of Call CDR	Comments
					Omitted if REL is not received
CDR Type / LDC[3] /	Digits	1	X	X	=0 Normal / no LDC =1 if first CDR in (possible LDC) =2 Ongoing LDC CDR =3 Final LDC CDR = 4 Answer / Intermediate CDR = 5 Timeout CDR
FCI Abit	Digits	1		X	This information is extracted from the A bit of the Forward Call Indicators Parameter.
FCI_CBBits	Digits	1		X	This information is extracted from the B and C bits of the Forward Call Indicators Parameter.
FCI_Dbit	Digits	1		X	This information is extracted from the D bits of the Forward Call Indicators Parameter.
FCI_Ebit	Digits	1		X	This information is extracted from the E bit of the Forward Call Indicators Parameter.
FCI_Fbit	Digits	1		X	This information is extracted from the F bit of the Forward Call Indicators Parameter.
FCI_HGbits	Digits	1		X	This information is extracted from the G and H bits of the Forward Call Indicators Parameter.
FCI_Ibit	Digits	1		X	This information is extracted from the I bit of the Forward Call Indicators Parameter.
FCIjCJbits	Digits	1		X	This information is extracted from the J and K bits of the Forward Call Indicators Parameter.
FCI_Mbit	Digits	1		X	This information is extracted from the M bit of the Forward Call Indicators Parameter.

Field Name	Data Type	Max Size (Octets)	Call Answered CDR	LCD/End of Call CDR	Comments
CdPN_Digits	Digits	16	X	X	Contains the "address information" contents of the Called Party Number Parameter of the IAM. MSD is sent first.
CdPN_NatAdd	Digits	3	X	X	Contains the "Nature of Address" contents of the Called Party Number Parameter of the IAM.
CdW_NurnPan	Digits	1	X	X	Contains the "Numbering Plan" contents of the Called Party Number Parameter of the IAM.
GAP_Digits	Digits	24		X	Contains the "Address information" contents of the Generic Address Parameter of the IAM. MSD is sent first.
GAP_TypeAdd	Digits	3		X	Contains the "Type of Address" contents of the Generic Address Parameter of the IAM.
GAP_NatAdd	Digits	3		X	Contains the "Nature of Address" contents of the Generic Address Parameter of the IAM.
GAP_NumPlan	Digits	1		X	Contains the "Numbering Plan" contents of the Generic Address Parameter of the IAM.
GAP_TestInd	Digits	1		X	Contains the "Test Indicator" contents of the Generic Address Parameter of the IAM. =0 not a test call, =1 test call
GAP_PresInd	Digits	1		X	Contains the "Presentation Indicator" contents of the Generic Address Parameter of the IAM.
CgPN_Num	Digits	16	X	X	Contains the "address information" contents of the Calling Party Number Parameter of the IAM. MSD is sent first.
CgPN_NatAdd	Digits	3	X	X	Contains the "Nature of Address" contents of the Calling Party Number Parameter of the IAM.

Field Name	Data Type	Max Size (Octets)	Call Answered CDR	LCD/End of Call CDR	Comments
CgPN_NumPan	Digits	1	X	X	Contains the "Numbering Plan" contents of the Calling Party Number Parameter of the IAM.
CgPN_PessInd	Digits	1	X	X	Contains the "Presentation Indicator" contents of the Calling Party Number Parameter of the IAM.
CgPN_ScrInd	Digits	1	X	X	Contains the "Screening Indicator" contents of the Calling Party Number Parameter of the IAM.
JIP_Num	Digits	6		X	Contains the contents of the Jurisdiction Information Parameter, MSD sent first.
Charge_Num	Digits	16		X	Contains "address information" contents of the Charge Number Parameter in the IAM. MSD is sent.
Chage_NatAdd	Digits	1		X	Contains the "Nature of Address" contents of the Charge Number Parameter of the IAM.
Chaige_NurrPfen	Digits	1		X	Contains the "Numbering Plan" contents of the Charge Number Parameter of the IAM.
O_CDPN_Num	Digits	16		X	Contains "address information" contents of the Original Called Number Parameter in the IAM. MSD is sent first.
OCHNLNAd	Digits	3		X	Contains the "Nature of Address" contents of the Original Called Number Parameter of the IAM
O_ŒPN_NmPn	Digits	1		X	Contains the "Numbering Plan" contents of the Original Called Number Parameter of the IAM.
O_ŒPN_PeIrd	Digits	1		X	Contains the "Presentation Indicator" contents of the Original Called Number Parameter of the IAM.
Rediriect_Num	Digits	16		X	Contains "address information" contents of the Redirecting

Field Name	Data Type	Max Size (Octets)	Call Answered CDR	LCD/End of Call CDR	Comments
					Number Parameter in the IAM. MSD is sent first.
ReditEct_NatAdd	Digits	3		X	Contains the "Nature of Address" contents of the Redirecting Number Parameter of the IAM.
R3die:_NjmPfen	Digits	1		X	Contains the "Numbering Plan" contents of the Redirecting Number Parameter of the IAM
Rediiect_PiesInd	Digits	1		X	Contains the "Presentation Indicator" contents of the Redirecting Number Parameter of the IAM.
BCI_BABits	Digits	1		X	This information is extracted from the A and B bits of the Backward Call Indicators Parameter.
BCI_DCBits	Digits	1		X	This information is extracted from the C and D bits of the Backward Call Indicators Parameter.
BCI_FEBits	Digits	1		X	This information is extracted from the E and F bits of the Backward Call Indicators Parameter.
BCI_HGBits	Digits	1		X	This information is extracted from the G and H bits of the Backward Call Indicators Parameter.
BCI_IBit	Digits	1		X	This information is extracted from the I bit of the Backward Call Indicators Parameter.
BCI_JBit	Digits	1		X	This information is extracted from the J bit of the Backward Call Indicators Parameter.
BCI_KBit	Digits	1		X	This information is extracted from the K bit of the Backward Call Indicators Parameter.
BCI_LBit	Digits	1		X	This information is extracted from the L bit of the Backward Call Indicators Parameter.

Field Name	Data Type	Max Size (Octets)	Call Answered CDR	LCD/End of Call CDR	Comments
BCI_MBit	Digits	1		X	This information is extracted from the M bit of the Backward Call Indicators Parameter.
BCI_NBit	Digits	1		X	This information is extracted from the N bit of the Backward Call Indicators Parameter.
BCI_POBits	Digits	1		X	This information is extracted from the P and O bits of the Backward Call Indicators Parameter.
OBCI_Abit	Digits	1		X	This information is extracted from the A bit of the Optional Backward Call Indicators Parameter.
OBCI_Bbit	Digits	1		X	This information is extracted from the B bit of the Optional Backward Call Indicators Parameter.
OBCI_Hbit	Digits	1		X	This information is extracted from the H bit of the Optional Backward Call Indicators Parameter.
CuM_CbdsSrd	Digits	1		X	Contains "Coding Standard" contents of the Cause Indicator Parameter.
CausInd_GenLoc	Digits	1		X	Contains "General Location" contents of the Cause Indicator Parameter.
CausWJCassVal	Digits	3		X	Contains "Cause Value" contents of the Cause Indicator Parameter.
Calling PartyCat	Digits	2	X	X	Contains the contents of the Calling Party Category Parameter.
Carrier Selection[4]	Digits	2		X	Contains the contents of the Carrier Selection Information Parameter of the IAM.
CIP_Digits	Digits	4		X	Contains the contents of the digit fields of the Carrier Identification Parameter.

Field Name	Data Type	Max Size (Octets)	Call Answered CDR	LCD/End of Call CDR	Comments
CIP_TypeNt^[5]	Digits	1		X	Contains "Type of Network" contents of the Carrier Identification Parameter.
TNS_Digits	Digits	4		X	Contains the contents of the digit fields of the Transit Network Selection Parameter, right justified.
TNS_TypeNtwk	Digits	1		X	Contains "Type of Network" contents of the Transit Network Selection Parameter.
TNS_NtwkID	Digits	1		X	Contains "Network Identification" contents of the Transit Network Selection Parameter.
TNS_CctCode	Digits	1		X	Contains "Circuit Code" contents of the Transit Network Selection Parameter.
OrigLine Info	Digitis	2	X	X	Contains the contents of the Originating Line Information Parameter of the IAM.
OutTrkNum	Digits	6		X	Contains the contents (digits) of the Outgoing Trunk Group Number Parameter. The MSD is sent first.
Service Code	Digits	3		X	Contains the contents of the Service Code Parameter.
USI_Code	Digits	1		X	Contains the decimal equivalent of bits GF of byte one, of the User Service Information Parameter. Currently North American standards allow only '0' (ITU-T) and as such this field could be omitted. Any future changes would necessitate another version of the CDR.
USI_TransCap	Digits	2		X	Contains the decimal equivalent of bits EDCBA of byte one of the USI parameter.
USI_TransMode	Digits	1		X	Contains the decimal equivalent of bits GF of byte two of the USI parameter. Currently North

Field Name	Data Type	Max Size (Octets)	Call Answered CDR	LCD/End of Call CDR	Comments
					American standards allow only '0' (circuit) and as such this field could be omitted. Any future changes would necessitate another version of the CDR.
USI_TransRate	Digits	2		X	Contains the decimal equivalent of bits EDCBA of byte two of the USI parameter. Currently North American standards allow only '16' (64kb/s) and as such this field could be omitted. Any future changes would necessitate another version of the CDR.
USI_ProtID	Digits	3		X	Contains the decimal equivalent of bits GFEDCBA of byte three of the USI parameter. Currently North American standards allow only '34' (u-law) and as such this field could be omitted. Any future changes would necessitate another version of the CDR.
Auto Congest Level	Digits	1		X	This field contains the decimal equivalent of the Automatic Congestion Level parameter.
Continity Ind	Digits	1		X	Contains the decimal equivalent of the Continuity Indicators parameter.
NOC_BABits	Digits	1		X	This information is extracted from the B and A bits of the Nature of Connection Indicators Parameter.
NOC_DCBits	Digits	1		X	This information is extracted from the D and C bits of the Nature of Connection Indicators Parameter.
NOC_EBits	Digits	1		X	This information is extracted from the E bit of the Nature of Connection Indicators Parameter.
HopCounter	Digits	2		X	This field contains the decimal equivalent of bits EDCBA of the Hop Counter Parameter.

Field Name	Data Type	Max Size (Octets)	Call Answered CDR	LCD/End of Call CDR	Comments
SUS Indicator	Digits	1		X	Contains the contents of Suspend Indicator
RES Indicator	Digits	1		X	Contains the contents of Resume Indicator
EventInfo	Digits	1	X	X	Contains the contents of Event Information

Note: 'X' denotes the presence of a field in the CDR record. A comma will be present for the empty fields that are not included in the output. The Long Duration Call CDR format will have the same format as the End of Call CDR format.

Note: The maximum number of octets in a single ISUP CDR record format is 479 octets including commas.

1 2 3 4 5

The Unequipped Circuit Identification Code message can be received in response to many SS7 ISUP messages (see GR-317, Section 3.1.4.5 for complete list). It can be received in response to either the IAM (typical), REL, SUS, RES or RLC.

As indicated in the table, this Reset Circuit message would likely be from the expiration of Timer, TREL,l , expiring. However, the RSC message can be sent as a result of many other conditions, many of which are not call related. As the CDR (as indicated in the table) would be an extremely inefficient mechanism for recording these events, further discussions should take place as to whether these other occurrences need to be recorded (i.e. for the QoS application), and if so the best mechanism for transport.

Sentinel will have a configurable timer (set upon receipt of IAM), which upon expiring, will send all collected information in an initial, partial, CDR (LDC indicator set to 1) and then reset the timer. If the timer expires again (i.e. no REL received), another partial CDR (LDC indicator set to 2) will be sent that contains no new information (other than the implicit indication that the timer has expired again). This will repeat (LDC indicator set to 2) until the REL is received and a CDR (LDC indicator set to 3) containing the "tear-down" information (usually just REL and RLC times and REL Cause Indicator) will be sent. If the call "completes" before the timer expires (i.e. IAM, ACM, ANM, REL and RLC all received) the LDC indicator is set to 0. By "partial" it is meant that certain information elements have not yet been populated with data. For example, the only difference between 2 CDRs (for the same call) that each have a LDC Indicator =2, is the Sequence ID.

4
This parameter is an entire byte and can take on up to 256 discrete values, as such two characters may not be enough. However, it is extremely unlikely that more than 99 values will ever exist.

5
This parameter can be eliminated from the CDR if it felt that additional values are unlikely to be assigned.

Sentinel 9 ANSI LIDB TDR field Definition

The output TDR file format shall be a simple ASCII encoded TDR format consisting of a fixed size header terminated with a new-line followed by a variable number of records. Following is the organization of the TDR records within a file containing N records:

File Format
CDR Header NL
CDR Record #1
f1,f2,,f4,..fn NL
CDR Record #3
CDR Record #N

Table 41: TDR File Organization For #N Records

The TDR file header shall contain two fixed length fields; the Version Number and the Number of Records (terminated with a NL - NewLine) as described below:

Table 42: TDR Header Format

Field Name	Data Type	Field Length	Comments
Version Number	Digits	2	The current CDR format version number (=2)
Number of Records	Digits	6	Number of CDR records in the file.

It is not possible to predict the field offsets in the TDR record structure. However, the fields in a TDR record are positional and comma-separated, while the TDR records in a file are separated by newline (NL) character (e.g. f1,f2,f3,f5,.. .fn NL). For the fields/parameters that are missing or not present (optional), a comma shall be present in the TDR (e.g. f1,,,f4,f5,).

LIDB TDR file Format

The following is a list of all the elements contained within a call TDR record:

Table 45: LIDB TDR Fields

File Name	Data Type	Max Size (Octets)	Comments
Sequence ID	Digits	10	Begins at "1" and is incremented by "1" for

			each CDR sent. Reset to "1" after 2147483647 (0x7FFFFFFF)
Originating Point Code	Alpha Numeric	11	The Point Code contained in the OPC of the SCCP, with format as 12-11-123 (dashes included). ANSI = Network - Cluster - Member ITU = Zone - Area - Signaling Point
Destination Point Code	Alpha Numeric	11	The Point Code contained in the DPC of the SCCP, with format as 12-11-123 (dashes included). ANSI = Network - Cluster - Member ITU = Zone - Area - Signaling Point
Sub-System Number	Digits	3	The Sub System Number contained in the SCCP layer
Query Time	Digits	13	The time at which the Query Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
Response Time	Digits	13	The time at which the Response Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
CDR Type	Digits	1	0 = Normal CDR 1 = Timeout CDR 2 = Error CDR (SCCP/TCAP protocol error)
LIDBOperation	Digits	1	1 = Calling Card Validation Type 1 2 = Billed Number Screening Derived field from the Calling Card Verification Information or Billing Number Screening Information parameters.
PINError	Digits	2	Contains the digits contents of the Error Code (TCAP) Parameter (No PIN Match).
Billing_Digits	Digits	16	Contains the digits contents of the first data element in the Service Key Parameter of the Calling Card/Billed Number Query Message, where the type of digits value is "Billing Number".

File Name	Data Type	Max Size (Octets)	Comments
Billing_NatAdd	Digits	3	Contains the Nature of Address field of the Billing Number data element in the Service Key Parameter.
Billing_NumPlan	Digits	1	Contains the Numbering Plan field of the Billing Number data element in the Service Key Parameter.
PIN Identification Number	Digits	4	Contains the PIN Number contents of the second data element in the Service Key Parameter of the Calling Card Validation Query Message.
CgPN_Digits	Digits	16	Contains the digits contents of the data element in the Service Key Parameter of the Calling Card/Billed Number Query Message, where the type of digits value is "Calling Number" including * = D, # = E, ST = F
CgPN_NatAdd	Digits	3	Contains the Nature of Address field of the Calling Party Number data element in the Service Key Parameter.
CgPN_NumPlan	Digits	1	Contains the Numbering Plan field of the Calling Party Number data element in the Service Key Parameter.
CdPN_Digits	Digits	16	Contains the digits contents of the data element in the Service Key Parameter of the Calling Card/Billed Number Query Message, where the type of digits value is "Called Number" including * = D, # = E, ST = F
CdPN_NatAdd	Digits	3	Contains the Nature of Address field of the Called Party Number data element in the Service Key Parameter.
CdPN_NumPlan	Digits	1	Contains the Numbering Plan field of the Called Party Number data element in the Service Key Parameter.
Company ID	Digits	4	Contains the contents of the Company ID parameter of the Calling Card Validation - Normal Response Message.
Record Status Indicator	Digits	1	Contains the contents of the Record Status Indicator parameter of the Calling Card Validation/Billed Number Screening Response Message.

File Name	Data Type	Max Size (Octets)	Comments
Calling Card Sub-Account Number	Digits	2	Contains the contents of the Calling Card Sub-Account Number parameter of the Calling Card Validation - Response Message.
PIN Restriction Indicator	Digits	1	Contains the contents of the PIN Restriction Indicator parameter of the Calling Card Validation - Response Message.
CCAN Service Denial Indicator	Digits	1	Contains the contents of the CCAN Service Denial Indicator parameter of the Calling Card Validation - Response Message.
PIN Service Denial Indicator	Digits	1	Contains the contents of the PIN Service Denial Indicator parameter of the Calling Card Validation - Response Message.
Collect Acceptance Indicator	Digits	1	Contains the contents of the Collect Acceptance Indicator parameter of the Billed Number Screening - Response Message.
Third Number Acceptance Indicator	Digits	1	Contains the contents of the Third Number Acceptance Indicator parameter of the Billed Number Screening -Response Message.
Treatment Indicator	Digits	2	Contains the contents of the Treatment Indicator parameter of the Billed Number Screening - Response Message.
Service or Equipment Indicator	Digits	2	Contains the contents of the Service or Equipment Indicator parameter of the Billed Number Screening - Response Message.
Intercept Indicator	Digits	2	Contains the contents of the Intercept Indicator parameter of the Billed Number Screening - Response Message.

Note: The maximum number of octets in a single LIDB TDR record format is 175 octets including commas.

Sentinel 11.5 ANSI ISUP CDR/LIDB file Format

The output CDR/LIDB TDR file format is a simple ASCII encoded format consisting of a fixed size header terminated with a new-line followed by a variable number of records. Following is the organization of the CDR/ LIDB TDR records within a file containing N records:

Table 43: CDR/LIDB TDR File Organization For #N Records

File Format
CDR Header NL
CDR Record #1
f1,f2,,f4,..fn NL
CDR Record #3
CDR Record #N

The CDR/LIDB TDR file header contains the following fixed length fields as described below:

Table 44: CDR/LIDB TDR Header

File Name	Data Type	Field Length	Comment
Version Number	Digits	2	The current CDR/TDR format version number (=3)
Number of Records	Digits	6	Number of CDR/TDR records in the file.
File Sequence Number	Digits	6	Begins at "1" and is incremented by "1" for each CDR/TDR file sent. Reset to "1" after 999999.

ANSI ISUP CDR field Definition

The CDR fields in each record are fixed or positional and separated by a comma (','). The following is the definition (type and size) of each field contained within the ANSI ISUP CDR record:

Table 45: ANSI ISUP CDR Fields

	Field Name	Data Type	Max Size	Call Answd CDR	LDC/End of Call CDR	Comments
	CDR ID	Digits	10		x	The physical ID in the database for each call CDR. This number is not sequential (may have gaps due to

	Field Name	Data Type	Max Size	Call Answd CDR	LDC/End of Call CDR	Comments
						selection) and is used for CDR recovery.
SIO	Network Indicator	Digits	1	x	x	This information is extracted from the DC bits of the Service Information Octet Parameter.
Originating Point Code (OPC)		Alpha Num	11	x	x	The Point Code contained in the OPC of the IAM, with format as 12-11-123 (dashes included). (Network - Cluster -Member)
Destination Point Code (DPC)		Alpha Num	11	x	x	The Point Code contained in the DPC of the IAM, with format as 12-11-123 (dashes included). (Network - Cluster -Member)
Trunk Circuit Identification Code (CIC)		Digits	5	x	x	The Circuit Identification Code contained in the ISUP MSU.
IAM Time		Digits	13	x	x	The time at which the Initial Address Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
ACM Time		Digits	13	x	x	The time at which the Address Complete Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
ANM Time		Digits	13	x	x	The time at which the Answer Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
SUS Time		Digits	13		x	The time at which the Suspend Message was received by Sentinel (number

	Field Name	Data Type	Max Size	Call Answd CDR	LDC/End of Call CDR	Comments
						of secs & milliseconds, from Jan 1, 1970)
RES Time		Digits	13		x	The time at which the Resume Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
REL Time		Digits	13		x	The time at which the Release Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
RLC Time		Digits	13		x	The time at which the Release complete Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
EXM Time		Digits	13		x	The time at which the Exit Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
COT Time		Digits	13		x	The time at which the Continuity Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
UCIC Time		Digits	13		x	The time at which the Unequipped CIC Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
RSC Time		Digits	13		x	The time at which the Reset Circuit Message was received by Sentinel (number of secs & milliseconds, from Jan 1, 1970)
REL Direction		Digits	1		x	=0 if same as IAM, =1 if opposite IAM

	Field Name	Data Type	Max Size	Call Answd CDR	LDC/End of Call CDR	Comments
						Omitted if REL is not received
CDR Type / LDC[6] /		Digits	1		x	=0 Normal / no LDC =1 if first CDR in (possible LDC) =2 Ongoing LDC CDR =3 Final LDC CDR = 4 Answer / Intermediate CDR = 5 Abnormal CDR
Nature Of Connection Indicators	Satellite Indicator	Digits	1		x	This information is extracted from the BA bits of the Nature of Connection Indicators Parameter.
	Continuity Check Indicator	Digits	1		x	This information is extracted from the DC bits of the Nature of Connection Indicators Parameter.
	Echo Control Indicator	Digits	1		x	This information is extracted from the E bit of the Nature of Connection Indicators Parameter.
Forward Call Indicators (FCI)	National / International Call Indicator	Digits	1		x	This information is extracted from the A bit of the Forward Call Indicators Parameter.
	End-to-end method Indicator	Digits	1		x	This information is extracted from the BC bits of the Forward Call Indicators Parameter.
	Interworking Indicator	Digits	1		x	This information is extracted from the D bit of the Forward Call Indicators Parameter.
	End-to-end Information Indicator	Digits	1		x	This information is extracted from the E bit of the Forward Call Indicators Parameter.
	ISDN user part Indicator	Digits	1		x	This information is extracted from the F bit of the Forward Call Indicators Parameter.

	Field Name	Data Type	Max Size	Call Answd CDR	LDCEnd of Call CDR	Comments
	ISDN user part preference Indicator	Digits	1		x	This information is extracted from the HG bits of the Forward Call Indicators Parameter.
	ISDN access Indicator	Digits	1		x	This information is extracted from the I bit of the Forward Call Indicators Parameter.
	SCCP Method Indicator	Digits	1		x	This information is extracted from the KJ bits of the Forward Call Indicators Parameter.
	Ported Number Translation	Digits	1		x	This information is extracted from the M bit of the Forward Call Indicators Parameter.
	CaBngFartyCaegoy	Digits	3	x	x	Contains the contents of the Calling Party Category Parameter.
	Ported Number Translation	Digits	1		x	This information is extracted from the M bit of the Forward Call Indicators Parameter.
CallingPartyCategory		Digits	3		x	Contains the contents of the Calling Party Category Parameter.
User Service Information	Coding Standard	Digits	1		x	Contains the decimal equivalent of bits GF of octet 1, of the User Service Information Parameter. Currently North American standards allow only '0' (ITU-T) and as such this field could be omitted.
	Transfer Capability	Digits	2		x	Contains the decimal equivalent of bits EDCBA of octet 1 of the USI parameter.
	Transfer Mode	Digits	1		x	Contains the decimal equivalent of bits GF of octet 2 of the USI parameter. Currently North American standards allow only '0'

	Field Name	Data Type	Max Size	Call Answd CDR	LDCEnd of Call CDR	Comments
						(circuit) and as such this field could be omitted.
	Transfer Rate	Digits	2		x	Contains the decimal equivalent of bits EDCBA of octet 2 of the USI parameter. Currently North American standards allow only '16' (64kb/s) and as such this field could be omitted.
Called Party Number	Nature Of Address	Digits	3	x	x	Contains the "Nature of Address" contents of the Called Party Number Parameter of the IAM.
	Numbering Plan	Digits	1	x	x	Contains the "Numbering Plan" contents of the Called Party Number Parameter of the IAM.
	Address Digits	Digits	24	x	x	Contains the "address information" contents of the Called Party Number Parameter of the IAM.
Calling Party Number	Nature of Address	Digits	3	x	x	Contains the "Nature of Address" contents of the Calling Party Number Parameter of the IAM.
	Numbering Plan	Digits	1	x	x	Contains the "Numbering Plan" contents of the Calling Party Number Parameter of the IAM.
	Presentation Indicator	Digits	1	x	x	Contains the "Presentation Indicator" contents of the Calling Party Number Parameter of the IAM.
	Screening Indicator	Digits	1	x	x	Contains the "Screening Indicator" contents of the Calling Party Number Parameter of the IAM.
	Address Digits	Digits	24	x	x	Contains the "address information" contents of the Calling Party Number Parameter of the IAM.

	Field Name	Data Type	Max Size	Call Answd CDR	LDC/End of Call CDR	Comments
Carrier Identification	Type Of Network [7]	Digits	1		x	Contains the decimal equivalent of bits GFE "Type of Network" contents of the Carrier Identification Parameter.
	Carrier Digits	Digits	4		x	Contains the contents of the digit fields of the Carrier Identification Parameter.
CarrierSelection		Digits	3		x	Contains the contents of the Carrier Selection Information Parameter of the IAM.
Charge Number	Nature Of Address	Digits	3		x	Contains the "Nature of Address" contents of the Charge Number Parameter of the IAM.
	Numbering Plan	Digits	1		x	Contains the "Numbering Plan" contents of the Charge Number Parameter of the IAM.
	Address Digits	Digits	24		x	Contains "address information" contents of the Charge Number Parameter in the IAM.
Generic Address	Type Of Address	Digits	3		x	Contains the "Type of Address" contents of the Generic Address Parameter of the IAM.
	Nature Of Address	Digits	3		x	Contains the "Nature of Address" contents of the Generic Address Parameter of the IAM.
	Numbering Plan	Digits	1		x	Contains the "Numbering Plan" contents of the Generic Address Parameter of the IAM.
	Test Indicator	Digits	1		x	Contains the "Test Indicator" contents of the Generic Address Parameter of the IAM.
	Presentation Indicator	Digits	1		x	Contains the "Presentation Indicator" contents of the

	Field Name	Data Type	Max Size	Call Answd CDR	LDGEnd of Gall CDR	Comments
						Generic Address Parameter of the IAM.
	Address Digits	Digits	24		x	Contains the "Address information" contents of the Generic Address Parameter of the IAM.
HopCounter		Digits	2		x	This field contains the decimal equivalent of bits EDCBA of the Hop Counter Parameter.
Jurisdiction Information Parameter (JIP)		Digits	6		x	Contains the contents of the Jurisdiction Information Parameter of the IAM.
Original Called Number	Nature Of Address	Digits	3		x	Contains the "Nature of Address" contents of the Original Called Number Parameter of the IAM.
	Numbering Plan	Digits	1		x	Contains the "Numbering Plan" contents of the Original Called Number Parameter of the IAM.
	Presentation Indicator	Digits	1		x	Contains the "Presentation Indicator" contents of the Original Called Number Parameter of the IAM.
	Address Digits	Digits	24		x	Contains "address information" contents of the Original Called Number Parameter in the IAM.
Originating Line Information (OLIP)		Digits	3	x	x	Contains the contents of the Originating Line Information Parameter of the IAM.
Redirecting Number	Nature Of Address	Digits	3		x	Contains the "Nature of Address" contents of the Redirecting Number Parameter of the IAM.
	Numbering Plan	Digits	1		x	Contains the "Numbering Plan" contents of the Redirecting Number Parameter of the IAM.

	Field Name	Data Type[e]	Max Size	Call Answd CDR	LDC/End of Call CDR	Comments
	Presentation Indicator	Digits	1		x	Contains the "Presentation Indicator" contents of the Redirecting Number Parameter of the IAM.
	Address Digits	Digits	24		x	Contains "address information" contents of the Redirecting Number Parameter in the IAM.
Redirection Information	Redirecting Indicator	Digits	1		x	This information is extracted from the CBA bits of the Redirection Information Parameter.
	Original Redirection reason	Digits	1		x	This information is extracted from the HGFE bits of the Redirection Information Parameter.
	Redirection counter	Digits	1		x	This information is extracted from the KJI bits of the Redirection Information Parameter.
	Redirecting reason	Digits	1		x	This information is extracted from the PONM bits of the Redirection Information Parameter.
ServiceCode		Digits	3		x	Contains the contents of the Service Code Parameter.
Transit Network Selection	Type Of Network	Digits	1		x	Contains "Type of Network" contents of the Transit Network Selection Parameter.
	Network ID Plan	Digits	1		x	Contains "Network Identification" contents of the Transit Network Selection Parameter.
	Field Digits (Network ID)	Digits	4		x	Contains the contents of the digit fields of the Transit Network Selection Parameter, right justified.
	Selection Circuit Code	Digits	1		x	Contains "Circuit Code" contents of the Transit

	Field Name	Data Type	Max Size	Call Answd CDR	LDCEnd of Call CDR	Comments
						Network Selection Parameter.
Backward Call Indicators	Charge Indicator	Digits	1		x	This information is extracted from the BA bits of the Backward Call Indicators Parameter.
	Called Party Status Indicator	Digits	1		x	This information is extracted from the CD bits of the Backward Call Indicators Parameter.
	Calling Party Category Indicator	Digits	1		x	This information is extracted from the FE bits of the Backward Call Indicators Parameter.
	End-to-end method Indicator	Digits	1		x	This information is extracted from the HG bits of the Backward Call Indicators Parameter.
	Interworking Indicator	Digits	1		x	This information is extracted from the I bit of the Backward Call Indicators Parameter.
	End-to-end Information Indicator	Digits	1		x	This information is extracted from the J bit of the Backward Call Indicators Parameter.
	ISDN user part Indicator	Digits	1		x	This information is extracted from the K bit of the Backward Call Indicators Parameter.
	Holding Indicator	Digits	1		x	This information is extracted from the L bits of the Backward Call Indicators Parameter.
	ISDN access Indicator	Digits	1		x	This information is extracted from the M bit of the Backward Call Indicators Parameter.
	Echo control Indicator	Digits	1		x	This information is extracted from the N bit of the

	Field Name	Data Type	Max Size	Call Answd CDR	LDGEnd of Gall CDR	Comments
						Backward Call Indicators Parameter.
	SCCP method Indicator	Digits	1		x	This information is extracted from the PO bits of the Backward Call Indicators Parameter.
Optional Backward Call Indicator	In band Information Indicator	Digits	1		x	This information is extracted from the A bit of the Optional Backward Call Indicators Parameter.
	Call diversion Indicator	Digits	1		x	This information is extracted from the B bit of the Optional Backward Call Indicators Parameter.
	User-Network Interaction Indicator	Digits	1		x	This information is extracted from the H bit of the Optional Backward Call Indicators Parameter.
Continuity Indicator		Digits	1		x	Contains the decimal equivalent of the Continuity Indicators parameter.
Outgoing Trunk Group Number		Digits	6		x	Contains the contents (digits) of the Outgoing Trunk Group Number Parameter. The MSD is sent first.
Cause Indicator	Coding Standard	Digits	1		x	Contains "Coding Standard" contents of the Cause Indicator Parameter.
	General Location	Digits	2		x	Contains "General Location" contents of the Cause Indicator Parameter.
	Cause Value	Digits	3		x	Contains "Cause Value" contents of the Cause Indicator Parameter.
Redirection Number	Nature Of Address	Digits	3		x	Contains the "Nature of Address" contents of the Redirection Number Parameter.
	Numbering Plan	Digits	1		x	Contains the "Numbering Plan" contents of the

	Field Name	Data Type	Max Size	Call Answd CDR	LDC End of Call CDR	Comments
						Redirection Number Parameter.
	Address Digits	Digits	24		x	Contains the "address information" contents of the Redirection Number Parameter.
Automatic Congestion Level		Digits	1		x	This field contains the decimal equivalent of the Automatic Congestion Level parameter.
SUS Indicator		Digits	1		x	Contains the contents of Suspend Indicator
RES Indicator		Digits	1		x	Contains the contents of Resume Indicator
EveryInfo		Digits	1	x	x	Contains the contents of Event Information

Note: 'X' denotes the presence of a field in the CDR record. The position of the fields in the output CDR is fixed as shown. A comma will be present for the empty fields that are not included in the output. The Long Duration Call CDR format will have the same format as the End of Call CDR format.

Note: The maximum number of octets in a single ANSI ISUP CDR record format is 551 octets (ascii digits) including commas.

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LIDB TDR field Definition

The following table is a list of all the fields from the parameters that are contained within a LIDB TDR record.

Sentinel will have a configurable timer (set upon receipt of IAM), which upon expiring, will send all collected information in an initial, partial, CDR (LDC indicator set to 1) and then reset the timer. If the timer expires again (i.e. no REL received), another partial CDR (LDC indicator set to 2) will be sent that contains no new information (other than the implicit indication that the timer has expired again). This will repeat (LDC indicator set to 2) until the REL is received and a CDR (LDC indicator set to 3) containing the "tear-down" information (usually just REL and RLC times and REL Cause Indicator) will be sent. If the call "completes" before the timer expires (i.e. IAM, ACM, ANM, REL and RLC all received) the LDC indicator is set to 0.

By "partial" it is meant that certain information elements have not yet been populated with data. For example, the only difference between 2 CDRs (for the same call) that each have a LDC Indicator =2, is the CDR ID.

2 This parameter can be eliminated from the CDR if it felt that additional values are unlikely to be assigned.

Table 46: LIDB TDR Fields

Field Name	Data Type	Max Size (Octets)	Comments
Sequence ID	Digits	10	Begins at "1" and is incremented by "1" for each TDR sent. Reset to "1" after 2147483647 (0x7FFFFFFF)
Originating Point Code	Alpha Numeric	11	The Point Code contained in the OPC of the SCCP, with format as 12-11-123 (dashes included).
Destination Point Code	Alpha Numeric	11	ANSI = Network - Cluster - Member The Point Code contained in the DPC of the SCCP, with format as 12-11-123 (dashes included).
SCCP Calling Party Address Point Code	Alpha Numeric	11	ANSI = Network - Cluster - Member The Point Code contained in the Calling Party Address of the SCCP (Query only), with format as 12-11-123 (dashes included).
Originating Transaction ID	Hex digits	8	The Originating Transaction ID from the transaction portion (Query only).
Sub-System Number	Digits	3	The Sub System Number contained in the Called Party Address of the SCCP.
Query Time	Digits	13	The time at which the Query Message was received by Sentinel (number of seconds & milliseconds, from Jan 1, 1970)
Response Time	Digits	13	The time at which the Response Message was received by Sentinel (number of seconds & milliseconds, from Jan 1, 1970)
CDR Type	Digits	1	0 = Normal TDR 1 = Timeout TDR 2 = Error TDR (SCCP/TCAP protocol error)
LIDBOperation	Digits	1	1 = Calling Card Validation Type 1 2 = Billed Number Screening Derived field from the Calling Card Verification Information or Billing Number Screening Information parameters.
PINError	Digits	2	Contains the digits contents of the Error Code (TCAP) Parameter (No PIN Match).

Field Name	Data Type	Max Size (Octets)	Comments
Billing_Digits	Digits	16	Contains the digits contents of the first data element in the Service Key Parameter of the Calling Card/Billed Number Query Message, where the type of digits value is "Billing Number"
Billing_NatAdd	Digits	3	Contains the Nature of Address field of the Billing Number data element in the Service Key Parameter.
Billing_NumPlan	Digits	1	Contains the Numbering Plan field of the Billing Number data element in the Service Key Parameter.
PIN Identification Number	Digits	4	Contains the PIN Number contents of the second data element in the Service Key Parameter of the Calling Card Validation Query Message.
CgPN_Digits	Digits	16	Contains the digits contents of the data element in the Service Key Parameter of the Calling Card/Billed Number Query Message, where the type of digits value is "Calling Number" including * = D, # = E, ST = F
CgPN_NatAdd	Digits	3	Contains the Nature of Address field of the Calling Party Number data element in the Service Key Parameter.
CgPN_NumPlan	Digits	1	Contains the Numbering Plan field of the Calling Party Number data element in the Service Key Parameter.
CdPN_Digits	Digits	16	Contains the digits contents of the data element in the Service Key Parameter of the Calling Card/Billed Number Query Message, where the type of digits value is "Called Number" including * = D, # = E, ST = F
CdPN_NatAdd	Digits	3	Contains the Nature of Address field of the Called Party Number data element in the Service Key Parameter.
CdPN_NumPlan	Digits	1	Contains the Numbering Plan field of the Called Party Number data element in the Service Key Parameter.
Company ID	Digits	4	Contains the contents of the Company ID parameter of the Calling Card Validation -Normal Response Message.
Record Status Indicator	Digits	1	Contains the contents of the Record Status Indicator parameter of the Calling Card

Field Name	Data Type	Max Size (Octets)	Comments
			Validation/Billed Number Screening Response Message.
Calling Card Sub-Account Number	Digits	2	Contains the contents of the Calling Card Sub-Account Number parameter of the Calling Card Validation - Response Message.
PIN Restriction Indicator	Digits	1	Contains the contents of the PIN Restriction Indicator parameter of the Calling Card Validation - Response Message.
CCAN Service Denial Indicator	Digits	1	Contains the contents of the CCAN Service Denial Indicator parameter of the Calling Card Validation - Response Message.
PIN Service Denial Indicator	Digits	1	Contains the contents of the PIN Service Denial Indicator parameter of the Calling Card Validation - Response Message.
Collect Acceptance Indicator	Digits	1	Contains the contents of the Collect Acceptance Indicator parameter of the Billed Number Screening - Response Message.
Third Number Acceptance Indicator	Digits	1	Contains the contents of the Third Number Acceptance Indicator parameter of the Billed Number Screening - Response Message.
Treatment Indicator	Digits	2	Contains the contents of the Treatment Indicator parameter of the Billed Number Screening - Response Message.
Service or Equipment Indicator	Digits	2	Contains the contents of the Service or Equipment Indicator parameter of the Billed Number Screening - Response Message.
Intercept Indicator	Digits	2	Contains the contents of the Intercept Indicator parameter of the Billed Number Screening -Response Message.

Note: The maximum number of octets in a single LIDB TDR record format is 197 octets including commas.

Usage Measurement File Format

The total file format is comprised of ASCII files that consist of a fixed size header terminated with a new-line followed by a variable number of comma-separated detail records. Each detail record contains information about one aggregation of one Usage Measurement for one rollup interval. *Table 47: Um File Format* shows the total file format organization for Usage Measurements containing "N" records.

Table 47: Um File Format

File Format
UM Header <NL>
UM Record #1 <NL>
UM Record #2 <NL>
UM Record #N <NL>

Usage Measurement File Header Format

The format for the file header for the exported Usage Measurement is shown in the UM Format Header Table.

Table 48: UM Format Header

Field Name	Data Type	Field Length (bytes)	Comments
Version Number	Digits	2	The current peg format version number, which is '02'
Number of Records	Digits	6	Number of peg records in the file.
SuspectDataFlag	Alpha	1	<space> = data is complete
Starting TimeStamp	Digits	10	Starting date and time of the extracted data in UNIX GMT (Seconds since Jan 1, 1970)
Ending TimeStamp	Digits	10	Ending date and time of the extracted data in UNIX GMT (Seconds since Jan 1, 1970)
RollupInterval	Digits	4	Number of hours per peg counter rollup interval
File Sequence Number	Digits	6	Number of this file in the sequence of files comprising this file transfer. This number starts with 000001. If the number of peg counter records to be extracted exceeds the user-specifiable max file size, then there could be multiple files.
Final FileFlag	Alpha	1	Y = this is the last file in a series of files N = there are additional files in the series.

Usage Measurement Field Definition

The file detail format for the exported Usage Measurement is shown in the UM Field Details table.

Table 49: UM Field Details

Field Number	Field Name	Max Length (bytes) Max Value	Description
1	UMNumber	10 / 2**32	The unique IAS-generated number that identifies a particular peg counter and was generated at the time the UM was defined
2	UMName	15	The user-defined name of the UM counter
3	Timestamp	10	Unix time stamp for the end of the roll-up interval for this peg counter instance. (Greenwich Meridian Time in seconds since Jan 1, 1970)
4	OPA	12	The value of the originating party address; Either the OPC from the MTP routing label, and Global Title Digits or PC from the Calling Party Address field depending on configuration.
5	DPA	12	The value of the Destination party address; Either the DPC of from the MTP routing label, and Global Title Digits or PC from the Called Party Address field depending on configuration.
6	UMValue	10 / 2**32	Integer value of the accumulated UM instance
7	OctetCount	20 / 2**64	Total number of octets in the MSUs represented by UMValue
8	AddrType	10 / 2**30	This field is used to indicate the type of digits that are contained in the OPA, DPA and Linkset fields. 0 = OPA and DPA contain point code digits; 1= OPA and DPA contain global title digits. >1: LSB - not used Next 10 bits - level 1 type Next 10 bits - level 2 type Next 10 bits - level 3 type Types:

Field Number	Field Name	Max Length (bytes) Max Value	Description
			0 - Not used 1 - OPC 2 - DPC 3 - Calling GTA 4 - Called GTA 5 - Linkset
9	Linkset	80 (0)	Linkset name if Linkset was used to generate the UM.

Appendix B: DataFeed Data Information

Topics:

Overview

This appendix provides information on the data utilized in the DataFeed application.

Getting an Empty File

DataFeed is configured to generate and export a file at specific time intervals.

If there is activity during the time period

If there is data during the time period, then the file is generated and the exported file shows the activity. In addition, a file for the next 5-minute interval is generated and exported and so on.

If there is no activity during the time period

If there is no data, (or an outage), during a scheduled interval the system can wait up to 6 hours before generating and exporting an empty file. For example, if an export is scheduled to export files every 5 minutes starting at 10 am, the file will consist of records that occurred during the period 9:55am to 10:00am (for 10:00am), 10:00-10:05, (for 10:05), etc. until 4:05pm (for 4:00pm) which is six hours (the maximum time interval

Figure 66: Time Interval Schematic

Datafeed will continue to export if there is no data present).
If during the scheduled export time, data is received, then those files are generated and exported.

Data Types

List of perceived Severity

Table 50: Perceived Severity shows the severity levels that are used in ProAlarm. The table shows:

- Perceived severity name
- ITU perceived severity ID
- Perceived severity ID

Table 50: Perceived Severity

Perceived Severity Name	ITU Perceived Severity ID	Perceived Severity ID
CLEARED	**5**	**6**
WARNING	4	5
MINOR	3	4
MAJOR	2	3
CRITICAL	1	2
INDETERMINATE	0	1

Alarm Types

Table below lists the alarm types that can be configured in ProAlarm. The table shows:

- ID
- Alarm Type
- ITU-ID
- ITU Alarm Type

Table 51: Alarm Type

ID	Alarm Type	ITU-ID	ITU Alarm type
		1	Attribute Value Change
1	COMMUNICATIONS_ALARM	2	Communications Alarm
3	ENVIRONMENTAL_ALARM	3	Environmental Alarm
5	EQUIPMENT_ALARM	4	Equipment Alarm
6	INTEGRITY_VIOLATION	5	Integrity Violation
		6	Object Creation
		7	Object Deletion
9	OPERATIONAL_VIOLATION	8	Operational Violation
10	PHYSICAL_VIOLATION	9	Physical Violation
2	PROCESSING_ERROR_ALARM	10	Processing Error Alarm
4	QUALITY_OF_SERVICE_ALARM	11	Quality Of Service Alarm
		12	Relationship Changed
7	SECURITY_VIOLATION	13	Security Service or Mechanism Violation
		14	State Changed
8	TIME_DOMAIN_VIOLATION	15	Time Domain Violation

IXP Alarms

Table 49: IXP Alarms lists the alarms for IXP. This table provides the following information:

- Notification/Event/Name
- Severity
- Threshold

Table 52: IXP Alarms

Notification/Event/Name	Severity	Threshold
Event List Size Threshold Crossed	Minor	The chronological sorting PDU list (input of data flow processings of type Building) is more than 75 % full.
Event List Size Threshold Crossed	Major	The chronological sorting PDU list (input of data flow processings of type Building) is more than 95 % full.
Event List Size Exceeded failure	Critical	The chronological sorting PDU list (input of data flow processings of type Building) is full.
Stream Connection Loss	Major	Input data flow has disconnected
Data timeout	Major	No more PDU or xDR on input stream
Server heartbeat timeout	Major	Heart beat lost with server in subsystem since 1 minute
Process heartbeat timeout	Major	Heart beat signal lost with a process since 1 minute
No Frame Timeout exceeded	Warning	No PDUs received by an xDR builder during the value of the general parameter "No PDU timeout".
Memory Allocation Error	Critical	Out of memory on the IXP server
xDRs created critical rate crossed	Warning	Exceed specific parameter "Critical rate of created xDRs"
Received frames critical rate crossed	Warning	Exceed specific parameter "Critical rate of received frames".
Out of time xDRs critical rate crossed	Warning	Exceed specific parameter "Critical rate of out of time xDRs"
Unknown frames critical rate crossed	Warning	Exceed specific parameter "Critical rate of unknown frames"
Erroneous frames critical rate crossed	Warning	Exceed specific parameter "Critical rate of erroneous frames"
Rejected frames critical rate crossed	Warning	Exceed specific parameter "Critical rate of rejected frames"

Notification/Event/Name	Severity	Threshold
Frames not accepted by xDR consumers critical rate crossed	Warning	Exceed specific parameter "Critical rate of frames not accepted by xDR consumers"
xDRs not accepted by xDR consumers critical rate crossed	Warning	Exceed specific parameter "Critical rate of xDRs not accepted by xDR consumers"
Q.752 counter 7.1 - Routing failure, no translation for an address of such nature	Minor	Refer to Q.752 specifications
Q.752 counter 7.2 - Routing failure, no translation for this specific address	Minor	Refer to Q.752 specifications
Q.752 counter 7.3 - Routing failure, MTP failure	Minor	Refer to Q.752 specifications
Q.752 counter 7.4 - Routing failure, network congestion	Minor	Refer to Q.752 specifications
Q.752 counter 7.5 - Routing failure, subsystem failure	Minor	Refer to Q.752 specifications
Q.752 counter 7.6 - Routing failure, subsystem congestion	Minor	Refer to Q.752 specifications
Q.752 counter 7.7 - Routing failure, unequipped user	Minor	Refer to Q.752 specifications
Q.752 counter 7.9 - Routing failure, unqualified	Minor	Refer to Q.752 specifications
No Event Timeout exceeded	Minor	Refer to Q.752 specifications
SLS failure	Major	Refer to Q.752 specifications
xDR Loss	Major	Unable to send an xDR to an output stream.
xDR Consumer Frame Loss	Minor	I/O conflict in the directory /opt/TKLCixp/pdu (possible PDU storage full)
Datawarehouse connection error	Critical	Connection to xDR datawarehouse fails
Transfer late	Major	xDR storage late regarding real time
DataExport Fails to read Data Source	Critical	Error reading configuration data or connection to persistence fails. Ensure IXP Oracle server is running or reachable.
DataExport Mount or Unmount Fails	Critical	Error mounting or unmounting NFS remote file system. Ensure the configured remote file system is included in the NFS server configuration on the configured remote server.

Notification/Event/Name	Severity	Threshold
DataExport file system is not writable	Critical	Error writing to remote file system. Ensure the configured remote file system or remote directory have the correct permissions.
DataExport remote file system is not Accessible	Critical	Error accessing configured remote file system. Ensure the remote file system configuration is correct and the configured NFS server is reachable.
DataExport Invalid Configuration parameter	Major	Configuration parameter is invalid. Ensure the configuration values entered in the client are correct.
DataExport Error creating and starting Exporter	Major	Error creating and starting Exporter. Ensure configured resources are available such as remote server, remote file system, remote directory... etc
DataExport Disk Space exceeded	Minor	80% of available space exceeded
DataExport Maximum Number of files exceeded	Minor	Number of files on remote NFS server configured directory the configured exceeds threshold value.
DiskExport Disk Space exceeded	Major	90% of available space is exceeded
DiskExport Disk Space exceeded	Critical	100% of available space is used

Note: Table A-5 includes alarms for both IXP 1.0 and 2.0.

Glossary

	A
A	Ampere
ACM	Application Communications Module A card in the EAGLE 5 ISS that provides a communications interface to a remote host across an Ethernet LAN.
AND	AIN Number of Digits (in GTT address for AIN query)
ANM	Answer Message
ANSI	American National Standards Institute An organization that administers and coordinates the U.S. voluntary standardization and conformity assessment system. ANSI develops and publishes standards. ANSI is a non-commercial, non-government organization which is funded by more than 1000 corporations, professional bodies, and enterprises.
ASCII	American Standard Code for Information Interchange
	C
CBA	Changeback Acknowledgment
CD	Carrier Detect Compact Disk Call Detail Record
CDR	This refers to the recording of all connections in a database to permit activities such as billing connection charges or network analysis. CDR files are used in public switched networks, IP networks, for IP telephony, and mobile communications networks.
CIC	Carrier Identification Code A 4-digit code that controls the routing applied to a message.
Cluster	A group of signaling points whose point codes have identical values for the network and cluster fields of the point codes. A cluster entry in the routing table is shown as an asterisk (*) in the member field of the point code, for example, 111-011-*. Cluster entries can be provisioned only as ANSI destination point codes.
Configuration	Dynamic and shorter term management tasks These include modifications to parameters. This term is often used interchangeably with provisioning.
CPG	Call Progress
	D
DC	Direct Call

Destination	The node to which the signaling link traffic is routed. This destination is identified by a point code, either a full point code or a cluster point code.
Domain	A group of computers and devices on a network that are administered as a unit with common rules and procedures. The network in which the destination entity or node exists, SS7.
DPA	Disconnect-Peer-Answer A message used by a Diameter node to answer the Disconnect-Peer-Request (DPR).
DPC	Destination Point Code DPC refers to the scheme in SS7 signaling to identify the receiving signaling point. In the SS7 network, the point codes are numeric addresses which uniquely identify each signaling point. This point code can be adjacent to the EAGLE 5 ISS, but does not have to be.
	F
FCI	Forward Call Indicator
FE	Feature Engineer
Filter	A value consisting of FNAI, FPFX, FDL, used to filter called party digits.
G	
GMT	Greenwich Mean Time
GTA	Global Title Address
	H
	Addressable endpoint
Host	In an HP c-Class system, a computer system running TPD.
	I
IAM	Initial Address Message
IAS	Integrated Application Solution Provides an in-depth understanding of the network and equips wireline and wireless operators with the tools required to make informed business investment and cost reduction decisions. Service providers use the solutions to manage interconnection agreements, increase roaming revenue, ensure end-to-end QoS across the network, detect fraud, analyze subscriber behavior, examine service usage, as well as support existing applications such as fraud management, billing, service level agreement in their TDM, wireless, and VoIP networks. Integration Application Server
ID	Identity, identifier
I/O	Input/Output

	Internet Protocol IP specifies the format of packets, also called datagrams, and the addressing scheme. The network layer for the TCP/IP protocol suite widely used on Ethernet networks, defined in STD 5, RFC 791. IP is a connectionless, best-effort packet switching protocol. It provides packet routing, fragmentation and re-assembly through the data link
IP	layer.
ISDN	Integrated Services Digital Network Integrated Services Digital Network Integrates a number of services to form a transmission network. For example, the ISDN network integrates, telephony, facsimile, teletext, Datex-J, video telephony and data transfer services, providing users with various digital service over a single interface: voice, text, images, and other
ISDN	data.
ISUP	ISDN User Part
ITU	International Telecommunications Union
IXP	An Intel network processor used on the HIPR card.
	K
	For the ICNP feature, a unique DS value used to access a table entry,
Key	consisting of a number length and number type.
KPI	Key Performance Indicator
	L
LCD	Liquid Crystal Display
LIDB	Line Information Database
LSB	Least Significant Bit
	M
	Media Access Control Address The unique serial number burned into the Ethernet adapter that identifies
MAC	that network card from all others.
max	maximum
	A function that enables analysis of traffic on the network. Measurements are automatically collected on all Message Processors at 5-minute intervals. The measurements are then accumulated at 5-, 30-, and 60-minute intervals. Measurements can also be collected at 15-minute
Measurements	intervals with the 15 Minute Measurements feature.
min	minimum

MSU	Message Signal Unit The SS7 message that is sent between signaling points in the SS7 network with the necessary information to get the message to its destination and allow the signaling points in the network to set up either a voice or data connection between them. The message contains the following information: • The forward and backward sequence numbers assigned to the message which indicate the position of the message in the traffic stream in relation to the other messages. • The length indicator which indicates the number of bytes the message contains. • The type of message and the priority of the message in the signaling information octet of the message. • The routing information for the message, shown in the routing label of the message, with the identification of the node that sent message (originating point code), the identification of the node receiving the message (destination point code), and the signaling link selector which the EAGLE 5 ISS uses to pick which link set and signaling link to use to route the message.
MTP	Message Transfer Part The levels 1, 2, and 3 of the SS7 protocol that control all the functions necessary to route an SS7 MSU through the network
	N
NFS	Network File System
NSP	Network Services Part The lower layers of the SS7 protocol, comprised of the three levels of the Message Transfer Part (MTP) plus the signaling Connection Control Part (SCCP), are known collectively as the Network Services Part (NSP).
	O
OPC	Originating Point Code
OS	Operations Systems
	P
Path	The route taken by the SCTP packets sent by one SCTP endpoint to a specific destination transport address of its peer SCTP endpoint. Sending to different destination transport addresses does not necessarily guarantee getting separate paths.

	Point Code The identifier of a signaling point or service control point in a network. The format of the point code can be one of the following types: • ANSI point codes in the format network indicator-network cluster-network cluster member (ni-nc-ncm). • Non-ANSI domestic point codes in the format network indicator-network cluster-network cluster member (ni-nc-ncm). • Cluster point codes in the format network indicator-network cluster-* or network indicator-*-*. • ITU international point codes in the format zone-area-id. • ITU national point codes in the format of a 5-digit number (nnnnn), or 2, 3, or 4 numbers (members) separated by dashes (m1-m2-m3-m4) as defined by the Flexible Point Code system option. A group code is required (m1-m2-m3-m4-gc) when the ITUDUPPC feature is turned on. • 24-bit ITU national point codes in the format main signaling
PC	area-subsignaling area-service point (msa-ssa-sp).
PDU	Protocol Data Unit
	Point in Call
PIC	Programmable Interrupt Controller
PIN	Personal Identification Number
	Q
	Quality of Service Control mechanisms that guarantee a certain level of performance to a
QoS	data flow.
	R
REL	Release
RES	Resume
	Reset Circuit
RSC	Reset Confirmation
	S
SCCP	Signaling Connection Control Part
	Any EAGLE behavior that utilizes
Service	NPP.
	Service Information Octet. The network indicator code (NIC), priority (PRI), and service indicator (SI) in the SIO field in the message signaling unit (MSU). This information identifies the type of MSU (ISUP, TCAP, and so forth) that is allowed in the
SIO	network where the EAGLE 5 ISS is located.
SLS	Signaling Link Selector

SS7	Signaling System #7
Stream	In SCTP, refers to a sequence of user messages that are to be delivered to the upper-layer protocol in order with respect to other messages within the same stream. This is in contrast to its usage in TCP, where it refers to a sequence of bytes (in this document a byte is assumed to be eight bits). The stream is a unidirectional logical channel established from one SCTP endpoint to another associated SCTP endpoint. Note: The relationship between stream numbers in opposite directions is strictly a matter of how the applications use them. It is the responsibility of the SCTP user to create and manage these correlations.
SUS	Suspend Message
	T
TCAP	Transaction Capabilities Application Part
TDR	Transaction Detail Record TDRs contain dozens of attributes about each item in a transaction. TDRs offer a wealth of information that service providers can turn into lower costs, higher margins and improved network performance.
	U
UCIC	Unequipped Circuit Identification Code Unidentified Circuit Identification Code
URL	Uniform Resource Locator