Oracle® Communications Performance Intelligence Center

Diagnostic Utility Administration Guide

Release 9.0

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ORACLE®

Oracle Communications Performance Intelligence Center Diagnostic Utility Administration Guide, Release 9.0

Table of Contents

List of Tables

List of Figures

Chapter1: About this Help Text

Scope and Audience

This guide is designed to assist the user in working with Diagnostic Utility and surveillance concepts and procedures. It is designed for users with the role System Administrator, NSPMonitorManager or NSPMonitorPowerUser working with the PIC system to view either the overall status of sites, subsystems or servers.

About the Performance Intelligence Center

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

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

PIC centralized configuration tasks fall into one of two categories:

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

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

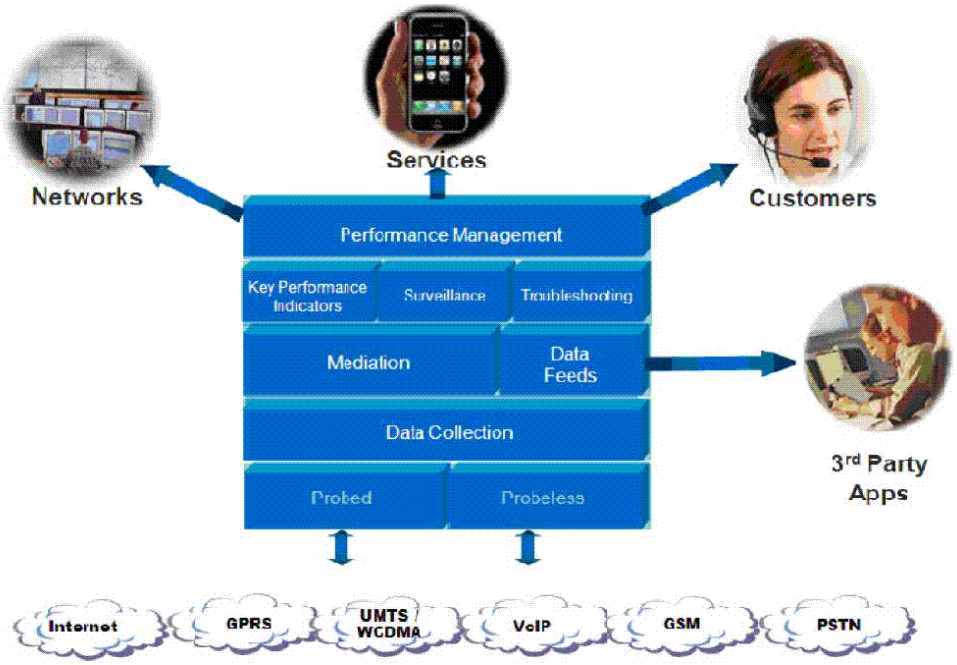

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Figure 1 : PIC Overview

User Preferences

All applications that query xDRs use a specific User Preferences option. The description outlined goes over the formatting screens.

Note: All screen shots presented here show default values.

Date/Time Tab Screen

Format the time parameters.

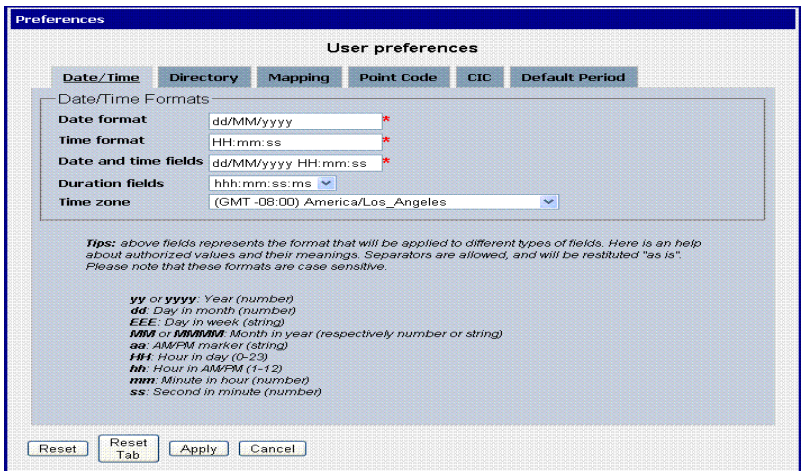


Figure 2: Date/Time Tab Screen

Field	Description
Date Format	Required field - Sets date format.
Time Format	Required field - Sets time format.
Date and time fields	Required field - Sets the date and time format.
Duration fields	Sets a duration format
Time Zone	Pull-down list for selecting the desired time zone
Reset Button	Resets all the tabs to default values
Reset Tab Button	Resets to default values for the specific tab.
Apply Button	Applies any changes to the system.
Cancel Button	Exits the screen

Table 1 : Time Tab

Directory Tab

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

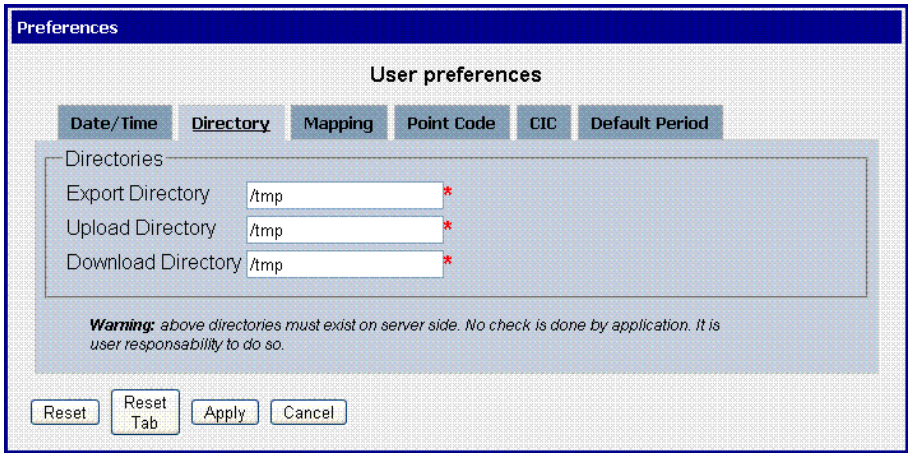


Figure 3: Directory Tab Screen

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

Table 2: Directory Tab

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

Mapping tab

Select the Mapping tab to set the xDR display parameters.

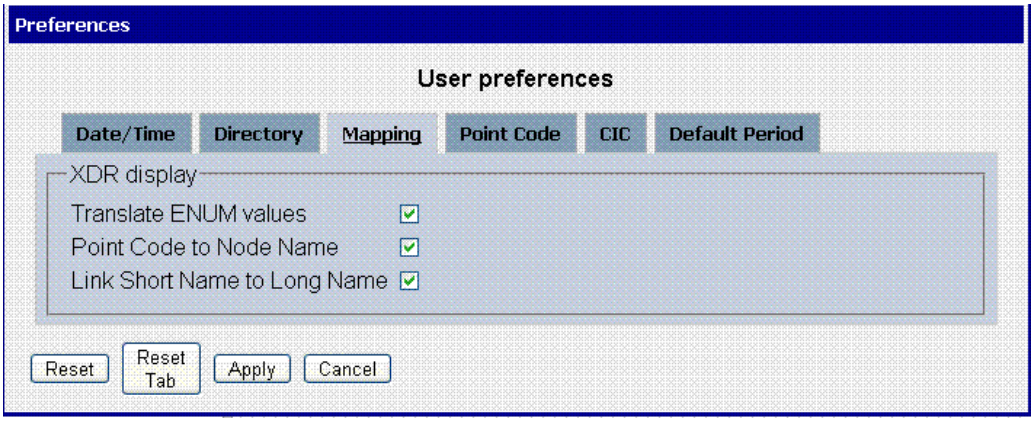


Figure 3: Mapping Tab Screen

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

Table 3 : Mapping Tab

Point Code tab

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

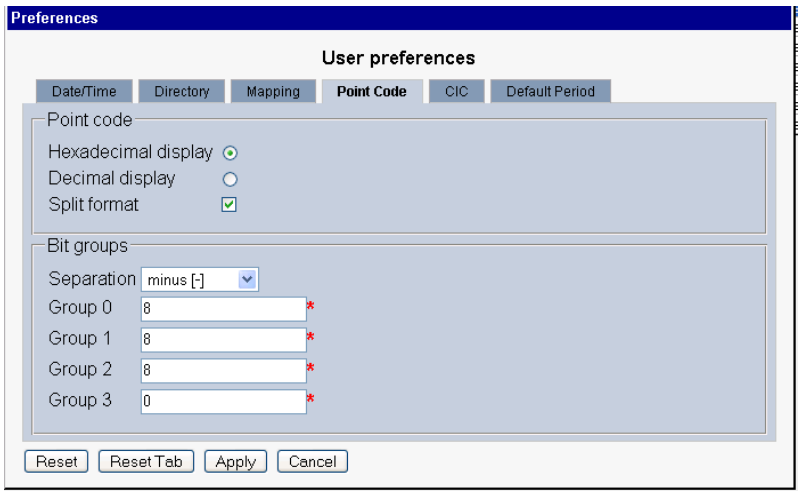


Figure 4: Point Code Tab

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

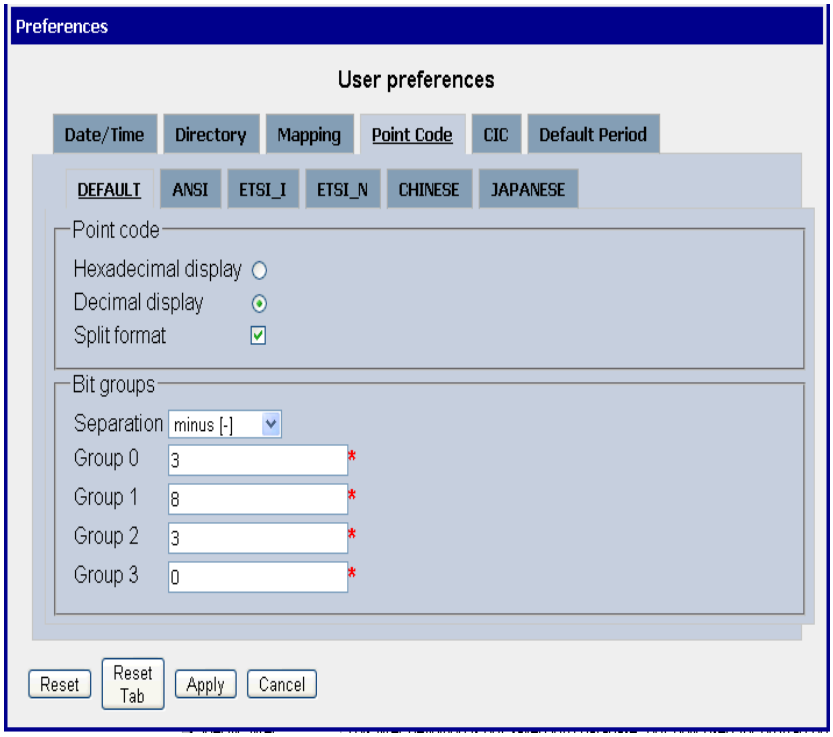


Figure 5: Point Code Tab with Session Point Code Enabled

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

Table 4: Point code Tab

CIC tab

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

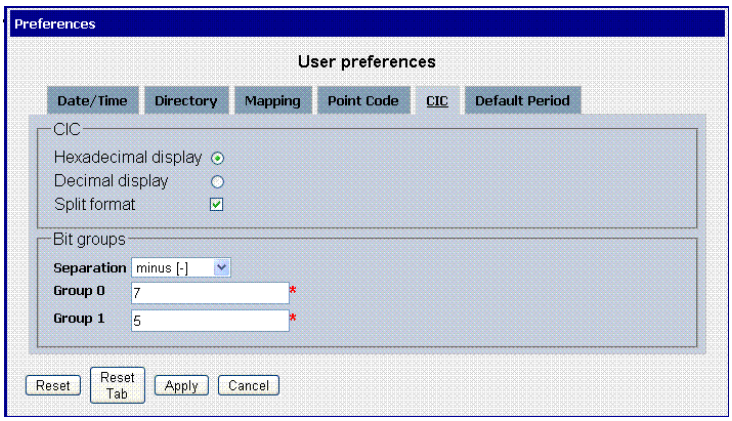


Figure 6: Formatting Rules (CIC) Screen

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

Table 5 : CIC Tab

Default Period tab

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

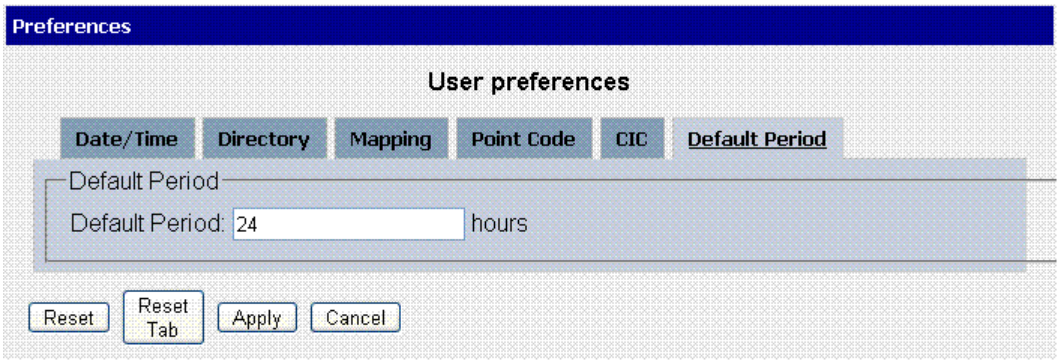


Figure 7: Default Period Tab Screen (ProTrace only)

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

Table 6: Default Period Tab Field Descriptions

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

Customer Care Center

The Tekelec Customer Care Center is your initial point of contact for all product support needs. A representative takes your call or email, creates a Customer Service Request (CSR) and directs your requests to the Tekelec Technical Assistance Center (TAC). Each CSR includes an individual tracking number. Together with TAC Engineers, the representative will help you resolve your request.

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

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

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

Tekelec - Global

Email (All Regions): support@tekelec.com

- **USA and Canada**

  Phone:

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

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

  Canada)

  TAC Regional Support Office Hours:

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

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

  Phone:

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

  (toll-free)

  TAC Regional Support Office Hours (except Brazil):

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

  - **Argentina**

    Phone:

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

  - **Brazil**

    Phone:

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

    TAC Regional Support Office Hours:

    8:30 a.m. through 6:30 p.m. (GMT minus 3 hours), Monday through Friday, excluding holidays

  - **Chile**

Phone:

1230-020-555-5468

- **Colombia**

Phone:

01-800-912-0537

- **Dominican Republic**

Phone:

1-888-367-8552

- **Mexico**

Phone:

001-888-367-8552

- **Peru**

Phone:

0800-53-087

- **Puerto Rico**

Phone:

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

- **Venezuela**

Phone:

0800-176-6497

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

Regional Office Hours:

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

- **Signaling**

Phone:

+44 1784 467 804 (within UK)

- **Software Solutions**

Phone:

+33 3 89 33 54 00

- **Asia**

- **India**

Phone:

+91 124 436 8552 or +91 124 436 8553

TAC Regional Support Office Hours:

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

- **Singapore**

Phone:

+65 6796 2288

TAC Regional Support Office Hours:

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

PIC Documentation Library

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

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

Locate Product Documentation on the Customer Support Site

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

1. Log into the https://secure.tekelec.com/OA_HTML/ibuhpage.jsp site.
   Note: If you have not registered for this new site, click the Register Here link. Have your customer number available. The response time for registration requests is 24 to 48 hours.

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

Chapter2: Introduction to Diagnostic utility

About Diagnostic Utility

The Diagnostic Utility application is used by users with the role NSP Administrator, NSPMonitorPowerUser or NSPMonitorManager for monitoring PIC sites, subsystems (IXP and xMF) and servers including specific hardware components such as disk storage and network cards.

Diagnostic Utility is dependent on the IXP, IMF or PMF subsystems.

As stated above, Diagnostic Utility supports monitoring of xMF (IMF / PMF), IXP subsystems as well as their hardware components. Listed here are the parameters for each subsystem or server that is monitored.

For xMF

- Status of servers and subsystems
- Destinations
- Card interfaces (PMF only)

For IXP

- Status of servers and subsystems
- Streams
- Sessions
- Data Flow processings
- Store
- Hardware Counters

For server hardware components

- Server parameters
- Ethernet parameters
- Disk parameters

Opening Diagnostic Utility

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

After you have logged into NSP you can open Diagnostic Utility by clicking on the *Diagnostic Utility i*con from Surveillance section of NSP Application Board

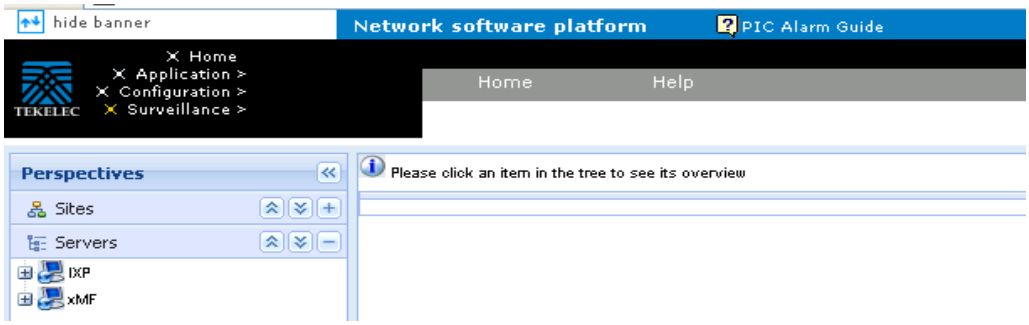


Figure 8: Diagnostic Utility home screen

The screen is divided into two main sections:

- Object Tree - located on the left-hand panel shows the three main perspectives and enables you to navigate through the data (drill down). The two perspectives are:
  - Sites - this perspective shows you how the subsystems/servers are physically organized. This perspective is referenced from the system you have configured. You can select subsystems/servers you want to monitor. The figure below shows an example of an expanded Sites perspective.

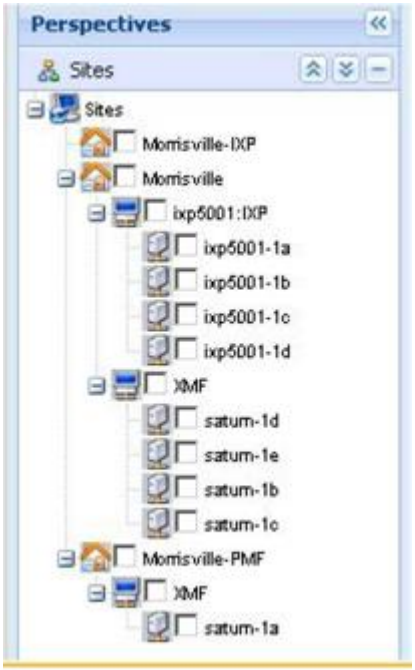


Figure 9: Sites Object Tree Expanded

- Servers - this perspective shows all subsystems/servers grouped by type (for example xMF or IXP). This perspective is used to select the subsystem or server you want monitor. The figure below shows the servers perspective

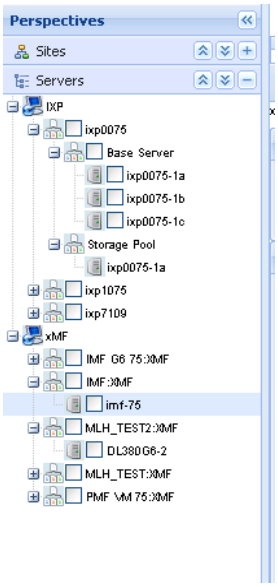


Figure 10: Server Object Tree Expanded

• Workspace - located on the right-hand section provides a table that enables you to list, sort and view counters. The figure shows a workspace area (of a single server).

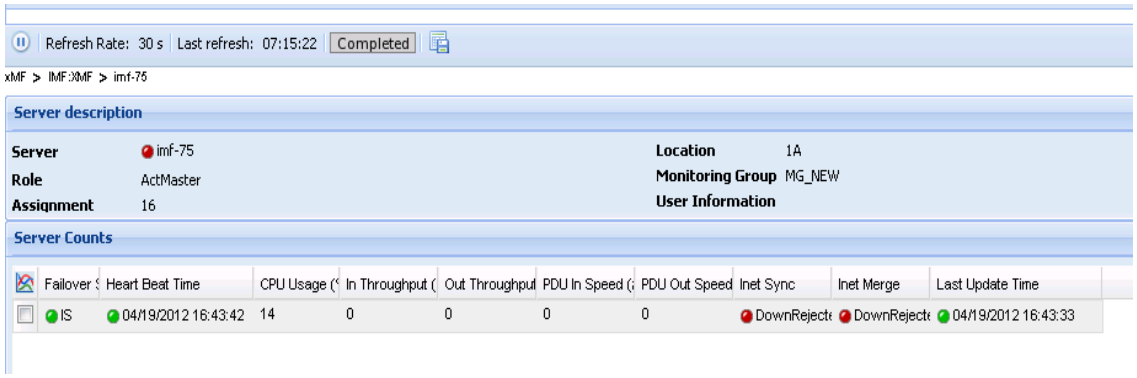


Figure 11: Workspace Tree Expanded

Collapse / Expand Buttons

The Diagnostic Utility application has a collapse / expands screen function shown in the figures below.

Note: You *can* also open each perspective by clicking on the perspective header.

-  *Close perspective panel* - clicking this button located on the perspective header collapses the panel to the left creating more room in the work space panel.
-  *Open perspective panel* - clicking this button on the perspective header opens the panel to the right showing the perspective panel
-  *Expand all* - clicking on this button expands the object tree.
-  *Collapse all* - clicking on this button collapses the object tree.
-  *Expand perspective object tree* - clicking on this button opens the perspective.
-  *Collapse perspective object tree* - clicking on this button collapses the perspective.
-  *Charting* - clicking on this button in an overview table opens the count selection menu of the charting function.

User Preferences

All applications that query xDRs use a specific User Preferences option. The description outlined goes over the formatting screens.

Note: All screen shots presented here show default values.

Date/Time Tab Screen

Format the time parameters.

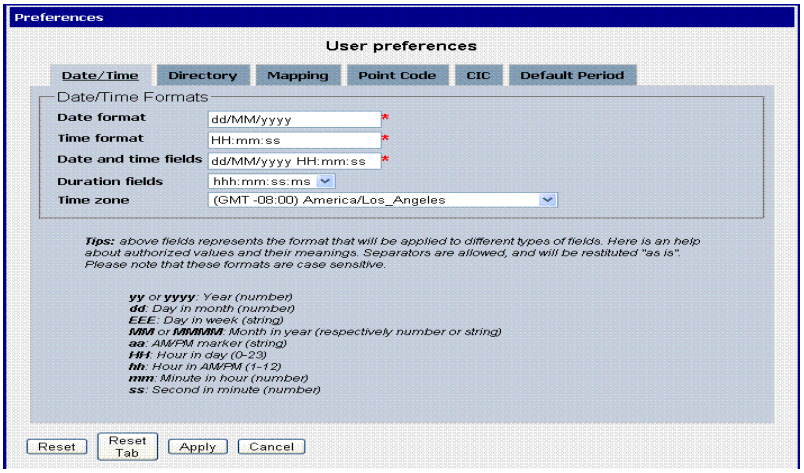


Figure 12: Date/Time Tab Screen

Field	Description
Date Format	Required field - Sets date format.
Time Format	Required field - Sets time format.
Date and time fields	Required field - Sets the date and time format.
Duration fields	Sets a duration format
Time Zone	Pull-down list for selecting the desired time zone
Reset Button	Resets all the tabs to default values
Reset Tab Button	Resets to default values for the specific tab.
Apply Button	Applies any changes to the system.
Cancel Button	Exits the screen

Table 7: Time Tab

Directory Tab

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

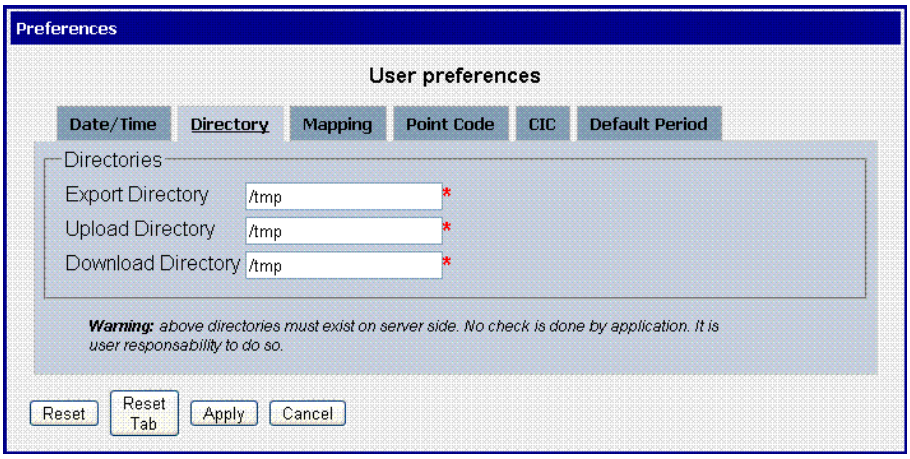


Figure 13: Directory Tab Screen

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

Table 8: Directory Tab

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

Mapping tab

Select the Mapping tab to set the xDR display parameters.

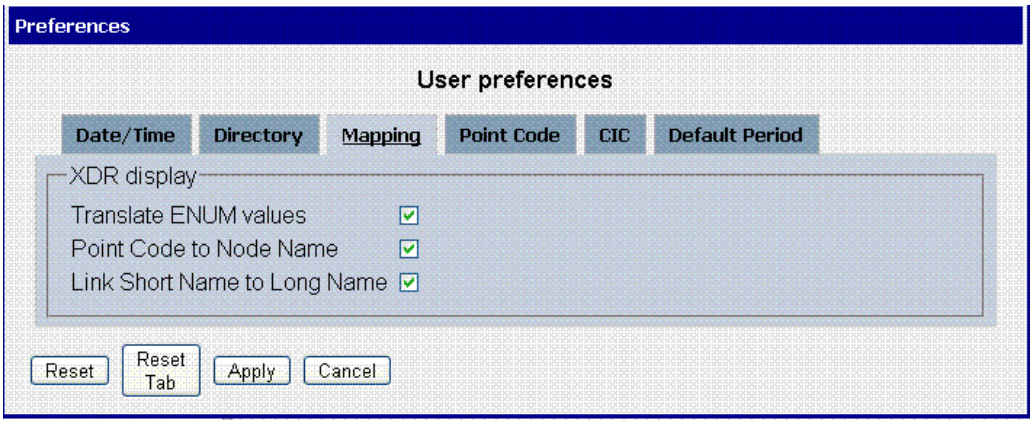


Figure 14: Mapping Tab Screen

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

Table 9 : Mapping Tab

Point Code tab

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

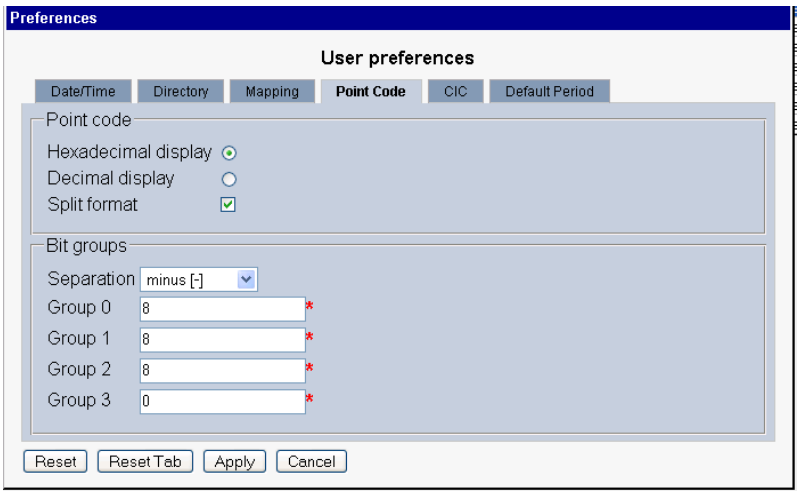


Figure 15: Point Code Tab

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

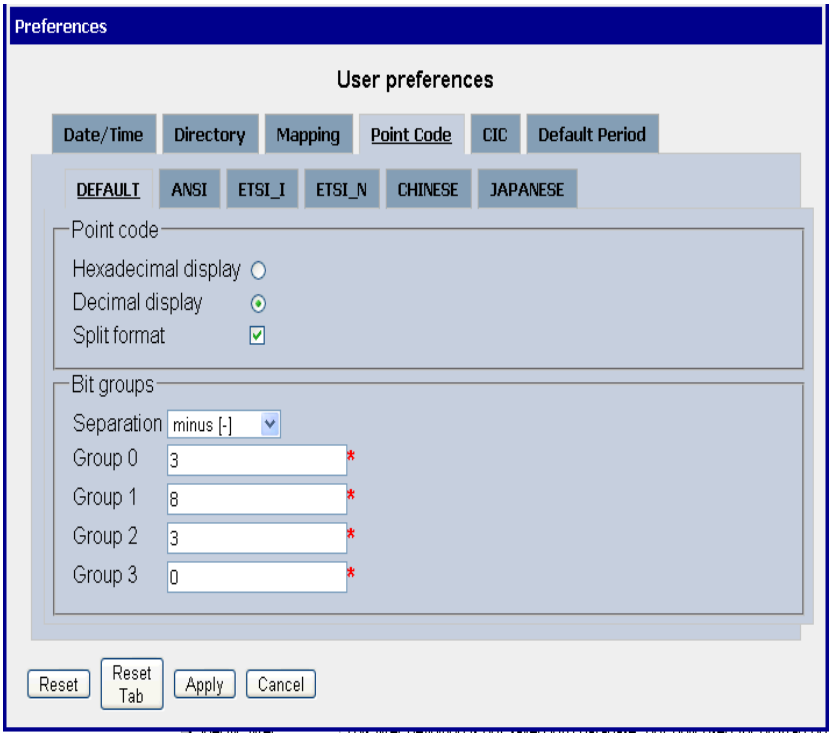


Figure 16: Point Code Tab with Session Point Code Enabled

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

Table 10: Point code Tab

CIC tab

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

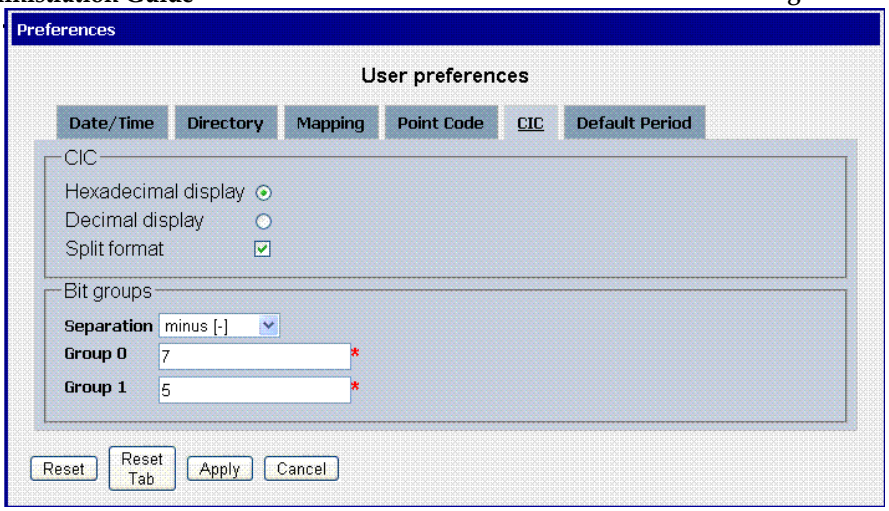


Figure 17: Formatting Rules (CIC) Screen

Table 11: CIC Tab

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

Default Period tab

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

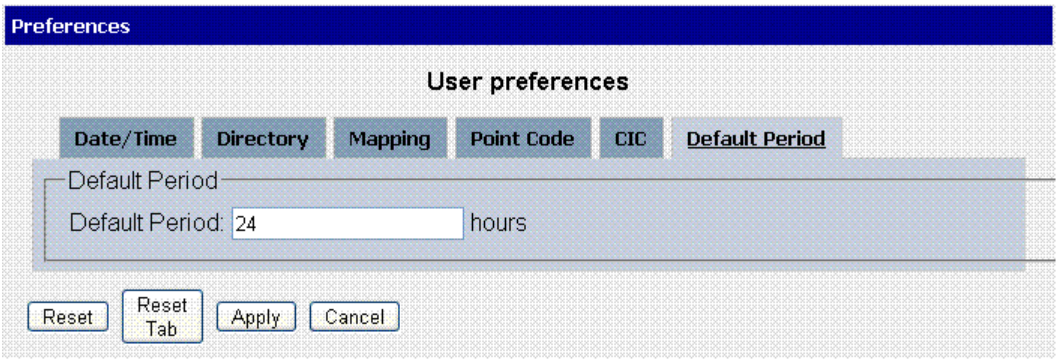


Figure 18: Default Period Tab Screen (ProTrace only)

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

Table 12: Default Period Tab Field Descriptions

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

Understanding the Diagnostic Utility Screen

This section provides a brief overview of the screen unique to *Diagnostic Utility.* For more detailed information on common NSP screen elements such as the toolbar and function buttons, see NSP *Platform Guide*

Main Screen Functions

This section discusses the main functions on the *Diagnostic Utility* screen. Each configuration parameter is discussed in its own section. The main screen functions are:

- Screen Menu Bar - shows pull-down menus for Home and Help.

Home menu has the following options:

  - Home screen - selecting this menu item brings you back to the *Home* screen.
  - Preferences - selecting this menu item opens the *Preferences* screen where you can configure *Diagnostic Utility.* For more information on using *Preferences,* see *"Configuring Diagnostic Utility."*

Help menu has the following options:

  - User Manual - opens the online help for *Diagnostic Utility*
  - About - provides information on the Release, Package version, Branch and Revision

- Object tree - selecting one of the elements on the left-hand section opens the appropriate screen.
  - Object tree panel buttons - selecting one of these buttons opens, closes, expands or collapses the panel or perspective
  - Object selection field - this field is for multiple site, subsystem, server viewing. To use this field, you *can only* select the same level (site, subsystem, server) to view using the multiple-view function
  - Pop-Up menu - right clicking on an object icon opens a menu. The menu changes according to the object's properties
- Toolbar - the functions are described here

  Note: The toolbar can be viewed only when an object is selected.
- Pause - pauses the monitoring process (and the screen no longer is refreshed to show any changes shown in the figure below)

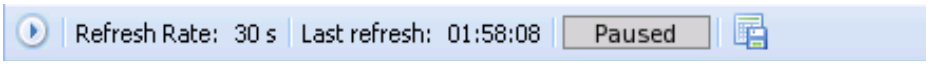


Figure 19: Sample Screen Toolbar - In Paused

State

- Continue - begins the monitoring process again and the screen refresh process begins again shown below

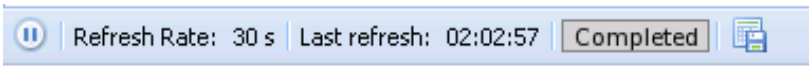


Figure 20: Sample Screen Toolbar - In Monitoring State

- Screen Refresh rate - shows currently selected time interval
  - For screen overview (for both IXP and xMF) intervals are: 30 seconds (default value), 1 , 5 and 10 minutes

  Note: You can select the time intervals in the *Preferences* operation.
- Last Refresh - shows the time (either in 12 or 24 hour format in your local time) when the last screen refresh was accomplished

  Note: See User Preferences in NSP *Platform Guide* for details on setting time format.
- Save As - saves the information as a *csv zip* file, for the table (counters) being monitored, for exporting zipped files in *csv* format. For more information, *seeExporting Overview Tables in CSV Format.*

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

Column functions on Tables

Each column in *Diagnostic Utility* has a pull-down menu that provides a number of options.

Note: Column headings for each table are discussed in the separate sections. Complete these steps to show the options.

1. Place the cursor on a **particular column** and the pull-down arrow appears.
2. Click on the **pull-down arrow.**

The sort/column menu opens shown in figure below

.

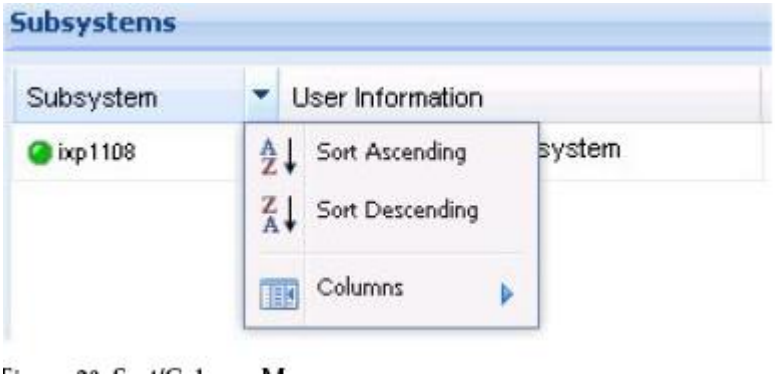


Figure 21: Sort/Column Menu

Sort Option

The sort functions enable you to sort in *Ascending* or *Descending* order.

Selecting Columns to View

You can select which table columns to view by using the *column pull-down* menu. Complete these steps to select table columns.

1. Select the parameter table you want to view. The table opens shown in the figure below.

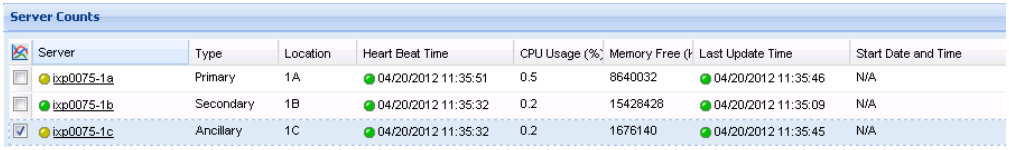


Figure 22: Selected Table

2. Select any column
3. Click the down arrow

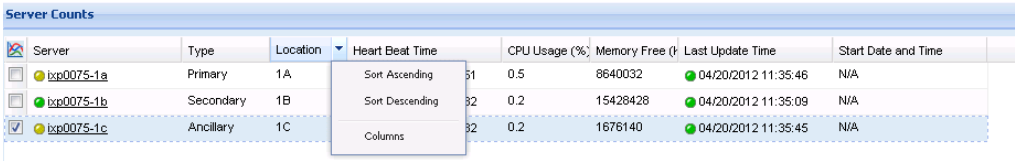


Figure 23: Selected Column with Pull down menu

4. Select Columns. The column selection list for that parameter opens shown in the figure below.

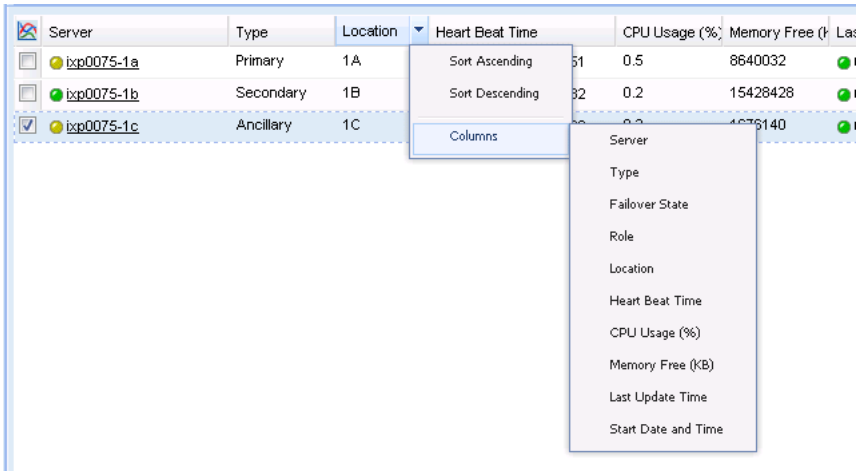


Figure 24: Selected Column with pull down menu

5. Select the **columns** you want to view.
6. Click **anywhere** on the screen.
   The table changes to show only the selected columns shown below.

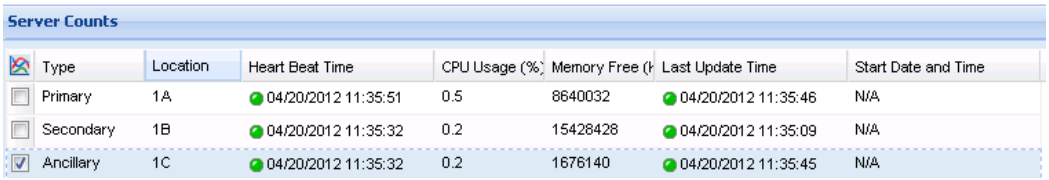


Figure 25: Selected Columns

Note: Column options differ according to the object selected

Changing Column Width

You can change the width of the column by placing the cursor on the column margin and dragging it to the desired width.

Column rollover Function

This function enables you to view a description of the column heading when you place the cursor over the column heading. The figure below shows a column heading description.

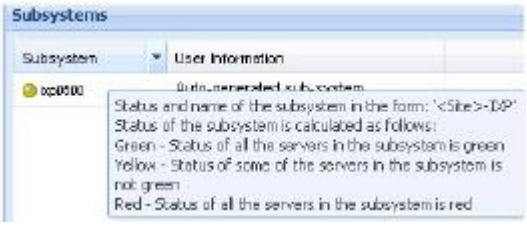


Figure 26: Rollover Function showing Column Description

Moving Columns

You can also organize columns by moving them to different positions in the table. Complete these steps to move a column to a different position in the table.

1. Place the cursor on the column header you want to move shown in the figure below. The column is highlighted.

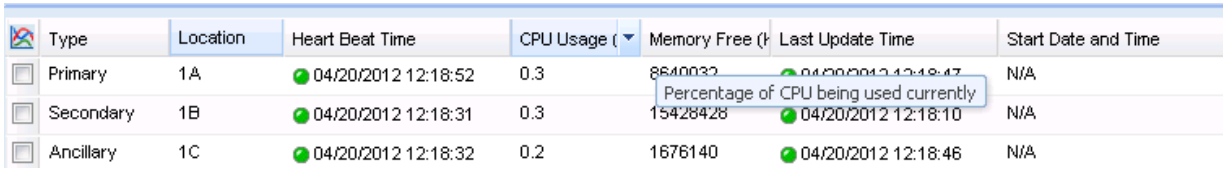


Figure 27: Sort/ Column Menu

2. Drag the cursor to the desired position in the table. Double arrows (not shown) show the column position.

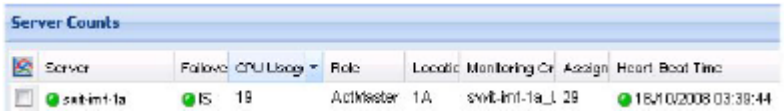


Figure 28: Sort/ Column Menu

3. Release the cursor when you have moved the column to the desired position. The column is now in the new position.

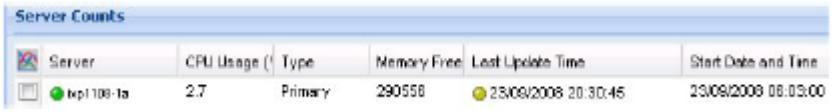


Figure 29: Sort/ Column Menu

You can perform this procedure for any of the columns.

Expanding and Collapsing Table in an Overview Screen

You can expand and collapse overview tables in a monitoring screen. Each overview table has an arrow on the right-hand side of the table heading (or on the heading itself). Clicking on it will expand or collapse the overview tables.

Note: Expanding a table causes the screen to be automatically refreshed.

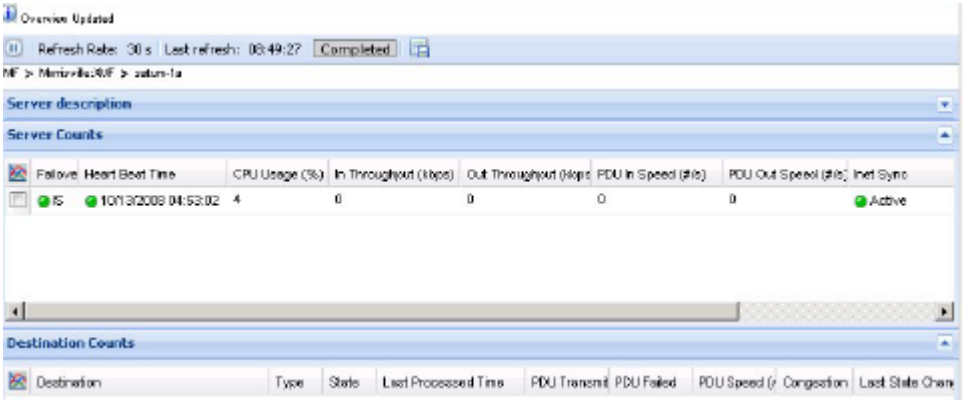


Figure 30: Collapsed (Server Description) Table in Overview Screen

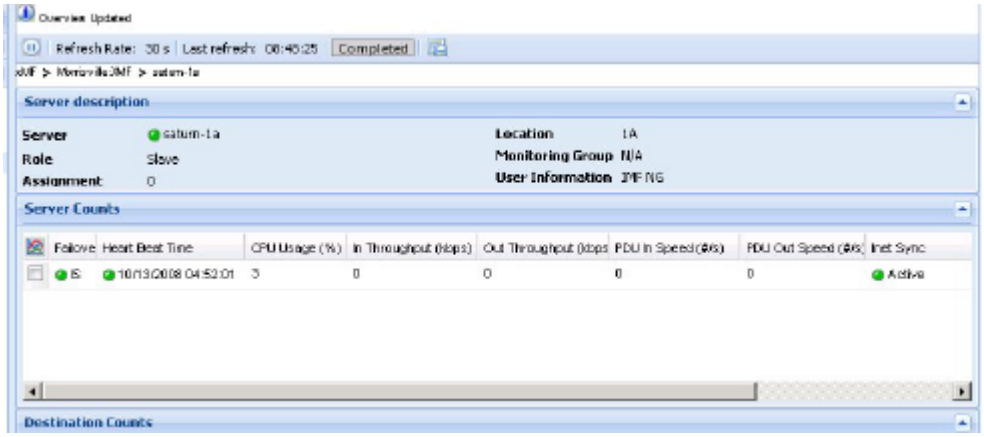


Figure 31 : Expanded (Server Description) Table in Overview screen

Drill-down Function from Overview Screens

You can use the drill-down function by clicking on the icon from an overview table. Whenever you see the "hand" icon appear in place of the cursor, you can click on it to open the next level. In the example here, the drill down begins at the *Subsystem overview* level and then proceeds down to the *Server* and finally to a specific server.

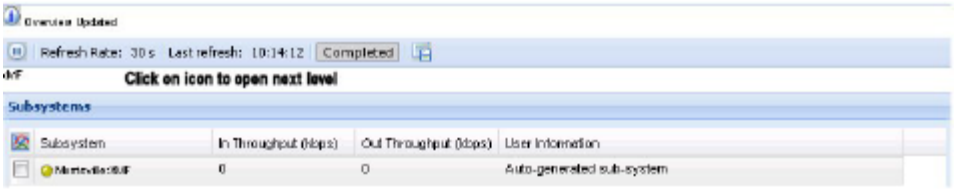


Figure 32 : Subsystem Overview Screen

Clicking on icon in the **Subsystem** column opens the Server Overview screen shown in figure below

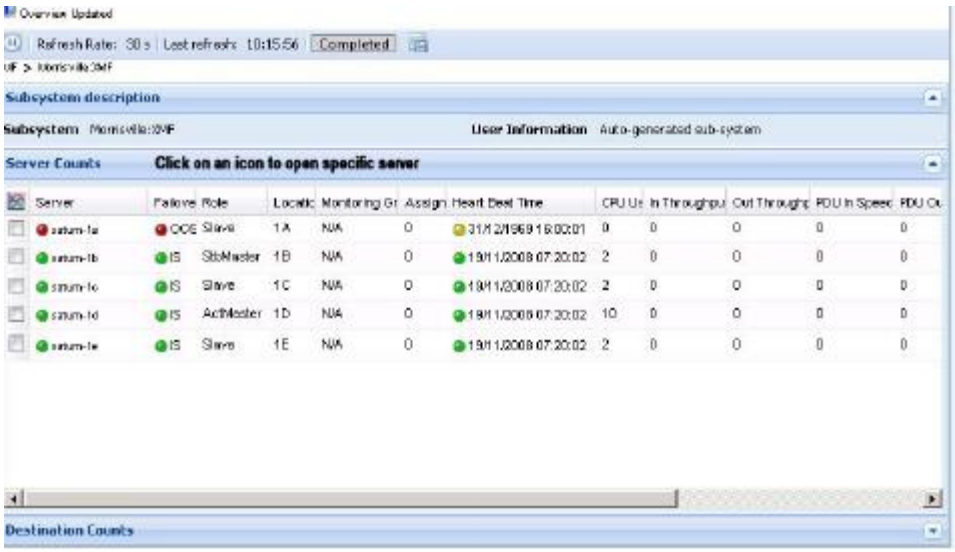


Figure 33 : Server Overview Screen

Clicking on an icon in the **Server** column opens the specific server shown in the figure below.

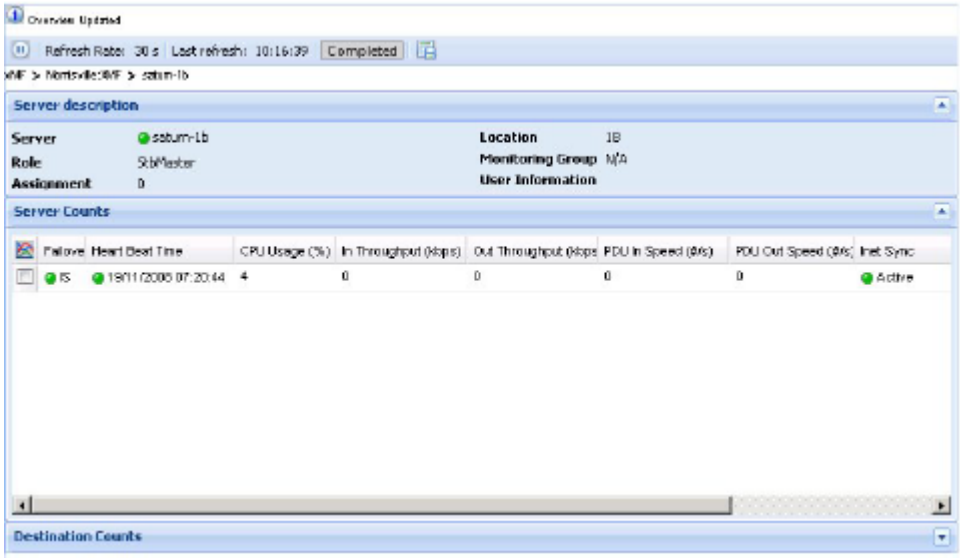


Figure 34 : Specific Server Screen

About Diagnostic Utility Perspectives

The *Diagnostic Utility Object* tree provides different perspectives of the monitored elements. Each perspective is presented in a stack panel. *Diagnostic Utility* presents the data by providing two main perspectives:

- Sites - this perspective shows you how the subsystems/servers are physically organized. You can select the subsystems/servers you want to monitor.
- Servers - this perspective shows all subsystems/servers grouped by type (for example xMF or IXP). This perspective is view-only and is used only to select the subsystem or server you want monitor.

Using these two perspectives, you can perform the operations required to monitor an PIC system. The figure shown here provides an example of Diagnostic Utility's two perspectives.

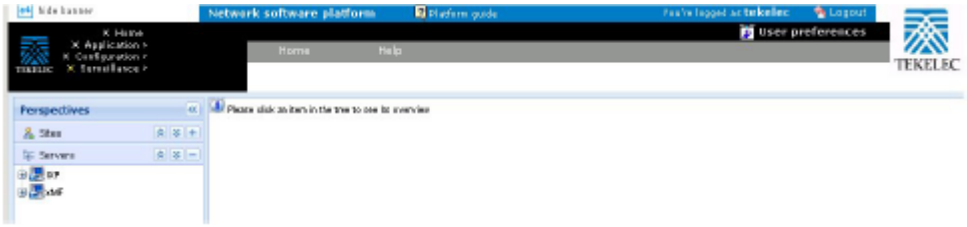


Figure 35 : Diagnostic utility Default view (Home Page)

About sites Perspective

Sites perspective structure:

The root of the tree is called Sites.

Under the root, the objects for all the sites are displayed.

Under the site tree the subsystems of this site are displayed.

Under the subsystem tree, the servers of this subsystem are displayed.

About the Sites perspective Elements right-click Menu

The right-click menu provides a convenient means of viewing specific counts for, sites, subsystems and servers. The following lists show the options available at each level.

In the *Site* perspective, you can view subsystems and servers that exist in different sites. The right-click pop-up menu for each level (root, subsystem and server) has the following options:

Sites - root level right-click Options

- Refresh - refreshes all the sites in the object tree

- Multiple sites overview - enables you to monitor multiple sites that you have selected in the object tree

Sites - site level right-click Options

- Refresh -refreshes the selected site in the object tree
- Multiple IXP subsystems - enables you to view the counts of multiple IXP subsystems you have selected within a site--select the subsystems and then click the*Site* to view them.
- Multiple IXP servers - enables you to view the counts of multiple IXP servers you have selected within a site. Select the servers using the check boxes and then right-click the Site object to view them.
- Multiple xMF subsystems - enables you to view the counts of multiple xMF subsystems you have selected within a site -- select the subsystems using the check boxes and then right-click the*Site* to view them.
- Multiple xMF servers - enables you to view the counts of multiple xMF servers you have selected within a site -- select the servers using the check boxes and then right-click the Site to view them.

Sites - IXP subsystem level right-click Options

- Refresh
- Streams
- Sessions
- Data Flow Processings
- Store
- Hardware Counters
- Multiple Severs Overview (option active only if multiple servers are selected)

Sites - IXP server level right-click Options (Base Server)

- Streams
- Data Flow Processings
- Hardware Counters

Sites - IXP server level right-click Options (Storage Server)

- Hardware Counters

- Store

Sites - xMF subsystem level right-click Options

Note: The right-click menu shows only the options available for that subsystem. For example, if there is no PMF subsystem existing in the site, the *reset* options will be grayed out.

- Refresh
- xMF servers
- Destinations
- Level 1 (PMF only)
- IP Devices (PMF only)
- Hardware Counters
- Reset Input Counts
- Reset Destination Counts
- Reset Level 1 Counts (PMF only)
- Reset IP Counts (PMF only)
- Multiple Servers Overview

Sites - xMF server level right-click Options

- xMF servers
- Destinations
- Level I (PMF only)
- IP Devices (PMF only)
- Hardware Counters

About servers Perspective

The root of the tree is called *Servers.*

Under the root, the tree nodes for particular subsystem types are displayed. Name of these nodes are *IXP* and XMF.

Under the IXP root are the IXP subsystems and under the xMF root are the xMF subsystems. Under the IXP subsystem node are the Base servers and Storage Pool servers.

Note: The Base servers include all the IXP servers Base and Storage Pool. The Storage Pool node only shows the storage servers.

About Server Perspective subsystem right-click Menu

Servers - IXP root level right-click Options

- Multiple Subsystems - enables you to view the counts of multiple IXP subsystems you have selected within a site(s)
- Multiple Servers - enables you to view the counts of multiple IXP servers you have selected within a site(s).

Servers - IXP subsystem level right-click Options

- Refresh
- Streams
- Sessions
- Data Flow Processings
- Store
- Hardware Counters
- Multiple Servers Overview

Servers - IXP Base server level right-click Options

- Streams
- Data Flow Processings
- Hardware Counters

Servers - IXP Storage Pool server level right-click Options

- Store
- Hardware Counters

Servers - xMF root level right-click Options

- Refresh - refreshes the screen

- Multiple xMF Subsystems - enables you to view the counts of multiple xMF subsystems you have selected within a site(s)
- Multiple xMF Servers - enables you to view the counts of multiple xMF servers you have selected across one or more sites

Servers - xMF subsystem level right-click Options

- Refresh
- xMF Servers
- Destinations
- Level 1 (PMF only)
- IP Devices (PMF only)
- Hardware Counters
- Reset Input Counts
- Reset Destination Counts
- Reset Level 1 Counts (PMF only)
- Reset IP Counts (PMF only)
- Multiple Servers Overview

Servers - xMF server level right-click Options

- xMF servers
- Destinations
- Level 1 (PMF only)
- IP Devices (PMF only)
- Hardware Counters

Chapter3: Configuring Diagnostic utility

About Preferences

You can configure the Diagnostic Utility screens to fit your needs by using the Preferences option.

Note: To set *global preferences* such as Time settings, you must use the *User Preferences* option. See NSP *Platform Guide* for information on setting global preferences.

The *Preferences* menu provides a number of options. Each option is described in this chapter and enables you to select the following options:

- Overview refresh rate
- What tables are *expanded* by default

To open the *Preferences* screen, select from the *Diagnostic Utility Menu bar* **Home > Preferences.** The *Preferences* screen is displayed shown in the figure below.

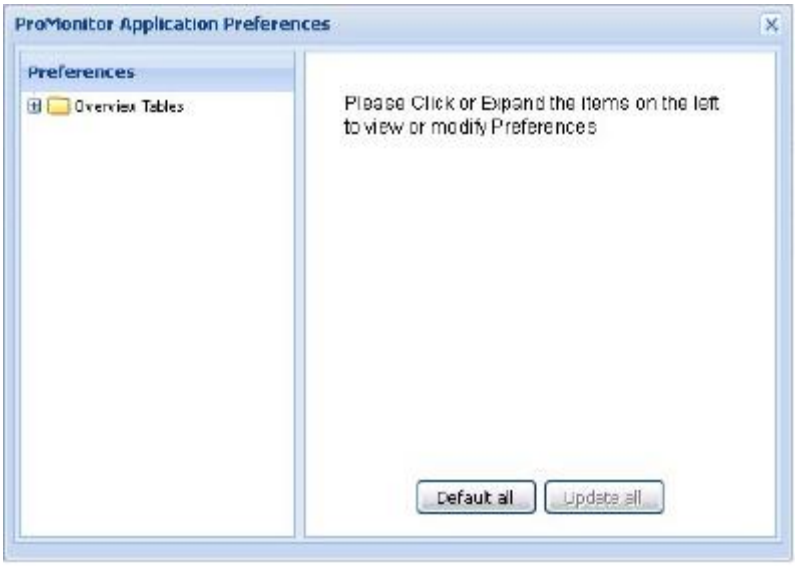


Figure 36 : Preferences Screen

The *Preferences* screen has the following components:

Field/component	Description
Object menu	lists the data objects; select the object on the left-hand panel of the screen by clicking on the expand (+) icon
Options	lists the options on the right-hand panel of the screen
Default all button	resets all the options to their default values
Update all button	updates all the changes to the screens

Table 13 : Preferences Field Descriptions

Selecting Overview Screen Refresh Rate

The *overview screen refresh rate* function enables you to set how frequently the overview screens are refreshed. Complete these steps to set the refresh rate.

1. Select **Home > Preferences** from the *menu bar.*

   The *Preferences* screen is displayed.

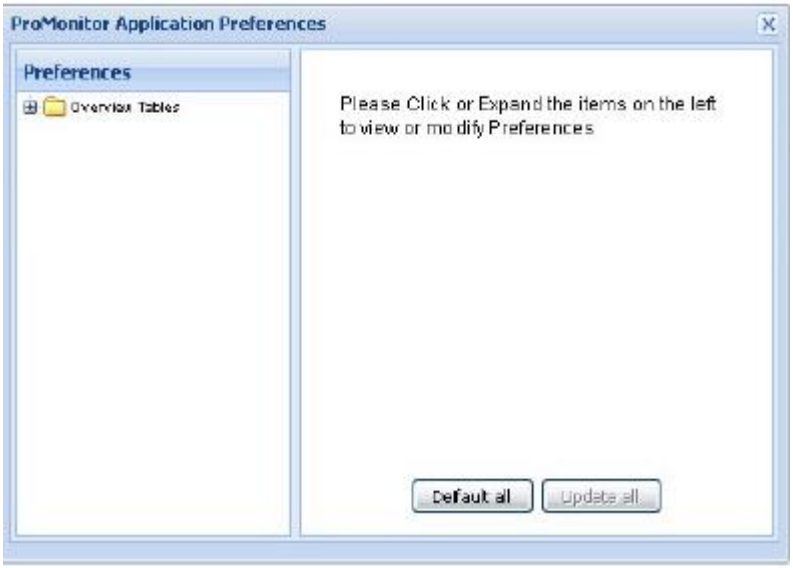


Figure 37 : Preferences Screen

2. Click on **Overview Tables** from the object tree.

Figure 38 : Overview Screen with refresh rate

The screen shows the refresh rate.

4. Click on the refresh rate from the drop-down menu.
5. Click Update all. The refresh rate is set.
6. Click the x on the top right-hand corner to close the screen.

Note: To reset the refresh rate to its default (30 seconds) click *Defaults* on the *Preferences* screen. See *Main Screen Functions* for more information on refresh rates.

Configuring Preferences for IXP Overviews

The *Preferences* operation enables you to set the various IXP overview tables to be expanded by default.

Expanding IXP Root by Default

Complete these steps to expand the IXP root by default.

1. Select **Home > Preferences** from the menu bar.

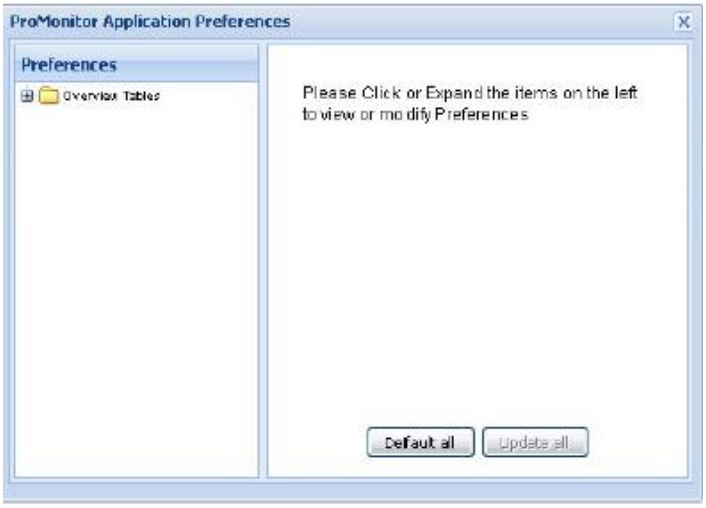


Figure 39 : Preferences Screen

2. Expand Overview Tables (root) from the object tree.

The screen shows the object menu.

Figure 40 : Expanded Overview Menu

3. Click on IXP in the tree. The subsystem option screen is displayed

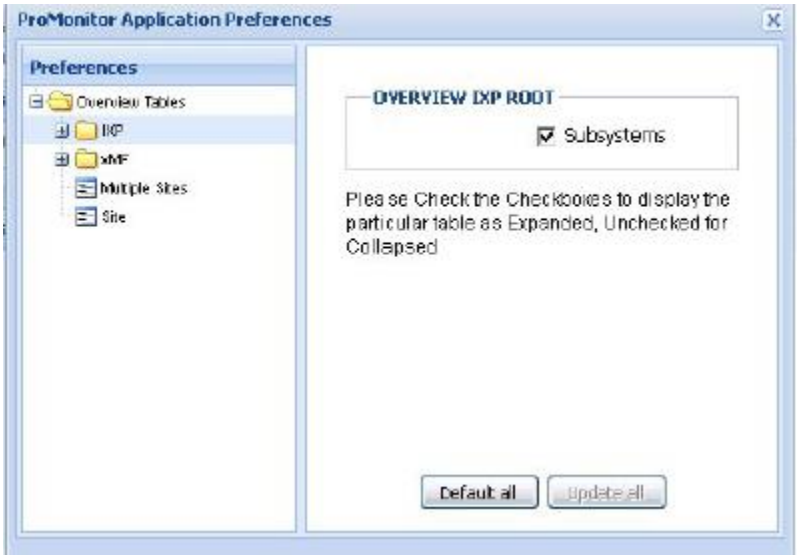


Figure 41 : Expanded Overview Menu

4. Select or de-select the **Overview IXP root** option.
5. Click **Update all.**
   The preferences are set.

Expanding IXP Multiple Subsystems as a Default Setting

Complete these steps to expand IXP multiple subsystems as a default.

1. In the Configuration screen expand the **Object** menu.
2. Click on the **IXP table** to be expanded.
3. Click on **Multiple Subsystems.**

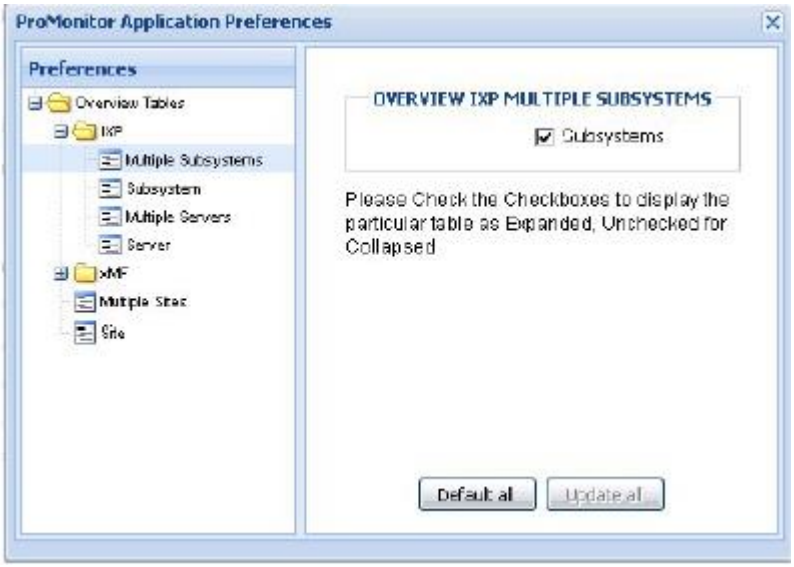


Figure 42: Selected IXP Multiple Subsystems

4. Select or de-select **Subsystems.** Selecting *Subsystems* expands the *Subsystems* menu as a default setting.

5. Click **Update All.** The IXP settings are updated.

Expanding Subsystem Parameters by Default

Complete these steps to expand specific subsystem overview tables by default.

1. In the configuration screen expand the Object Menu
2. Click on IXP
3. Click on the subsystem on the object tree.

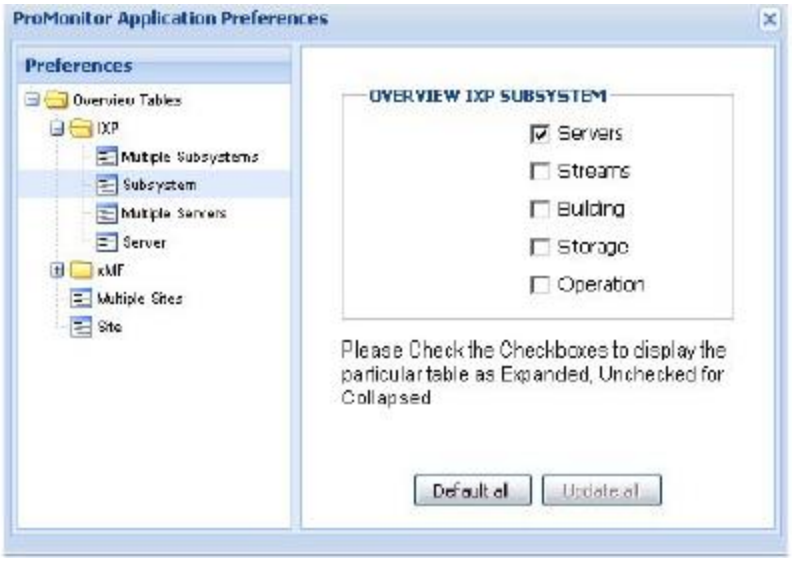


Figure 43: IXP Subsystem

4. Select or de-select the **IXP tables** you want expanded or collapsed.

   a) Servers Streams
   b) Building
   c) Storage
   d) Operation

5. Click **Update All. T**he IXP settings are updated.

Expanding Multiple Servers by Default

Complete these steps to expand multiple server overview tables by default.

1. In the Configuration screen expand the **Object** menu.
2. Click on the **IXP.**
3. Click on **Multiple Servers** on the object tree.

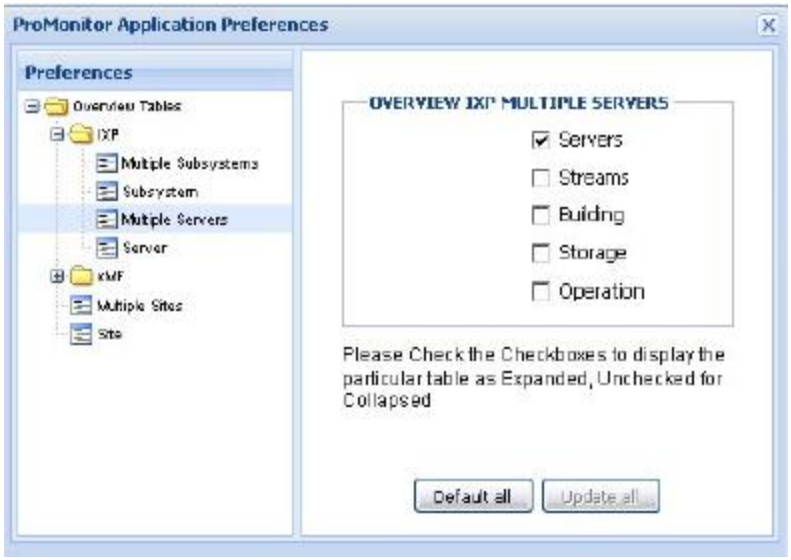


Figure 44: IXP Multiple Servers

4. Click on the appropriate **check boxes** for the items expanded on the screen.

5. Click **Update All.**

6. The IXP settings are updated.

Expanding a single server by Default

Complete these steps to expand a single server overview tables by default.

1. In the Configuration screen expand the **Overview Tables** menu.

2. Select **IXP** > **Server.** The screen shows the overview IXP server options.

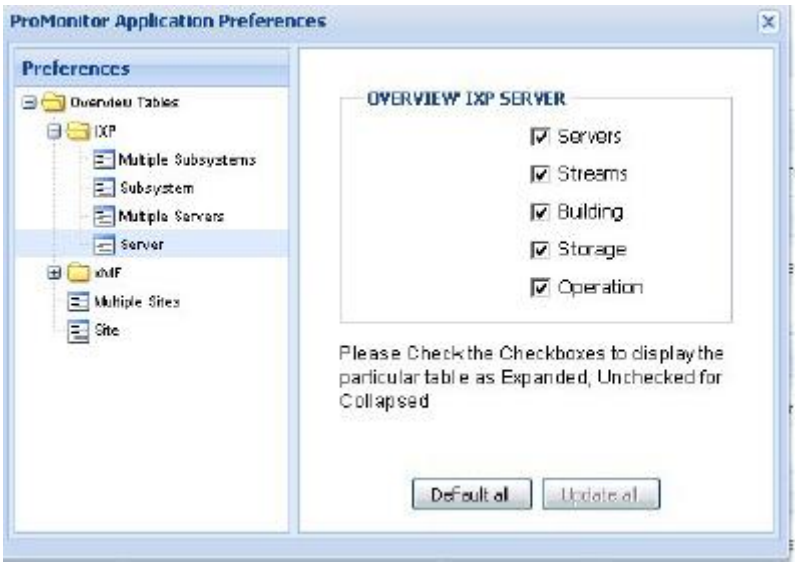


Figure 45 : IXP Single Server

3. Select or de-select the **IXP tables** you want expanded or collapsed. The options are:

   a) Servers

   b) Streams

   c) Building

   d) Storage

   e) Operation

4. Click **Update All.** The IXP settings are updated.

Configuring preferences for xMF Overviews

The Preferences operation enables you to set the various xMF overview tables to be expanded by default.

Expanding xMF Root by Default

Complete these steps to expand the xMF root by default.

1. Select Home > Preferences from the menu bar. The Preferences screen opens.

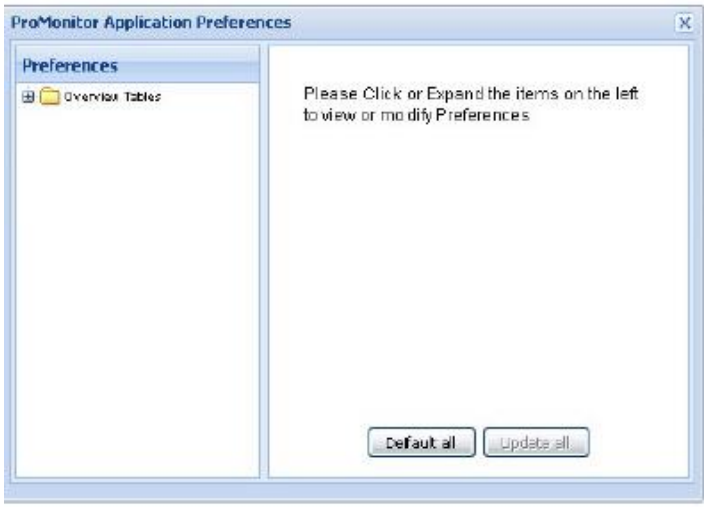


Figure 46 : Preferences Screen

2. Expand Overview tables (root) from the object tree. The screen changes to show the object menu shown here

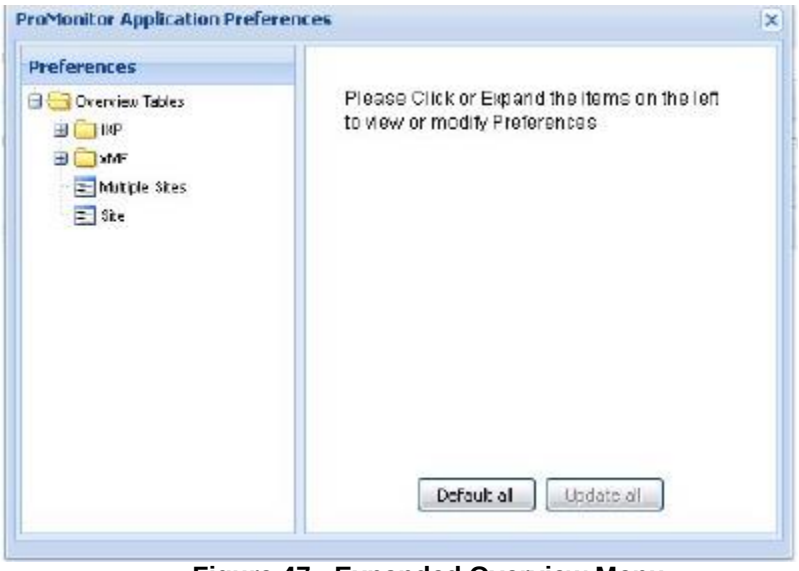


Figure 47 : Expanded Overview Menu

3. Click on xMF on the tree. The subsystems option screen opens shown below.

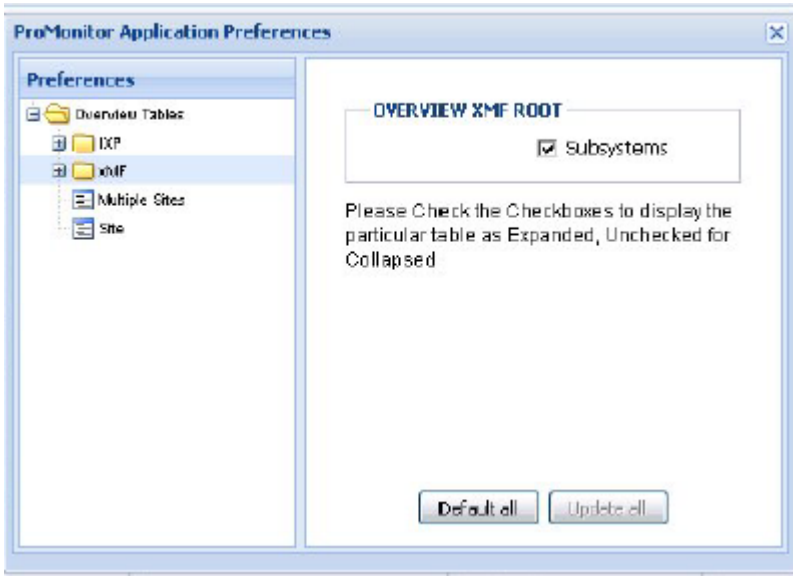


Figure 48 : XMF Selected on Object Tree

4. Select or de-select the Overview xMF root option to expand or collapse the subsystem table.

5. Click Update all. The preferences are set.

Expanding xMF Multiple Subsystem as a Default Setting

Complete these steps to configure xMF subsystems to expand Multiple Subsystems as a default setting.

1. In the Configuration screen expand the **Object** menu.

2. Click on **xMF**.

3. Click on Multiple Subsystems**.**

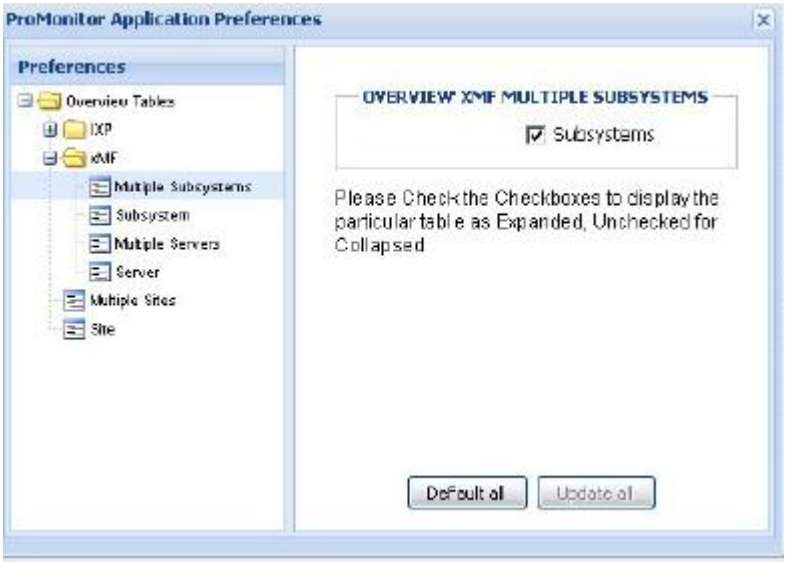


Figure 49 : Selected xMF Multiple Subsystems

4. Select or un-select Subsystems.

5. Selecting Subsystems expands or collapses all subsystems by default.

6. Click Update All.

The xMF settings are updated.

Expanding xMF Subsystem Parameters as a Default Setting

Complete these steps to expand xMF subsystem overview tables as a default setting.

1. In the Configuration screen expand the **Object** menu.
2. Click on **xMF.**
3. Click on Subsystem on the object tree.

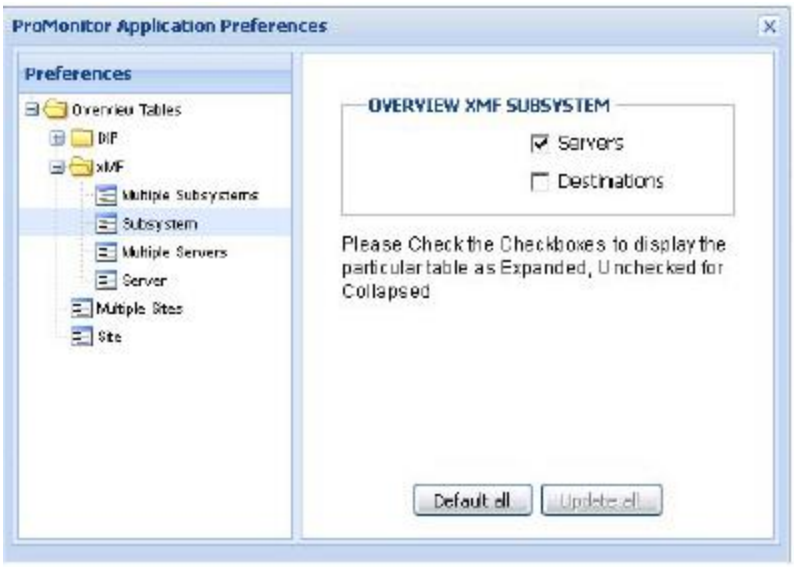


Figure 50 : xMF Subsystem

4. Select or un-select the appropriate **check boxes** for what overview tables are expanded or collapsed on the screen.
   a) Servers
   b) Destinations
5. Click **Update All.**
   The xMF subsystem settings are updated.

Expanding xMF Multiple Servers as a Default Setting

Complete these steps to expand specific xMF multiple server tables by default.

1. In the Configuration screen expand the Object menu.
2. Click on xMF.
3. Click on Multiple Servers on the object tree.

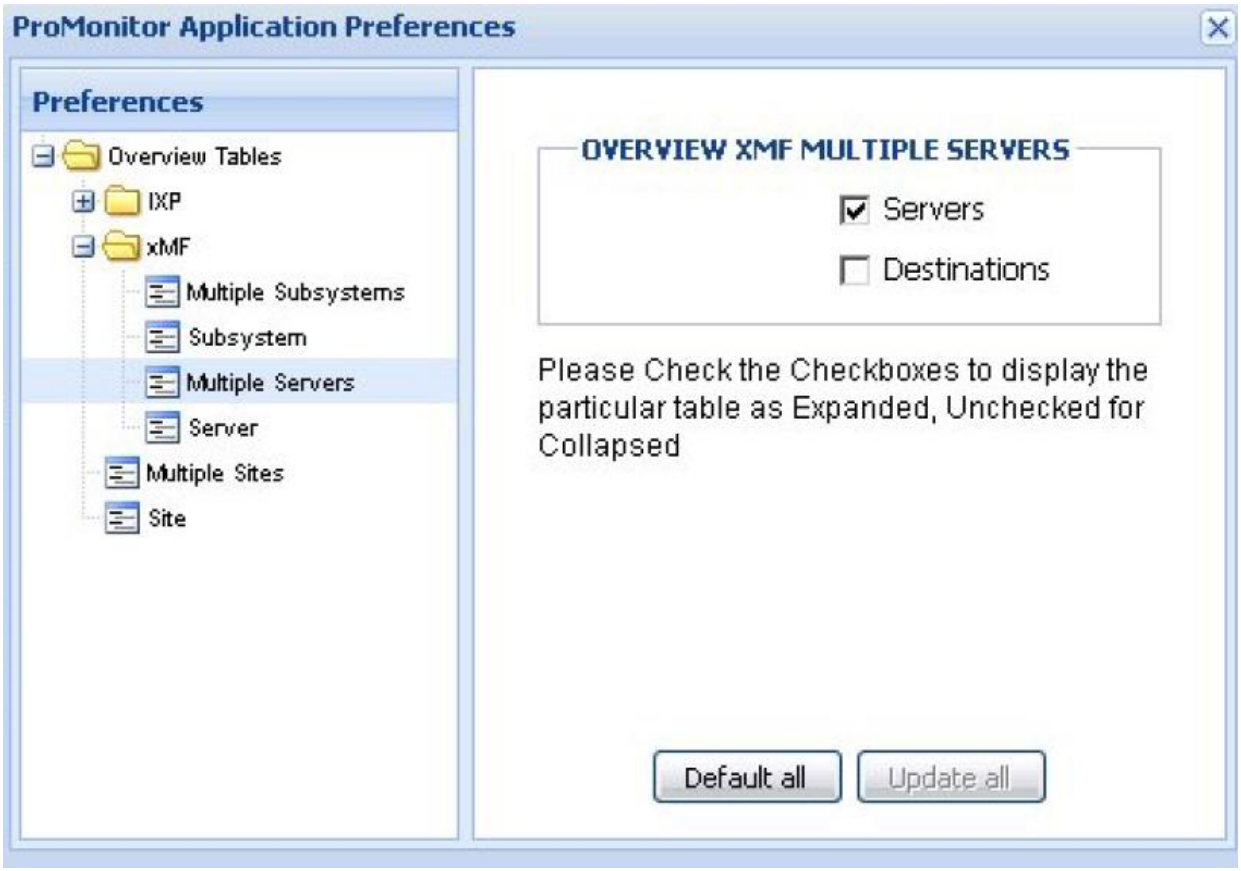


Figure 51 : XMF Multiple Subsystem

4. Select or un-select the appropriate **check boxes** for what overview tables are expanded or collapsed on the screen.

   a) Servers

   b) Destinations

5. Click **Update All.** The xMF multiple servers settings are updated.

Expanding xMF a Single Server Settings by Default

Complete these steps to set xMF a single server tables to expand by default.

1. In the Configuration screen expand the **Object** menu.

2. Select **xMF > Server** from the *Object* tree.

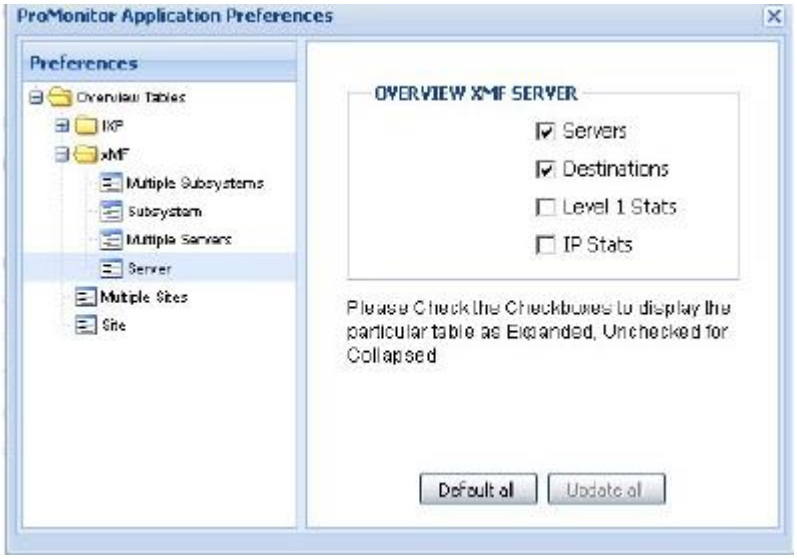


Figure 52 : XMF Server Level

3. Select or un-select the appropriate **check boxes** for what overview tables are expanded or collapsed on the screen.

   a) Servers
   b) Destinations
   c) Level 1 Stats
   d) IP Stats

4. Click **Update All.** The xMF server settings are updated.

Selecting preferences for Sites

Diagnostic Utility Preferences operation enables you to view the xMF or IXP servers that reside on one or more sites.

Complete these steps to expand by default the xMF or IXP servers on one or more sites.

1. Select **Multiple Sites** from the object tree.

Figure 53 : Multiple Sites Preference Screen

2. Select either or both:

a) IXP Subsystems - enables you to expand by default the IXP servers on more than one site

b) XMF Subsystems - enables you to expand the IMF or PMF servers that reside on more than one site

Selecting One-site Servers

Complete these steps to expand by default the severs that reside on one site

1. Select Site from the object tree.

Figure 54 : Selected Server

2. Select either or both
   a) IXP Subsystems - enables you to expand all the IXP servers that reside on that site
   b) XMF Subsystems - enables you to expand all the IMF or PMF servers that reside on that site
3. Click Update all to save your changes to the system.
4. Click the Close Icon (X) on the top right-hand corner to close the screen

Configuring Multiple Sites Preference

Complete these steps to configure preferences for xMF multiple sites.

1. In the Configuration screen expand the **Multiple Sites option** on the object menu.

Figure 55 : Multiple Sites

2. Select the appropriate check boxes for what tables will be expanded by default in

the screen for this view.

a) IXP Subsystems - enables you to expand all the IXP servers that reside on more than one site

b) XMF Subsystems - enables you to expand all the IMF or PMF servers that reside on more than one site

3. Click Update all to save changes.

4. Click the Close Icon (X) on the top-right corner to close the screen.

Configuring Site Preferences

Complete these steps to expand by default the tables on an xMF site.

1. In the Configuration screen expand the **Site option** on the object menu.

Figure 56 : Sites

2. Select the appropriate **check boxes** for the tables to be expanded by default on the screen for this view.
   a) IXP Subsystems - enables you to expand all the IXP servers that reside on that site
   b) XMF Subsystems - enables you to expand all the IMF or PMF servers that reside on that site
3. Click **Update all** to save changes.
4. Click the **Close Icon (X)** on the top right corner to close the screen.

Chapter4: Monitoring Functions

Monitoring Multiple Sites and Subsystems

In the Site perspective you can monitor:

- All the sites created in your system
- An entire site which includes the subsystems and severs within a particular site
- All subsystems (xMF and IXP) that exist in your system
- All the severs (xMF and IXP) that exist within your system

Monitoring Subsystems from Multiple Sites

Using Diagnostic Utility you can monitor the subsystems on several sites at one time. Complete these steps to monitor IXP and xMF subsystems across multiple sites.

1. Select the **Sites** perspective.
2. Click **check boxes** to select one or more **sites.**
3. Select the **Sites** node again.
4. Right-click and select **Multiple Sites Overview** from the pop-up menu. The Site overview screen opens, shown below divided into:
    a) IXP subsystem
    b) XMF subsystem

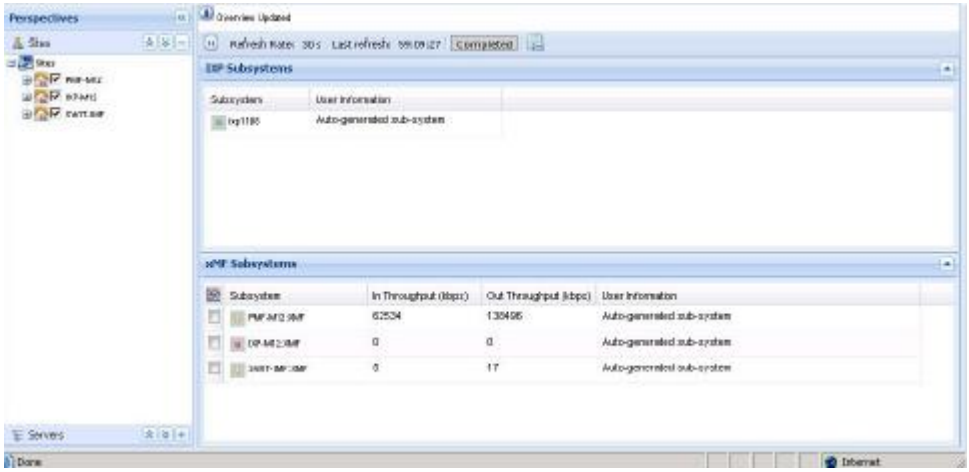


Figure 57 : Multiple Site Overview

From this screen you can monitor the counts on any IXP or xMF subsystem in the selected sites.

Monitoring Multiple Subsystems within a Site

You can monitor multiple subsystems within a site by using the *Multiple IXP/xMF Subsystems Overview* options in the *right-click* menu shown in the figure below.

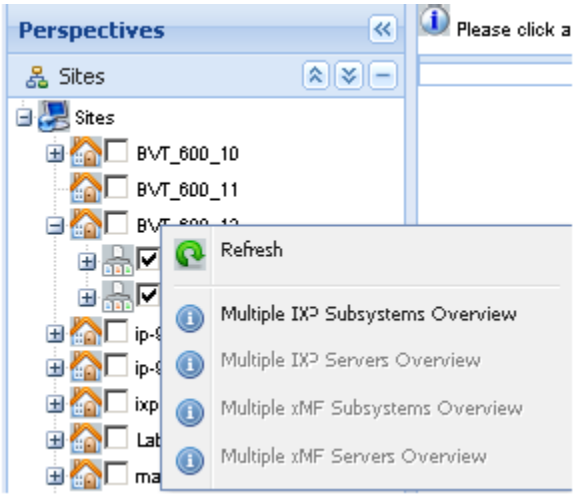


Figure 58 : Right Click Pop up menu with multiple subsystem overview options

Complete these steps to view multiple IXP or xMF subsystems within a site. **Note:** In this example, IXP subsystems are selected.

1. Select the **Sites** perspective.
2. Expand the **site tree** to view the subsystem(s) that you want to monitor.
3. Select the **check boxes** for the **same type subsystems** (either IXP or xMF) you want to monitor.
4. Right-click on the **site** that you want to monitor. The pop-up menu opens.
5. Select either the **Multiple IXP Subsystems Overview** or the **Multiple xMF Subsystems Overview** to show the appropriate overview.

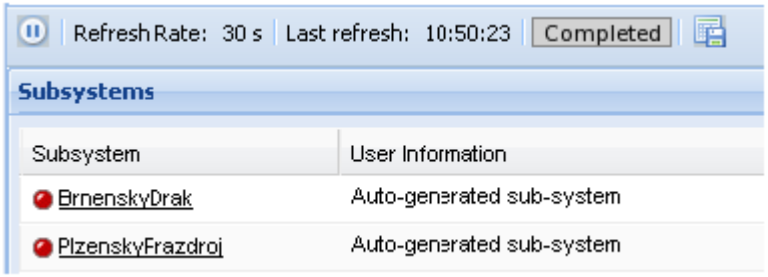


Figure 59 : Multiple Subsystems (IXP) Overview

Monitoring Multiple Servers within a Site

You can monitor multiple subsystems within a site by using the Multiple IXP/xMF Servers Overview options in the right-click menu shown in the figure.

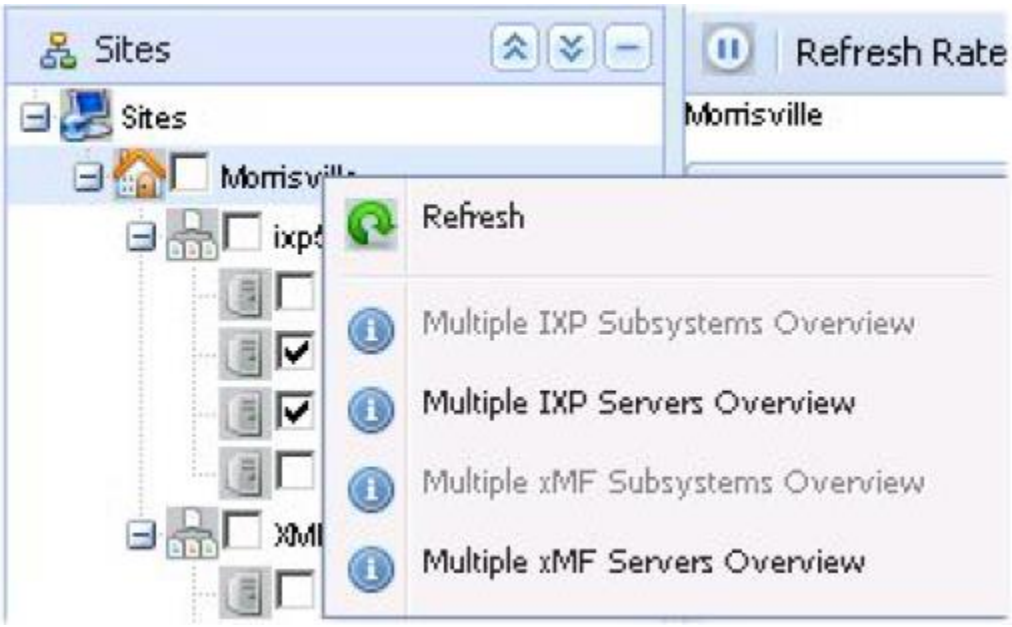


Figure 60 : Popup Menu with Multiple Server Overview Option

Complete these steps to view multiple *IXP* or xMF servers within a site.

1. Select the **Sites** perspective.
2. Expand the **site name** you want to monitor.
3. Select the **servers** to be monitored.
4. Right-click on the **site name** that you want to monitor. The pop-up menu opens.
5. Select either the **Multiple IXP Servers Overview** or the **Multiple xMF Servers Overview** to show the appropriate overview.

(The figure below shows multiple xMF server overview.)

Note: You cannot view both IXP and xMF servers at the same time.

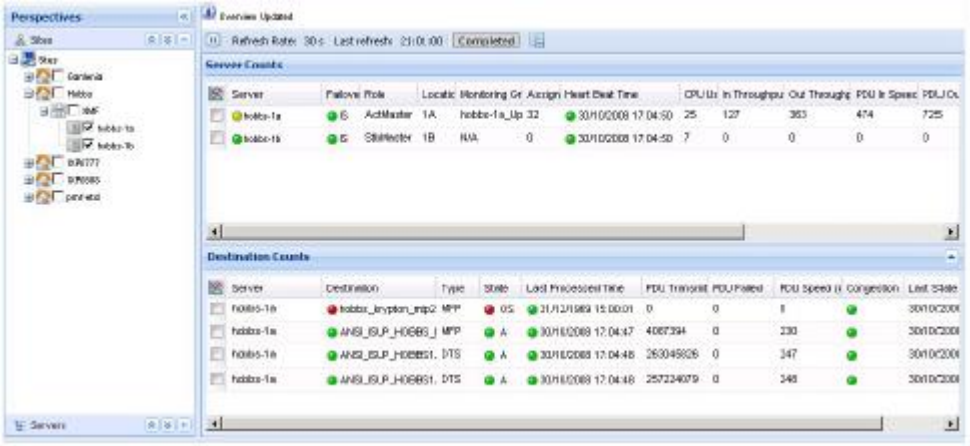


Figure 61 : Multiple xMF Servers Overview

Monitoring One Site or Subsystem

Using the *Site* perspective you can monitor all the subsystems and servers that belong to one site. Complete these steps to select a subsystem or server within a site.

1. Select the **Sites** perspective.
2. Expand the **site** you want to monitor.
   The entire site (shown in the figure) is presented divided into:
   a) Site overview
   b) IXP subsystem overview
   c) xMF subsystem overview

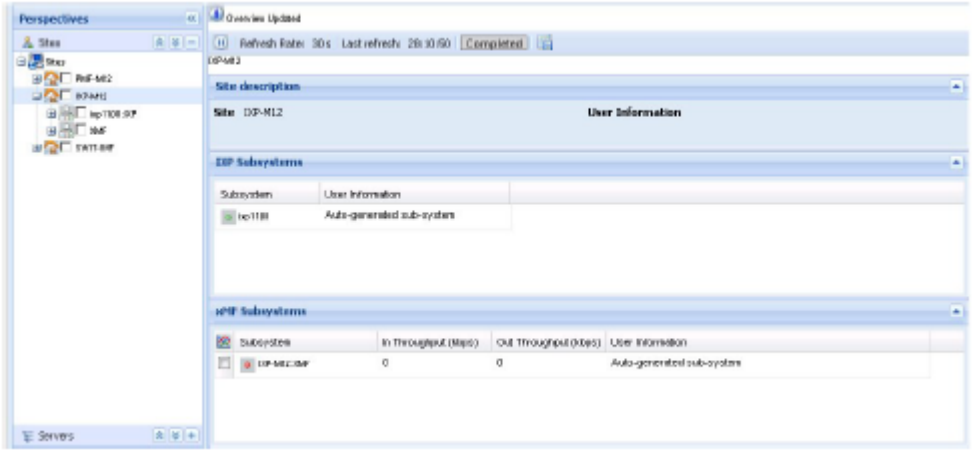


Figure 62 : Entire Site Monitoring

Opening a Subsystem from the Overview Screen

Once you have opened a *Site Overview* screen. You can open any available subsystem by clicking on the **subsystem name (or the name on the tree).** In the figure below, the IXP *subsystems* from have been opened showing all the servers belonging to that subsystem.

Note: All the procedures in this section can also be used to open xMF subsystems.

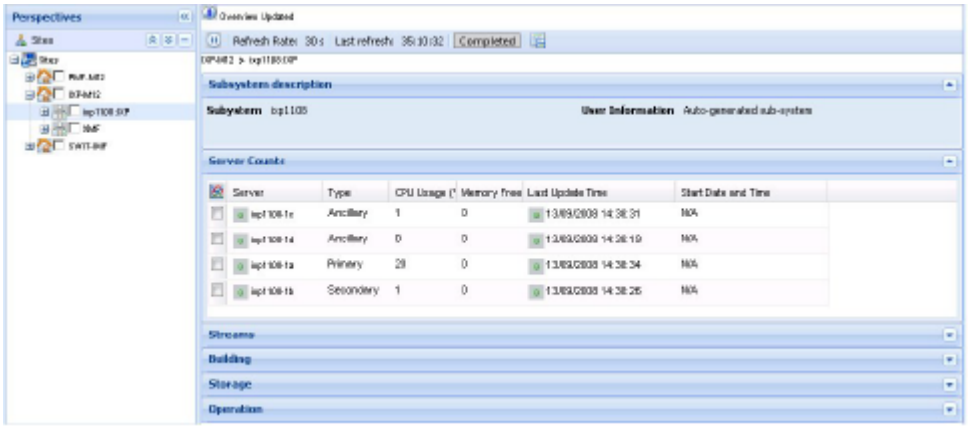


Figure 63 : Subsystem Monitoring Screen (IXP)

From this screen you can chart available parameters in the subsystem. (See "Charting Subsystems and Servers".) or you can open any of the parameters on the screen. (See *Monitoring IXP Subsystems and Servers.)*

Server Overview Screen

From the subsystem overview screen, you can open a specific server by performing either of these actions:

- Selecting the **server name** in the Server Counts table of the Subsystem overview screen (shown in the figure).
- Click on the **Server name** on the object tree Shown below.

Note: All the procedures in this section can also be used to open xMF servers.
Note: This same procedure can also be used in the Servers perspective.

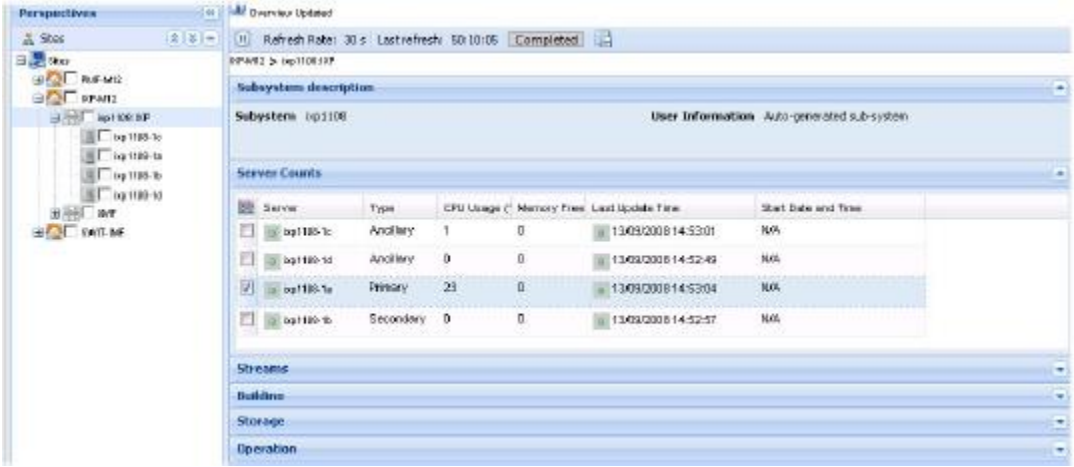


Figure 64 : Selected Server for Monitoring (IXP)

The specific server monitoring screen opens shown in the figure.

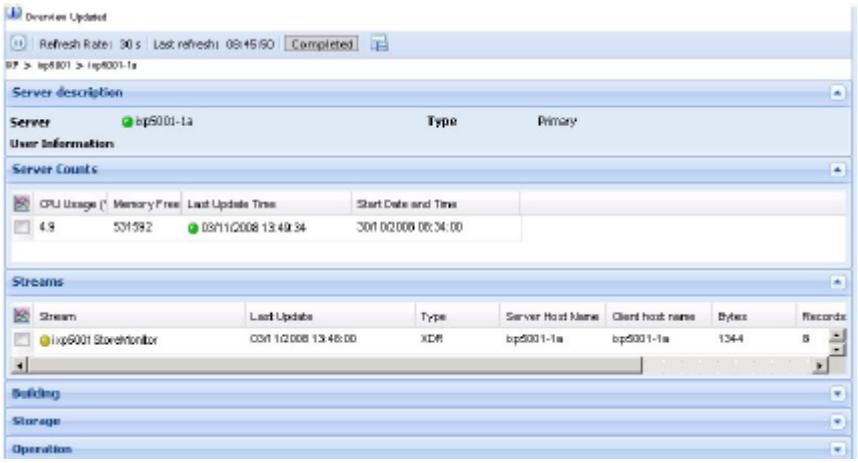


Figure 65 : Server Monitoring Screen (IXP)

Monitoring IXP Subsystems and Servers

Note: You can monitor IXP subsystems and servers from either the Sites or Server perspective.

Diagnostic Utility enables you to monitor specific parameters on subsystems and servers.
You open the subsystem by either selecting it from the object menu or drilling down from the site overview table.
IXP subsystems can be divided into Base Servers and Storage Pool servers. Expanding the IXP subsystem shows all the servers within the system.
Selecting any of the servers in the IXP hierarchy opens the table showing the parameters of server(s).

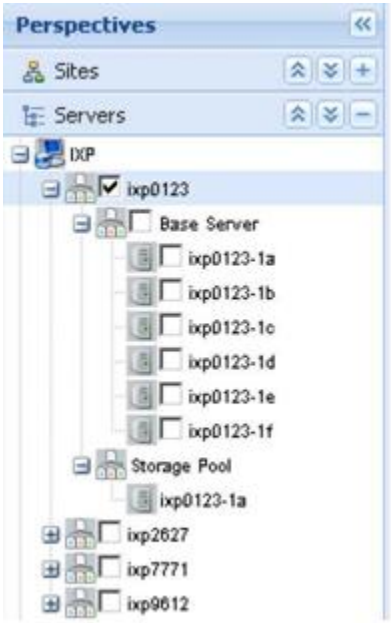


Figure 66 : Expanded IXP Subsystem

Monitoring IXP Subsystems

You can view all of the IXP subsystems by selecting the IXP root in the Server perspective or a single subsystem by selecting that specific subsystem in either the Sites or Servers perspective. The figure and table show graphic representation and explanations of monitoring table.

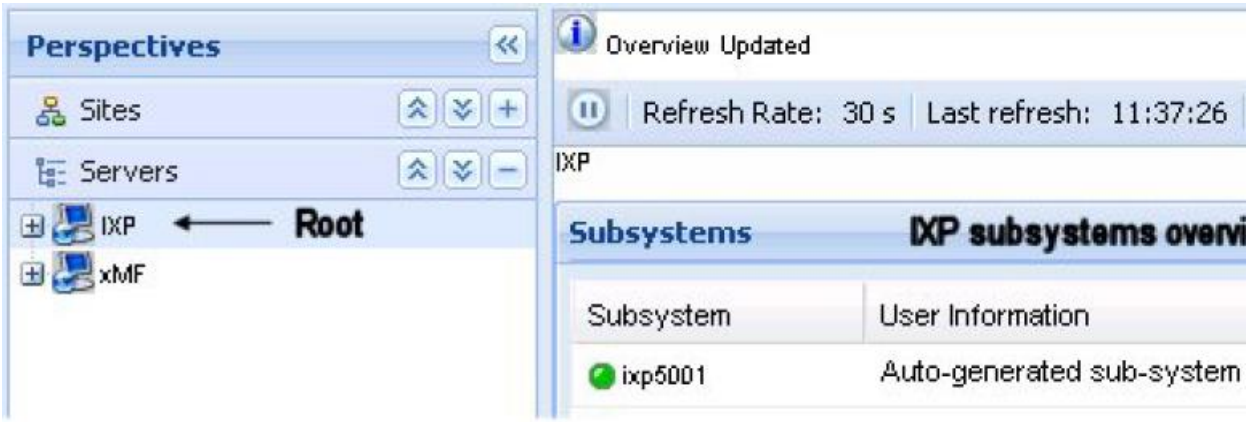


Figure 67 : IXP Root Overview Screen

Parameter	Description
Subsystem Name + Subsystem status	Name of the subsystem and Status of the subsystem is calculated as follows: • Green - Status of all the servers in the subsystem is green • Yellow - Status of some of the servers in the subsystem is not green • Red - Status of all the servers in the subsystem is red
User information	Shows information about the subsystem

Table 14: IXP Root Overview Table

Viewing a Specific IXP Subsystem

Once you have opened an IXP subsystem, you can monitor these parameters shown in the figures and tables. The parameters are:

- Subsystem description
- IXP server counts
- IXP input stream
- IXP xDR build process
- IXP xDR store process
- IXP xDR operate process

To see an IXP subsystem overview, click on the IXP subsystem in either the sites, or subsystems perspective. The IXP subsystem monitoring table opens.

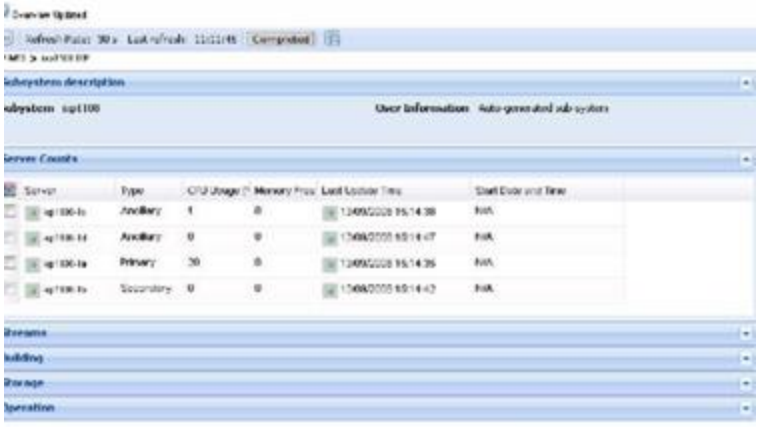


Figure 68 : IXP Subsystem Monitoring

Parameters	Description
Status and Server Name	Status and name of the server. Status can be: • Green - All the processes are in UP state (mandatory processes and other) • Yellow - All mandatory processes are in UP state but there are some processes in some other state • Red - None of the processes is in UP state For any IXP server mandatory processes are: For primary server - IxpPurge, IxpMonitor, IxpManage, IxpForward, JmxAgent, IxpDbWatchdog, sshKeyIXP, inetmerge,inetsync, mysqld, autozap, idbsvc0, idbsvc1, statclerk, IxpAdapt, IxpQuery and IxpHistory For secondary and ancillaries server - IxpManage, IxpForward, JmxAgent, IxpDbWatchdog, sshKeyIXP, inetmerge, inetsync, mysqld, autozap, idbsvc0, idbsvc1, statclerk, IxpAdapt, IxpQuery and IxpHistory
User information	Information about the user name

Table 15 : IXP Server Overview Information

IXP Server Counts

The figure and table below explain the server count parameters for an IXP subsystem.

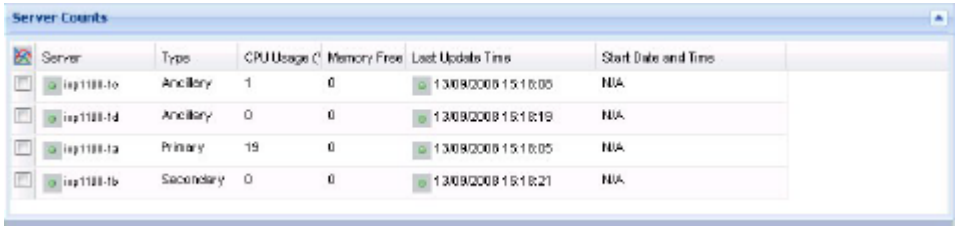


Figure 69 : IXP Subsystem Server Count Table

Parameter	Description
Server name*	Name of the server
Type*	Shows server role (primary, secondary, ancillary)
CPU Usage (%)	Shows percentage of CPU being used
Memory Free (KB)	Number of kilobytes of free memory
Last Update+ Status	Date and time when the last update was done for server statistics Status of the update request. It is calculated as follows: • Green - last refresh is less than or equals 2 minutes old • Yellow - refresh is more than 2 minutes old
Start date and Time	Date and time the server was started

Table 16 : IXP Server Count Parameters

* denotes that these parameters are viewed only at the subsystem level.

The figure and table below explain the input stream count parameters for an IXP subsystem

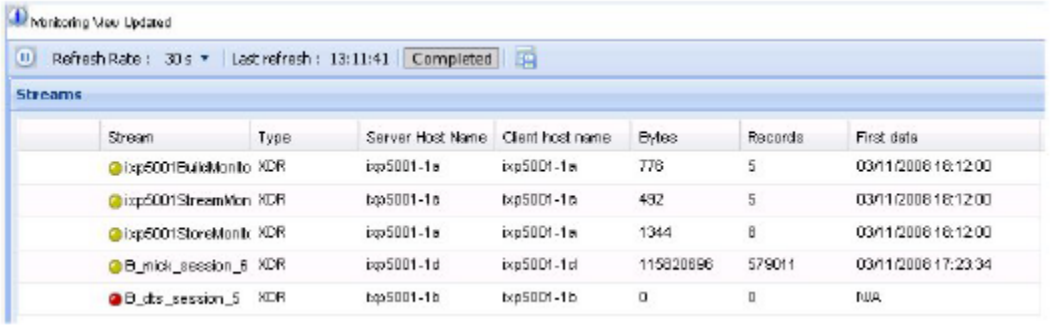


Figure 70 : IXP Subsystem Stream Table

Parameter	Description
Stream	Name of the stream with status icon. The status calculation is: • Blue - if stream is present in the CCM but not in IXP monitoring session • Green - if stream is present in IXP monitoring session
Last Update	Date and time of last update from this processing and the status calculated is: • If First Data is available and Last Update time of monitoring record is older than 5 minutes from current time, the LED color is RED. • If First Data is available and Last Update time of monitoring record is older than 2 minutes from current time, the LED color is YELLOW • If First Data is available and Last Update time is current, the LED color is GREEN
Type	Type of the stream; it can either be xDR or PDU
Server Host Name	Name of the IXP server which is producer of this stream
Client host name	Name of the IXP server which is consumer of this stream
Bytes	Total number of bytes transmitted
Records	Total number of records transmitted
First data	Timestamp of the first record transmitted for the period of measure

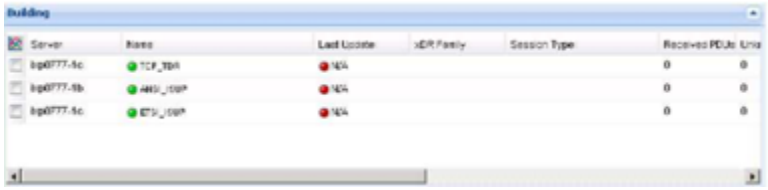
Table 17 : IXP Input Stream

IXP XDR Build Process

The figure and table below explain the xDR build process count parameters for an IXP subsystem.

Note: xDR builders are constructed in layers. For example, one builder has three layers. A PDU that goes through each of the three layers is counted three times therefore , in the Overview table PDU counts may not reflect the actual number of PDUs but rather the number of times a PDU is counted. Actual counts are viewed in the Dataflow Processing table.

Figure 71 : IXP Subsystem Table



Parameter	Description
Server Name*	Name of the server running the process
Name & Status Icon	Name of the data flow processing with status icon. It is a link to the process involved in this processing Status: • Green - difference between current time and last update time is less than or equal to two minutes • Yellow - difference between current time and last update time is more than two minutes • Red -
Last Update & Status Icon	Date and time of last update from this processing Status can be: • Green - difference between current time and last update time is less than or equal to two minutes • Yellow - difference between current time and last update time is more than two minutes • Red - if application fails to retrieve the monitoring count
xDR Family	One of - 1 GPRS, 2 GPRS or SS7, 3 SS7, 4 IP, 5 undefined, 6 VoIP, 7 VoIP or GPRS, 8 UMTS
Session type	1 reconstitution, 2 capture, 3 configurable, 4 KPI, 5 other statistics
Received PDUs	Last Value of PDU count submitted to the builder
Unknown PDU	Count of PDU which are not of the correct type. For instance, an IP frame in SS7 transport
Filtered PDU	PDUs rejected due to filtering conditions. This can be an explicit condition like a port number, or implicit like SIO=5 for ISUP
Not Stored PDU	Count of PDUs not stored. The reasons for not storing could be in the xDR builder configuration, general parameter "Store PDUs" not set, no space left on disk, writing not allowed on all PDU disks, wrong disk sharing or mounting
Received Bytes	Last Value of total number of bytes received (including PDU headers)
Generated xDRs	Last Value of produced xDR count
Valid xDRs	Last Value of xDR that could be correlated without suspicion of error
xDRs Not Transmitted	xDRs that could not be transmitted to the consumer (for instance - operate, store)
xDRs in Progress	Maximum number of in progress xDRs
Generated Bytes	Last Value of total number of bytes sent to a session, xDR record and variable parts

Table 18 : IXP xDR Build Process Parameters

* denotes that these parameters are viewed only at the subsystem level.

IXP xDR store process

The figure and table below explain the xDR store process count parameters for an IXP subsystem.

Figure 72 : IXP Subsystem xDR Storage Process Table (Aggregated) Table

Parameter	Description
Server Name*	Name of the server running the process
xDR Store Process & Status Icons	Name of the data flow processing with status icon. It is a link to the process involved in this processing Status can be: • Green - process is in UP • Red - process is in some other state • Blue - changes are applied in CCM but process not running in IXP
Pool Name	Name of the pool where data is stored
Last Update & Status Icons	Date and time of last update from this processing • Green - difference between current time and last update time is less than or equal to two minutes • Yellow - difference between current time and last update time is more than two minutes • Red - process is in some other state
Session	Name of the session in which xDR/KPI will be store
Start Time	Time the process started
End Time	Time the process ended
xDR Count	Sum of each similar storage counter for the pool
xDR per second	Average xDR per second for the period
Stored Bytes	Sum of each similar counts for the storage process
throughput Mb/s	Average MBit per second for the period
Received xDR/KPIs	Last Value of xDR/KPI count which is received by process
Lag	Delay of xDR storage calculated by Last Update Time - end time
Lifetime	Session lifetime calculated by end time - begin time
Stored xDR/KPIs	Last Value of total number of xDR/KPI count stored for this process
Rejected records	Last Value of xDR/KPI count rejected by this process

Table 19 : IXP XDR Store Process Parameters-Subsystem Level

* denotes that these parameters are viewed only at the subsystem level.

IXP xDR operate process

The figure and table below explain the xDR operate process count parameters for an IXP subsystem.

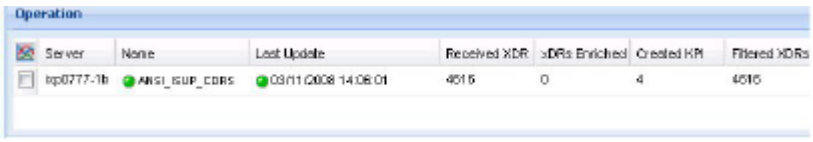


Figure 73 : IXP Subsystem xDR Operate Process Table

Parameter	Description
Server Name*	Name of the server running the process
Name & status	Name of the dataflow processing with status: • Green - difference between current time and last update time is less than or equal to two minutes • Yellow - difference between current time and last update time is more than two minutes
Last Update & Status Icon	Date and time of last update from this processing • Green - difference between current time and last update time is less than or equal to two minutes • Yellow - difference between current time and last update time is more than two minutes • Blue -changes are applied in CCM but process not running in IXP
Received xDR	Last Value of xDR count which are received for this process
xDRs enriched	Number of xDR getting at least one field enriched
Created KPI	Last Value of total number of KPIs created by this process
Filtered xDRs	Last Value of xDR count passing the corner filter

Table 20 : IXP xDR Operate Process Parameters-Subsystem Level

The IXP Subsystem and Server Right-click Menu

The IXP subsystem or server right-click menu has the following options:

IXP subsystem right-click menu options

- Refresh - refreshes the screen to show any changes that have occurred.
- Streams (Input Streams) - enables you to monitor all the input streams in a subsystem
- Sessions - enables you to monitor all the sessions in a subsystem
- Data Flow Processings - enables you to monitor all the building and operating DFPs in a subsystem
- Store - enables you to monitor all the storage DFPs residing in a subsystem
- Hardware counters - enables you to monitor hardware parameters such as storage space, disk space and Ethernet connections
- Multiple Severs Overview - enables you to view the severs on a selected IXP subsystem

IXP base server right-click menu options

Note: Base servers are those servers designated for building or operating DFPs.

- Steams (Input Streams) - enables you to monitor all the input streams in a subsystem
- Data Flow Processings - enables you to monitor all the building and operating DFPs in a subsystem

- Hardware counters - enable you to monitor hardware parameters such as storage space, disk space and ethernet connections.

IXP storage pool server right-click menu options

Note: Storage pool servers are those servers designated for storing DFPs.

- Hardware counters - enable you to monitor hardware parameters such as storage space, disk space and ethernet connections
- Store - enables you to view all the storage DFPs residing on a server

Subsystem and Server Right-click Option

Diagnostic Utility right-click menu enables you view *Input* Stream information on that subsystem or a server on that subsystem. Right-click option is discussed below.

Monitoring streams (input stream)

Complete these steps to view the input streams on an IXP subsystem.

1. Select **Sites > IXP subsystem.**
2. Right-click on the **IXP subsystem (or a server on the subsystem).**
3. Select **Streams.**

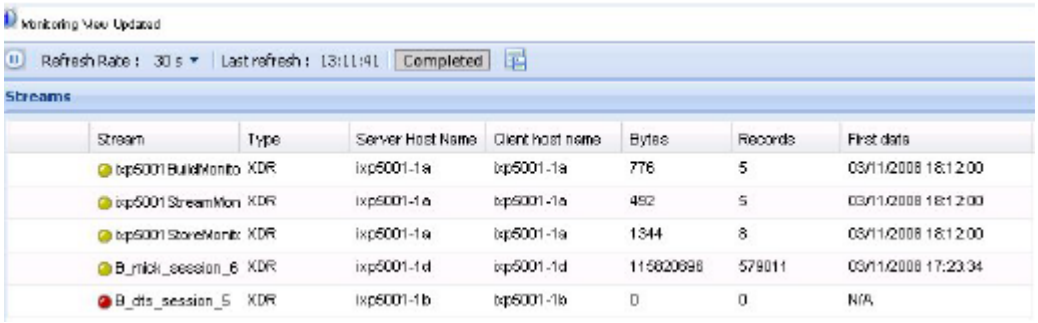


Figure 74 : Streams Monitoring Screen

Field	Description
Stream	Name of the stream with status icon: • Blue - if the stream is present in CCM but not in the IXP monitoring session • Green - if the stream is present in CCM and also session is present in IXP

Last Update	Date and time of last update from the present processing with this status calculation: • Red - if First Data is available and Last Update time of monitoring record is older than 5 minutes from the current time • Yellow - If the First Data is available and Last Update time of monitoring record is older than 2 minutes from current time • Green - If Fist Data is available and Last Update time is less than 2 minutes
Type	Type of the stream it can either be XDR or PDU.
Server Host Name	Name of the IXP server which is producer of this stream
Client Host Name	Name of the IXP server which is consumer of this stream
Bytes	Total number of bytes transmitted
Records	Total number of record transmitted
First Data	Timestamp of the first record transmitted for the period of measure

Table 21 : IXP Streams Monitoring Screen

From this screen you can view all the parameters listed in IXP overview screen.`

Dataflow Processing

Diagnostic Utility right-click menu enables you view *Dataflow processing* information on that subsystem or a server on that subsystem. Complete these steps to view the dataflow processing on an IXP subsystem.

1. Select **Sites > IXP subsystem.**
2. Right-click on the **IXP subsystem (or a server on the subsystem).**
3. Select **Dataflow Processing.**

The *Dataflow processing screen* opens shown in the figure below.

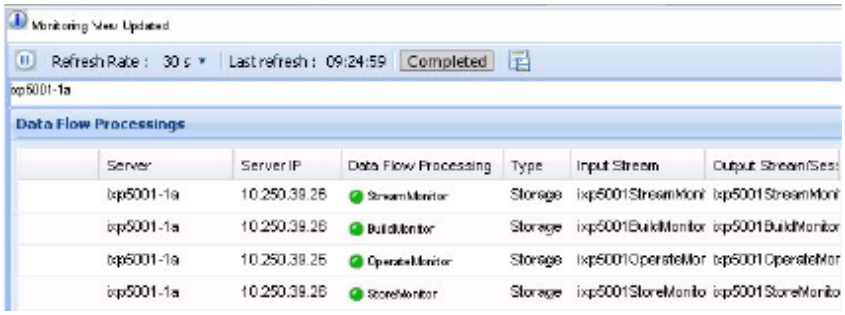


Figure 75 : Data Flow Processing Screen

From this screen you can view and sort any of the parameters described in the table below.

Note: You can navigate back to a previous screen by selecting a link on the "railway" located above the title bar.

Parameter	Description
Subsystem+Server	Name of the subsystem and server running the data flow process
Address	Shows the IP address of server where process is running
Data Flow Processing Name and Status	Name of the data flow processing Status indicators indicate if process is running: • green - process is running • red - process is not running • blue - process in present in CCM but not in IXP
Type	Type of Data Flow Processing: • building • operation
Input Stream	Name of the stream where the data flow process is acquiring data
Output Streams/Sessions	Name of the stream where the data flow process is outputting data

Table 22 : IXP Dataflow Processing Summary

Hardware counters

Diagnostic Utility right-click menu enables you to view Hardware counter information on a subsystem or server. The information is identical for both IXP and xMF and is described later in this chapter (see About Hardware Counters).

Sessions

Diagnostic Utility right-click menu enables you view *Sessions* information on that subsystem or a server on that subsystem. Complete these steps to view the session information on an IXP subsystem.

The session monitoring task is different from other IXP monitoring tasks in that it uses current information and not historical information.

1. Select **Sites (or Servers) > IXP subsystem.**
2. Right-click on the **IXP subsystem (or a server on the subsystem).**
3. Select **Sessions.**

   The Sessions table opens shown in the figure.

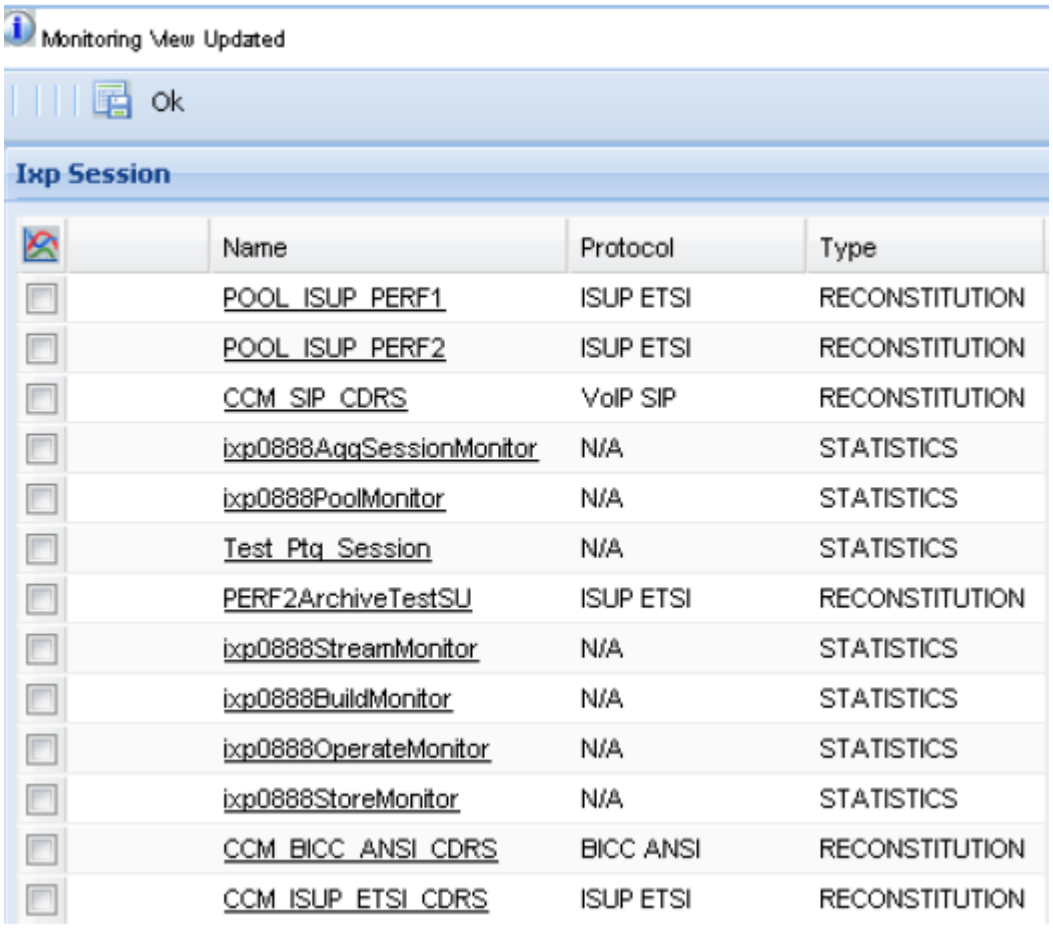


Figure 76 : Session Screen

From this screen you can:

- Sort Sessions in ascending or descending order or view specific columns
- Select sessions for export using the export icon in the tool bar (in csv file format)
- View a sessions by clicking on the session name

Parameter	Description
Name	Name of the session.
Protocol	Shows the protocol (ISUP, BICC, etc) of the session
Type	Type of xDR session: • reconstitution • capture • statistics

Table 23 : IXP Session Summary

Viewing a specific session

From the sessions table, you can view a specific xDR session by clicking on the **Name** of the session. The specific session information is shown.

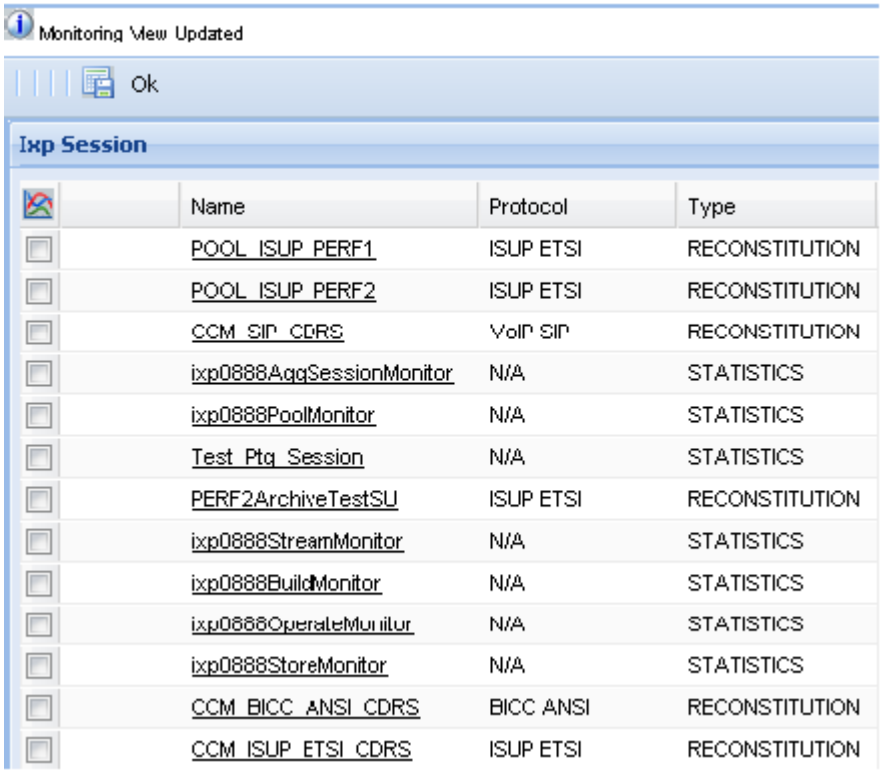


Figure 77 : Session Screen

The information is described in the table.

Parameter	Description
Name	Name of the session
Protocol	Shows the protocol (ISUP, BICC, etc) of the session
Type	Type of xDR session: • reconstitution • capture • statistics
Streams	Input streams connected to the session
Approximate old xDR Count	Approximate number of xDRs in the session until the previous day. This in addition to the current xDR count gives an approximation of the total number of xDRs in the session
First Date	Date of the first xDR available in the session
Last Date	Date of the most recent xDR present in the session
Current xDR Count	Total number of xDRs in the session for the current day

Table 24 : IXP Session Summary

Store

Diagnostic Utility right-click menu enables you view Storage information on that subsystem or a server on that subsystem. Complete these steps to view the storage information on an IXP subsystem.

The storage pool monitoring task is different from other IXP monitoring tasks in that it uses current information and not historical information.

1. Select **Sites (or Servers) > IXP subsystem.**
2. Right-click on the **IXP subsystem (or a storage pool server on the subsystem).**
3. Select **Storage.**

   The Storage table opens.

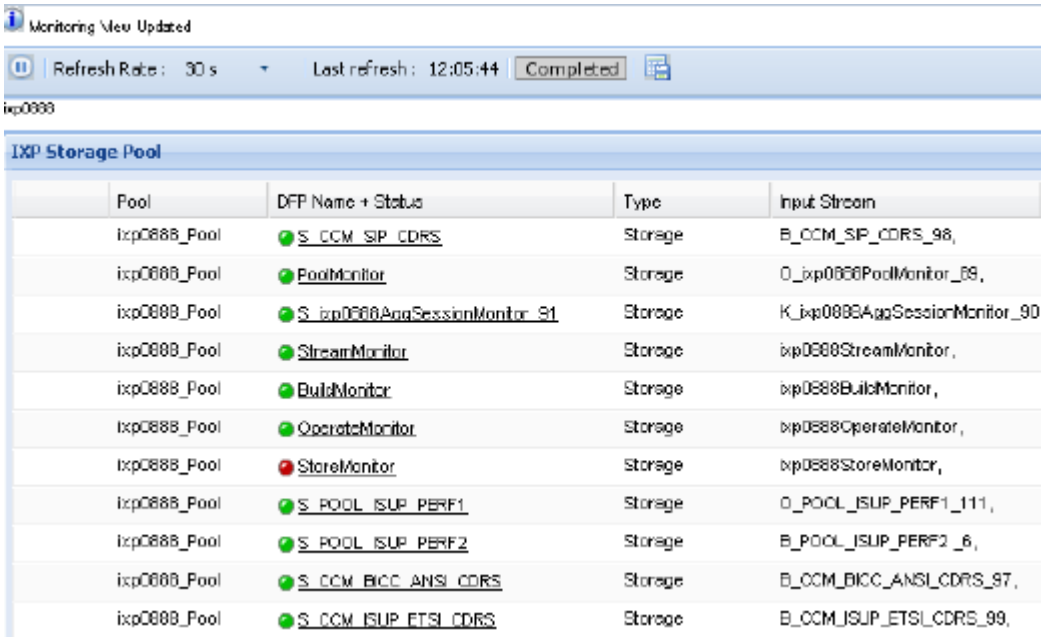


Figure 78 : Storage Screen

From this screen you can view and sort any of the parameters described in the table.

Parameter	Description
Pool	Name of the storage pool
DFP Name & Status	Name of the store process Status icon indicates the following states: • Green - process is in UP • Red - process is in some other state • Blue - Process is present in CCM but not in IXP
Type	Storage
Input Stream	Shows the name of the stream that the data flow process is acquiring data from

Table 25 : IXP Storage Summary

Hardware Counters

Diagnostic Utility right-click menu enables you view hardware parameters for the server, network and storage disc. Complete these steps to view the hardware counters on an IXP subsystem or server.

1. Select **Sites (or Servers) > IXP subsystem.**
2. Right-click on the **IXP subsystem (or a server on the subsystem).**
3. Select **Hardware Counters.**

   The Hardware counters table opens.

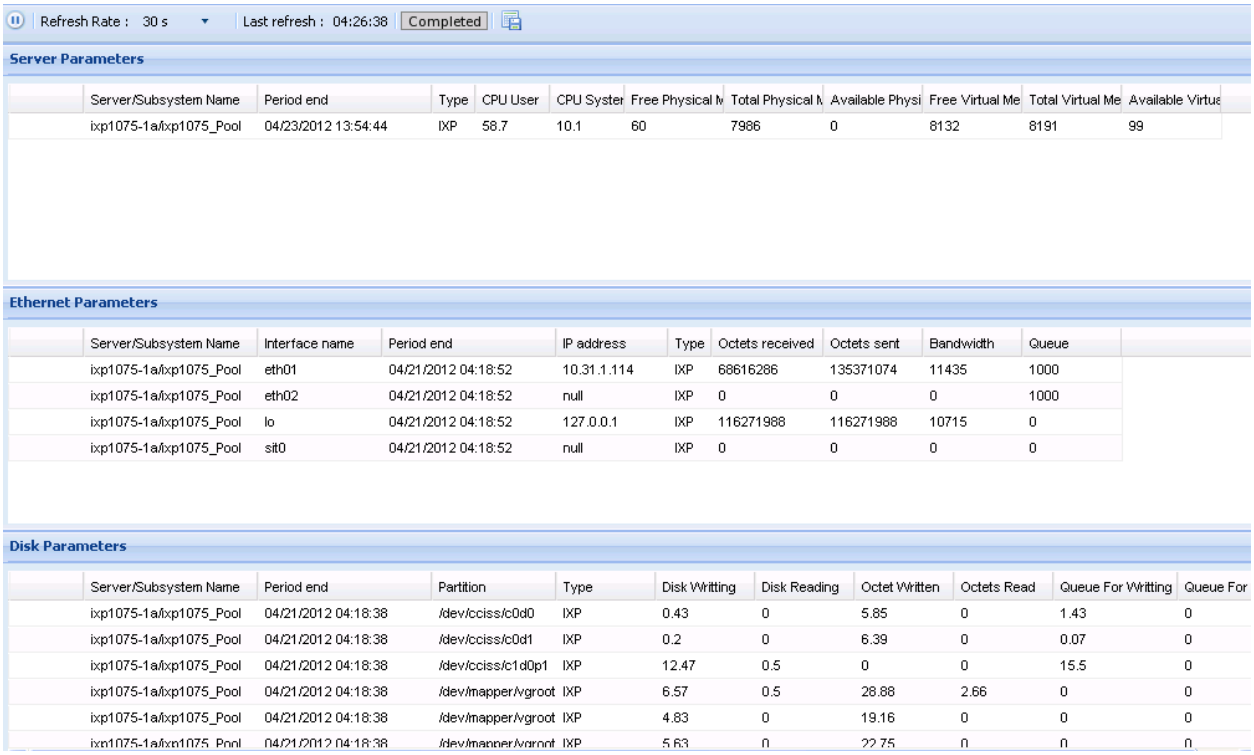


Figure 79 : Hardware Counters Screen

From this screen you can view and sort any of the parameters described in the table.

Parameter	Description
Pool	Name of the storage pool
DFP Name & Status	Name of the store process Status icon indicates the following states: • Green - process is in UP Red - process is in some other state • Blue - Process is present in CCM but not in IXP
Type	Storage
Input Stream	Shows the name of the stream that the data flow process is acquiring data from

Table 26 : Hardware Counters Summary

Dataflow Processing Drill-down Procedures

From the *Dataflow processing* screen you can begin to *drill down* to view details on specific processes. You can use the drill-down option for each of the dataflow processing types.

- Storage dataflow processings (for IXP storage pool servers)
- Building dataflow processings
- Operating dataflow processings

Storage Dataflow Processing Drill-down Function

Select the **Name** of the storage data flow process from the list.

The *Storage* screen opens shown in the figure below

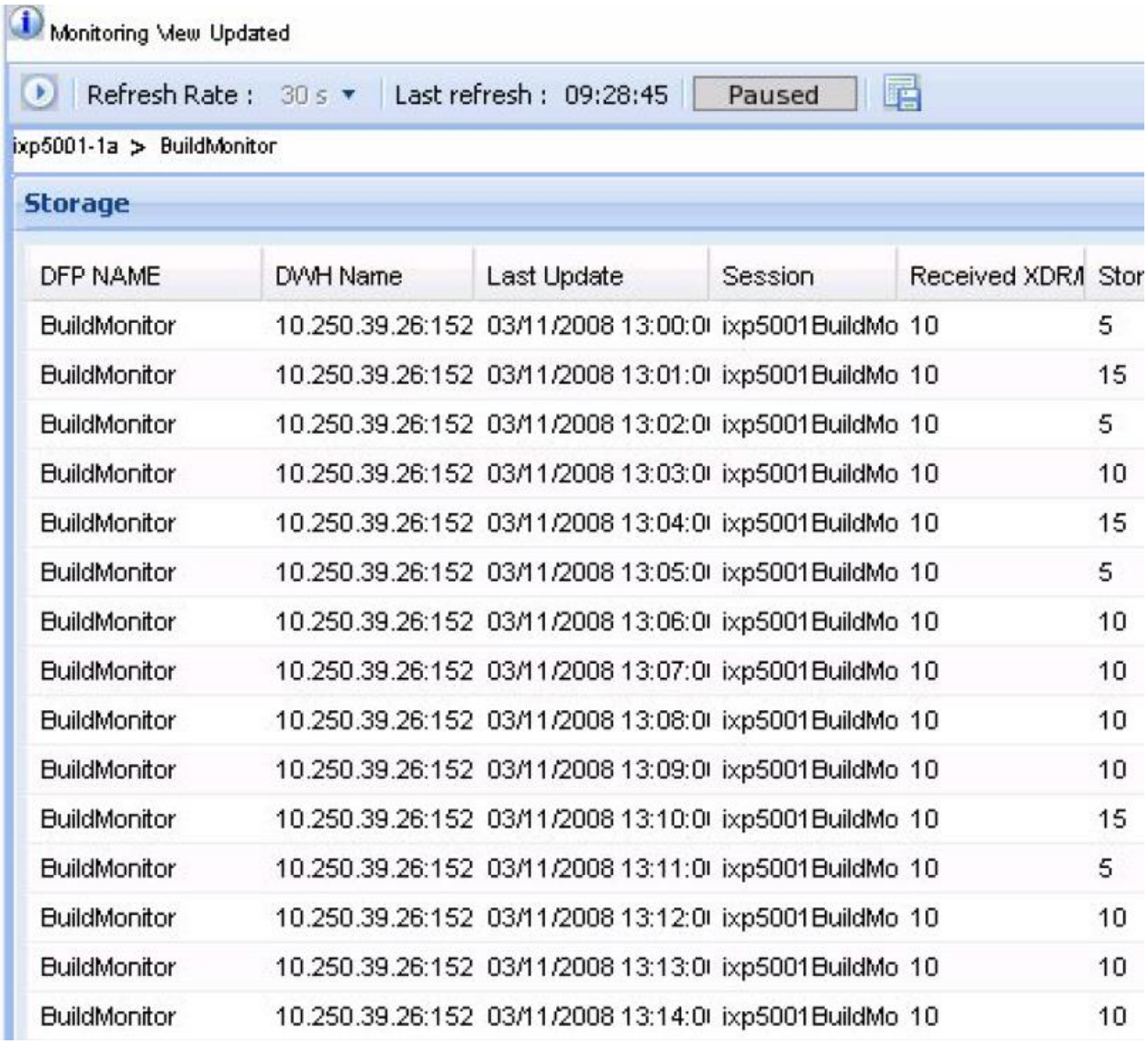
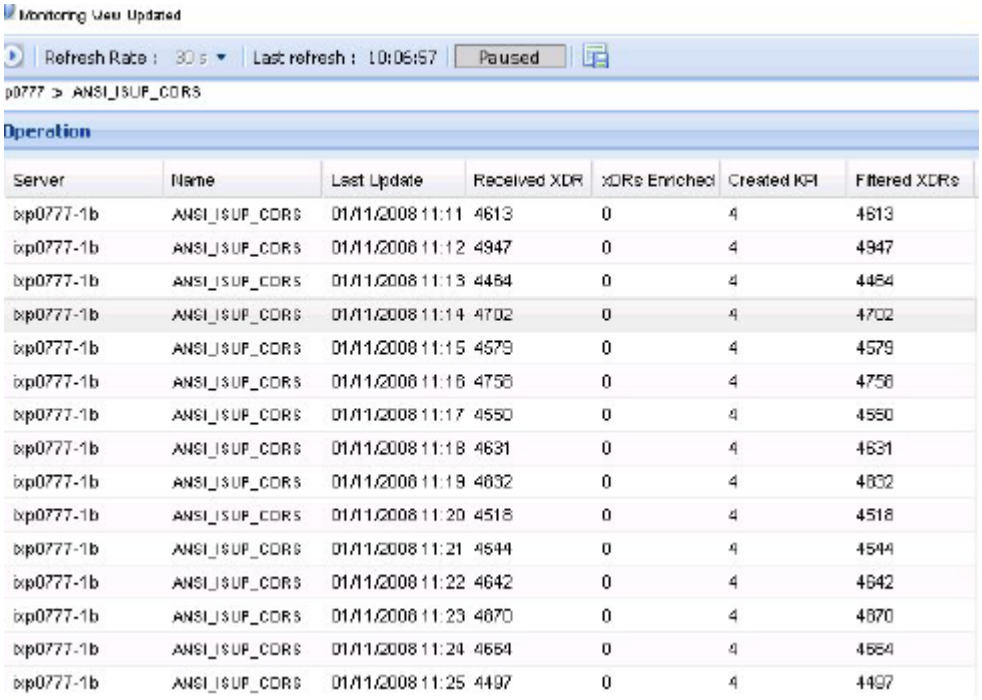


Figure 80 : Storage Dataflow Processing Screen

Field	Description
DFP Name	Shows name of the dataflow processing to which the process belongs
DWH Name	Data warehouse where xDRs are incorporated by this process
Last Update	Date and time (as default) of last update from this processing
Session	Name of the session in which xDR/KPI will be store.
Received xDR/KPIs	Last Value of xDR/KPI count which is received by process.
Stored xDR/KPIs	Last Value of total number of xDR/KPI count stored for this process
Rejected Records	Last Value of xDR/KPI count rejected by this process.

Operate Dataflow Processing Drill-down Procedure

Select the **Name** of the operate data flow process from the list. The Operate screen opens shown in the figure below.



Server	Name	Last Update	Received XDR	xDRs Enriched	Created KPI	Filtered XDRs
ixp0777-1b	ANSI_ISUP_CDRS	01/11/2008 11:11	4613	0	4	4613
ixp0777-1b	ANSI_ISUP_CDRS	01/11/2008 11:12	4947	0	4	4947
ixp0777-1b	ANSI_ISUP_CDRS	01/11/2008 11:13	4464	0	4	4464
ixp0777-1b	ANSI_ISUP_CDRS	01/11/2008 11:14	4702	0	4	4702
ixp0777-1b	ANSI_ISUP_CDRS	01/11/2008 11:15	4579	0	4	4579
ixp0777-1b	ANSI_ISUP_CDRS	01/11/2008 11:16	4756	0	4	4756
ixp0777-1b	ANSI_ISUP_CDRS	01/11/2008 11:17	4550	0	4	4550
ixp0777-1b	ANSI_ISUP_CDRS	01/11/2008 11:18	4631	0	4	4631
ixp0777-1b	ANSI_ISUP_CDRS	01/11/2008 11:19	4632	0	4	4632
ixp0777-1b	ANSI_ISUP_CDRS	01/11/2008 11:20	4518	0	4	4518
ixp0777-1b	ANSI_ISUP_CDRS	01/11/2008 11:21	4544	0	4	4544
ixp0777-1b	ANSI_ISUP_CDRS	01/11/2008 11:22	4642	0	4	4642
ixp0777-1b	ANSI_ISUP_CDRS	01/11/2008 11:23	4670	0	4	4670
ixp0777-1b	ANSI_ISUP_CDRS	01/11/2008 11:24	4664	0	4	4664
ixp0777-1b	ANSI_ISUP_CDRS	01/11/2008 11:25	4497	0	4	4497

Figure 81 : Operate Dataflow Processing Screen

Field	Description
Server Name	Name of the server to which the process belongs
Last Update	Date and time (as default) of last update from this processing
xDRs enriched	Number of xDR getting at least one field enriched
Received xDR	Last Value of xDR/KPI count which is received by process.
Created KPIs	Last Value of total number of KPIs created by this process
Filtered xDRs	Last Value of xDR count passing the corner filter.

Table 27 : IXP Operate DFP

Build Dataflow Processing Drill-down Procedure

1. Select the Name of the build data flow process from the list. The Build screen opens shown in the figure below.

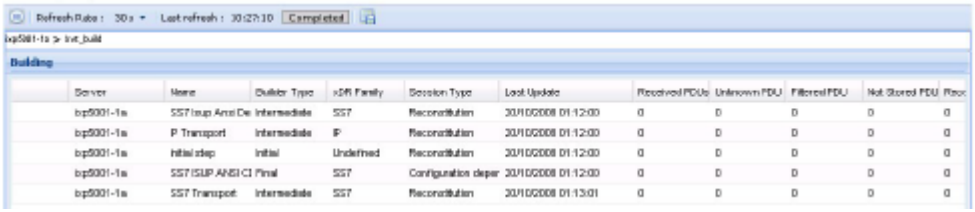


Figure 82 : Build Dataflow Processing Screen

Field	Description
Server	Name of the server
Builder name	Name of the xDR builder
xDR builder type	One of - • 1 initial • 2 intermediate • 3 final • 4 unified
xDR family	One of - • 1 GPRS • 2 GPRS or SS7 • 3 SS7 • 4 IP, 5 undefined • 6 VoIP, 7 VoIP or GPRS • 8 UMTS
Session Type	• 1 reconstitution • 2 capture • 3 configurable • 4 KPI • 5 other statistics
Last Update	Date and time (as default) of last update from this processing
Received PDUs	Last Value of PDU count submitted to the builder
Unknown PDU	Count of PDU which are not of the correct type. For instance, an IP frame in SS7 transport
Filtered PDU	PDUs rejected due to filtering conditions. This can be an explicit condition like a port number, or implicit like SIO=5 for ISUP.

Not Stored PDU	Count of PDUs not stored. The reasons for not storing could be in the xDR builder configuration, general parameter "Store PDUs" not set, no space left on disk, writing not allowed on all PDU disks, wrong disk sharing or mounting.
Received Bytes	Last Value of total number of bytes received (including PDU headers)
Generated XDRs	Last Value of produced xDR count
Valid xDRs	Last Value of xDR that could be correlated without suspicion of error.
xDRs Not Transmitted	xDRs that could not be transmitted to the consumer (for instance - operate, store)
Generated Bytes	Last Value of total number of bytes sent to a session, xDR record and variable parts.

Table 28 : IXP Build Process Table

1. To view the detail of an individual build process, click the **Name** of the process in the *Summary* screen.
   The detail screen opens.

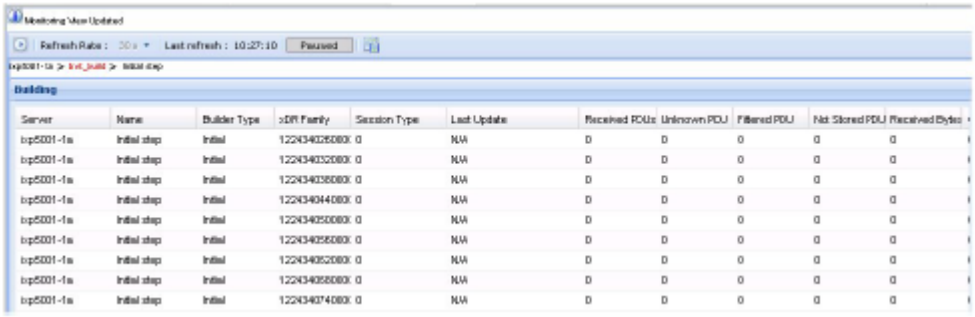
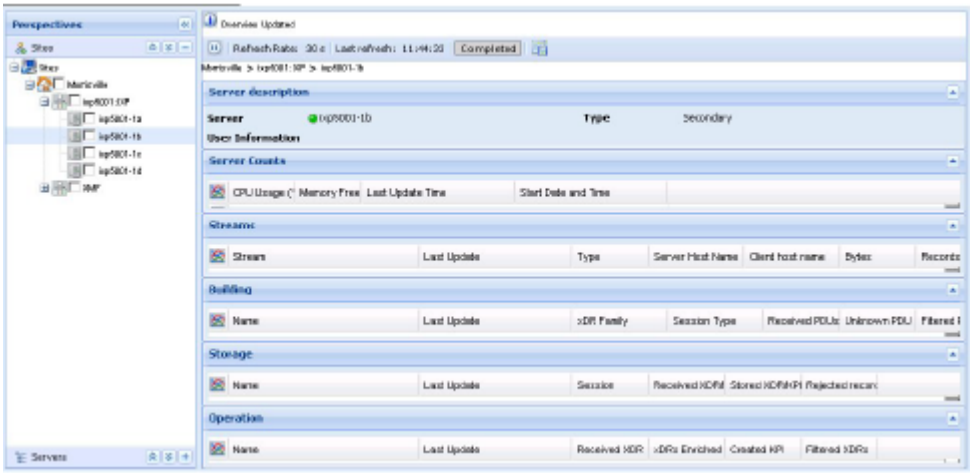


Figure 83 : Build Dataflow Processing Detail Screen

Monitoring Specific IXP Servers within an IXP Subsystem

You can display an overview of one selected IXP server. Complete these steps to select and monitor a specific IXP server.Select **Sites Perspective** to expand it.

1. Expand **Site > IXP subsystem.**
2. Select the **IXP server** to be viewed.



The *table* screen opens shown in the figure below.

Figure 84 : Specific IXP Server Monitoring

The information provided to you is the same as that provided at the subsystem level except that it is for the specific server.

Monitoring xMF Subsystems and Servers

Note: You can monitor subsystems and servers from either the *Sites* or *Server perspective.*

Diagnostic Utility enables you to monitor specific parameters on subsystems and servers.
You open the subsystem by either selecting it from the object menu or drilling down from the site overview table.

Monitoring xMF Subsystems

You can view all of the xMF (IMF and PMF) subsystems by selecting the **xMF** root in the *Server perspective.*

Figure 85 : xMF Root Overview Screen

The table provides the following counters:

Parameter	Description
Subsystem Name + Subsystem status	Name of the subsystem and Status of the subsystem is calculated as follows: • Green - Status of all the servers in the subsystem is green • Yellow - Status of some of the servers in the subsystem is not green • Red - Status of all the servers in the subsystem is red
In Throughput (kbps)	Sum of input throughputs of servers in this subsystem in kilobits per second
Out Throughput (kbps)	Sum of output throughputs of servers in this subsystem in kilobits per second
User Information	Information about the subsystem

Table 29 : XMF Subsystem Overview

Viewing a Specific xMF Subsystem

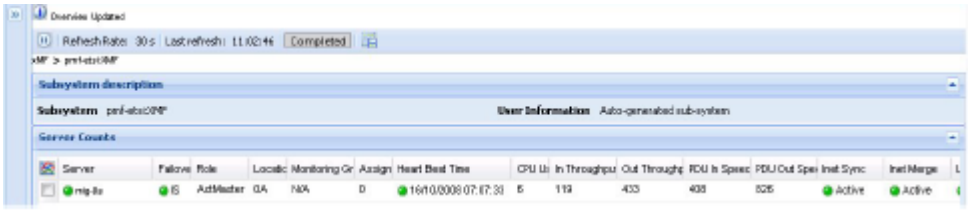
Complete these steps to view a specific xMF subsystem.

Click on the **xMF subsystem** (either IMF or PMF) that you want to monitor.

The*Subsystem monitoring* screen opens shown in the figure below.

Note: xMF subsystem selection can be made on the root overview in the site overview screen or on the object tree in the *Sites* or *Servers* perspective

Figure 86 : xMF Subsystem Monitoring (PMF shown)



From this screen you can monitor the following xMFServer *Counts* and Destination *counts* described in the tables below;

Parameter	Description
Server Name + Server status*	Provides the name of the xMF server Status of the server is calculated as follows: • Green - all next points are true: all destinations have green status all IP interfaces have green status or all IP interfaces have gray status (if available) all Level 1 interfaces have green status (if available) InetSync and InetMerge statuses of the server are green Last Update time of the server has green status Failover state is In Service Heart Beat time of the server has green status • Yellow - InetSync and InetMerge statuses of the server are green, Failover Status is In Service and at least one of the next points is true: • not all destinations are green and not all destinations are red • not all IP interfaces are green and not all IP interfaces are gray and not all IP interfaces are red (if available) not all Level 1 interfaces are green and not all Level 1 interfaces are red (if available) Last Update time of the server has yellow status and all destination are not red and all IP or Level 1 interfaces are not red Heart Beat time of the server has yellow status and all destination are not red and all IP or Level 1 interfaces are not red • Red - at least one of the next points is true: • all destinations have red status • all IP or Level 1 interfaces have red status • InetSync/Merge status of the server is red Failover state is Out Of Service
Failover Status	Failover state of Server: • Green - failover state is IS (In service) • Red - failover state is OOS (Out of service)
Role*	Role of the server in subsystem - ActiveMaster/StandbyMaster/Slave
Location*	Location of the server in the frame.
Monitoring Group*	Name of the link group assigned to this server or N/A when no group is assigned
Assignment*	The number of links monitored by the server.

Heart Beat (HB) Time	The time stamp (date and time as default) of the last heart beat ping. Status of Heart Beat Time is calculated as follows: • Green - heart beat time is less than 1 min old • Yellow - heart beat time is more than 1 and less than 2 minutes old • Red - last update time is more than 2 minutes old
CPU Usage (%)	Percentage of CPU being used currently
In Throughput (kbps)	Input throughput in kilobits per second
Out Throughput (kbps)	Output throughput in kilobits per second
PDU Out Speed (#/s)	Number of PDUs (MSUs) transmitted from xMF per second. It can be average value from last n seconds, depends on xMF setting
PDU In Speed (#/s)	Average speed of MSU input per second. It can be average value from last n seconds, depends of xMF setting
Inet Sync + Inet Sync status icon	The actual state of the InetSync connections of this server to other servers in subsystem and A-node. (The working states are Active/StandBy, other states show the connection has some problem - Down, DownListening, DownConnecting, DownRejected, DownHandshake, Connected, ConnectedReinit, ConnectedIncompat, RegisterSent, RegisterAcked, Inhibited, AuditWait, AuditQueue, Audit, ActiveBehind, ActiveSwitch, ActivePostAudit) Status of the InetSync is calculated as follows: • Green - InetSync connections with other servers in subsystem and A-node are operable (Active or StandBy) • Red - InetSync connection to at least one server in subsystem or A-node is not operable (state is other than Active or StandBy)
Inet Merge + Inet Merge status icon	The actual state of the InetMerge connectionfrom A-node (The working state is Active, other states says the connection has some problem - Down, DownListening, DownConnecting, DownRejected, DownHandshake, Connected, ConnectedReinit, ConnectedIncompat, RegisterSent, RegisterAcked, Inhibited, AuditWait, AuditQueue, Audit, ActiveBehind, ActiveSwitch, ActivePostAudit) Status of the InetMerge is calculated as follows: • Green - InetSync connections with other servers in subsystem and A-node are operable (Active or StandBy) • Red - InetSync connection to at least one server in subsystem or A-node is not operable (state is other than Active or StandBy)
Last Update Time + Last Update Time status icon	Date and time (as default) of last update of server counts in database. Status of Last Update Time is calculated as follows: • Green - last update time is less than or equal to 2 min • Yellow - last update time is greater than 2 min

Table 30 : Server Counts Table

* denotes that these parameters are viewed only at the subsystem level.

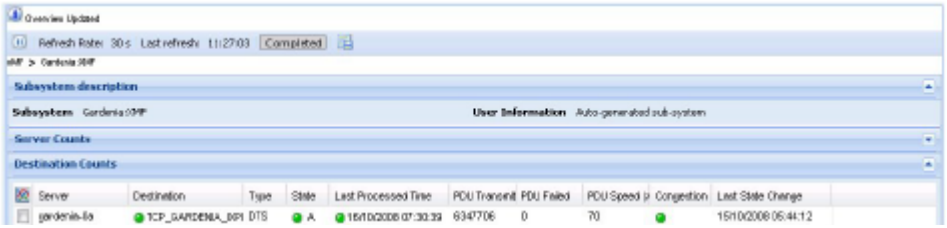


Figure 87 : xMF Destination Counts –IMF Shown

xMF Destinations Parameter Descriptions

Parameter	Description
Server name*	Name of destination xMF server
Destination name + Destination status	Name of the destination. Status of the destination is calculated as follows: Green - link has Green A status and no congestion and Last Processed Time status is green Yellow - link has Green A status and it is in congestion or Last Processed Time status is yellow Red - link has other status than green A or Last Processed Time status is red
Destination Type	Type of the destination. Either DST or MFP
Destination State	Link State value of destination: **Green - A (in service)** **Red - OS (out of service)**
Last Processed Time + Last Processed Time status	Time of Last Processed PDU (MSU) of the destination. Date and time (as default) of Last Processed Time is calculated as follows: • Green - last sync time is less or equal to 2 min old • Yellow - last sync time is more than 2 minutes old NOTE - If no PDU is transmitted currently (PDU Speed = 0), then the Last Processed Time status will be Green
PDU Transmitted	Number of PDUs (MSUs) transmitted from the xMF server to the destination
PDU Failed	Number of failed PDU (MSU) transmissions from the xMF server to the destination
PDU Speed (#/s)	Number of PDUs (MSUs) transmitted from xMF per second It can be average value from last n seconds, depends on xMF setting.

Congestion + Congestion status icon	Connection congested status - YES or NO Status of Congestion is calculated as follows: Green - congestion is NO Red - congestion is YES
Last State Change	Data and time (as default) of last change of Link State

* denotes that these parameters are viewed only at the subsystem level.

SigTran Filter Counters

Counter	Description
Server Name	The name of the server that houses the sigtran process
Last Update and Status	Data and time of the last update. Status of server is calculated as follows: • Green difference between last update time and current time is less or eqaul to 2 minutes • Yellow - difference between last update time and current time is greater than 2 minutes.
Current reassembly failure	Total number of chunk reassembly failures
IP reassembly failure	Total number of IP reassembly failures
IP fragmented packet	Total number of IP fragmented packets

Table 31 : Sigtran Filter Counter Descriptions

Viewing Specific xMF Servers in an xMF Subsystem

By either selecting the server from the *xMF Overview* screen, or selecting the server from the object tree, you open the *xMF Server Overview* screens.

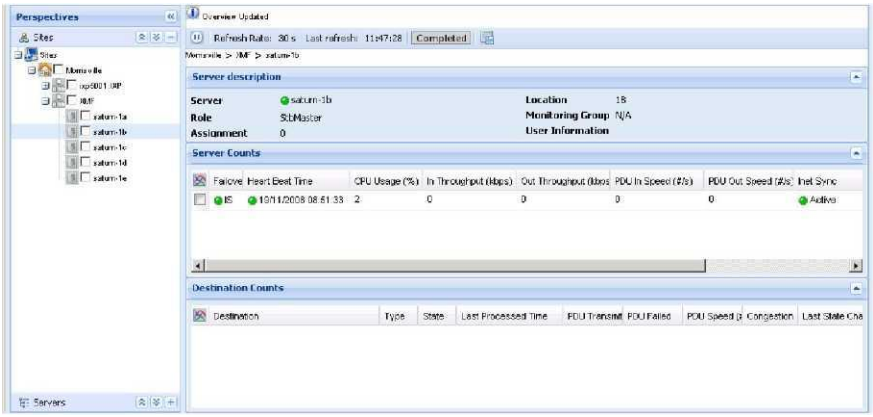


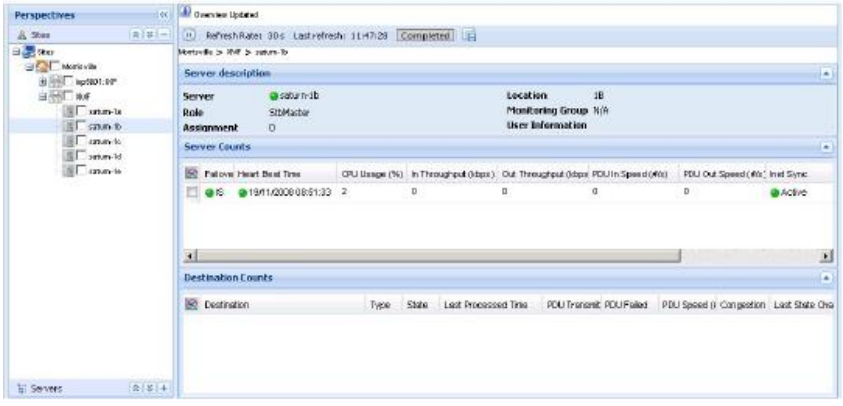
Figure 88 : xMF Subsystem Monitoring -PMF Shown

The information is the same as that provided at the xMF subsystem level except that it is for the specific server selected.

Server level PMF specific parameters

Described are the PMF specific parameter tables, Level 1 counts and IP counts.

Figure 89 : xMF Server Counts Screen –PMF shown



Level 1Counts (PMF)

The level1 counts are for PMF only shown in figure

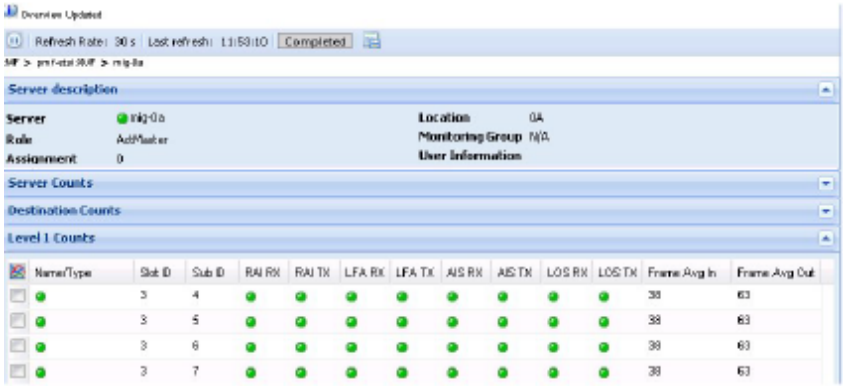


Figure 90 : PMF Level 1 Counts Overview Table

Table 32 : Xmf Level 1 Counts Overview Table Pmf Only

Field	Description
Name/Type + status icon	Identification of Level 1 interface (name and type) Status of the interface is calculated as follows: • Green - no alarm occurred • Red - at least one alarm occurred
Slot ID	Slot identification number
Sub ID	Span identification number
RAI RX	Current state of the "Remote Alarm Identification" alarm for RX direction. Red Alarm is raised Green no alarm
RAI TX	Current state of the "Remote Alarm Identification" alarm for TX direction
	Red- alarm is raised Green no alarm
LFA RX	Current state of the "Loss of Frame Alignment (or LOF)" alarm for RX direction
	Red- alarm is raised
	Green no alarm
LFA TX	Current state of the "Loss of Frame Alignment (or LOF)" alarm for TX direction
	Red- alarm is raised
AIS RX	Current state of the "Alarm identification Signal" alarm for RX direction
	Red- alarm is raised Green no alarm
AIS TX	Current state of the "Alarm identification Signal" alarm for TX direction
	Red- alarm is raised Green no alarm
LOS RX	Current state of the "Loss of Signal" alarm for RX direction Red- alarm is raised Green no alarm
LOS TX	Current state of the "Loss of Signal" alarm for TX direction Red- alarm is raised Green no alarm

Frame Avg In	Input average frame rate (messages per second)
Frame Avg Out	Output average frame rate (messages per second)

IP counts

The IP counts table is available only in PMF.

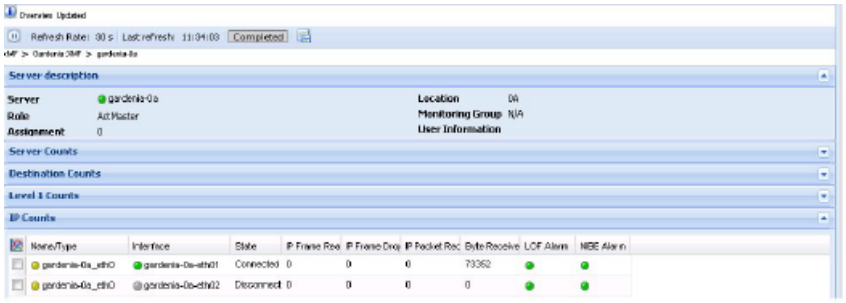


Figure 91 : PMF IP Counts Overview Table

Field	Description
Name/Type + IP card status icon	Identification of IP card (name and type) Status of the card is calculated as follows: Green - all card interfaces have Green status • Yellow - at least one, but not all, interface has Red or Gray status • Red - all interfaces have Red status • Gray - all interfaces have Gray status
Interface + interface status icon	Identification of card interface (name and type) Status of the card interface is calculated as follows: • Green - none alarm occurred • Red - at least one alarm occurred • Gray - state is "cable disconnected on the receiving side"
State	State of receiving side - cable connected or disconnected
IP Frame Read OK	Number of IP datagrams read without error
IP Frame Dropped	Number of IP datagrams dropped
IP Packet Received	Total number of input datagrams received from interfaces, including those received in error
Byte Received	Total number of bytes received

LOF Alarm	Current state of the "Ethernet - Loss of Frame" alarm Red- alarm is raised Green no alarm
NIBE Alarm	Current state of the "Ethernet - Network Interface Board Error" alarm Red- alarm is raised Green no alarm
MTU	Maximum Transmission Unit of the network interface.
Speed	Speed of the network interface connection MTU in Mbits/s

Table 33 : Xmf IP Counts Overview Table -Pmf Only

The xMF Subsystem and Server Right-click Menu

The xMF subsystem is divided into two categories, IMF or PMF. Each xMF type has different functions and thus has different monitoring capabilities. The hierarchy for xMF right click options is the following:

General xMF monitoring (both IMF and xMF) right-click menu options

- Refresh - refreshes the screen to reflect any changes that have occurred
- Multiple Subsystems Overview - if multiple xMF (IMF and/or PMF) subsystems are selected, this right-click option is operational
- Multiple Servers Overview - if multiple xMF (IMF and/or PMF) servers are selected, this right-click option is operational

IMF subsystem right-click menu options (IMF)

- Refresh - refreshes the screen to show any changes that have occurred within an xMF (IMF) subsystem and server
- xMF Servers - enables the monitoring of all the xMF (IMF) servers in a subsystem and server
- Destinations - enables the monitoring of the destination counts within the xMF (IMF) subsystem and server
- Hardware Counters - enables of the hardware counts within the xMF subsystem and server
- Reset Destinations Counts (subsystem only) - enables the reset of the destination counts)
- Multiple Severs Overview (subsystem only) - if multiple servers on that subsystem are selected, enables monitoring of multiple severs

IMF server right-click menu options

- xMF Servers - enables the monitoring of the IMF servers selected
- Destinations - enables the monitoring of the destination counts for that IMF server
- Hardware Counters - enables of the hardware counts within that IMF server

PMF subsystem right-click menu options

- Refresh - refreshes the screen to show any changes that have occurred
- Destinations - enables the monitoring of the destination counts within the PMF subsystem
- Level 1 - enables the monitoring of level 1 counts within the PMF subsystem

- IP devices - enables the monitoring of the IP devices within that subsystem
- Hardware Counters - enables the monitoring of the server, ethernet and disk parameters on all the servers in the subsystem
- Traffic Classification Counters - enables the monitoring of the counts for traffic classifications within a PMF subsystem
- PMIA Filter Counters - enables the monitoring of the counts for PMIA within a PMF subsystem
- Sigtran Filter Counters - enables the monitoring of the sigtran filters within a PMF subsystem
- Multi-Processor NIC Counters - enables the monitoring of Tilera cards within a PMF subsystem
- Reset Input Counts (subsystem only)
- Reset Destinations Counts (subsystem only)
- Reset Level 1 Counts (subsystem only)
- Reset IP Counts (subsystem only)

PMF server right-click menu options

- xMF Servers -enables the monitoring of the PMF servers selected
- Destinations - enables the monitoring of the destination counts within the PMF server(s) selected
- Level 1 - enables the monitoring of level 1 counts within the PMF server(s)
- IP Devices - enables the monitoring of the IP devices for the server(s) selected
- Hardware Counters - enables of the hardware counts within the PMF server(s) selected
- Traffic Classification Counters - enables the monitoring of the counts for traffic classifications within the PMF server(s) selected
- PMIA Filter Counters - enables the monitoring of the counts for PMIA within the PMF server(s) selected
- Multi-Processor NIC Counters - enables the monitoring of Tilera cards within the PMF server(s) selected

IMF Server Right-click Menu

The IMF server right-click menu enables you to view specific counters in table form. Each menu option is described.

IMF Server Counts

This right-click menu enables you to see a listing of each server in the IMF subsystem shown in the figure below.

Table 34 : IMF Server Counts Description

Parameters	Description
PDU Transmitted	Number of PDUs (MSUs) transmitted from the xMF server to destinations (e.g. ICP, IXP)
PDU Failed (#)	Number of failed PDU (MSU) transmissions from the xMF server to destinations (e.g. ICP, IXP)
PDU Speed (#/s)	Number of PDUs (MSUs) transmitted from xMF per second. (It can be average value from last n seconds, depending on xMF setting.)
In Throughput (Kbps)	Input throughput in kilobits per second
Out Throughput (Kbps)	Output throughput in kilobits per second
PDU IN	Number of received PDUs (MSUs)

Received (#)	
PDU IN Rejected (#)	Number of rejected PDUs (MSUs)
PDU IN Speed (#)	Average speed of PDU (MSU) input. (It can be average value from last n seconds, depending on xMF setting.)
Last Update Time	Last time the record was updated

Destination Counts

This right-click option enables you to see a listing of the destination counts in the xMF subsystem shown in the figure below.

Parameter	Description
Server	Name of xMF server (only filled in on)
Destination	Name of the destination (only filled in on destination row)
State	Server row shows the following states: • green A if all destinations have green A • yellow A if at least one but not all destinations have other status than green A red OS if none destination has green A Destination row where the state value of the destination is either: • green - A - Destination is In Service • red - OS - Destination is Out of Service
PDU Transmitted	Destination row - Number of PDUs (MSUs) transmitted from the xMF server to the destination (e.g. ICP, IXP) Server row - Sum of PDU Transmitted values of destination rows on this server
PDU Failed	Destination row - Number of failed PDU (MSU) transmissions from the xMF server to the destination Server row - Sum of PDU Failed values of destination rows on this server
PDU Speed (#/s)	Destination row - Number of PDUs (MSUs) transmitted from xMF server per second. (It can be average value from last n seconds, depends of xMF setting.) Server row - Sum of PDU Speed values of destination rows on this server
Congestion	Connection congested status - YES or NO Status of Congestion is calculated as follows:
Last State Change	Destination row - Data and time of last change of Link State Server row - N/A

Table 35 : xMF Destination Count Descriptions

Hardware Counts

This right-click option enables you to see the hardware parameters in an IMF system

IMF Hardware Count Descriptions

Parameter	Description
Server Parameters	For more information, see **Hardware Counters**
Ethernet Parameters	For more information, see Hardware Counters
Disk Parameters	For more information, see Hardware Counters

Reset Destination Counts

Note: This option is only available to users assigned to NSPMonitorPowerUser and NSPMonitorManager roles.

Clicking on this menu item opens a pop-up window asking to reset the destination counts, Yes or No. To reset destination counts, click **Yes.** To exit the reset option, click **No.**

PMF Right-click Menu

The PMF right-click menu enables you to view specific parameters in table form.

PMF Server Counts

This right-click menu enables you to see a listing of each server in the PMF subsystem described in the table.

Table 36 : PMF Server Count Descriptions

Parameters	Description
Server	Name of xMF server
Memory Free (KB)	Number of kilobytes of free memory
CPU Usage (%)	Percentage of CPU being used
Disk Usage (%)	Percentage of disk space being used
PDU Transmitted (#)	Number of PDUs (MSUs) transmitted from the xMF server to destinations (e.g. ICP, IXP)
PDU Failed (#)	Number of failed PDU (MSU) transmissions from the xMF server to destinations (e.g. ICP, IXP)
PDU Speed (#/s)	Number of PDUs (MSUs) transmitted from xMF per second. (It can be average value from last n seconds, depending on xMF setting.)
In Throughput (Kbps)	Input throughput in kilobits per second
Out Throughput (Kbps)	Output throughput in kilobits per second
PDU IN Received	Number of received PDUs (MSUs)
PDU IN Rejected	Number of rejected PDUs (MSUs)
PDU IN Speed (#)	Average speed of PDU (MSU) input. (It can be average value from last n seconds, depending on xMF setting.)
Last Update Time	Last time the record was updated
PDU IN Rejected	Number of rejected PDUs (MSUs)
PDU IN Speed (#)	Average speed of PDU (MSU) input. (It can be average value from last n seconds, depending on xMF setting.)
Last Update Time	Last time the record was updated

Destination Counts

This right-click option enables you to see a listing of the destination counts in the xMF subsystem shown in the figure below.

Parameter	Description
Server	Name of xMF server (only filled in on)
Destination	Name of the destination (only filled in on destination row)
State	Server row shows the following states: • green A if all destinations have green A • yellow A if at least one but not all destinations have other status than green A • red OS if none destination has green A Destination row where the state value of the destination is either: • green - A - Destination is In Service • red - OS - Destination is Out of Service
PDU Transmitted	Destination row - Number of PDUs (MSUs) transmitted from the xMF server to the destination (e.g. ICP, IXP) Server row - Sum of PDU Transmitted values of destination rows on this server
PDU Failed	Destination row - Number of failed PDU (MSU) transmissions from the xMF server to the destination Server row - Sum of PDU Failed values of destination rows on this server
PDU Speed (#/s)	Destination row - Number of PDUs (MSUs) transmitted from xMF server per second. (It can be average value from last n seconds, depends of xMF setting.) Server row - Sum of PDU Speed values of destination rows on this server
Congestion	Connection congested status - YES or NO Status of Congestion is calculated as follows: • Green - congestion is NO • Red - congestion is YES
Last State Change	Destination row - Data and time of last change of Link State Server row - N/A

Table 37 : xMF Destination Count Descriptions

Level 1 Counts (PMF)

The level 1 counts are for PMF only, (shown and described in the figure and table below), are viewed by clicking on either *the Level 1 Counts* title bar or the arrow on the right side of the screen.

Table 39 : xMF Level 1 (PMF Only) PMF Descriptions

Parameter	Description
Name/Type + status	Identification of Level 1 interface (name and type) Status of the interface is calculated as follows: • Green - no alarm occurred • Red - at least one alarm occurred
Slot ID	Slot identification number
Sub ID	Interface row - Span identification number Server row - N/A
RAI RX	Current state of the "Remote Alarm Identification" alarm for RX direction; Red means that alarm is raised, Green in other case
RAI RX State	Interface row - Current state of the "Remote alarm identification" alarm for RX direction Server row - Number of currently raised alarms on interfaces on this server
RAI TX	Current state of the "Remote Alarm Identification" alarm for TX direction
RAI TX State	Interface row - Current state of the "Remote alarm identification" alarm for TX direction Server row - Number of currently raised alarms on interfaces on this server •Red - alarm is raised •Green - other condition
LFA RX	Current state of the "Loss of Frame Alignment (or LOF)" alarm for RX direction
LFA RX State	Interface row - Current state of the "Loss of Frame Alignment (or LOF)" alarm for RX direction Server row - Number of currently raised alarms on interfaces on this server
LFA TX	Current state of the "Loss of Frame Alignment (or LOF)" alarm for TX direction • Red- alarm is raised • Green no alarm
LFA TX State	Interface row - Current state of the "Loss of Frame Alignment (or LOF)" alarm for TX direction Server row - Number of currently raised alarms on interfaces on this server

AIS RX	Current state of the "Alarm identification Signal" alarm for RX direction Red- alarm is raised Green no alarm
AIS RX State	Interface row - Current state of the "Alarm identification Signal" alarm for RX direction Server row - Number of currently raised alarms on interfaces on this server
AIS TX	Current state of the "Alarm identification Signal" alarm for TX direction Red- alarm is raised Green no alarm
AIX TX State	Interface row - Current state of the "Alarm identification Signal" alarm for TX direction Server row - Number of currently raised alarms on interfaces on this server
LOS RX	Current state of the "Loss of Signal" alarm for RX direction Red- alarm is raised Green no alarm
LOS RX State	Interface row - Current state of the "Loss of Signal" alarm for RX direction Server row - Number of currently raised alarms on interfaces on this server
LOS TX	Current state of the "Loss of Signal" alarm for TX direction Red- alarm is raised Green no alarm
LOS TX State	Interface row - Current state of the "Loss of Signal" alarm for TX direction Server row - Number of currently raised alarms on interfaces on this server
resetTime	Interface row - Last time the level1 stat were reset Server row - empty
Frame RX	Interface row - Total frames received Server row - Sum of interface values on this server
Frame TX	Interface row - Total frames transmitted Server row - Sum of interface values on this server
Frame Avg Speed RX	Interface row - Input average frame rate (messages per second) Server row - Sum of interface values on this server
Fram Avg Speed TX	Interface row - Output average frame rate (messages per second) Server row - Sum of interface values on this server

IP Device Counts

The IP counts, (shown and described in the figure and table below), are viewed by clicking on either the IP *Counts* title bar or the arrow on the right side of the screen.

Table 40 :xMF IP Device Monitoring Parameters

Parameter	Description
Name	Interface row - Identification of IP device's interface Device row - Identification of IP device Server row - Name of the xMF server
State	Interface row - State of receiving side - cable connected or disconnected Device row - connected if all interfaces are connected, disconnected if all interfaces are connected, empty in other case Server row - connected if all interfaces are connected, disconnected if all interfaces are connected, empty in other case
IP Frame Read OK	Interface row - The number of IP datagrams read without error Device row - sum of interface values on this device Server row - sum of interface values on this device
IP Frame Dropped	Interface row - Number of IP datagrams dropped Device row - sum of interface values on this device Server row - sum of interface values on this server
IP Packet Received	Interface row - Total number of input datagrams received from interfaces, including those received in error Device row - sum of interface values on this device Server row - sum of interface values on this server
Byte Received	Interface row - The total number of bytes received Device row - sum of interface values on this device Server row - sum of interface values on this server
Error on Device	Interface row - Indicates an error was encountered with a device Device row - sum of interface values on this device Server row - sum of interface values on this server
Dropped by Device	Interface row - Number of IP packets dropped by the IP device Device row - sum of interface values on this device Server row - sum of interface values on this server
FIFO Error on Device	Interface row - Number of FIFO buffer errors on device Device row - sum of interface values on this device Server row - sum of interface values on this server

Frame Error on Device	Interface row - Number of packet framing errors Device row - sum of interface values on this device Server row - sum of interface values on this server
LOF Alarm State	Interface row - State of "Ethernet - Loss of Frame" alarm - activated, deactivated Device row - Number of currently raised alarms on interfaces on this device Server row - Number of currently raised alarms on interfaces on this server
NIBE Alarm	Current state of the ethernet - Network Interface Board Error alarm. Green signifies no alarm, Red signifies the alarm is raised.
MTU	Maximum Transmission Unit of the network interface
Speed	Speed of network interface connnection measured in Mbits/s
Additional Info	Any additional info about the card

Hardware Counters

Table 41 : Hardware Counter Descriptions

Hardware Parameter	Counter	Description
Server		
	Server/Subsystem Name	Name of the server and its associated subsystem
	Period end	Time stamp for minute by minute historical data
		Type of application running on the server (NSP, IXP, IMF, PMF)
	CPU User	% of CPU utilization that occurred by executing at the user level
	CPU System	% of CPU utilization that occurred by executing at the system level
	Free Physical Memory	shown in MB
	Total Physical Memory	total physical RAM shown in MB
	Available Physical Memory	Free/Physical Total RAM shown as %
	Free Virtual Memory	shown in MB
	Total Virtual Memory	shown in MB
	Available Virtual Memory	Free/Total Virtual Memory shown as %
Ethernet		
	Server/Subsystem Name	Name of the server and its associated subsystem
	Interface Name	Name of the network interface
	Period End	Time stamp for minute by minute historical data

Hardware Parameter	Counter	Description
	IP Address	IP address of the host
	Type	Type of application running on the server (NSP, IXP, IMF, PMF)
	Octets Received	Avg octet count received per second for each network interface
	Octets Sent	Avg octet count sent per second for each network interface
	Bandwidth	Bandwidth used for each network interface
	Queue	Queue size in packets for each interface. If the number exceeds the value of 2 in a few minutes, the network interface is a bottleneck.
Disk		
	Server/Subsystem Name	Name of the server and its associated subsystem
	Period End	Time stamp for minute by minute historical data
	Partition	Partition Name
	Type	Type of application running on the server (NSP, IXP, IMF, PMF)
	Disk Writing	Writing operation count per second for each hard drive
	Disk Reading	Reading operation count per second for each hard drive
	Octet Written	Octets count written per second for each hard drive
	Octets Read	Octets count read per second for each hard drive
	Queue For Writing	Avg number of writing events in waiting queue for hard drive
	Queue for Reading	Avg number of reading events in waiting queue for hard drive

Traffic Classification Counters

Table 42 : Traffic Classification Counter Descriptions

Counter	Description
Server Name	Name of the PMF server that is running the traffic classifications
TC Name	Name of the traffic classification
Total Bytes (IDB)	Number of bytes received inside IDB

Counter	Description
Total Bytes (PMIA)	Number of bytes received in PMIA socket
Total Packets (IDB)	Number of packets received inside IDB
Total Packets (PMIA)	Number of packets received in PMIA socket
Occupancy Rate (%)	Occupancy rate in percentage
Lost Bytes	Number of bytes lost in PMIA socket
Lost Packets	Number of packets lost in PMIA socket

PMIA Filter Counters

Table 43 : PMIA Filter Counter Descriptions

Counter	Description
Server Name	PMF server name that has the PMIA
Filter ID	Identifier of the PMIA filter line
Filter Name	Label that identifies the PMIA filter line
Total Bytes	Number of bytes received by the interface that match the PMIA filter line
Total Packets	Number of packets received by the interface that match the PMIA filter line

SigTran Filter Counters

Table 44 : Sigtran Filter Counter Descriptions

Counter	Description
Server Name	The name of the server that houses the sigtran process
Last Update and Status	Data and time of the last update. Status of server is calculated as follows: • Green difference between last update time and current time is less or equal to 2 minutes • Yellow - difference between last update time and current time is greater than 2 minutes
Chunk reassembly failure	Total number of chuck reassembly failures
IP reassembly failure	Total number of IP reassembly failures
IP fragmented packet	Total number of IP fragmented packets

About Hardware Counters

The right-click Hardware counters option for xMF and IXP enables you to view the *Server Parameters* table, *Ethernet Parameters* table and the *Disk Parameters* table. The information provided in this screen is the same provided for both xMF and IXP subsystems and servers. Complete these steps to view the input streams on an IXP or xMF subsystem or server.

Note: The figures and tables shown here are of an IXP subsystem.

1. Select the **Site > IXP or xMF subsystem** you want to monitor.
2. Right-click on the **IXP or xMF subsystem** to open the pop-up menu.
3. Select **Hardware Counters.**

   The *Hardware Counters screen* opens.

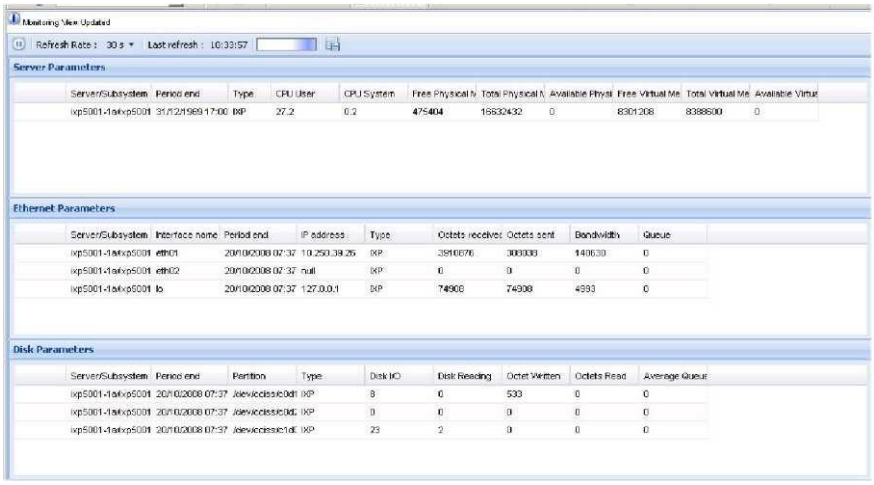


Figure 92 : Hardware Counters Screen (IXP Subsystem Shown)

From this screen you can view the descriptions of the parameters shown in the figures and tables.

Server Parameters Table

Figure 93 : Server Parameters Table (IXP Subsystem Shown)

Parameter	Description
Server + Subsystem Name	Name of the server that the data flow process belong to as well as the subsystem name
Period end	Time stamp for data

Parameter	Description
Type	Type of application running on the server (IMF, PMF, IXP)
CPU Usage (%)	Time Percentage for CPU used by the application.
CPU System (%)	Percentage of CPU used by the operating system
Total Physical Memory	Total Physical RAM (MB)
Available Physical Memory	Available Physical RAM (MB)
Free Virtual Memory	Available Virtual Memory (MB)
Total Virtual Memory	Total Virtual Memory (MB)
Available Virtual Memory	Available Virtual Memory (MB) during use

Table 45 : Server Parameter Descriptions

Ethernet Parameters Table

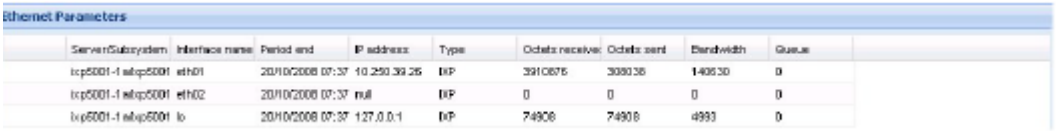


Figure 94 : Ethernet Parameters Table (IXP Subsystem Shown) Table

Parameter	Description
Server + Subsystem Name	Name of the server that the data flow process belong to as well as the subsystem name
Interface Name	Name of the interface
Period end	Time stamp for minute per minute historical data
IP address	IP address of the host's network interface (or null)
Type	Type of application running on the server (IMF, PMF, IXP)
Octets received	Octet count received per second for each network interface
Octets sent	Octet count sent per second for each network interface
Bandwidth	Bandwidth used for each network interface
Queue	Queue size in packets for each interface. If the counter exceeds a value of 2 during a few minutes, the network interface is a bottleneck

Table 46 : Ethernet Parameter Descriptions

Disk Parameters Table

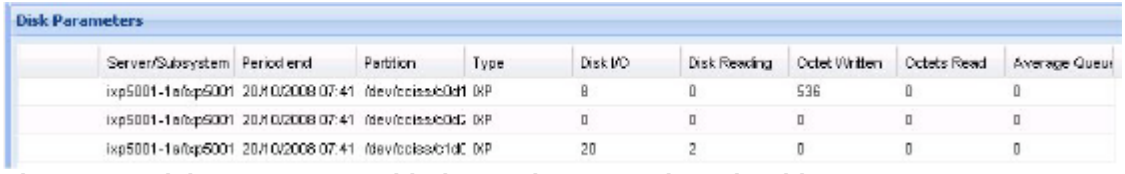


Figure 95 : Disk Parameters Table (IXP Subsystem Shown) Table

Table 47 : Ethernet Parameter Descriptions

Parameter	Description
Server + Subsystem Name	Name of the server that the data flow process belongs to as well as the subsystem name
Period end	Time stamp for data
Partition	Partition name
Type	Type of application running on the server (IMF, PMF, IXP)
Disk Writing	Writing operation count per second for each Hard Drive
Disk Reading	Reading operation count per second for each Hard Drive
Octet Written (KB/s)	Octets count written per second for each Hard Drive
Octets Read (KB/s)	Octets count read per second for each Hard Drive
Queue for Writing	Average number of writing events in queue for each Hard Drive
Queue for Reading	Average number of reading events in queue for each Hard Drive

About Reset Count Options for xMF Subsystems

Note: The reset options are available only to users with the role *NSPMonitorManager.*

Listed below are the four reset count options on the xMF right-click menu. When you select one of the options listed here. A prompt is displayed asking you to confirm the reset.

To reset counts, click **yes.** The list below explains the different reset options.

Reset count for server in selected xMF subsystem	Cumulative Counts*	Non-Cumulative Counts**
Reset Input Counts (xMF servers)	PDU IN Received* and PDU IN Rejected	PDU IN Speed
Reset Destination Counts (xMF servers)	PDU Transmitted and PDU Failed	PDU Speed
Reset Level 1 Counts (xMF-PMF)	RAI RX, RAI TX, AIS RX, AIS TX, LFA RX, LFA TX, LOS RX, LOS TX, Frame RX and Frame TX	Frame Average Speed RX and Frame Average Speed TX
Reset IP Counts (xMF-PMF	IP Frame Read OK and IP Frame Dropped	IP Packet Received, Byte Received, Error On Device, Dropped By Device, FIFO Error On Device and Frame Error On Device

Table 48 : Reset Count Options

Note: This option also resets the Link State Counts. Link State Counts are displayed in the ProDiag application. See ProDiag User's Guide for more information.

* indicates cumulative counts. They begin from zero after resetting if conditions for their increment are reached.

** indicates current value and are not cumulative. Their value stays equal to zero after resetting only when data traffic is off, in other cases it will show current values again, so no reset is noticeable in this case.

Note: There are more counters that are reset on a PMF server than on an IMF server.

Exporting Overview Tables in CSV Format

Diagnostic Utility's export function enables you to export zipped overview tables in csv format. Complete these steps to use the export function.

1. Select and open an **overview table** from the object tree.

   The figure shown below shows a table with the export button highlighted.

   Note: You can also export overview tables opened from the right-click menu.

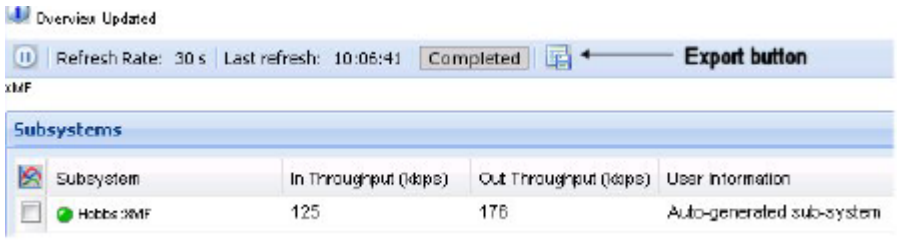
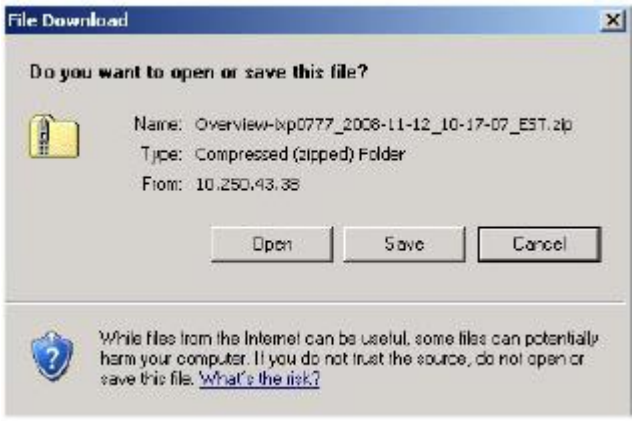


Figure 96 : Export Button Highlighted In Overview Table

2. Click **export.**

Figure 97 : Export Screen

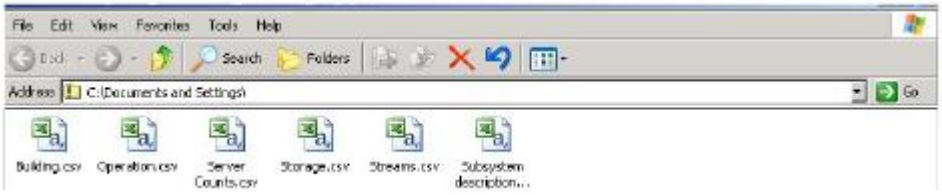


3. The export screen opens shown above.

3. At this step, you can perform one of three options:
   a) **Open** the file (see figure shown below) for inspection.
   b) **Save** the file to the local drive.
   c) **Cancel** the operation.

   If you select **Open,** the *Browse* screen opens showing all the tables converted to csv format in a *zip* file shown in the figure below.

Figure 98 : Zipped Table Files In CSV Format



Chapter5: Charting Subsystems and Servers

Charting operation in Diagnostic Utility

Diagnostic Utility provides a charting operation that enables you to view counts for selected items, (for example, subsystems, servers, destinations, dataflow processing, etc.) in chart format. You can view simple count charts where each chart displays the value of one count for several items. For each item the chart displays one chart line. You can launch one chart for several item counts simultaneously by using check boxes that are displayed by item names in the count tables. You can select up to eight items and up to four counts to be monitored.

The *Chart Monitoring* window is a full-screen window and can contain up to four charts. The chart has an x-axis for time and y-axis for count values. Lines for all items are switched on initially.

Charting variables for monitored Objects

Parameters charted for IXP servers

CPU Usage (%)

Memory Free (KB)

Parameters charted for IXP input streams

Bytes (total number of bytes transmitted)

Records (Total number of records transmitted)

Parameters charted for xDR build process

Received PDUs

Unknown PDU

Filtered PDU Not

Stored PDU

Received bytes

Generated xDRs

Valid xDRs

xDRs Not Transmitted

Generated bytes

Parameters charted for xDR store process

Received xDR/KPIs

Stored xDR/KPIs

Rejected records

Parameters charted for xDR operate process

Received xDR

xDRs enriched

Created KPI

Filtered xDRs

Parameters charted for xMF subsystems

In Throughput (kbps) Out Throughput

(kbps)

Parameters charted for xMF servers

CPU Usage (%)

In Throughput (kbps)

Out Throughput (kbps)

PDU In Speed (#/s) PDU

Out Speed (#/s) PDU

Transmitted (#) PDU

Failed (#) PDU Received

(#) PDU Rejected (#)

Parameters charted for xMF destinations

PDU Transmitted

PDU Failed PDU

Speed (#/s)

Parameters charted for xMF Level 1 counts

Frame Average Speed In (#/s)

Frame Average Speed Out (#/s)

Frame RX

(#) Frame

TX (#)

Alarm occurrences for RAI, LFA, AIS, LOS for RX and TX

Parameters charted for xMF IP stats

IP Frame Read OK

IP Frame Dropped

IP Packet

Received Byte

Received

Dropped by Device - Number of IP packets dropped by the IP device

FIFO Error On Device - Number of FIFO buffer errors on device

Frame Error On Device - Number of packet framing errors

Using the Chart Monitoring Toolbar

The chart monitoring window has the following controls in its toolbar:

Pause/resume

Refresh rate

Time range

Export as PNG file

Change Color

Completed

These controls enable you to customize the charting capabilities for the object you are monitoring.

Charting Parameters

Complete these steps to chart parameters at either the subsystem or server level. From either the *Site* or *Servers* perspective.

1. Select the **item(s)** from the *Overview* screen to be charted.

(In the first two figures shown below the same server is selected from both the *Sites* and the *Servers* perspective. The third figure shows multiple items selected from an xMF server.)

Note: You can select up to eight items to monitor.

Figure 99 : Selected Subsystem from Site Perspective

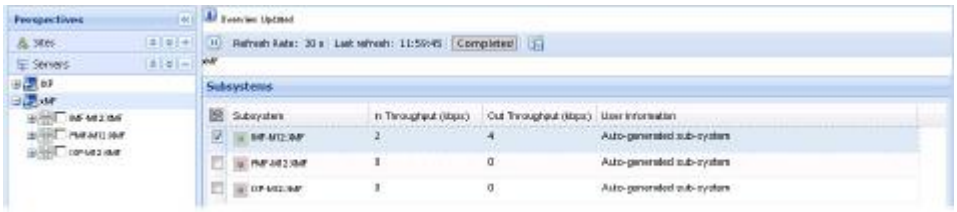


Figure 100 : Selected Subsystem from Server Perspective

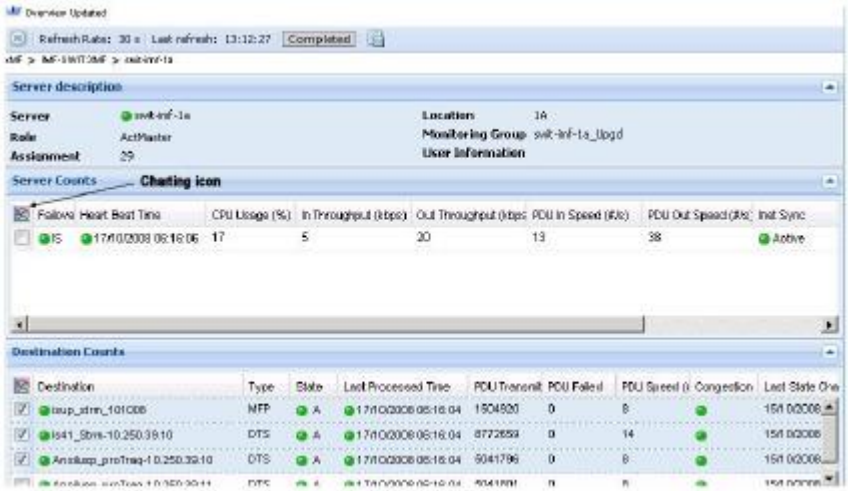


Figure 101 : Selected Destinations from An xMF Server Overview Screen

2. Click on the chart icon (highlighted in figure above). The Counts pop-up screen opens shown below.

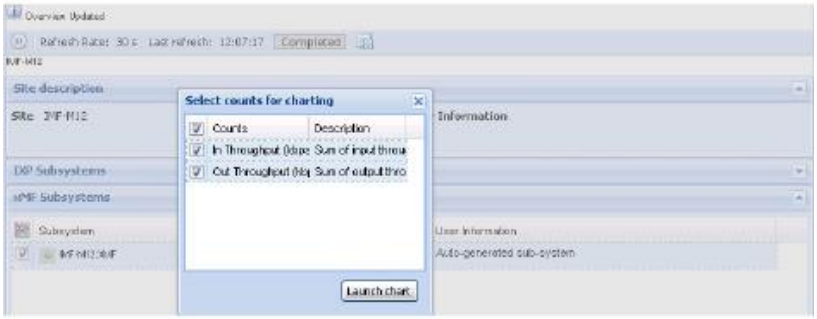


Figure 102 : Counts Selection Screen (From Sites Perspective)

3. Select the **counts** to be charted. (You can select up to four counts.)
Note: To select all of the counts, select the counts column heading.

4. Click **Launch chart.**
The chart opens shown in the figure below.

Figure 103 : Counts Selection Screen

Field/Element	Description
Pause Button	Pauses the monitoring process.
Refresh Rate	Provides the interval when the screen is refreshed.
Time Range	Shown in the x-axis and provides the length of time previous to the current time for and can run for more than the previous 24-hours.
Export to PNG File Button	Enables you to export the chart in PNG file format.
Change Colors to Chart Button	Enables you to choose the colors for each chart line being monitored.
Show line selection	A check box located at the top left corner of the graph enables you to show or not show a graph line.
Thresholds	Provides a visual aid for during the monitoring. The threshold appears as a red line. Threshold = 0 removes the threshold marker.
Set Button	Sets the threshold level which appears in the screen as a red line.
Graph Interface	Values (Y axis) - shows the values (amounts) of counts. Time (X axis) - shows the time range for that chart (using the time zone setting from the preferences operation. See NSP Platform Guide for information on setting time preferences).

To close the chart window, click **x** at the top right-hand corner of the window and then click **OK.**

Setting a Threshold on a Chart

The threshold operation enables you to have a visual aid for the chart process. You can set an x-axis, y-axis or both when setting thresholds levels.

Complete these steps to create a threshold.

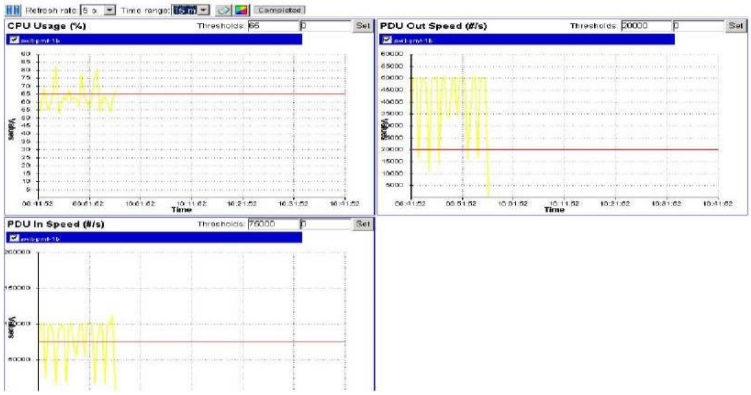
1. Enter an **integer** in either the x-axis and y-axis or both.

   Note: Number maximum length is 10 digits (for example 1000000000). Therefore the range for a threshold is: 0 - 9999999999.

2. Click **Set.**

The thresholds are set. The figure below shows three x-axis thresholds that are set.

Figure 104 : Threshold Set



Changing Colors on Charts

Diagnostic Utility enables you to change the colors on the counters and their graph lines. Complete these steps to change colors on a chart.

1. Open the appropriate **chart.**

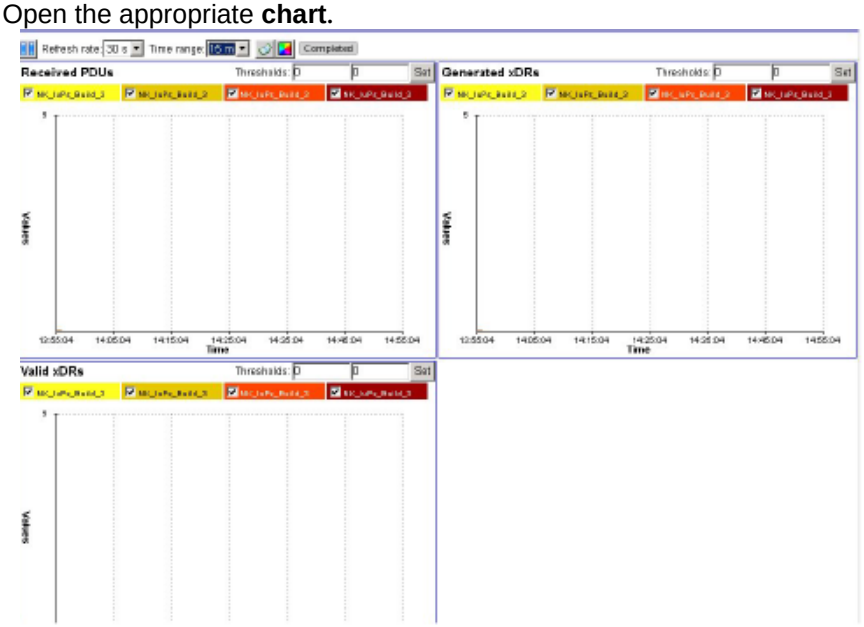


Figure 105 : Selected Counters Chart

2. Click Change colors on the chart on the toolbar.

The *Color Settings* pop-up opens shown in the figure below.

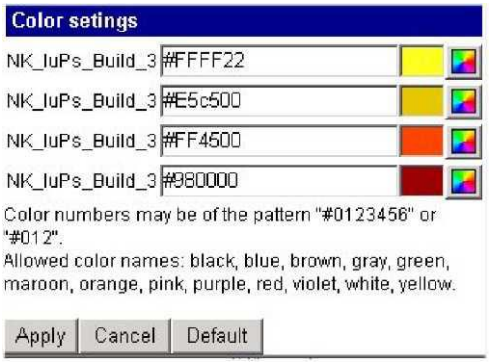


Figure 106 : Color Settings Popup

3. Click on the **palette** of each counter you want to change in the field.

   Note: You can also type in the color code, such as #FFF22, in the field or type in one of the colors shown in the pop-up.

4. Select the **color** for the counter.
5. Click **Apply.**

   The counter header and line is changed shown in the figure below.

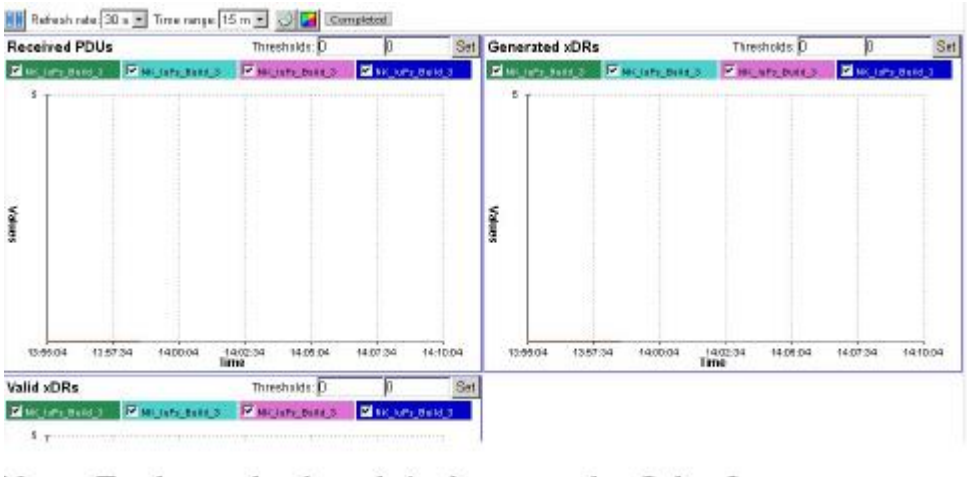


Figure 107 : Color Settings Completed

Note: To change back to defaults, open the Color Settings pop-up and click *Default.* The default colors are restored.

Exporting a Chart as a PNG File

Diagnostic Utility enables you to export the chart as a *png file* that can be viewed in a graphic editor program such as *Microsoft Office Picture Manager.*

Complete these steps to export a chart.

1. Open the **chart** that you want to export.
2. Click **Export as PNG file** on the toolbar.

   The *File Download* dialogue is displayed.

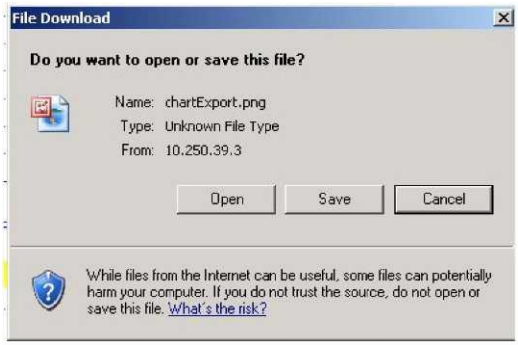


Figure 108 : File Download Dialogue Box

3. You can open, save or cancel the export process. a)

   To open the file, click **Open.**

   The file opens shown below.

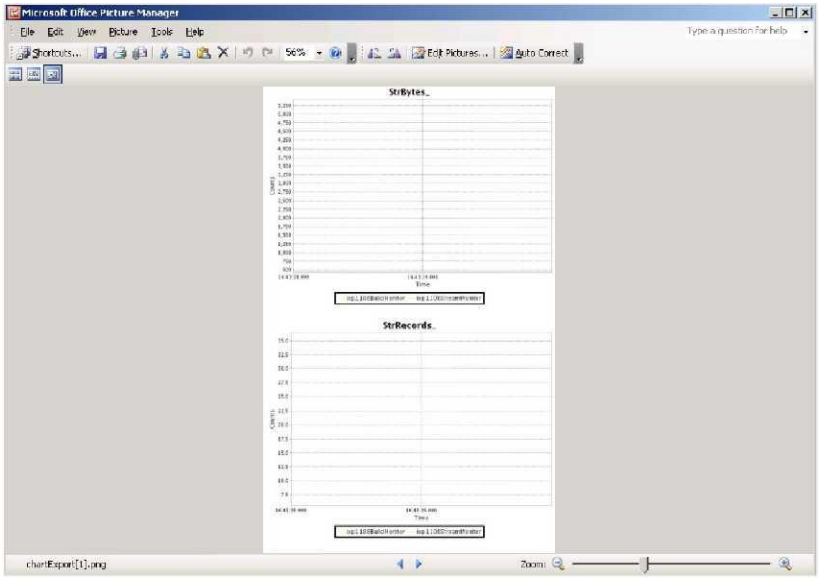


Figure 109 : Open/Save Prompt For Png File Export

b)To save a file, click **Save** and select the directory path to store the file.

Chapter6: Resetting PMIA and Traffic Classification Counters

Topics:

Resetting PMIA Counters

This option supports PMIA means Pattern Matching IP Algorithms (PMIA) configuration for PMF.

For monitoring IP traffic, CCM provides a traffic classification for each xMF (PMF) server. Each PMF server can be run in two modes either normal mode or expert mode.

In normal mode, you define IP Filters using CCM and optionally can apply on traffic classification.

In expert mode, you browse the file which can be interpreted by PMF server. While server running in expert mode, all predefined IP filters will be disabled for this server.

The counters for PMIA can be reset by logging into the PMF server and launching the resetLink command. Complete these steps to reset PMIA counters.

1. Login as cfguser on each PMF server for either standalone or frame setup.

   Note: Use the linkDisp -scommand to display in command line.

2. Enter the cfgPmia resetCounters command.
3. Click **Enter** to launch the command.

Resetting Traffic Classification Counters

PIC provides can filter IP traffic the following protocols.

- TCP
- UDP
- ICMP
- SCTP
- RTP

The counters for Traffic Classifications can be reset by logging into the PMF server and launching the resetLink command. Complete these steps to reset traffic classifications counters.

1. Login as **cfguser** on each PMF server, if it is a standalone setup, or on the Primary Server for a frame setup.

   Note: Use the linkDisp -scommand to display in command line.

2. Enter the resetLink command.
3. Click **Enter** to launch the command.

Glossary

A

A	Ampere
AIS	Alarm Indication Signal Application Interface Specification The Service Availability Forum (SAF) specification that defines the interface between the applications and the high-available middleware.

C

Configuration	Dynamic and shorter-term management tasks. These include modifications to parameters. This term is often used interchangeably with provisioning.
CPU	Central Processing Unit

D

Destination	The node to which the signaling link traffic is routed. This destination is identified by a point code, either a full point code or a cluster point code.

F

FIFO	First In - First Out

I

ID	Identity, identifier
IMF	Integrated Message Feeder The IMF sits on the EAGLE and replicates the signaling data that is processed through the EAGLE to send to an off-board processor (the

I

	IXP in the case of IAS). Because it replicates the data (and doesn't introduce a new element in the path) it does not introduce any delay to the signaling and it does not create a separate footprint for a "probe" system.
IN	Intelligent Network A network design that provides an open platform for developing, providing and managing services.
IP	Internet Protocol IP specifies the format of packets, also called datagrams, and the addressing scheme. The network layer for the TCP/IP protocol suite widely used on Ethernet networks, defined in STD 5, RFC 791. IP is a connectionless, best-effort packet switching protocol. It provides packet routing, fragmentation and re-assembly through the data link layer.
IS	Information Services
ISUP	ISDN User Part
IXP	An Intel network processor used on the HIPR card.

K

Kbps	Kilobits per second
KPI	Key Performance Indicators

L

Link	Signaling Link Signaling Link Carries signaling within a Link Set using a specific Association. A Link can belong to only one Link Set and one Association. There is generally one Link per Association in a Link Set.

M

MB	Megabyte — A unit of computer information storage capacity equal to 1,048, 576 bytes.
min	minimum
MSU	Message Signal Unit The SS7 message that is sent between signaling points in the SS7 network with the necessary information to get the message to its destination and allow the signaling points in the network to set up either a voice or data connection between themselves. The message contains the following information: • The forward and backward sequence numbers assigned to the message which indicate the position of the message in the traffic stream in relation to the other messages. • The length indicator which indicates the number of bytes the message contains. • The type of message and the priority of the message in the signaling information octet of the message. • The routing information for the message, shown in the routing label of the message, with the identification of the node that

M

sent message (originating point code), the identification of the node receiving the message (destination point code), and the signaling link selector which the EAGLE 5 ISS uses to pick which link set and signaling link to use to route the message.

N

NO — Network OAM&P

A server that manages a collection of SOs and their corresponding MPs. NO servers are deployed in active/standby pairs.

NSP — Network Services Part

The lower layers of the SS7 protocol, comprised of the three levels of the Message Transfer Part (MTP) plus the signaling Connection Control Part (SCCP), are known collectively as the Network Services Part (NSP).

O

OS — Operations Systems

P

Packet — An independent unit of data (usually up to 1518 octets). Every packet includes delivery information in an area of the packet called the header. In IP networks, this refers to SCTP packets, the unit of data delivery across the interface between SCTP and the connectionless packet network (e.g., IP). An SCTP packet includes the common SCTP header, possible SCTP control chunks, and user data encapsulated within SCTP DATA chunks.

P

PDU	Protocol Data Unit
PIC	Point in Call Programmable Interrupt Controller

R

RAM	Random Access Memory A type of computer memory that can be accessed randomly; that is, any byte of memory can be accessed without touching the preceding bytes.
RX	Receiv

S

Service	Any EAGLE behavior that utilizes NPP.
	Service Information Octet. The network indicator code (NIC), priority (PRI), and service indicator (SI) in the SIO field in the message signaling unit (MSU). This information identifies the type of MSU (ISUP, TCAP, and so forth) that is allowed in the network where the EAGLE 5 ISS is located.
SS7	Signaling System #7
Stream	In SCTP, refers to a sequence of user messages that are to be delivered to the upper-layer protocol in order with respect to other messages within the same stream. This is in contrast to its usage in TCP, where it refers to a sequence of bytes (in this document

S

	a byte is assumed to be eight bits). The stream is a unidirectional logical channel established from one SCTP endpoint to another associated SCTP endpoint. Note: The relationship between stream numbers in opposite directions is strictly a matter of how the applications use them. It is the responsibility of the SCTP user to create and manage these correlations.

T

TX	Transmit

U

UMTS	Universal Mobile Telecommunications System The standard for 3G used by GSM service providers. UMTS includes voice and audio services, for fast data, graphic and text transmissions, along with transmission of moving images and video.