

**Oracle® Communications
Performance Intelligence Center**

KPI Configuration Guide

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Chapter 1: Overview

This user's guide provides information about and procedures for working with KPI. It is designed to cover important activities required to use KPI.

This user's manual is designed around common tasks that you will perform, with headings and subheadings that allow you to scan the pages easily and zoom in on the information you are interested in. Take some time to browse through these tasks. You may discover things that will make your work with KPI more efficient and effective.

Scope and Audience

This user manual provides information about the KPI application concepts. It is designed to be both a beginners' guide to working with the KPI application and an intermediate and advanced reference to general concepts.

This manual is designed around performing common tasks to efficiently and effectively work with the KPI application. Take a few minutes to browse through these tasks and become acquainted with the layout of this guide.

General Information

You can find general information about Oracle® Communications Performance Intelligence Center, such as product overview, list of other guides, workstation requirements, login and logout procedures, user preference settings, in the Quick Start Guide. This document is available from the Portal menu or can be downloaded from Oracle Help Center (OHC).

Chapter 2: Getting Started With KPI

Configuration Limits

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

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

Table 1: KPI Configuration Limits

KPI Configuration

Accessing and logging into Management Application

To access and log into Management Application, follow these steps:

- a) Open your Web browser.
- b) In the Address bar, type the following Uniform Resource Locator (URL) for Management Application: http://management_server_IP/nsp, where the management_server_IP is the IP address of Management server.

Note: Management Application only supports versions of IE 11.0 or later and Firefox 3.6 or later. Before using Management Application, turn off the browser pop up blocker for the Management Application site.

The Management Application login screen opens.

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

- c) Type your **username** assigned to you in the Username field.
- d) Type your **password** in the Password field.
- e) Click **OK**.

The Management Application Portal opens. Click on the KPI icon to open the application.

KPI GUI

When you access KPI, the Main page is displayed. It contains the following:

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

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

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

Note: Do not use the Function Keys (F1 through F12) when using the Management Application. Function keys work in unexpected ways. For example, the F1 key will not open Management Application 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.

KPI Configuration View

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

KPI Configuration View Work Area

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

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

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

KPI Configuration View Tool Bar

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

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

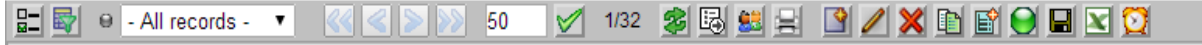


Figure 1: KPI Configuration View Tool Bar

| Configuration name | The Name of the configuration |
|--------------------------|--|
| Sync Status | <p>Valid statuses are:</p> <p>SYNC - the configuration is identical on Management Application and Mediation</p> <p>NOT-SYNC - the configuration is not identical on Management Application and Mediation</p> <p>PARTLY-SYNC - at least one configuration is not identical on Management Application and Mediation</p> <p>NOT ASSOCIATED - the configuration is not associated with an input session</p> <p>Note: All KPI configurations are in a NOT-SYNC state after a major upgrade.</p> |
| Statistical session name | The name of the Troubleshooting statistical session associated with the configuration |
| Statistical period | The statistical time period, for example, 30 seconds, 1 minute, 5 minutes |
| Alarms period | The alarm period, for example, 30 seconds, 1 minute, 5 minutes |
| User information | Any additional user information about the configuration |
| Owner | The owner of the configuration |
| Status | The status of the configuration |
| Created | The time configuration was created |

Table 2: Configuration Information

- Columns selector - enable to choose columns that should be displayed
- Filter - enables a filter to be built for the configuration listing
- All records - applies a filter to the listing by selecting from the drop-down list
- First page - displays the first page of records
- Previous page - displays the previous page of records
- Next page - displays the next page of records
- Last page - displays the last page of records
- Page Size - shows the number of records on each page.
- Set Size - sets the size for the number of records on each page.
- Record number - shows what page you are on in the listing, for example, 21/60 means you are on the

21st page out of 60 total.

- Refresh - refreshes the listing
- Export - exports screen data
- Permissions - sets user privileges
- Printable page - allows to display a page with only the list that could be printed
- Create Configuration - creates a configuration
- Modify Configuration - modifies the selected configuration
- Delete Configuration - deletes the selected configuration
- Duplicate Configuration - copies the selected configuration
- Aggregated Configuration - creates a nested configuration
- Synchronize and Activate Configuration - synchronizes and activates the configuration on all associated sessions
- Export KPI Configuration - exports the configuration to .fse format
- Export Dependent Objects - exports all dependent objects in .csv format
- Schedule Configuration - schedules the configuration

KPI Configuration View Sessions

While using the Configuration view, when a configuration is highlighted in the top of the work area, the bottom displays the sessions currently associated or compatible with the KPI configuration. The bottom area of the KPI Configuration View screen displays the following two tabs:

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

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

| | |
|-------------------|--|
| Session | The name of the session associated with the configuration |
| Start Date | The start date for the session in DD/MM/YYYY format |
| End Date | The end date for the session in DD/MM/YYYY format |
| Status | The status of the session. This information only displays on the Associated Sessions tab. ACTIVE - KPI is generating KPIs IN-ACTIVE - KPI is not generating KPIs |

| | |
|-------------------------------|---|
| Synchronization Status | <p>The synchronization status of the session. This information only displays on the Associated Sessions tab.</p> <p>SYNC - the configuration is identical on Management Application and Mediation NOT-SYNC - the configuration is not identical on Management Application and Mediation</p> <p>Note: All KPI configurations are in a NOT-SYNC state after a major upgrade.</p> |
| Dictionary Type | <p>Dictionaries describe a session, by providing its column names, titles, syntax, data type, and other information. A dictionary is a text file with an a7d extension that is physically stored on a server. Dictionaries must be present in the Management Application database in order for Management applications to use them. Valid dictionary types are:</p> <ul style="list-style-type: none"> • Capture • Reconstitution • Statistics • SUDR |
| Format | <p>Archive - Sessions store information in a long-term storage area Single - Sessions store information for a single protocol</p> |
| Protocol | The protocol of the dictionary |
| Dictionary | The name of the dictionary used |
| Subsystem | The subsystem where the session is built and stored |
| User information | Any additional user information about the configuration |
| Owner | The owner of the configuration |
| Creation Time | The time that the configuration was created in DD/MM/YYYY format |

Table 3: Information Details

Note: Last calculated time shown as a tooltip for Start date, End date columns denotes the last update time from Mediation

Associated Sessions Listing Tool Bar

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



Figure 2: Associated Sessions Listing Tool Bar

- Columns selector – enable to choose columns that should be displayed
- Filter - enables a filter to be built for the sessions listing
- All records - applies a filter to the listing by selecting from the drop-down list
- First page - displays the first page of records
- Previous page - displays the previous page of records
- Next page - displays the next page of records
- Last page - displays the last page of records
- Page Size - shows the number of records on each page.
- Set Size - sets the size for the number of records on each page.
- Record number - shows what page you are on in the listing, for example, 21/60 means you are on the 21st page out of 60 total.
- Refresh - refreshes the listing
- Export - exports screen data
- Permissions - sets user privileges
- Printable page – allows to display a page with only the list that could printed
- Synchronize and Activate Configuration - synchronizes and activates the selected session
- De-Activate Configuration - de-activates the selected session
- Disassociate Configuration - disassociates the session with the configuration and moves the session to the Compatible Sessions tab
- Last refresh displays the last refresh time of the list

Compatible Sessions Listing Tool Bar

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

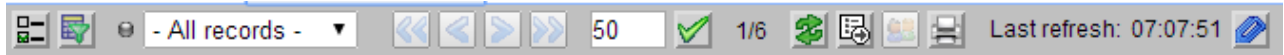


Figure 3: Compatible Sessions Listing Tool Bar

- Columns selector – enable to choose columns that should be displayed
- Filter - enables a filter to be built for the sessions listing
- All records - applies a filter to the listing by selecting from the drop-down list
- First page - displays the first page of records
- Previous page - displays the previous page of records
- Next page - displays the next page of records
- Last page - displays the last page of records
- Page Size - shows the number of records on each page.
- Set Size - sets the size for the number of records on each page.
- Record number - shows what page you are on in the listing, for example, 21/60 means you are on the 21st page out of 60 total.
- Refresh - refreshes the listing
- Export - exports screen data
- Printable page – allows to display a page with only the list that could printed

- Permissions - sets user privileges
- Associate Configuration - associates the compatible session with the configuration and moves the session to the Associated Sessions tab
- Last refresh displays the last refresh time of the list

Sessions View

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

Sessions View Work Area

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

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

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

| | |
|------------------------|--|
| Session | The name of the session associated with the configuration |
| Start Date | The start date for the session in DD/MM/YYYY format |
| End Date | The end date for the session in DD/MM/YYYY format |
| Dictionary Type | Capture Reconstitution Statistics SUDR |
| Format | Archive Single |
| Protocol | The protocol of the dictionary |
| Dictionary | The name of the dictionary used |
| Subsystem | The subsystem where the session is built and stored |

| | |
|-------------------------|---|
| User information | Any additional user information about the configuration |
| Owner | The owner of the configuration |
| Creation Time | The time that the configuration was created in DD/MM/YYYY format. |

Table 4: Information Details

Note: Last calculated time shown as a tooltip for Start date, End date columns denotes the last update time from Mediation

Sessions Listing Tool Bar

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



Figure 4: Sessions Listing Tool Bar

- Columns selector - enable to choose columns that should be displayed
- Filter - enables a filter to be built for the sessions listing
- All records - applies a filter to the listing by selecting from the drop-down list
- First page - displays the first page of records
- Previous page - displays the previous page of records
- Next page - displays the next page of records
- Last page - displays the last page of records
- Page Size - shows the number of records on each page.
- Set Size - sets the size for the number of records on each page.
- Record number - shows what page you are on in the listing, for example, 21/60 means you are on the 21st page out of 60 total.
- Refresh - refreshes the listing
- Export - exports screen data
- Permissions - sets user privileges
- Printable page - allows to display a page with only the list that could printed
- Last refresh displays the last refresh time of the list
- Replace Session - disassociates the session with the configuration and replaces the session with another compatible session as selected from a listing

Sessions View Configurations

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

| | |
|---------------------------|--|
| Configuration name | The name of the configuration |
| Status | Valid statuses are: ACTIVE - KPI is generating KPIs |

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

Table 5: Configuration Information

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

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

Sessions View Configurations Tool Bar

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



Figure 5: Sessions View Configurations Tool Bar

- Columns selector - enable to choose columns that should be displayed
- Filter - enables a filter to be built for the configuration listing
- All records - applies a filter to the listing by selecting from the drop-down list
- First page - displays the first page of records
- Previous page - displays the previous page of records
- Next page - displays the next page of records
- Last page - displays the last page of records
- Page Size - shows the number of records on each page.
- Set Size - sets the size for the number of records on each page.
- Record number - shows what page you are on in the listing, for example, 21/60 means you are on the 21st page out of 60 totals.

- Refresh - refreshes the listing
- Export - exports screen data
- Permissions - sets user privilege
- Printable page - allows to display a page with only the list that could printed

Statistic Flow View

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

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

Chapter 3: Working With KPI

Managing KPI Configurations

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

Creating a Configuration

Follow these steps to create a KPI configuration.

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

Note: Valid characters for the column name are case-sensitive alphanumeric values (A to Z, a to z, 0 to 9) and the underscore (_). The name is limited to 30 characters with no spaces allowed.

- Enter the protocol name using one of the following methods:
 - Type in any protocol name sequence. KPI filters the appropriate entries as you type.
 - Select a protocol using the Select Protocol from button. Select the protocol from either the Sessions tab (which specifies the protocol associated with the session) or the Protocol tab (which specifies an individual protocol). When the protocol is selected, click the "Done" button.

Note: 1. If Session Point Code Feature is enabled then session listing will also show PC Format as one of the fields

2. Last calculated time shown as a tooltip for Start date, End date columns denotes the last update time from Mediation.

3. Last refresh in the toolbar displays the last refresh time of the list

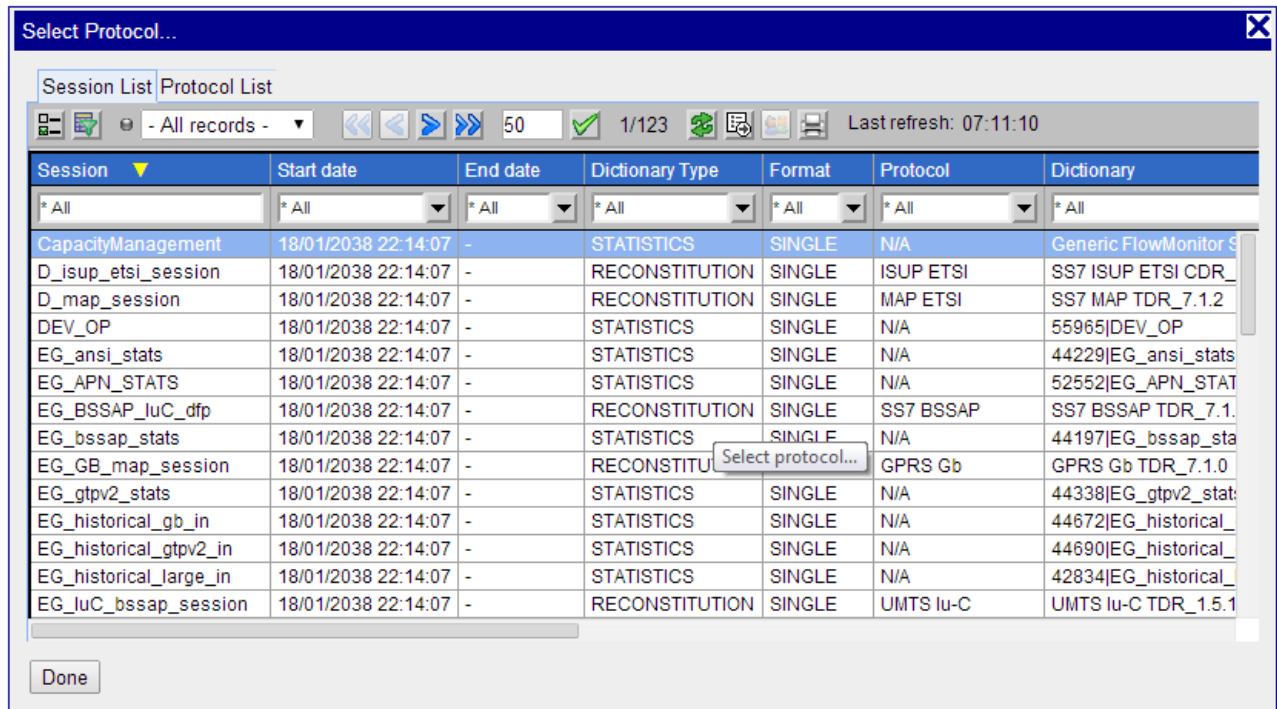


Figure 6: Session List

After selecting the protocol, click the Next button.

- Define the statistical storage settings by entering the following information:

| | |
|------------------------------------|--|
| Statistical Session Storage | Valid option Local Storage (a statistical session is created for each associated KPI session on the same storage as the xDR session) or a specific Data Record server (a single statistical session is created on this specific Data Record server, used for all associated xDR sessions). |
| Statistical Session Name | Name of the KPI Statistical Session used to store KPIs. Valid characters are case-sensitive alphanumeric values (A to Z, a to z, 0 to 9) and the underscore (_). The name must start with a letter and is limited to 30 characters, no spaces allowed. |
| Statistical Period | The accounting duration that the configuration works before recoding KPIs. Valid values are 30 seconds, 1 minute, 5 minutes, 15 minutes, 30 minutes, 1 hour, 1 day and 1 week. |
| Statistical Duration | The length of time (from start to finish) the configuration will collect data in weekly increments up to 2 years. |

Table 6: Statistical Storage Setting

After entering statistical session information, click the Next button.

- Define the default Alarm settings by entering the following information:

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

Table 7: Alarm Setting Details

After entering alarm settings, click the Next button.

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

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

Table 8: Schedule Activation Period Details

After entering schedule settings, click the Next button.

Check the parameter settings listed on the summary page. If all the settings are correct, click the Finish button. The configuration is saved and the matrix screen opens, allowing you to add columns and rows to your configuration. For more information see the section on Configuring rows and columns. If you will configure rows and columns at a later time, select the Return to List button to return to the KPI Configuration list.

Configuring KPI

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

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

Configuring Rows and Columns

Configuring rows and columns allow you to collect specific data from the sessions associated with a configuration.

Note: You may not add, modify (except to modify the filter) or delete columns while KPI is associated with a session. In order to add or delete columns, you must de-activate and disassociate the configuration from the session, add or delete the columns, and then re-associate the session. The columns and rows in the Matrix display are delineated by their icon.

The following column types are available:

| | |
|---------------------------|--|
| Cumulative Counter | Calculates the sum of a numeric field for all records. Results can display either the lowest sum or highest sum of all selected fields for one record. |
| Data Counter | Provides the number of xDRs selected in a line, whether all the xDRs or the xDRs matching the filter defined in the column. |
| Ratio | Calculates the ratio between two prior columns listed in the KPI matrix. |
| Field Value | Provides the value of a field of an xDR or shows the text of a field chosen in a TOP selection line. |

Table 9: Column Types

The following row types are available:

| | |
|-----------------|---|
| Data Row | Allows xDRs to be selected for this row, whether all the xDRs or the xDRs matching the filter defined in the row. |
|-----------------|---|

| | |
|------------|--|
| Top | The top selection line enables you to build a list of xDRs with up to ten query fields (filters do not select the xDRs according to given field values). |
|------------|--|

Table 10: Row Types

The following row states are available:

| | |
|----------------------|--|
| Exclusive | In an exclusive row, if the row contains a filter, the xDRs that match the filter are removed from the xDR flow and are not processed by the following row. |
| Non-exclusive | In a non-exclusive row, if the row contains a filter, the xDRs that match the filter are not removed from the xDRs flow and are processed by the following line. |

Table 11: Row States

Creating a Data Row

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

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

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

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

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

Table 12: Information for Filter

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

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

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

- Enter an operator. Valid operators are:

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

Table 13: Operators

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

Creating a Top Selection Row

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

You can also group numbers using only a portion of the number. For example, you can group international calls by nationality using only the nation prefix number. You can select part of an address (make sure you give the start position, from left or right, and the length) using the substring function. When the period (statistics or alarms) ends, these virtual lines are sorted in ascending or descending order according to one of the counter values. The N first virtual lines are kept and saved to the statistics session (at the statistics period ending) or checked for alarms at start or termination (at the alarms period ending).

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

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

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

created before a TOP row can be added.

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

Note: The row name can include any alphanumeric characters or symbols. The name is limited to 21 characters and can include spaces.

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

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

Table 14: Filter Details

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

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

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

- Enter an operator. Valid operators are:

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

Table 15: Operators

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

Automatic Row Insertion

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

To automatically insert rows, follow these steps.

- In the Matrix view, right click on an existing row.
- Select Automatic Row Insertion.
- Define the condition applied to the row by selecting a field and operator from the drop down lists.
- Select Next.
- To define the rows using existing information, select to load values from a CSV file or from ENUM values.
- To define rows using specific values, select the Add icon.
- Enter the row name syntax. Valid syntax options are:

| | |
|--|--|
| | |
|--|--|

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

Table 16: Syntax Options

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

Creating a Data Column

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

To create a data column, follow these steps.

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

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

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

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

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

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

Table 17: Filter Details

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

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

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

- Enter an operator. Valid operators are:

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

Table 18: Operators

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

Creating a Cumulative Counter Column

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

To create a cumulative counter column, follow these steps.

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

- In the Matrix view, right click on an existing column.
- Select to add a column to the right or the left of the existing column.
- Select Cumulative Counter as the column type. Select Next.
- Enter the column name and description. Select Next.
- Note: Valid characters for the column name are case-sensitive alphanumeric values (A to Z, a to z, 0 to 9) and the underscore (_).The name must start with a letter and is limited to 29 characters with no spaces allowed.
- Note: Using the name of a KPI default column -- Period End, Duration, Sample, Instance, Corner or Line -- will prevent KPI generation due to duplicate field names. Do not use any of the default names when naming a column.
- Select the counters to be included in the column by moving available counters from the left of the screen to the right using the arrow buttons. When you've finished selecting counters, select "Next".
- Select from the following the result parameters:

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

Table 19: Result Parameters

- Enter the scale multiplier and the conditions of that multiplier. Valid multipliers are:
 - Bytes to Kilobytes
 - Bytes to Megabytes
 - Bytes to Gigabytes
 - Seconds to minutes
 - Seconds to Hours
 - One to a thousand
 - One to a million
 - One to a billion
- Select a filter from the drop down list or build a new filter by entering the following information:

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

Table 20: Filter Details

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

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

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

- Enter an operator. Valid operators are:

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

Table 21: Operators

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

Creating a Ratio Column

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

To create a ratio column, follow these steps.

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

configuration from the session, add or delete the columns, and then re-associate the session.

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

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

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

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

Creating a Field Value Column

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

To create a field value column, follow these steps.

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

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

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

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

Automatic Column Insertion

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

To automatically insert columns, follow these steps.

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

- In the Matrix view, right click on an existing column.
- Select Automatic Column Insertion.
- Define the condition applied to the column by selecting a field and operator from the drop down lists.
- Select Next.
- To define the columns using existing information, select to load values from a CSV file or from

ENUM values.

- To define columns using specific values, select the Add icon.
- Enter the column name syntax. Valid syntax options are:

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

Table 22: Syntax Options

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

Changing Column or Row Order

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

Modifying a Column or Row

Follow these steps to modify an existing column or row:

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

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

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

Deleting a Column or Row

Follow these steps to delete a column or row:

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

- Right click on the column or row.

- Select the Delete option.
- Select OK on the confirmation screen.

The column or row is removed from the configuration.

Configuring a Corner Filter

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

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

Table 23: Filter Details

Note:

- If Session Point code feature is enabled, there is no change in the way Point Code fields are entered while defining filters .Point Codes are entered as default as before when this feature is not enabled .
- Also flavors are not taken into account as the KPI configurations are not flavor tagged.
- Queries created in Troubleshooting can also be used in KPI but Point Code will be translated with default flavor.

Defining a Corner Filter

Use the following steps to create a corner filter:

- In the Matrix view, right click on the corner between the rows and columns.
- Select Define Corner Filter.
- Enter the name to appear on the statistical xDR in the Corner Label field.

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

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

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

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

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

Table 24: Filter Details

- Select the Add button to add a filter condition. Filter conditions are lettered in capitals. For example, the first one is A, second is B, and the third one is C.
 - Select a field from the drop down listing.
- Note:** When you select a field, the field description is available by clicking on the question mark next to the field name.
- Enter an operator. Valid operators are:

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

Table 25: Operators

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

Modifying a Corner Filter

To modify an existing corner filter, follow these steps:

- In the Matrix view, right click on the corner between the rows and columns.
- Select Modify Corner Filter.
- Modify the name to appear on the statistical xDR in the Corner Label field.
- Note: Valid characters for the corner filter name are all alphanumeric values (A to Z, a to z, 0 to 9) and all symbols. The name cannot be longer than 30 characters.
- Select Delete accounted records if you do not want the records passed through the corner filter to be saved.
- Select Next.

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

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

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

Table 26: Filter Details

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

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

- Enter an operator. Valid operators are:

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

Table 27: Operators

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

Deleting a Corner Filter

To delete a corner filter, follow these steps.

- In the Matrix view, right click on the corner between the rows and columns.
- Select Delete Corner Filter.

- Select “Yes” on the confirmation screen.
- Select Return to List to return to the configuration listing.
- To sync the configuration, select the Synchronize and Activate Configuration icon.

Configuring Threshold Alarms

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

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

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

Use the following steps to configure alarms:

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

Note: You can define only one event per severity.

- Select the operator. Valid values are:

| | |
|---|--------------|
| > | Greater than |
| < | Less than |

Table 28: Operators

- Define the threshold for the alarm event.

The alarm threshold for Cumulative Counter and Data Counter columns are expressed as integers.

If you are configuring an integer alarm, skip Step 7 and go to Step 8.

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

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

| | |
|----------------------|---|
| Counter | Counter name from the drop down list |
| Minimum Value | The alarm is raised if the minor or major condition is true and if the counter value is greater than the minimum value. |

| | |
|---|---|
| Alarm Termination is constrained | Checking the box will terminate if the minor and major condition is false and if the counter value is equal to or greater than the minimum value. |
|---|---|

Table 29: Custom Constraint Details

- When you have finished configuring the alarms, select Finish.
- Select the Save button to save the configuration.
- Select Return to List.

Generating a KPI Cell Alarms

After the alarm has been configured for a KPI configuration, there a KPI Cell Alarm should be generated. Before that there must exist a KPI Cell Managed Object so that after the alarm is generated it can be viewed in Alarm(Viewer) Application using this Managed Object through Group Tag.

So after the KPI is configured for alarm, associate the session to that configuration. After the session is associated, the ProTraq Cell Managed Object is created along with the ProTraq Session Managed Object and can be viewed in the Alarm(Configuration) Application.

When this configuration is **activated**, KPI Cell Alarms is generated on first threshold crossing and can be viewed in Alarm(Viewer) Application.

Viewing a KPI Cell Alarms

For Viewing this Alarm, perform these steps:

- 1)Go to Alarm(Configuration), and filter the Managed Object Class Column to view all the KPI(Protraq) Cell Managed Objects.
- 2)Now, tag that Managed Object with some name like 'XYZ'
- 3)Go to All Alarm List in Alarm(Viewer), and filter the Group Tag column to view all the alarms with Group Tag 'XYZ'. This can also be achieved using the drilldown functionality of the Graphical View in Alarm(Viewer). For details view Alarm(Viewer) user guide.

Notes:

- ProTraq Cell MO are automatically created when associating an KPI configuration, there is no need to wait for a first threshold crossing
- ProTraq Cell MO are automatically deleted when de-associating a KPI configuration
- ProTraq Session MO is created when the configuration is associated
- ProTraq Session MO is deleted when the configuration is completely removed only
- ProTraq Session MO is created for all the configuration on which session is associated, wheather alarm is configured on it or not

Scheduling a Configuration

Follow these steps to schedule a configuration.

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

| | |
|----------------------------|--|
| Schedule start date | In DD/MM/YYYY format |
| Schedule start time | 24 hour clock in HH:MM:SS format |
| Period | Start and end times in HH:MM:SS format |
| Execute every day | Select to execute the schedule daily |
| Day Scheduling | Select to define more precise scheduling. Weekly basic allows you to select specific days of the week. Monthly basic allows you to select a number of options, for example, a specific day each month (15th, 21st), each day for an entire month, or special days (The 2nd Tuesday of each month). |

Table 30: Alarm Configuration Details

When schedule settings are set, click the Next button.

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

Associating and Activating Sessions

When you have completely specified all necessary information for your configuration, you must associate the KPI Configuration with one or more sessions and activate the sessions. Associating KPI configurations and sessions starts the process for the accumulation of statistical information. Associating sessions links the KPI configuration to the input sessions that provide xDRs for the KPI generation.

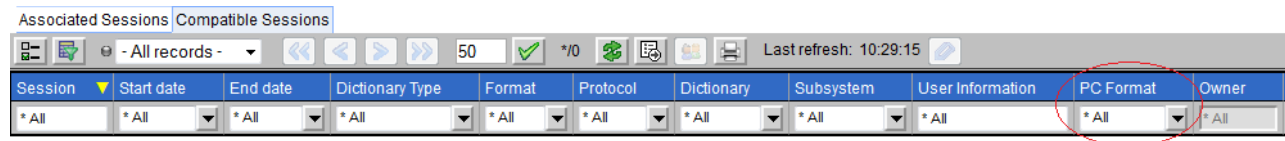
Associating xDR Sessions

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

- Select a configuration from the listing.
- Select the Compatible Sessions listing from the bottom of the screen.
- Select the Associate Configuration icon.

The session is associated with the configuration and moves from the Compatible Sessions listing to the Associated Sessions listing.

Note: If Session Point Code Feature is enabled then associated session and compatible session list will also show PC Format as one of the fields



| Session | Start date | End date | Dictionary Type | Format | Protocol | Dictionary | Subsystem | User Information | PC Format | Owner |
|---------|------------|----------|-----------------|--------|----------|------------|-----------|------------------|-----------|-------|
| * All | * All | * All | * All | * All | * All | * All | * All | * All | * All | * All |

Figure 7: Compatible Session List

Disassociating a Session

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

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

- Select a configuration from the listing.
- Select the Associated Sessions listing from the bottom of the screen.
- Select the Disassociate Configuration icon.

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

Activating xDR Sessions

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

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

Deactivating xDR Sessions

Use the following steps to deactivate xDR sessions.

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

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

Establishing a KPI Data Flow to an Affected Server

Complete these steps to establish a KPI data flow to an Mediation server.

Log into Centralized Configuration.

Note: You log into Centralized Configuration from the Management Application Portal.

Select Mediation subsystem. Select Distribution.

The Distribution screen opens.

- Select the appropriate server in the Affected Server.
- Select Streams from the object tree. The Streams screen opens.
- Select DataFlow Processings from the object tree. The Data Flows Processings screen opens.
- Confirm to see if the new data flow records are in the list.

Working with Existing KPI configurations

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

Modifying a Configuration

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

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

- Highlight the configuration in the listing.
- Select the Modify Configuration icon.

The matrix screen opens which displays the details of the configuration.

- Select General Parameters.

This opens up a section where you can modify the configuration details.

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

- Modify the following information:

Note: The Configuration name and Dictionary cannot be modified.

| | |
|------------------------------------|---|
| User Information | Optional information to describe the configuration. |
| Statistical Session Storage | Valid options are Local Storage (a statistical session is created for each associated xDR session on the same storage as the xDR session) or a specific Mediation server (a single statistical session is created on this specific Mediation server, used for all associated xDR sessions). |

| | |
|---|--|
| Statistical Session Name | Name of the KPI Statistical Session used to store KPIs. Valid characters are case-sensitive alphanumeric values (A to Z, a to z, 0 to 9) and the underscore (_). The name must start with a letter and is limited to 30 characters, no spaces allowed. |
| Statistical Period | The accounting duration that the configuration works before recoding KPIs. Valid values are 30 seconds, 1 minute, 5 minutes, 15 minutes, 30 minutes, 1 hour, 1 day and 1 week. |
| Statistical Duration | The length of time (from start to finish) the configuration will collect data in weekly increments up to 15 weeks. |
| Alarms Period | The time interval between two threshold controls. Valid values are 30 seconds, 1 minute, 5 minutes, 15 minutes or 30 minutes. |
| Min Rec Count | An alarm is raised if a major or minor threshold is reached (TRUE) and the xDR count in the alarm period is equal or greater than the record count value. |
| Alarm Termination is constrained | Checking this box terminates the alarm if a major or minor threshold is not reached (FALSE) and the xDR count in the alarm period is equal or greater than the record count value. |

Table 31: Modifying Configuration Details

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

Duplicating a Configuration

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

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

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

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

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

The Duplicate Configuration window opens.

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

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

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

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

Table 32: Statistical Storage Settings Details

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

- Define the default
- Alarm settings by entering the following information:

| | |
|----------------------|---|
| Alarms Period | The time interval between two threshold controls. Valid values are 30 seconds, 1 minute, 5 minutes, 15 minutes or 30 minutes. |
|----------------------|---|

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

Table 33: Alarm settings Information

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

Deleting a Configuration

Follow these steps to delete a KPI configuration.

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

- Highlight the configuration in the listing.
- Select the Delete Configuration icon.
A confirmation window opens for the delete request.
- Select OK.
The configuration is deleted.

Creating an Aggregated Configuration

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

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

- Highlight the configuration in the listing and select the Aggregated Configuration icon. The Create an Aggregated Configuration window displays.
 - Type in the Configuration Name of the record and any user information and click the Next button.
- Note:** Valid characters for the configuration name are case-sensitive alphanumeric values (A to Z, a to z, 0 to 9) and the underscore (_). The name cannot be longer than 30 characters.
- Select the Alarms checkbox to duplicate the alarm settings for the configuration.
 - Select the Create Copy button to create the aggregated configuration. The configuration is saved and added to the list.

Using the Edition Mode to Modify Configurations

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

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

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

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

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

```
SECTION: MAIN

# KPI

# Copyright (c) 1998-2004 Steleus S.A.

# DPIMobileActivity, generated Mon Nov 08 14:50:37 CET 2010

# MobileActivityDPI VERSION: 600

DLL: FSEQOS MODE: AFTER

DESTINATION::DPIMobileActivity

ALARMPERIOD: 30

ALARMSERVER::0

STATPERIOD: 60:6048000

COMMENT: MobileActivityDPI POINTCODEFORMAT: 0:0:8:8:8:0

INSTANCE: INSTANCEOID:

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

TOPFIELD: 2

SECTION: COLUMN: 1: CUMULATIVE: Packet uplink

NAME: UP FIELD: UplinkPackets SCALE: 1

FILTER: 0

SECTION: LINE: 0: TOP: 30:0:3

NAME: Service
```

CRITERIA: Application: 1000:99000

ORDER: 7:1

FILTER: 0

Filtering the Configuration and Session Listings

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

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

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

Table 34: Filter Details

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

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

- Enter an operator. Valid operators are:

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

Table 35: Operators

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

Note:

- The format supported for IP-V4 is as usual 4 groups in decimal separated by ‘.’
: xxx.xxx.xxx.xxx.
- The format supported for IP-V6 fields is 8 groups in hexadecimal separated by ‘:’ with canonical way
xxxx: xxxx: xxxx: xxxx: xxxx: xxxx: xxxx: xxxx

- It will be possible to use prefixes notation to be able to find range. This will be available for IPV4 and V6.
For Example: 1082::8:800:200C:417A/11
Will search all IPs between
'10800000000000000000000000000000' AND '109FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF'
 - In IP-V6, all IP Addresses with 0 in the first 96 bits are considered as V4 and will be displayed as V4 and will never be presented as ::xxx.xxx.xxx.xxx
- To add an additional characteristic, determine the operator (And / Or). Select whether the expression should be enclosed in brackets and select the Add button.
 - When you have finished adding filter conditions, select “Save” to save the filter conditions in the All Records drop down list.
 - When the filter saves, select Apply. The filter is applied to the listing and the list refreshes.

Importing and Exporting Files

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

Importing a File into KPI

Complete the following steps to import a KPI Configuration file:

- From the Main page, select File > Import.
The Import KPI Configuration screen opens.
- Click the Browse button to search for the File Name of the file to import.
- Enter the protocol name using one of the following methods:
 - Type in any protocol name sequence. KPI filters the appropriate entries as you type.
 - Select a protocol using the Select Protocol from button. Select the protocol from either the Sessions tab (which specifies the protocol associated with the session) or the Protocol tab (which specifies an individual protocol). When the protocol is selected, click the Done button.
- After selecting the protocol, click the Next button.
- Select the Is Password Encrypted? checkbox if working with a password encrypted file. Type in the Password, if appropriate.
- Select Windows Configuration.
- Select the Import button to complete the process. The configuration is imported and appears in the KPI configuration screen.

Exporting a KPI Configuration

Follow these steps to export a KPI configuration.

- Highlight the configuration and select the Export KPI Configuration icon.
- Select to save the file or open it in a program of your choice.
- The KPI configuration opens or saves in .fse format.

Exporting Dependent Objects

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

- Alarm Map -- uses configuration alarms

- Historical Scenarios -- uses configurations
- Dashboards -- uses configuration statistic lines
- Browser Export Scheduler information

Follow these steps to export dependent objects:

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

Chapter 4: Working With KPI Results

Turning on Troubleshooting Drilldown for xDR Sessions

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

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

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

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

- Drill down to the list of xDRs that were used to calculate that KPI, with the protocol decoding associated
- Using this drilldown functionality allows the user to easily search the root causes of a failure without needing to know exactly where the problem occurred. Instead, it is possible to simply follow the drill down path from the alarm to the faulty xDRs and error root cause on the network.

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

- From the KPI Configuration screen, highlight the session for which you need to turn on drilldown. Select the Show Details icon.
- The bottom half of the screen shows the details for the xDR session.
- Select Apply from that detailed section.
The troubleshooting drilldown functionality is now active for that xDR session, allowing you to use the drilldown function in Alarm Viewer or System Alarm

Overview

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

Principle

The Mediation subsystem produces statistics and alarms based on the KPIs defined in KPI configurations. The statistics are given in the form of a KPI session. The alarms appear in the Alarm application.

Statistics

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

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

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

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

From this configuration, the statistics are created and display.

The screenshot shows a software interface for displaying statistics. The top part is a list of records with columns: Rec No, Period end, Duration, Sample, Corner, and Line. The bottom part is a summary table with columns: Total calls, Incoming calls, Outgoing calls, and Cause family name.

| Rec No | Period end | Duration | Sample | Corner | Line |
|--------|---------------------|----------|--------|--------|------------------------|
| 1 | 30/03/2005 12:53:00 | 12 | 1 | - | Not answered calls: 20 |
| 2 | 30/03/2005 12:53:00 | 12 | 1 | - | Busy calls: 4 |
| 3 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:1: 30 |
| 4 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:2: 00 |
| 5 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:3: 00 |
| 6 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:4: 02 |
| 7 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:5: 00 |
| 8 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:6: 00 |
| 9 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:7: 00 |
| 10 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:8: 00 |
| 11 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:9: 00 |
| 12 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:10: 00 |
| 13 | 30/03/2005 12:53:00 | 12 | 1 | - | Not answered calls: 49 |
| 14 | 30/03/2005 12:53:00 | 12 | 1 | - | Busy calls: 10 |
| 15 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:1: 78 |
| 16 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:2: 65 |
| 17 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:3: 73 |
| 18 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:4: 74 |
| 19 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:5: 74 |
| 20 | 30/03/2005 12:53:00 | 12 | 1 | - | Cause family:6: 73 |

| Total calls | Incoming calls | Outgoing calls | Cause family name |
|-------------|----------------|----------------|-----------------------------------|
| 202 | 74 | 63 | SST send special tone information |
| 4 | 13 | 5 | CCG circuit group congestion |
| 4 | 13 | 5 | IFL ISDN call failure |
| 11 | 13 | 13 | Other |
| 11 | 13 | 13 | HE Hang up during establishment |
| 11 | 13 | 13 | SB subscriber busy |
| 11 | 13 | 13 | ACB access barred |
| 11 | 13 | 13 | UNN unallocated number |
| 10 | 10 | 9 | CFL call failure |
| 10 | 10 | 9 | NA no answer |
| 10 | 10 | 9 | LOS line out of service |
| 10 | 10 | 9 | Normal clearing |
| 10 | 10 | 9 | CFL call failure |
| 10 | 10 | 9 | CCG circuit group congestion |
| 10 | 10 | 9 | NA no answer |
| 10 | 10 | 9 | SB subscriber busy |
| 10 | 10 | 9 | IFL mediated trunk prefix |
| 10 | 10 | 9 | Other |
| 10 | 10 | 9 | CCG circuit group congestion |
| 10 | 10 | 9 | Normal clearing |

Figure 8: Statistics

You must first log into the Management Application that uses the ANSI-ISUP protocol.

Alarms

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

An event can be:

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

The following information is also transmitted with each event:

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

Using the Historical KPI Application for KPI Calculation on Historical xDRs

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

Access to these stored xDRs is available by using the Historical KPI application. This application is available in the Configuration section on the Management application.

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

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

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

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

- Select Historical KPI from Configuration section on the Management application portal. The Historical KPI application opens.
- Select the Add scenario icon. The Historical KPI parameters screen opens.

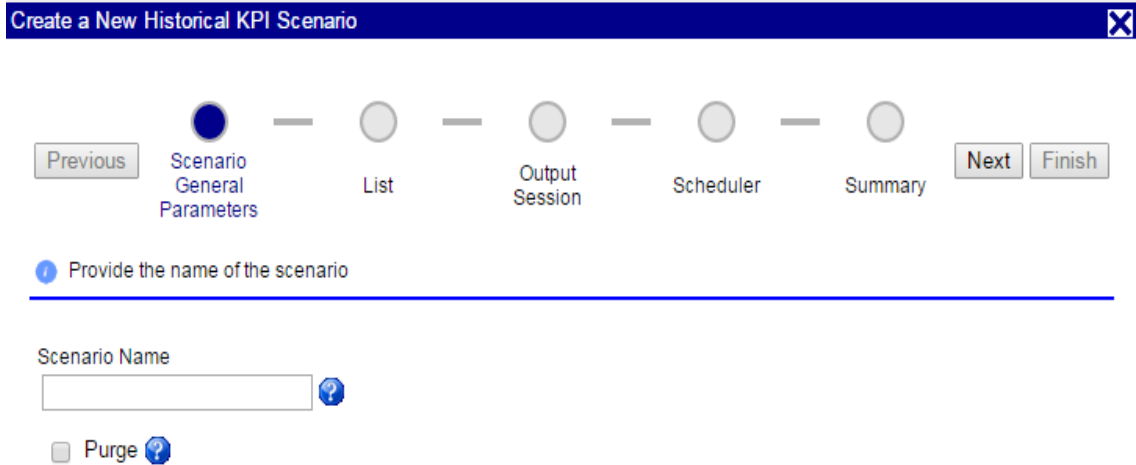


Figure 9: Historical KPI Parameters Screen

- Enter a scenario name and select whether you want KPI to purge the selected period before generating new KPIs.
- Select Next.
- The Historical KPI list screen opens.
- Click on select configuration from list.

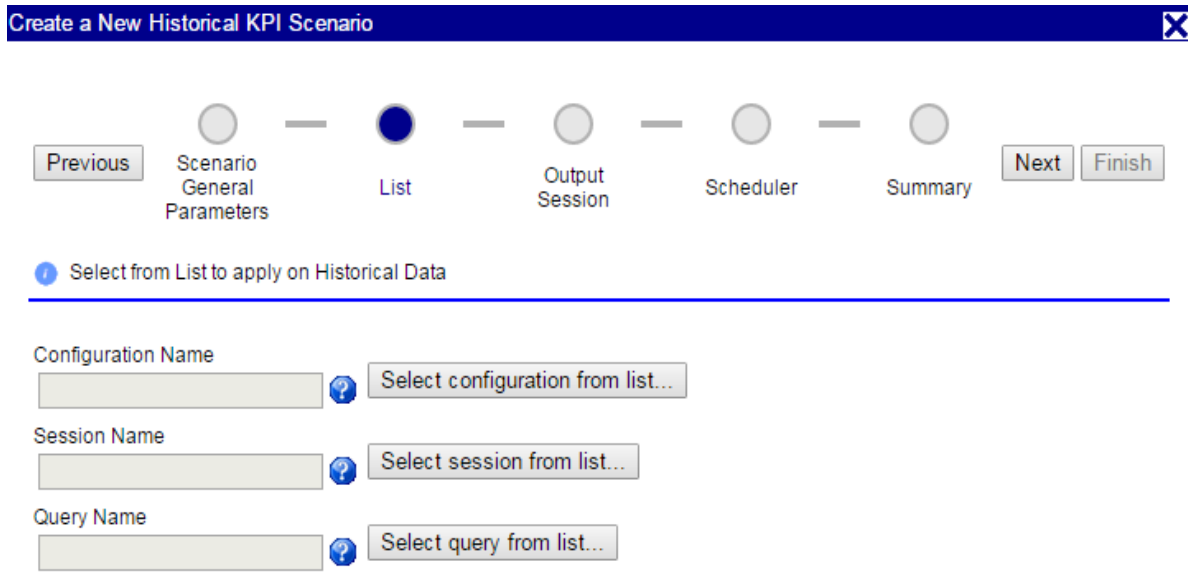


Figure 10: Historical KPI List screen

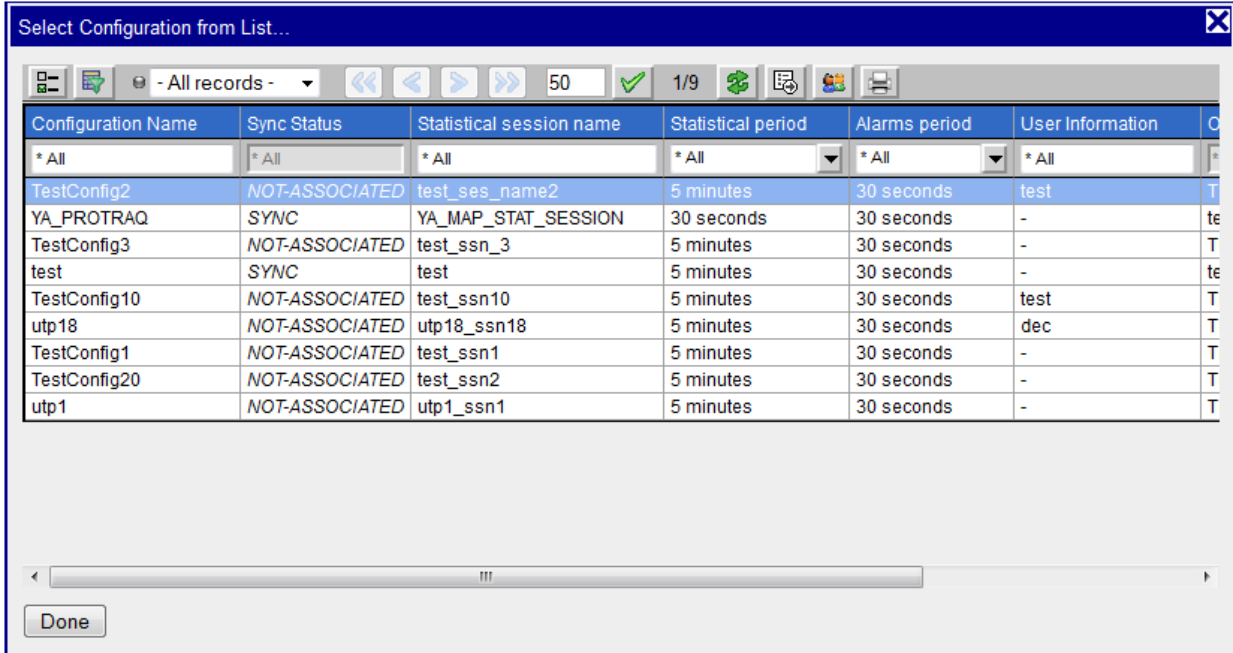


Figure 11: Historical KPI Configuration Screen

- Select the configuration to use from the list.
- Click on Done.
- Click on Select session from list.

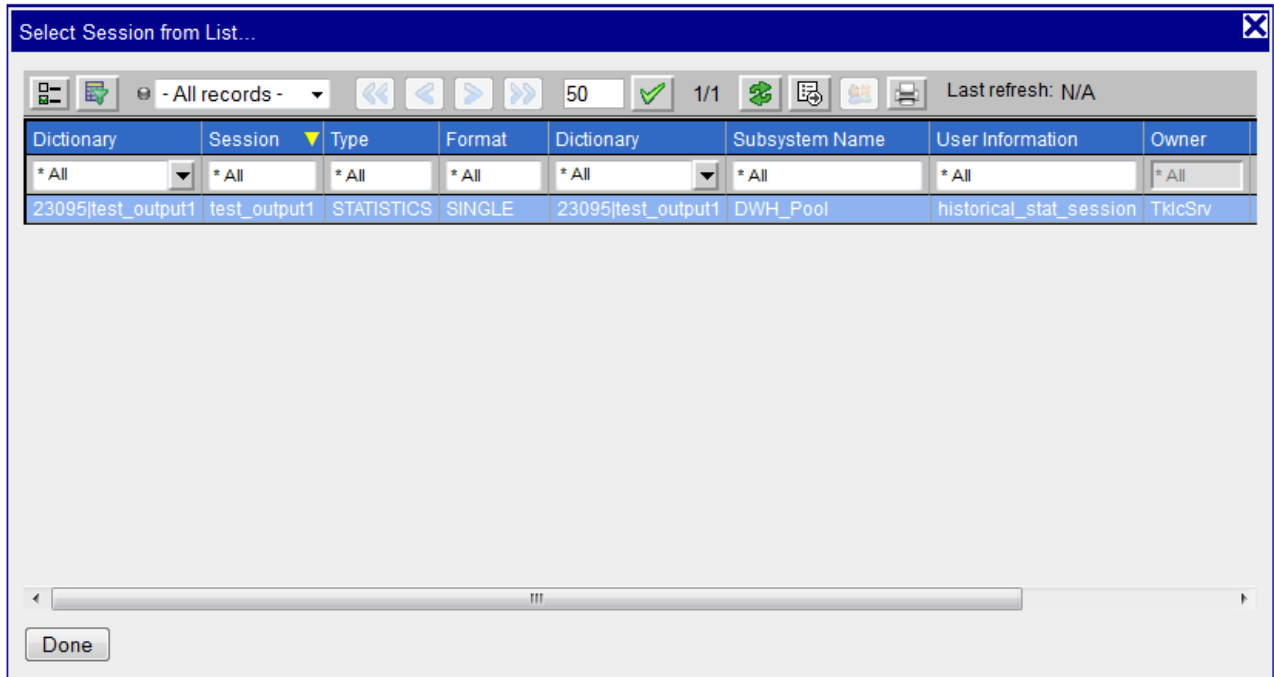


Figure 12: Historical KPI Input Screen

- Select the input session to use from the list.
- Click on Done.
- Click on Select query from list.

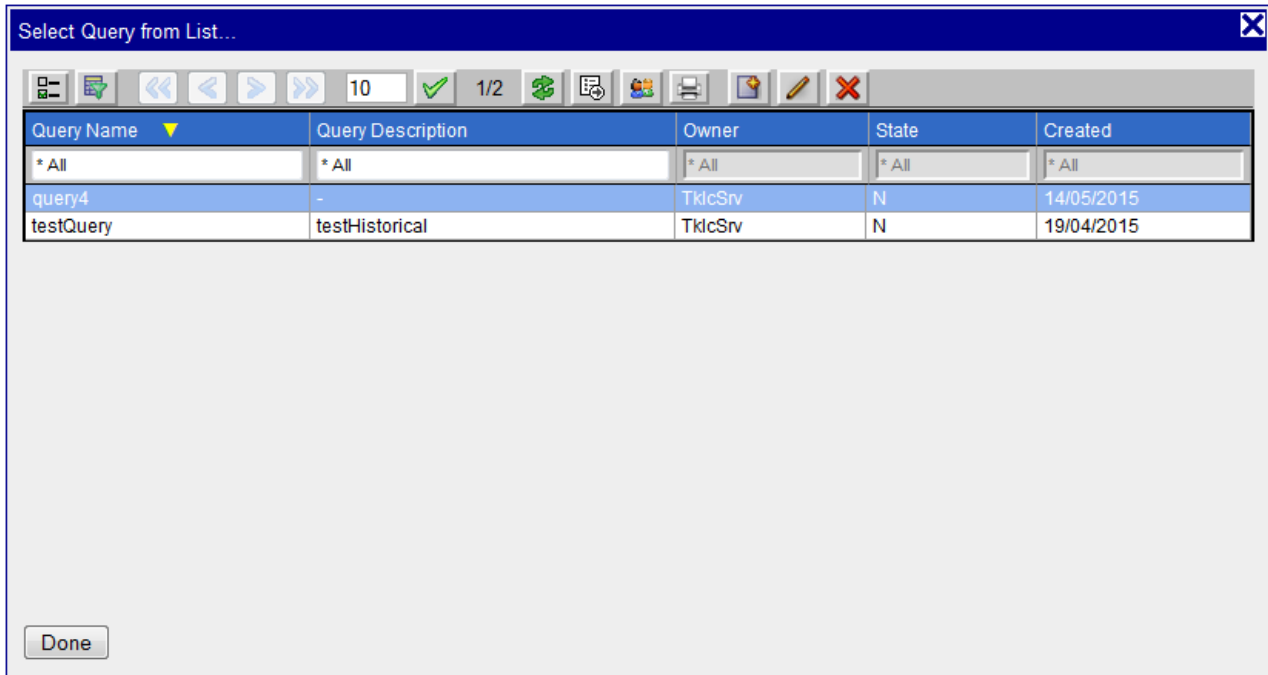


Figure 13: Historical KPI Query Screen

- Select the query to use from the list.
- Click on Done.
- Click on Next.

The Historical KPI Output session screen opens.

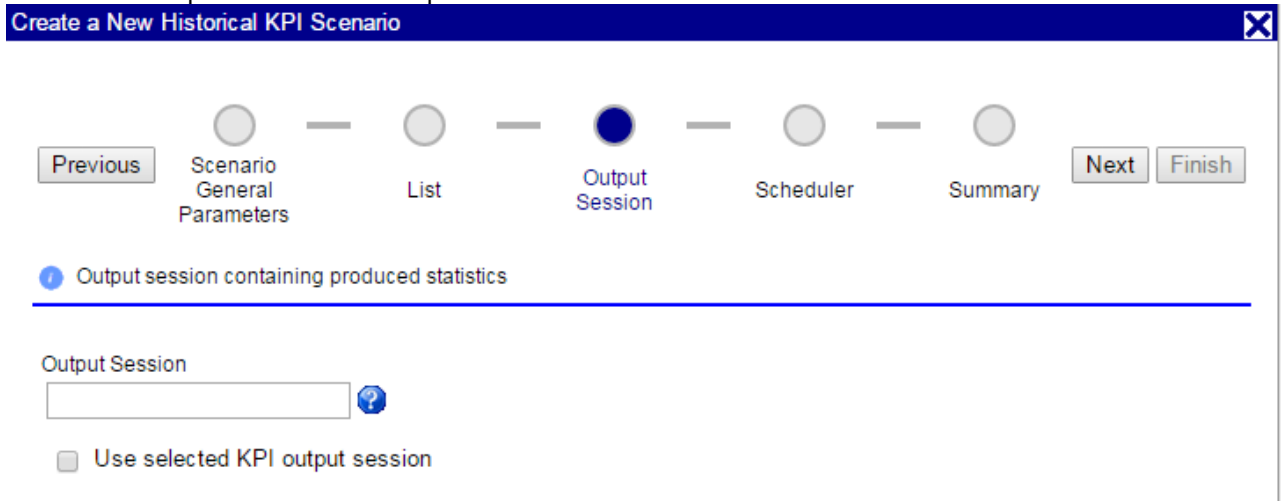


Figure 14: Historical KPI Output Session

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

The Historical KPI Scheduler screen opens.

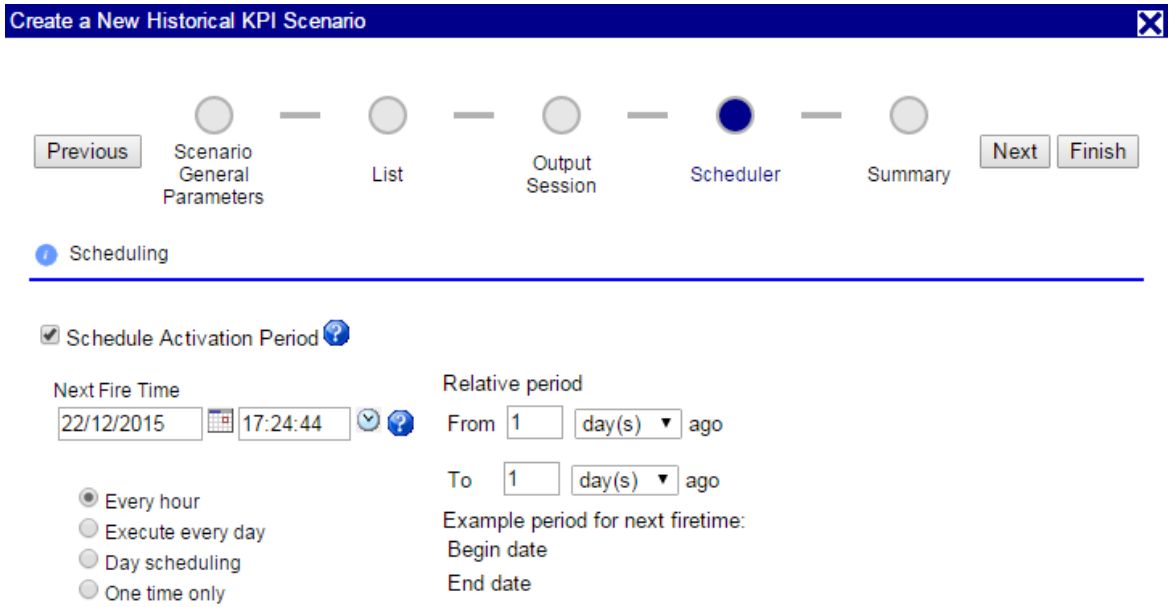


Figure 15: Historical KPI Scheduler Screen

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

The Historical KPI Summary screen opens.

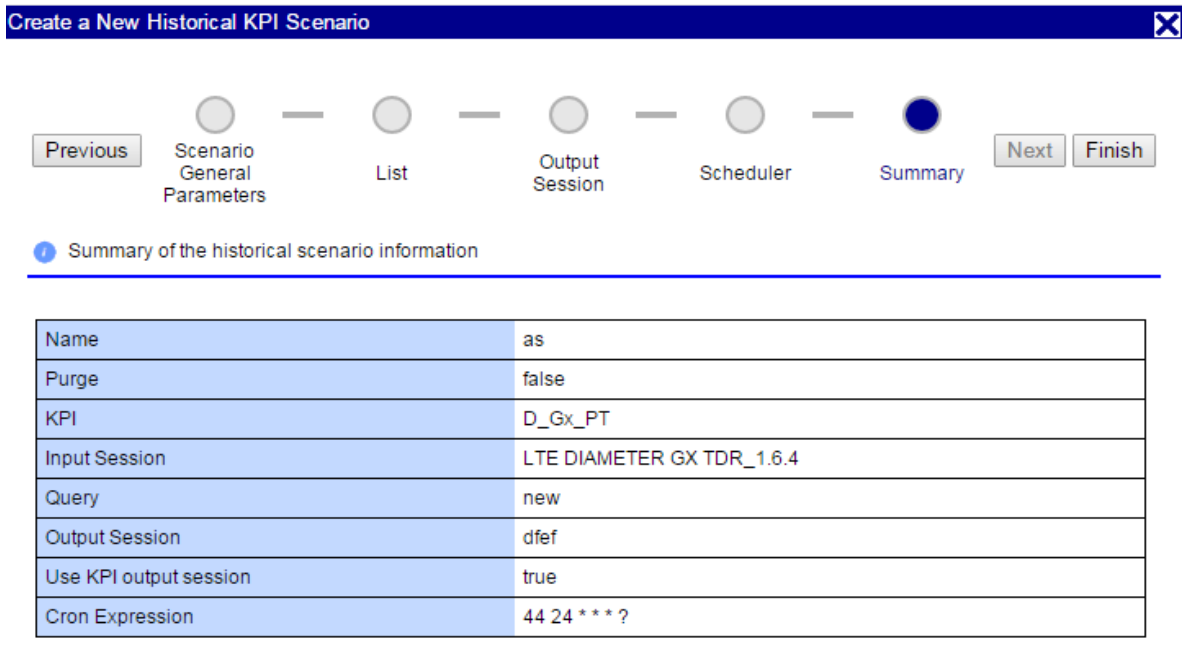


Figure 16: Historical KPI Summary Screen

- Check to confirm that all the information for the scenario is correct.
- Select Finish.
- KPI saves the scenario and returns you to the Scenario screen.
- To run the KPI calculations on historical xDRs, highlight the scenario and select the Run icon. The Query Settings window opens and allows you to select the First selected date and time, and Second selected date and time for the scenario.

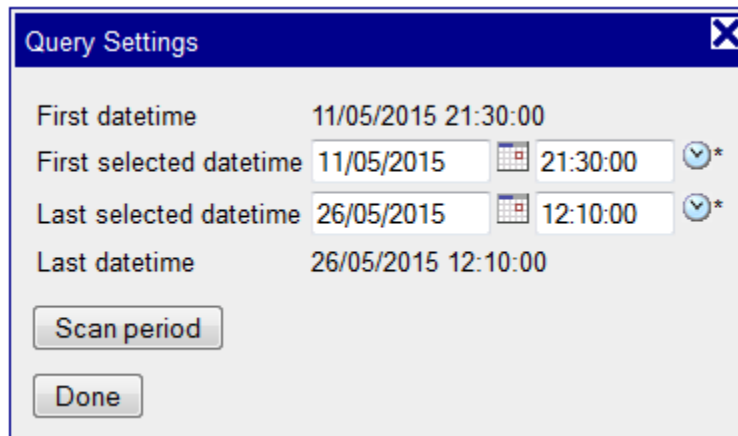


Figure 17: Query Setting Screen

- After choosing the First and Second date and time, select Apply to run the scenario. While the scenario is running, you can get updated processing information by hovering your mouse over the Status section (which shows Begin date and End date) and the Current Progress section (which shows the percentage of the scenario processed, the number of xDRs processed and the number of KPIs processed).

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

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

Turning on Troubleshooting Drilldown for xDR Sessions

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

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

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

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

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

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

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

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

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

- Select Apply from that detailed section.
- The troubleshooting drilldown functionality is now active for that xDR session, allowing you to use the drilldown function in Alarm Viewer or System Alarm.

Chapter 5: Defining and Modifying Flavor (PC Format) of Session

Define Flavor (PC Format) of Session

Flavor associated with session can be defined in Centralized Configuration application by one of following scenarios:

- Defining flavor while creating session through xDR Data Flow Assistant
- Defining flavor while adding session
- Defining flavor while defining store DFP

Defining Flavor while Creating Session through xDR DataFlow Assistant

- Login to Centralized Configuration application
- Go to Mediation->Sites->Site->IXP->Server->DataFlowProcessings
- Define DFP by selecting “xDR DataFlow Assistant” in right click menu.
- Wizard will also ask for flavor if underlying protocol has point code fields.

Mediation > Sites > ixp1001 > IXP > ixp1001 > Dataflow Processings > xDR Dataflow Assistant

Step 4: Configure Session(s)



| # | xDR Builder Name | Session Name | Life Time(hours) | Point Code Flavor |
|---|----------------------------------|--------------|------------------------|-------------------|
| 1 | SS7 BICC ETSI CDR capture | Session1 | 72 | DEFAULT |
| 2 | SS7 BICC ETSI CDR reconstitution | | Session not entered... | DEFAULT ed... |

Figure 18: Associate Flavor while Creating Session through xDR Data Flow Assistant

Defining Flavor while Adding Session through Session List

- Login to Centralized Configuration application
- Click on xDR Sessions. This will display of list of sessions
- Click on Add Button on toolbar.
- The wizard will ask for Point Code Flavor only when the dictionary has point code type field. In this case, select the flavor for the session from drop down.

| | | |
|----------------|--|--|
| Session Name | Lifetime (hours) | |
| test | | |
| Storage | Point Code Flavor | |
| ixp1001_Pool | DEFAULT | |
| Dictionary | <ul style="list-style-type: none"> DEFAULT ANSI ETSI_I ETSI_N CHINESE JAPANESE | |
| SS7 AIN TDR_CA | | |
| Description | | |

Figure 19: Associating Flavor with Session

Defining Flavor while Defining Store DFP

- Login to Centralized Configuration application
- Go to Mediation->Sites->Site->IXP->Server->Data Flow Processings
- Select "Add" in right click menu and define store DFP
- Define flavor in wizard where it asks for create session

Note: The flavor dropdown will come only if underlying protocol has point code fields.

Modifying Flavor of a xDR Session

To modify PC Format of a session, follow the following steps

- Login to Centralized Configuration application
- Click on xDR Sessions. This will display of list of sessions.
- Click on Modify Button on toolbar.
- Change the flavor for the session by selecting new flavor in drop down and Click OK.

Note: The flavor dropdown will come only if underlying protocol has point code fields.

Appendix A: My Oracle Support

MOS (<https://support.oracle.com>) is your initial point of contact for all product support and training needs. A representative at Customer Access Support (CAS) can assist you with MOS registration.

Call the CAS main number at 1-800-223-1711 (toll-free in the US), or call the Oracle Support hotline for your local country from the list at <http://www.oracle.com/us/support/contact/index.html>. When calling, make the selections in the sequence shown below on the Support telephone menu:

1. Select 2 for New Service Request
2. Select 3 for Hardware, Networking and Solaris Operating System Support
3. Select 2 for Non-technical issue

You will be connected to a live agent who can assist you with MOS registration and provide Support Identifiers. Simply mention you are a Tekelec Customer new to MOS.

MOS is available 24 hours a day, 7 days a week.