



HiCommand™ Tuning Manager Reference Guide for GUI

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Document Revision Level

Revision	Date	Description
	July 2, 2002	Initial Release
	July 12, 2002	Revision 1, supersedes and replaces July 2, 2002

Referenced Documents

- HiCommand™ Tuning Manager Installation and Administration Guide for GUI
- Hitachi Lightning 9900T User and Reference Guide, MK-90RD008
- Hitachi Lightning 9900T Remote Console User's Guide, MK-90RD003
- Hitachi Lightning 9900T LUN Manager, LUSE, SANTinel User's Guide, MK-91RD049
- Hitachi Thunder 9200T User and Reference Guide, MK-90DF504
- Hitachi Thunder 9200T Resource Manager 9200 User's Guide, MK-90DF505
- Hitachi Thunder 9200T LUN Security 9200 User's Guide, MK-91DF554

Preface

This document describes how to operate client software for Hitachi HiCommand Tuning Manager, v 1.0.

For information on administering server-based HiCommand™ Tuning Manager software, see the HiCommand™ Tuning Manager Installation and Administration Guide for GUI.

Note: HiCommand™ Tuning Manager requires the installation of certain third-party applications, software components and operating system software. Since this manual does not detail such procedures, users must rely upon the instructions supplied by the vendors of those products.

This document is intended for:

- System Administrators
- Storage Administrators
- Application Developers
- Systems Integrators
- Technology Consultants
- System architects and capacity planners who rely on HiCommand™ Tuning Manager reports and forecasts

Professional Knowledge: The tools provided by HiCommand™ Tuning Manager require, and this document presupposes, that users possess professional knowledge of storage management technology and of the tasks for which they are using this software. Therefore, the manual does not discuss storage strategy in detail.

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1 - Introduction

HiCommand™ Tuning Manager is a console tool to provide analyses of an organization's data storage resources and database applications. HiCommand™ Tuning Manager helps the storage administrator to provide optimal utilization of resources by providing alerts and forecasts.

1.1 Hardware

1.1.1 Monitored Resources

HiCommand™ Tuning Manager provides the means to monitor shared storage resources whose major components may include:

- Microsoft Windows 2000 Servers
- Sun Solaris server hosts
- HP HP-UX server hosts
- IBM AIX server hosts
- One or more RAID storage arrays

1.1.2 Server Platforms

These are the supported host environments for installing and running HiCommand™ Tuning Manager:

- Sun Solaris 2.6 - 2.8
- Windows 2000

1.2 The Storage Perspective (The Whole Network)

HiCommand™ Tuning Manager provides server analysis at these levels (descending from the summary level to the most detailed):

- Whole network of storage servers
- Subnetworks of storage servers
- Storage servers (hosts)
- Filesystems

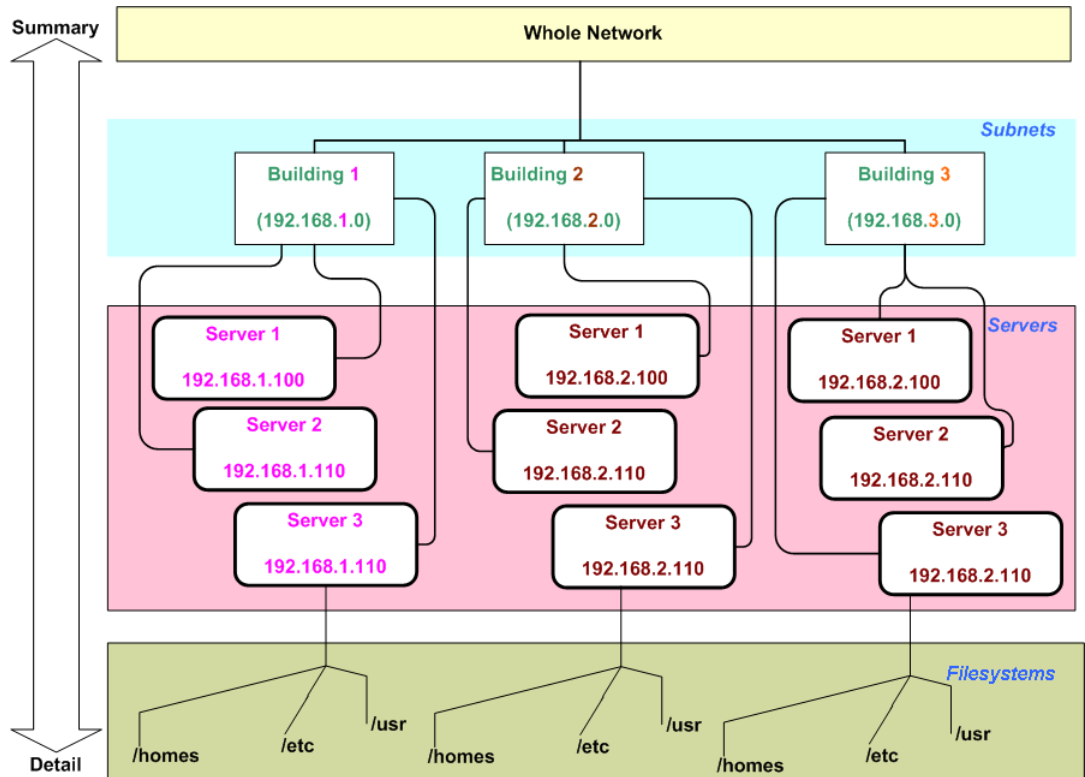


Figure 1.1 Diagram: network resource levels

1.3 The Applications Perspective (Oracle)

HiCommand™ Tuning Manager provides analyses to bridge the perspectives of the database administrator, system administrator and storage administrator. Its dependency-walking capabilities allow you to navigate among storage subsystems and the network that hosts them, as well as Oracle logical and physical objects. Drawing on these capabilities, you can prevent performance problems or determine their sources. For example, an I/O problem could potentially be a result of the application, the server, or the storage subsystems.

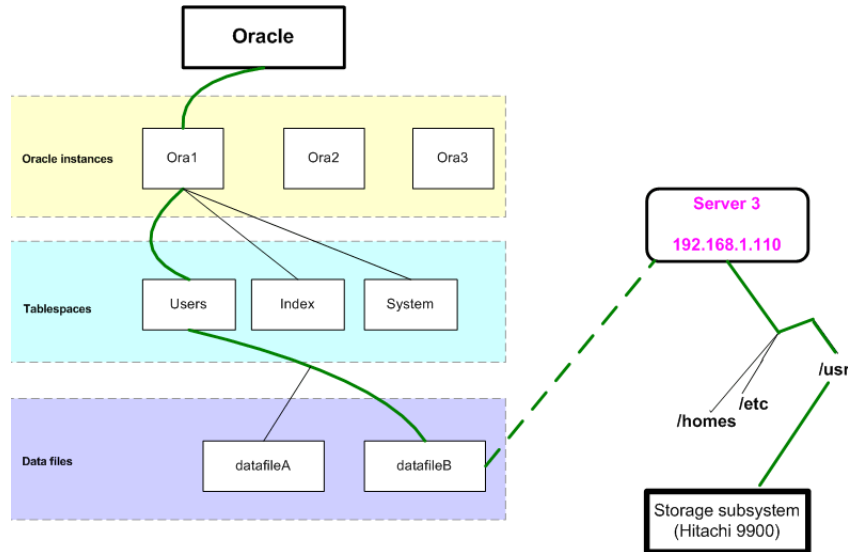


Figure 1.2 Diagram: application resource levels

1.4 Software

HiCommand™ Tuning Manager provides access to all functionality through these methods:

- Graphical User Interface (GUI)- web browser-based clients on machines connected to the SAN via TCP/IP. For more details, see [Touring The Graphical User Interface \(GUI\)](#) on page 7.
- Command Line Interface- command line programs suited for operation via a telnet connection over TCP/IP or for scripted operation. For more details, see [Command Line Interface \(CLI\)](#) on page 223.

1.4.1 Required Client Software

The HiCommand™ Tuning Manager GUI uses common web browsers for presentation. HiCommand™ Tuning Manager supports the following browsers:

Table 1.1 Required client software (web browsers)

Browser	Provider	Version	Comment
Internet Explorer	Microsoft	5.x and higher	http://www.microsoft.com/ie/
Netscape Navigator	Netscape	4.76 and higher	http://www.netscape.com/download/

1.5 Installation

1.5.1 Server Side

This book assumes that HiCommand™ Tuning Manager has been completely installed and configured at the server according to the instructions supplied in the HiCommand™ Tuning Manager Installation and Administration Guide for GUI.

1.5.2 Client Side

The HiCommand™ Tuning Manager client is a web browser requiring no plug-ins. No additional software is required on client machines.

2 - Touring The Graphical User Interface (GUI)

The HiCommand™ Tuning Manager user interface provides a consistent way of making selections and accessing information from screen to screen.

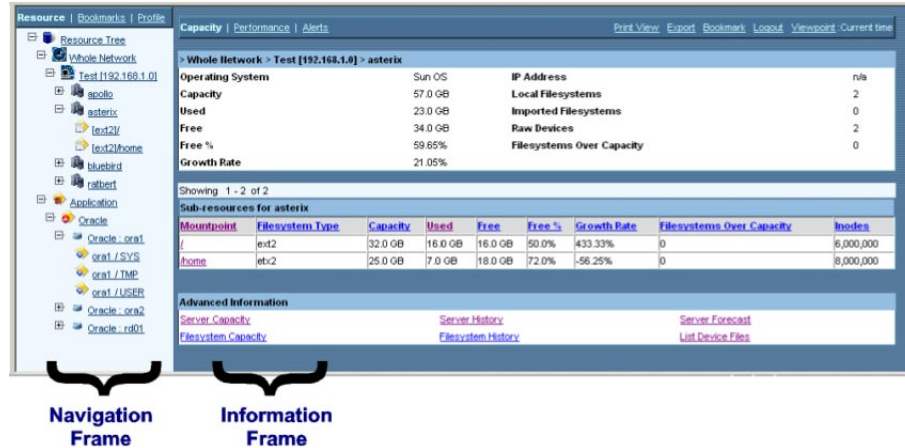


Figure 2.1 Frames in the HiCommand™ Tuning Manager user interface

Each screen features two vertical frames:

- **Navigation Frame** (page 8)
The place to select access levels and to select which resources for HiCommand™ Tuning Manager to analyze.
- **Information Frame** (page 13)
Displays relevant information in response to your navigation selections.

This section describes how the HiCommand™ Tuning Manager visual interface is organized. For details on how to operate the software, see [Using The Graphical User Interface \(GUI\)](#) on page 21.

2.1 Navigation Frame

The navigation frame displays these hyperlinks:



Figure 2.2 Hyperlinks in the navigation frame

- Click on **Resource** to display the [Resource Tree](#) (page 8)- a hierarchical display of storage resources and applications monitored by HiCommand™ Tuning Manager.
- Click on **Bookmarks** to display the [Bookmark Section](#) (page 12)- links to HiCommand™ Tuning Manager pages you have previously saved for frequent access
- Click on **Profile** to display the [Profile Section](#) (page 12)- define your account information and set a threshold for [Filesystems Over Capacity](#).

2.1.1 Resource Tree

The Resource Tree is a hierarchical display with successive levels of detail about your network of servers, its subnetworks, hosts and applications. As you click at each level in the tree, metrics and charts about the resource and its sub-resources are displayed in the [Information Frame](#) (page 13).



Figure 2.3 The Resource Tree in the Navigation Frame

At the highest level of the Resource Tree, HiCommand™ Tuning Manager only displays the Resource Tree legend:



Figure 2.4 Root of the Resource Tree

When you open the tree to display the top level resources, the Resource Tree displays these levels:



Figure 2.5 Resource Tree displaying top level resource categories

- Whole Network – A grouping of storage server hosts displayed in a tree structure. The tree can include subnetworks, servers (hosts) and filesystems. When you first see the Resource Section, HiCommand™ Tuning Manager displays a link for the Resource Tree. This represents the summary level for your whole network. As you drill down by clicking on hypertext links, HiCommand™ Tuning Manager presents lower levels of detail. (For a conceptual illustration, see [Diagram: network resource levels](#) on page 2.)

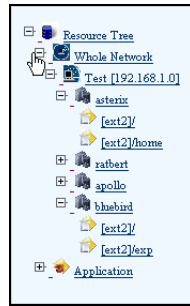


Figure 2.6 Network resource levels in the Resource Tree

- Applications – A hierarchical grouping of Oracle instances and tablespaces monitored by HiCommand™ Tuning Manager. (For a conceptual illustration, see [Diagram: application resource levels](#) on page 5.)

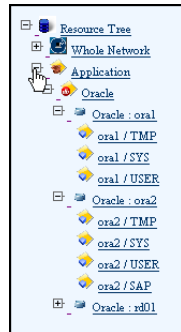


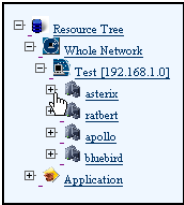
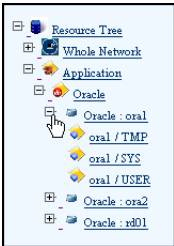
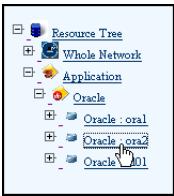
Figure 2.7 Application resource levels in the Resource Tree

Note: The Resource Tree depicts the **current state** of your network and applications. For the reporting purposes, HiCommand™ Tuning Manager retains historical data. You can be sure that reports will accurately display historical parent/child relationships. But the Resource Tree **cannot be altered** to reflect earlier arrangements of storage servers, resources and applications on the network.

2.1.2 Moving Through The Resource Tree

These are the actions you can perform in the Resource Tree:

Table 2.1 Mouse actions for navigating the Resource Tree

Action	Mouse action
Expand Level	<p>Click on the + icon at the level you want to expand.</p> 
Compress Level	<p>Click on the - icon at the level you want to compress.</p> 
Display data for a resource level in the Information Frame (page 13)	<p>Click on the hyperlink for the level you want to view.</p> 

2.1.3 Bookmark Section

Save quick access links to HiCommand™ Tuning Manager pages you frequently use for convenient access.



Figure 2.8 Bookmarks listing

2.1.4 Profile Section

Specify personal data such as your account information (identity, password and email). For reporting purposes you can also specify a threshold for monitoring filesystems over capacity.



Figure 2.9 Profile section

To edit your profile, see [Profile](#) (page 21).

2.2 Information Frame

The Information Frame is where HiCommand™ Tuning Manager presents analysis of your resources and applications.

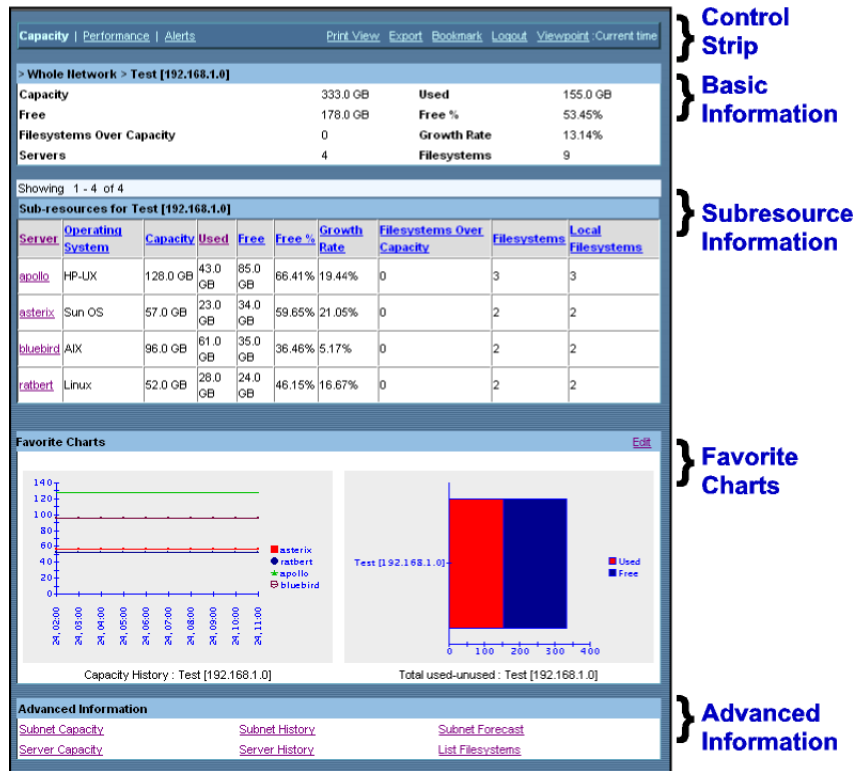


Figure 2.10 Sections of the Information Frame

- The resource being displayed in the Information Frame depend upon your choice within the [Navigation Frame](#).
- The kind of analysis and/or output depends upon your choice within the [Control Strip](#).

2.2.1 Control Strip

Along the top of the information frame is a control strip with hyperlinks to program choices and output options.

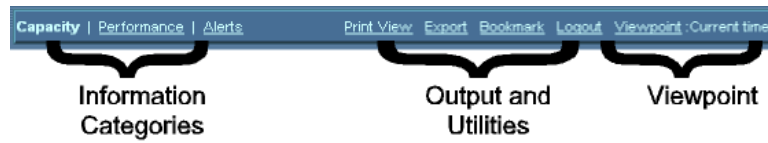


Figure 2.11 The Control Strip of the Information Frame

The control strip is composed of these areas:

- Information categories- Capacity, Performance and Alerts
- Outputs and Utilities- [Print View](#), [Export](#), [Bookmark](#) and [Logout](#)
- [Viewpoint](#) (page 17)- Determines data used in reports by setting the time frame and data interval.

2.2.2 Information Categories

Click on the appropriate hyperlink to select the type of information you wish to see about the resource you selected in the [Resource Tree](#) (page 8):

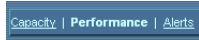


Figure 2.12 Information category hyperlinks

- **Capacity**- Capacity reports provide information on available storage and usage patterns, Oracle storage use and demands on storage (historical and forecast). These are the capacity summaries for all resource levels:
 - [Capacity \(Whole Network\)](#) (page 101)
 - [Capacity \(Subnetworks\)](#) (page 119)
 - [Capacity \(Servers\)](#) (page 135)
 - [Capacity \(Filesystem\)](#) (page 153)
 - [Capacity \(Application\)](#) (page 171)
 - [Capacity \(Oracle Instance\)](#) (page 193)
 - [Capacity \(Tablespace\)](#) (page 211)
- **Performance**- Performance reports provide information on input/output and transfer activity. These are performance summaries for all resource levels:
 - [Performance \(Whole Network\)](#) (page 110)
 - [Performance \(Subnetworks\)](#) (page 127)
 - [Performance \(Servers\)](#) (page 143)
 - [Performance \(Filesystem\)](#) (page 159)
 - [Performance \(Application\)](#) (page 171)
 - [Performance \(Oracle Instance\)](#) (page 202)
 - [Performance \(Tablespace\)](#) (page 215)
- **Alerts**- Warnings and critical conditions you set using a variety of criteria. (See [Alerts](#) on page 35.)

2.3 Outputs And Utilities

Clustered in this section of the user interface are hyperlinks for outputting data.



Figure 2.13 Outputs and utilities hyperlinks

2.3.1 Print View

You can print the Basic Information and Sub-resource sections currently displayed in your web browser.

> Whole Network			
Capacity	333.0 GB	Used	155.0 GB
Free	178.0 GB	Free %	53.45%
Filesystems Over Capacity	0	Growth Rate	13.14%
Servers	4	Filesystems	9

Showing 1 - 1 of 1

Sub-resources for Whole Network								
Subnet	Capacity	Used	Free	Free %	Servers	Filesystems	Filesystems Over Capacity	Growth Rate
Test [192.168.1.0]	333.0 GB	155.0 GB	178.0 GB	53.45%	4	9	0	13.14%

Figure 2.14 Print View: printing the Basic Information section for a resource

- For instructions, see [Print View](#) on page 16.

2.3.2 Export

Output metrics to an comma-delimited ASCII file.

- For instructions, see [Export](#) on page 25.

2.3.3 Bookmark

Save pages from HiCommand™ Tuning Manager for future use.

- For instructions, see [Bookmark](#) on page 26.

2.3.4 Logout

For instructions, see [Logout](#) on page 33.

2.3.5 Viewpoint

HiCommand™ Tuning Manager reports analyze the state of resources and applications for a moment in time. Think of this as a “snapshot.” The Viewpoint determines which data points HiCommand™ Tuning Manager uses to take the snapshot. You can change the Viewpoint at any time to obtain alternate snapshots.

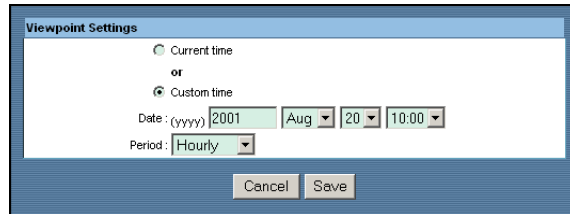


Figure 2.15 The Viewpoint dialog

When you change Viewpoint parameters, HiCommand™ Tuning Manager filters its stored metrics for the specified time frame and [Collection Interval](#). The appropriate data points are displayed in Basic Information, in tables and charts in Advanced Information reports, Sub-resources and Favorite Charts.

Each HiCommand™ Tuning Manager analysis is the result of these choices:

- Resource or Application level selected in the [Resource Tree](#) of the [Navigation Frame](#).
- Choice of [Capacity](#) or [Performance](#)
- Viewpoint
 - Time
 - Collection interval

For instructions, see [Setting The Viewpoint](#) on page 24.

2.4 About Basic Information

The Basic Information section displays common metrics consolidated for the resource level you have currently selected in the [Resource Tree](#).

The displayed metrics are dependent on [Viewpoint](#) settings.

You may output the metrics found in the Basic Information section. For more details, see:

- [Exporting Basic Information](#) (page 25)
- [Print View](#) (page 26)

2.5 About Sub-resources

At every level of the [Resource Tree](#), HiCommand™ Tuning Manager provides you with detail about the resources underlying the current summary level. For example, if you are reviewing the subnetwork level, HiCommand™ Tuning Manager presents a Sub-resource section with critical metrics about the servers on that subnetwork.

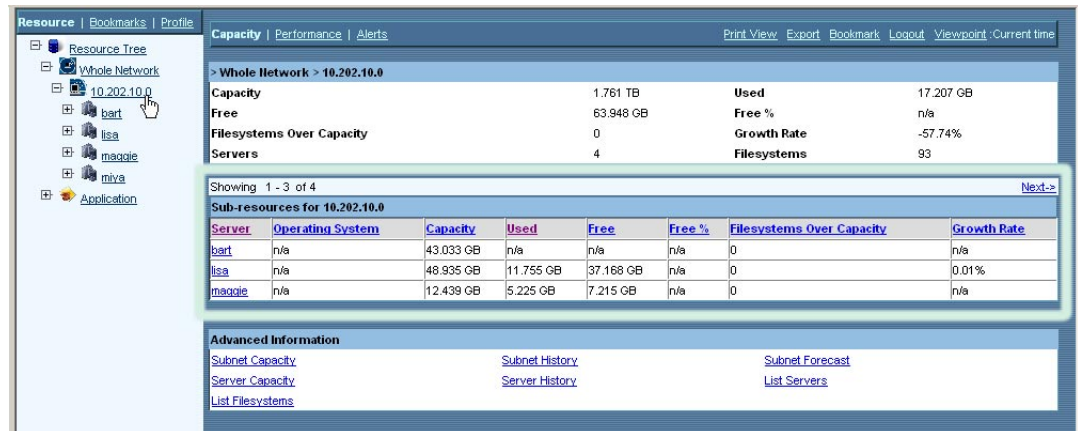


Figure 2.16 Sub-resources in the Resource Tree

2.5.1 Scrolling Through Sub-resources

- HiCommand™ Tuning Manager limits the number of sub-resource rows. When you are viewing a subset, **Next** and/or **Previous** hyperlinks appear above the Sub-resource list.

Showing 1 - 3 of 4 [Next >](#)

Server	Operating System	Capacity	Used	Free	Free %	Filesystems Over Capacity	Growth Rate
bart	n/a	43,033 GB	n/a	n/a	n/a	0	n/a
lisa	n/a	48,935 GB	11,755 GB	37,168 GB	n/a	0	0.01%
maggie	n/a	12,439 GB	5,225 GB	7,215 GB	n/a	0	n/a

Figure 2.17 Navigating through resource lists with Next and Previous hyperlinks

- You can scroll through the full list of sub-resources by clicking on the **Next** and **Previous** hyperlinks.

2.5.2 Sorting Sub-resource Information

- You can sort on any column by clicking on its column header.
- Click a second time to toggle the sort order from ascending to descending.

Showing 1 - 3 of 3 <-previous next->

Instance	Version	Host	Capacity	Used	Free	Free %	Growth rate	Tablespaces	Data Files
ora1	6.0	server	21.0 GB	11.0 GB	10.0 GB	47.62%	37.5%	2	3
ora1	7.3	server	29.0 GB	16.0 GB	13.0 GB	44.83%	166.67%	3	4
ora2	9i	server	57.0 GB	37.0 GB	20.0 GB	35.09%	208.33%	4	6

Figure 2.18 Sorting sub-resource table

2.6 About Favorite Charts

HiCommand™ Tuning Manager provides this area in the [Information Frame](#) for graphical charts you wish to monitor regularly. You add graphic charts to this section of each page by saving Advanced Information reports.

- For detailed information, see [About Favorite Charts](#) on page 76.

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report. Instructions for doing this appear in [Adding Favorite Charts](#) (page 77).

3 - Using The Graphical User Interface (GUI)

3.1 Logging In

1. Launch HiCommand™ Tuning Manager using the URL supplied by the administrator for your site.

The HiCommand™ Tuning Manager Login page appears.

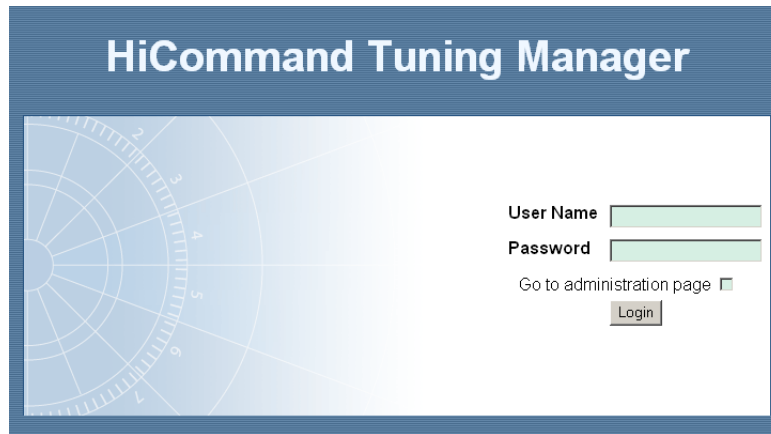


Figure 3.1 The login dialog

2. Type your HiCommand™ Tuning Manager **User Name**.
3. Type your password.
4. Click on **Login**.

Note: Viewpoint settings default to the **current time** and **hourly interval** when you log in. If you want to analyze other time periods, be sure to set the Viewpoint. See [Setting The Viewpoint](#) on page 24.

3.2 Profile

Your profile consists of:

- Your account identity (name, password, email address)
- Your chosen threshold for [Filesystems Over Capacity](#) (page 239)

3.2.1 Editing Your Account Information

1. Click on Profile in the [Navigation Frame](#).

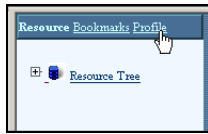


Figure 3.2 The Profile hyperlink for editing account information

2. Click on Account Info.



Figure 3.3 Profile: editing your account information

HiCommand™ Tuning Manager displays the Account Information form.

A screenshot of the 'User Profile' form. The form has a blue header bar with the text 'User Profile'. Below the header, there are several input fields for user information. The fields are: 'User Name' (with the value 'orion'), 'Password' (with a masked value '*****'), 'Confirm password' (with a masked value '*****'), 'Group' (with the value 'user'), 'First name' (with the value 'Terry'), 'Last name' (with the value 'Userperson'), and 'Email' (with the value 'terry@yourco.com'). At the bottom of the form, there are two buttons: 'Reset' and 'Save'.

Figure 3.4 Profile: editing your account information

3. Type in your password.
4. Type in your password again to confirm.
5. Type in your first name.
6. Type in your last name.
7. Type in your email address.
8. Click on **Save** to store your changed profile (or click on **Reset** to abandon changes).

3.2.2 Thresholds

1. Click on **Profile** in the [Navigation Frame](#).

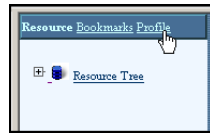


Figure 3.5 The Profile hyperlink for setting thresholds

2. Click on **Thresholds**.



Figure 3.6 Setting the threshold for filesystems over capacity

3. Type in a percentage of filesystem use that you want to indicate as the point when a filesystem is considered over capacity.

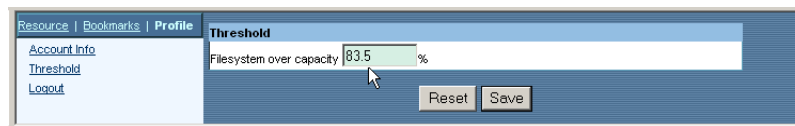


Figure 3.7 Specifying the percentage for filesystems over capacity

3.3 Setting The Viewpoint

Use Viewpoint to specify a time frame and time period for Metrics reporting on the resource you selected. (For an overview explaining the role of the Viewpoint, see [Viewpoint](#) on page 17.)

To set the Viewpoint:

1. Click on **Viewpoint** in the [Control Strip](#).

The Viewpoint window appears.

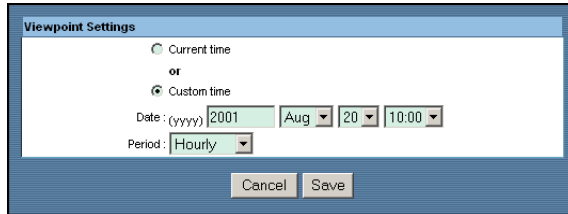


Figure 3.8 Setting the Viewpoint

2. Select the snapshot time:
 - Click on **Current time** (default)
or
 - Specify month, day, year, time
(use 24:00 to include all possible data points for the specified date)
3. Specify the period interval.
4. Click on **Save**.
A confirmation window appears.
5. Click on **OK**.

The new Viewpoint is displayed in the Control Strip.

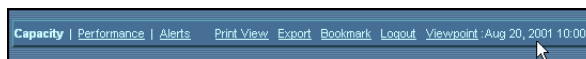


Figure 3.9 The Viewpoint displayed in the Control Strip

HiCommand™ Tuning Manager performs a new database filtering operation and refreshes the display for your selected resource to conform with your newly specified Viewpoint.

Note: Viewpoint settings will revert to **current time** and **hourly interval** at the beginning of every session. (A session begins after each new login and ends when you logout.) If you want to analyze other time periods, be sure to set the Viewpoint again after you login.

3.3.1 Changing Viewpoints And Moving Resources

To provide accurate snapshots, HiCommand™ Tuning Manager keeps historical data intact. This becomes evident if you should move a storage-related host on a given day and then request a [Viewpoint](#) in an earlier time.

Example:

1. You move Server 1 from Subnetwork A to Subnetwork C on May 1, 2002.
2. On June 10, 2001 you load HiCommand™ Tuning Manager and specify the Viewpoint as April 15, 2001.
 - HiCommand™ Tuning Manager will include Server 1 as one of the servers on Subnetwork A.
 - If you change the Viewpoint to May 15, 2001, HiCommand™ Tuning Manager shows Server 1 as a part of Subnetwork C.

Note: Viewpoint settings will revert to **current time** and **hourly interval** at the beginning of every session. (A session begins after each new login and ends when you logout.) If you want to analyze other time periods, be sure to set the Viewpoint again after you login.

3.4 Export

HiCommand™ Tuning Manager exports the currently displayed data table to a CSV format file. This ASCII file format is available for importing into most spreadsheets and database applications. (Some applications accept CSV files as a native file format.)

For details on CSV format, see [Export File Format](#) on page 98.

3.4.1 Exporting Basic Information

1. Click on **Export** in the [Control Strip](#).



Figure 3.10 The Export hyperlink in the Control Strip

Your browser displays a file save dialog.

2. Save the CSV file to a convenient location.

3.4.2 Exporting Advanced Information

For instructions, see [Exporting Advanced Information](#) on page 25.

3.5 Printing

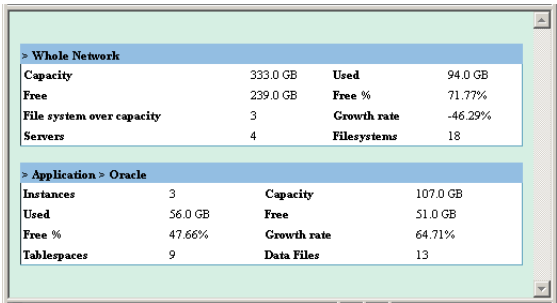
3.5.1 Print View

To print a view of the Basic Information section:

1. Click on **Print View** in the [Control Strip](#).



Figure 3.11 The Print View hyperlink in the Control Strip
A printer-friendly version of Basic Information appears in its own window.



The screenshot shows a window titled '> Whole Network' and '> Application > Oracle'. It contains two tables of statistics.

> Whole Network			
Capacity	333.0 GB	Used	94.0 GB
Free	239.0 GB	Free %	71.77%
File system over capacity	3	Growth rate	-46.29%
Servers	4	Filesystems	18

> Application > Oracle			
Instances	3	Capacity	107.0 GB
Used	56.0 GB	Free	51.0 GB
Free %	47.66%	Growth rate	64.71%
Tablespaces	9	Data Files	13

Figure 3.12 The Print View output
2. Use your browser's menu system to print out the content.



Figure 3.13 The browser menu Print option

3.5.2 Printing Advanced Information

For instructions, see [Printing Advanced Information Reports](#) on page 81.

3.6 Bookmark

Use the Bookmark feature to save frequently used or important pages as links for future access. HiCommand™ Tuning Manager saves them in its own bookmark list.

3.6.1 Adding A Bookmark

To add a new bookmark:

1. Click on **Bookmark** in the [Control Strip](#) (in the [Information Frame](#)).
The Bookmark window appears.

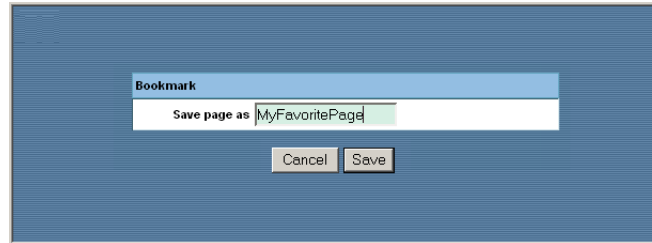


Figure 3.14 The Bookmark window

2. Type a phrase of up to 200 characters to uniquely describe this page in the **Save page as** field.
3. Click on **Save** to add this bookmark to the list.
The Confirm window indicates success.
4. Click on **Close** to close the confirmation window.

3.6.2 Editing A Bookmark

To change the description for a bookmark you previously saved:

1. Click on **Bookmarks** in the [Navigation Frame](#).

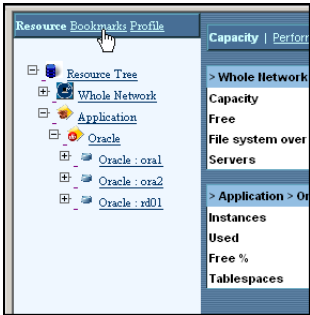


Figure 3.15 The Bookmarks hyperlink in the Navigation Frame

The Bookmark tree appears in the Navigation Frame with a top level **Bookmarks** hyperlink.



Figure 3.16 The root of the Bookmark tree in the Navigation Frame

2. Click on the **Bookmarks** hyperlink.

The Bookmark list appears in the [Information Frame](#).

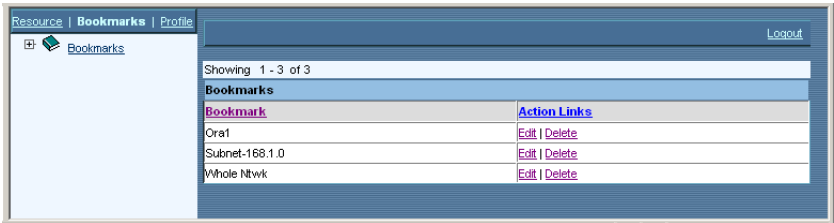


Figure 3.17 The Bookmark list

3. Click on **Edit**.

A Bookmark window appears with the previous bookmark description.

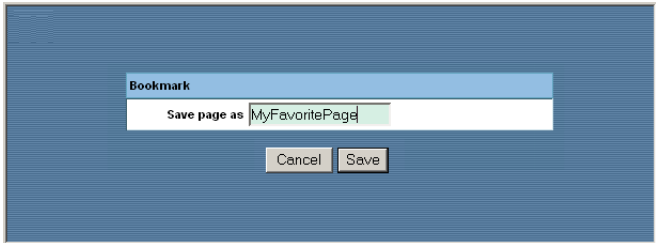


Figure 3.18 The Bookmark window for editing bookmark descriptions

4. Type a replacement phrase of up to 200 characters to uniquely describe this page in the **Save page as** field.
5. Click on **Save** to add this bookmark to the list (or Click **Cancel** to abandon this bookmark).
6. Click on **Close** to close the confirmation window.

3.6.3 Deleting A Bookmark

To delete a bookmark you previously saved:

1. Click on **Bookmarks** in the [Navigation Frame](#).

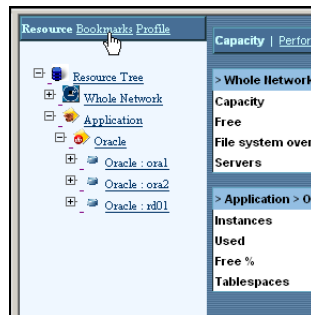


Figure 3.19 The Bookmarks hyperlink to delete bookmarks

The Bookmark tree appears in the Navigation Frame with a top level **Bookmarks** hyperlink.



Figure 3.20 The root of the Bookmark tree

2. Click on the **Bookmarks** hyperlink

The Bookmark list appears in the [Information Frame](#).

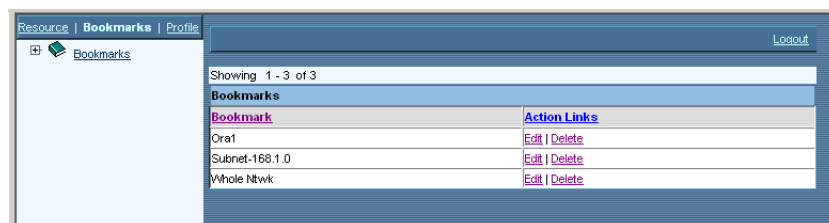


Figure 3.21 The Bookmark list

3. Click on **Delete**.

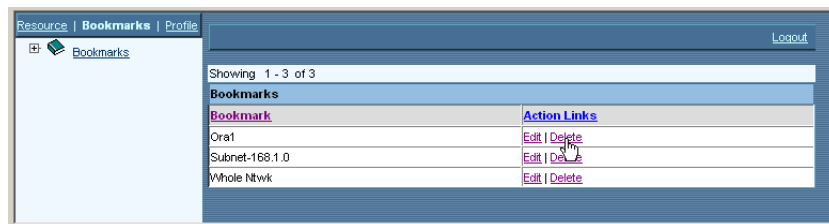


Figure 3.22 Deleting a bookmark

Figure 3.23 An alert dialog appears requesting your confirmation. The confirmation dialog for deleting a bookmark

4. Click on **OK** to confirm deletion (or click on **Cancel** to abandon changes).
If you clicked OK, the Bookmarks List no longer displays the deleted bookmark.

3.6.4 Accessing A Bookmark

To access a bookmarked information page:

1. Click on Bookmarks.



Figure 3.24 The Bookmarks hyperlink

The Bookmark tree is displayed in the [Navigation Frame](#) and the Bookmark List appears in the [Information Frame](#).

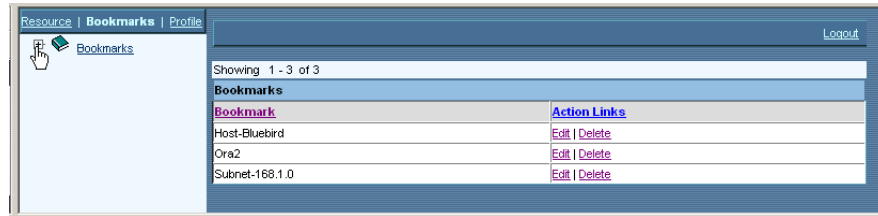


Figure 3.25 The Bookmark list

2. Click on the + icon to open the Bookmark tree.

The Bookmark List is displayed in the [Navigation Frame](#).

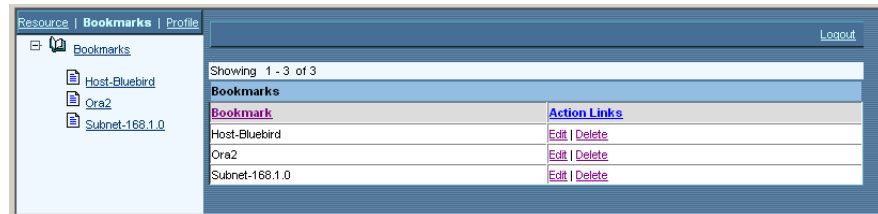


Figure 3.26 Opening the Bookmark tree

3. Click on a bookmark in the list to view its related page.

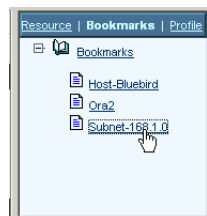


Figure 3.27 Clicking on a bookmark in the Bookmark tree

3.7 Logout

1. Click on the Logout hypertext link in the Information Frame control strip.



Figure 3.28 The Logout hyperlink

3.8 Capacity

We provide a chapter specifically on Capacity reports and Performance reports. See [About Charts, Reports And Metrics](#) on page 71.

3.9 Performance

We provide a chapter specifically on Capacity reports and Performance reports. See [About Charts, Reports And Metrics](#) on page 71.

4 - Alerts

Alerts provide a way to monitor events that move beyond various capacity and performance thresholds you set. When metrics collected by HiCommand™ Tuning Manager reach the threshold you have set, an alert is triggered.

Note: Older alerts are deleted in the HiCommand™ Tuning Manager database when they fall outside your administrator's retention settings.

4.1 Viewing Alerts

- Click on **Alerts** in the [Control Strip](#) (page 14).



Figure 4.1 The Alerts hyperlink in the Control Strip

- Click on **View**.



Figure 4.2 The View hyperlink for displaying alerts
The View Alerts List is displayed.

Capacity | Performance | Alerts

Print View | Export | Bookmark | Logout | Viewpoint: Current time

View | Edit | Action | Bind | Reset

Showing 1 - 6 of 6

Current Alerts : Resource Tree

Date	Resource	Data Category	Threshold	Status	Message
Apr 17, 2002 09:00	Whole Network > Test [192.168.1.0] > asterix > [exd2]l	Filesystem	Capacity >= 20.0 GB	CRITICAL	Capacity = 40.96 MB
Apr 28, 2002 15:00	Application > Oracle > Oracle : ora1 > ora1 / TMP	Tablespace	Capacity >= 20.0 GB	CRITICAL	Capacity = 300.0 GB
May 02, 2002 03:00	Whole Network > Test [192.168.1.0] > asterix	Server	Capacity >= 20.0 GB	CRITICAL	Capacity = 40.0 GB
May 03, 2002 03:00	Application > Oracle > Oracle : ora1 > ora1 / TMP > tmp01.dat	Data File	Capacity >= 20.0 GB	CRITICAL	Capacity = 60.0 GB
May 07, 2002 01:00	Whole Network > Test [192.168.1.0] > ratbert > /dev/sda1	Device File	Capacity >= 20.0 GB	WARNING	Capacity = 600.0 GB
May 11, 2002 22:00	Whole Network > Test [192.168.1.0] > asterix	Server	Capacity >= 20.0 GB	CRITICAL	Capacity = 42.0 GB

Show Alert History

Figure 4.3 The View Alerts list

The View Alert list displays this information:.

Table 4.1 List of view alert data

Column	Description
Date	The date and time for the occurrence of the alert condition
Resource	The resource associated with the alert
Data Category	The resource type responsible for generating the alert: <ul style="list-style-type: none"> - Servers - Filesystems - Device File - Oracle Instances - Tablespaces - Data Files
Threshold	The threshold condition for which the alert was triggered, according to the value in the Status field. <ul style="list-style-type: none"> - If the status is Critical, the critical threshold statement is shown. - If the status is Warning, the warning threshold statement is shown. - If the status is OK, the lowest threshold statement is shown. By default, the Warning statement is shown. If Warning is not set, the Critical statement is shown.
Status	The status of the resource at the alert time <ul style="list-style-type: none"> - red: critical - yellow: warning - green: OK
Message	The value of the metric that triggered the alert in the format metric = value

4.2 Sorting The View Alerts List

To sort the Alerts List: click on the column heading for the column you want to sort on.

4.3 Displaying Alert History

HiCommand™ Tuning Manager retains past alerts for a time period specified by the administrator.

To display the list of the past alert notifications:

1. Click on **Show Alert History**.

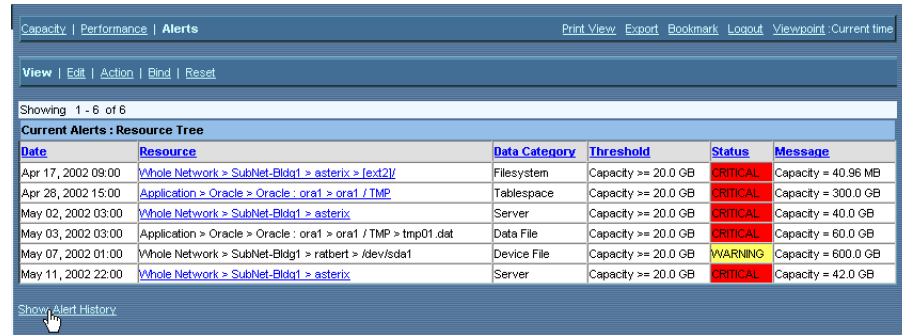


Figure 4.4 The Show Alert History hyperlink
The Alert History window appears.

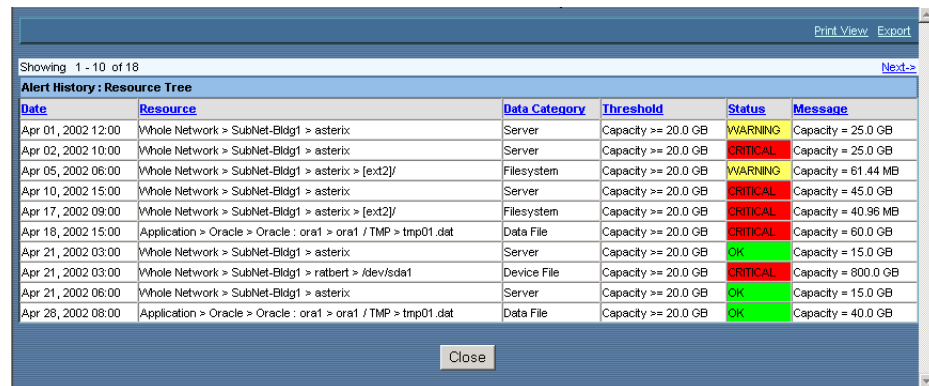


Figure 4.5 The Alert History window

Note: To move through the list, click on **Next** or **Previous**.



Figure 4.6 The Next hyperlink for moving through the list

2. Click on **Close** to close the window.

4.4 Implementing an Alert

Note: This activity requires Manager or Administrator privileges.

Setting up an alert from start to finish requires these high level steps:

1. Specify the characteristics of the alert including the resource type. (See [Creating An Alert Definition](#) on page 39.)
2. Specify the action(s) you want HiCommand™ Tuning Manager to take in the case of an alert event. (See [Defining Alert Actions](#) on page 46.)
3. Bind the alert definition to a resource with the actions you want performed. (See [Binding Alerts](#) on page 53.)

4.4.1 Creating An Alert Definition

Note: This activity requires Manager or Administrator privileges.

To create a new alert:

1. Click on **Alerts** in the [Control Strip](#) (page 14).



Figure 4.7 The Alerts hyperlink in the Control Strip

2. Click on **Edit**.



Figure 4.8 The Edit hyperlink for alerts

The Alert list appears.

 A screenshot of the 'Alert Definitions : Resource Tree' table. The table has five columns: Alert Name, Data Category, Warning Condition, Critical Condition, and Action Links. It lists various system metrics and their associated alert conditions.

Alert Name	Data Category	Warning Condition	Critical Condition	Action Links
Datarfile - File size	Data File	n/a	Size >= 50.0 GB	Delete Copy
Datarfile - Total IOPS	Data File	IOPS >= 800.0	IOPS >= 900.0	Delete Copy
Filesystem - Percentage available	Filesystem	Free % <= 10.0%	Free % <= 5.0%	Delete Copy
Filesystem - Usage	Filesystem	Used >= 85.0 GB	Used >= 100.0 GB	Delete Copy
Oracle - Number of data files	Oracle Instance	Data Files >= 8,000	Data Files >= 10,000	Delete Copy
Oracle - Number of table spaces	Oracle Instance	Tablespaces >= 60	Tablespaces >= 100	Delete Copy
Phy Device - Read IOPS	Device File	Read IOPS >= 500.0	Read IOPS >= 700.0	Delete Copy
Phy Device - Total transfers	Device File	Transfer >= 200.0 KB	n/a	Delete Copy
Server - Number of imported file systems	Server	n/a	Imported Filesystems >= 20	Delete Copy
Server - Number of local file systems	Server	Local Filesystems >= 20	Local Filesystems >= 40	Delete Copy

Figure 4.9 The Alert list

Note: To move through the list, click on **Next** or **Previous**.

3. Click on **Add Alert Definition**.

The Alert Setting 1 form appears in its own window.

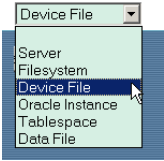
Figure 4.10 The Alert Setting 1 window

4. Fill in the form as explained in the table below:

Table 4.2 List of Alert Definition fields (first dialog)

Field	Value
Alert Name	The unique name of the alert
User Name	The user account responsible for creating the alert (read only)
Modification Date	Last date and time this alert was edited (read only)
Period of Watching Always Evaluated	When you check this box, this alert condition will be monitored constantly.
Period of Watching From	Restricts alert monitoring to a finite starting time
Period of Watching To	Restricts alert monitoring to a finite ending time
Damping Enabled	When checked, an alert is triggered only when multiple instances occur within a finite time frame.
Occurrences during	The number of times an alert condition occurs (within the specified Intervals) before the alert is triggered. (See Damping Enabled .)

Table 4.2 List of Alert Definition fields (first dialog)

Intervals	<p>The number of successive samples to be collected. (The alert is triggered only when the number specified in Occurrences during is reached within the specified Intervals.)</p> <p>Example: You specify that there must be at least 6 “Occurrences during” of the specified alert condition within 10 successive samples (Damping Interval).</p>
Data Category	<p>The resource type to be monitored.</p> 

5. Click on **Next** to continue (or click on **Cancel** to abandon changes).
The Alert Setting 2 window appears.

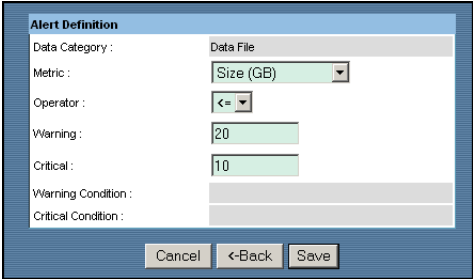
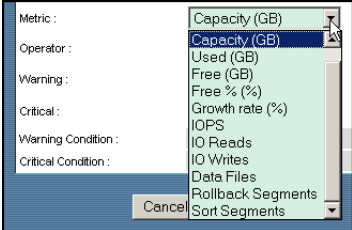
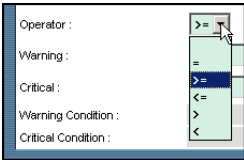


Figure 4.11 The Alert Setting 2 window

6. Fill in the form as explained in this table:

Table 4.3 List of Alert Definition fields (second dialog)

Field	Value
Data Category	The resource type to be monitored. (read only)
Metric	Specify the metric to be evaluated for the alert. 
Operator	The comparison operator for evaluating potential alert conditions. 
Warning Value	The threshold value for triggering a warning alert.
Critical Value	The threshold value for triggering a critical alert.

Note: The message fields (**Warning Condition** and **Critical Condition**) will remain grey when you create an new Alert definition. However these fields will display the Alert expressions for Warning and Critical levels once you have completed and saved the alert definition. Example: **Capacity** >= 20.

7. Click on **Save** (or click **Cancel** to abandon changes).

4.4.2 Editing Alert Definitions

Note: This activity requires Manager or Administrator privileges.

1. Click on **Alerts** in the [Control Strip](#) (page 14).



Figure 4.12 The Alerts hyperlink for editing alert definitions

2. Click on **Edit**.



Figure 4.13 The Edit hyperlink for editing alert definitions
The Alert list appears.

A screenshot of the 'Alerts' page showing a table of alert definitions. The table has five columns: Alert Name, Data Category, Warning Condition, Critical Condition, and Action Links. There are 12 rows of data. Below the table is an 'Add Alert Definition' button. The page includes navigation links like 'View', 'Edit', 'Action', 'Bind', 'Reset' and a 'Next->' link.

Capacity Performance Alerts Print View Export Bookmark Logout Viewpoint Current time				
View Edit Action Bind Reset				
Showing 1 - 10 of 12 Next->				
Alert Definitions : Resource Tree				
Alert Name	Data Category	Warning Condition	Critical Condition	Action Links
Datatile - File size	Data File	n/a	Size >= 50.0 GB	Delete Copy
Datatile - Total IOPS	Data File	IOPS >= 800.0	IOPS >= 900.0	Delete Copy
Filesystem - Percentage available	Filesystem	Free % <= 10.0%	Free % <= 5.0%	Delete Copy
Filesystem - Usage	Filesystem	Used >= 85.0 GB	Used >= 100.0 GB	Delete Copy
Oracle - Number of data files	Oracle Instance	Data Files >= 8,000	Data Files >= 10,000	Delete Copy
Oracle - Number of table spaces	Oracle Instance	Tablespaces >= 60	Tablespaces >= 100	Delete Copy
Phy Device - Read IOPS	Device File	Read IOPS >= 500.0	Read IOPS >= 700.0	Delete Copy
Phy Device - Total transfers	Device File	Transfer >= 200.0 KB	n/a	Delete Copy
Server - Number of imported file systems	Server	n/a	Imported Filesystems >= 20	Delete Copy
Server - Number of local file systems	Server	Local Filesystems >= 20	Local Filesystems >= 40	Delete Copy
Add Alert Definition				

Figure 4.14 The Alert list

Note: To move through the list, click on **Next** or **Previous**.

3. Click on the hyperlink for the alert you wish to edit.

A screenshot of the 'Alerts' page, identical to Figure 4.14, but with a mouse cursor hovering over the 'Filesystem - Percentage available' link in the 'Alert Name' column.

Capacity Performance Alerts Print View Export Bookmark Logout Viewpoint Current time				
View Edit Action Bind Reset				
Showing 1 - 10 of 12 Next->				
Alert Definitions : Resource Tree				
Alert Name	Data Category	Warning Condition	Critical Condition	Action Links
Datatile - File size	Data File	n/a	Size >= 50.0 GB	Delete Copy
Datatile - Total IOPS	Data File	IOPS >= 800.0	IOPS >= 900.0	Delete Copy
Filesystem - Percentage available	Filesystem	Free % <= 10.0%	Free % <= 5.0%	Delete Copy
Filesystem - Usage	Filesystem	Used >= 85.0 GB	Used >= 100.0 GB	Delete Copy
Oracle - Number of data files	Oracle Instance	Data Files >= 8,000	Data Files >= 10,000	Delete Copy
Oracle - Number of table spaces	Oracle Instance	Tablespaces >= 60	Tablespaces >= 100	Delete Copy
Phy Device - Read IOPS	Device File	Read IOPS >= 500.0	Read IOPS >= 700.0	Delete Copy
Phy Device - Total transfers	Device File	Transfer >= 200.0 KB	n/a	Delete Copy
Server - Number of imported file systems	Server	n/a	Imported Filesystems >= 20	Delete Copy
Server - Number of local file systems	Server	Local Filesystems >= 20	Local Filesystems >= 40	Delete Copy
Add Alert Definition				

Figure 4.15 Selecting the alert to be edited

The Alert Definition 1 form appears in its own window.

Figure 4.16 The Alert Setting 1 window

Note: The data category cannot be changed if this alert is currently bound.

4. Change fields as necessary in this window.
5. Click on **Next**.

The Alert Definition 2 window appears.

Figure 4.17 The Alert Setting 2 window

6. Change fields as necessary in this window.
7. Click on **Save** (or click **Cancel** to abandon changes).

Note: Editing an alert definition is similar to adding one. For detailed information, see [Creating An Alert Definition](#) on page 39..

4.4.3 Defining Alert Actions

Note: This activity requires Manager or Administrator privileges.

In the event of an alert condition, HiCommand™ Tuning Manager can respond with any or all of these actions:

- Email message
- SNMP message
- Execute a command

Note: Unlike most other functions in HiCommand™ Tuning Manager, Alerts are not dependent on the Viewpoint setting. Alert events are always based on the most current conditions available to them.

To set an alert action definition:

1. Click on **Alerts** in the [Control Strip](#) (page 14).

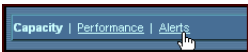


Figure 4.18 The Alerts hyperlink in the Control Strip for defining alert actions

2. Click on **Action**.

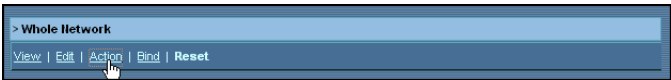


Figure 4.19 The Action hyperlink for alerts

The alert actions list appears.

A screenshot of the 'Alerts' page showing a table of alert action definitions. The table has columns for Action Name, Data Category, Email, SNMP, Command, and Action Links. There are 12 rows of data. Below the table is an 'Add Action Definition' button. The page also shows navigation links like 'Print View', 'Export', 'Bookmark', 'Logout', and 'Viewpoint: Current time' at the top right.

Capacity Performance Alerts					
Print View Export Bookmark Logout Viewpoint: Current time					
View Edit Action Bind Reset					
Showing 1 - 10 of 12					
Next->					
Action Definitions : Resource Tree					
Action Name	Data Category	Email	SNMP	Command	Action Links
Email Alice - URGENT	Device File	Email To : alice@comstocksys.com	n/a	n/a	Delete Copy
Email Betty & Execute command 3	Oracle Instance	Email To : betty@comstocksys.com	n/a	Command : /usr/local/bin/command3	Delete Copy
Email George & send SNMP trap 1	Filesystem	Email To : george@comstocksys.com	SNMP Destination:snmp.comstocksys.com	n/a	Delete Copy
Email Operations	Tablespace	Email To : operations@comstocksys.com	n/a	n/a	Delete Copy
Email to admin	Server	Email To : admin@comstocksys.com	n/a	n/a	Delete Copy
Execute Command 4 and Send SNMP trap 3	Oracle Instance	n/a	SNMP Destination:snmp.comstocksys.com	Command : /usr/local/bin/command4	Delete Copy
Execute command 2	Device File	n/a	n/a	Command : /usr/local/bin/command2	Delete Copy
Execute command 5	Data File	n/a	n/a	Command : /usr/local/bin/command5	Delete Copy
Execute command1	Server	n/a	n/a	Command : /usr/local/bin/command1	Delete Copy
Send SNMP trap 2	Filesystem	n/a	SNMP Destination:snmp.comstocksys.com	n/a	Delete Copy
Add Action Definition					

Figure 4.20 The Alert actions list

Note: To move through the list, click on **Next** or **Previous**.

3. Click on **Add Action Definition**.

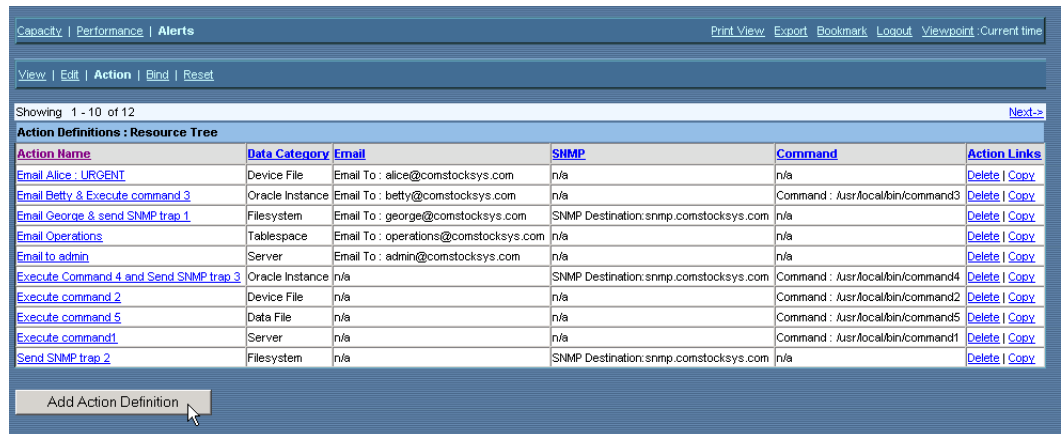


Figure 4.21 The Add Action Definition button
The Alert Action Definition window appears.

The 'Action Definition' window is a form for defining an action. It has a title bar 'Action Definition'. The form contains the following fields and sections:

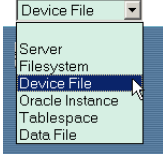
- Action Name:** A text field containing 'Email Betty & Execute command'.
- Data Category:** A dropdown menu currently showing 'Oracle Instance'.
- Email:** A section with a checked checkbox. It contains three text fields: 'Email Host' (mail.yourdomain.com), 'Email To' (betty@yourdomain.com), and 'Email Message' (Oracle instance : %%name needs tuning asap.).
- SNMP:** A section with an unchecked checkbox. It contains three text fields: 'SNMP Destination', 'SNMP Community', and 'SNMP Message'.
- Command:** A section with a checked checkbox. It contains two text fields: 'Command' (/usr/local/bin/command3) and 'Parameters' (%%host).

Figure 4.22 The Add Action Definition window

4. Determine which of the actions you want executed upon this alert event. You may specify one or more:
 - Email message- sends a message to an SMTP server
 - SNMP- creates an [SNMP trap](#) (an event notification)
 - Execute a command- executes an OS-level script or program
5. Fill in the form with appropriate values. (See [Alert Action Definition Fields](#) on page 49.)
6. Click on **Save** to add this Action Definition (or click on **Cancel** to abandon this form).

4.4.4 Alert Action Definition Fields

Table 4.4 Alert action definition fields

Name	Description
Action Name	Unique name for this alert action
Data Category	<p>The resource type the alert action will be triggered by.</p> 
Email*	
Email Host	SMTP email server host to receive the alert message
Email To	This will become the TO field in email alerts generated
Email Message	<p>Body of the alert email message</p> <ul style="list-style-type: none"> - Messages can use Alert Variables (page 50).
SNMP	
SNMP Destination	Which resource to direct the SNMP notification to.
SNMP Community	The name of the SNMP grouping
SNMP Message	<p>Text message to accompany the alert information in the SNMP trap.</p> <ul style="list-style-type: none"> - In addition to hard-coded text, messages can use Alert Variables (page 50).
Command	
Command	Executable portion of command to execute upon alert event
Parameters	Argument(s) to the command (if needed)

Note: *If you have access to pagers or mobile phones with email addressing capabilities, you can selectively use Email actions for alerts requiring immediate notification.

4.5 Alert Variables

HiCommand™ Tuning Manager can display data values as a part of your alert messages. To make use of this feature, you embed one or more variables in a message string. At runtime, the alert handler substitutes your embedded variable references with the current values.

- Each variable must be prefixed by two successive % characters.
- Variables are not case-sensitive.
- Variables must be followed by at least one space character.

Example:

```
Alert: %%HostName only has %%Free free out of a total capacity of  
%%Capacity.
```

These variables provide values for the resources and metrics:

Table 4.5 Alert message variables categorized by resource type

Resource	Variables	
Server	<ul style="list-style-type: none"> - HostName - IPAddress - OSMemory - CPU% - Capacity - Usage - Free - Free% - IOPS 	<ul style="list-style-type: none"> - WriteIOPS - ReadIOPS - Transfer - ReadTransfer - WriteTransfer - GrowthRate - LocalFilesystems - ImportedFilesystems - RawDevices
Filesystem	<ul style="list-style-type: none"> - MountPoint - LogicalDevice - DiskGroup - Capacity - Usage 	<ul style="list-style-type: none"> - Free - Free% - Growth rate - Inodes
Device File	<ul style="list-style-type: none"> - Name - IOPS - ReadIOPS - WriteIOPS 	<ul style="list-style-type: none"> - Transfer - ReadTransfer - WriteTransfer
Oracle Instance	<ul style="list-style-type: none"> - Name - Version - Host - Capacity - Free - Usage - Free% 	<ul style="list-style-type: none"> - GrowthRate - DataFiles - TableSpaces - IOPS - WriteIOPS - ReadIOPS
Tablespace	<ul style="list-style-type: none"> - Name - Capacity - Free - Usage - Free% - GrowthRate 	<ul style="list-style-type: none"> - DataFiles - RollbackSegments - SortSegments - IOPS - WriteIOPS - ReadIOPS
Data File	<ul style="list-style-type: none"> - Name - Size 	<ul style="list-style-type: none"> - IOPS - WriteIOPS - ReadIOPS

This group of variables provide information from the alert definition responsible for the message:

Table 4.6 Alert message variables providing names and values

Type	Variables
Data Category	
Filesystem	Server.HostName, Server.IPAddress
Storage Subsystem	Server.HostName, Server.IPAddress
Tablespace	OracleInstance.Name
Data File	TableSpace.Name, TableSpace.OracleInstance.Name
Alert Types	
The metric on which the alert is defined	METRIC
Date & Time of the alert	DATE
The level of alert (OK, Warning, Critical)	LEVEL
Alert event threshold	THRESHOLD
The comparison operator against which the threshold is measured (=, >, <, >=, <=)	OPERATOR
Actual value of the metric when the alert occurred	VALUE

4.6 Binding Alerts

Note: This activity requires Manager or Administrator privileges.

Binding is the final step in setting up an alert.

Note: If you want to simultaneously bind an alert to multiple resources of the same type, you can do this most efficiently using bind propagation. For more information, see [Using Bind Propagation \(For Multiple Resources\)](#) on page 56.

Before you can bind an alert:

- Select the appropriate resource category to be monitored. (See [Resource Tree](#) on page 8.)
- Define an alert- See [Creating An Alert Definition](#) on page 39.
- Define an action for the alert to perform- See [Defining Alert Actions](#) on page 46.

Note: Unlike most other functions in HiCommand™ Tuning Manager, Alerts are not dependent on the Viewpoint setting. Alert events are always based on current conditions.

To bind an alert to the resource category and action:

1. Select the correct level in the [Resource Tree](#). Your choice determines how many resources will be monitored. (For more information, See [Using Bind Propagation \(For Multiple Resources\)](#) on page 56.)
2. Click on **Alerts** in the [Control Strip](#) (page 14).

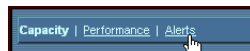


Figure 4.23 The Alerts hyperlink in the Control Strip

3. Click on **Bind**.



Figure 4.24 The Bind hyperlink in Alerts

A list of bound alerts appears.

Alert Name	Resource	Data Category	Warning Condition	Critical Condition	Remarks	Action Links
Datafile - File size	Application > Oracle > Oracle : ora1	Data File	n/a	Size >= 50.0 GB	n/a	Edit Unbind
Datafile - File size	Application > Oracle > Oracle : ora1 > ora1 / TMP > tmp01.dat	Data File	n/a	Size >= 50.0 GB	n/a	Edit Unbind
Datafile - File size	Application > Oracle > Oracle : ora1 > ora1 / SYS > sys01.dat	Data File	n/a	Size >= 50.0 GB	n/a	Edit Unbind
Datafile - File size	Application > Oracle > Oracle : ora1 > ora1 / USER > data01.dat	Data File	n/a	Size >= 50.0 GB	n/a	Edit Unbind
Datafile - File size	Application > Oracle > Oracle : ora1 > ora1 / USER > data02.dat	Data File	n/a	Size >= 50.0 GB	n/a	Edit Unbind
Filesystem - Percentage available	Whole Network > SubNet-Bld01	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a	Edit Unbind
Filesystem - Percentage available	Whole Network > SubNet-Bld01 > asterix > text2l/	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a	Edit Unbind
Filesystem - Percentage available	Whole Network > SubNet-Bld01 > asterix > text2l/home	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a	Edit Unbind
Filesystem - Percentage available	Whole Network > SubNet-Bld01 > ratbert > text2l/	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a	Edit Unbind
Filesystem - Percentage available	Whole Network > SubNet-Bld01 > ratbert > text2l/apps	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a	Edit Unbind

Figure 4.25 The list of bound alerts

Note: To move through the list, click on **Next** or **Previous**.

- Click on **Bind Alert**.
The Alert Activation 1 window appears.

Alert Name	Data Category	Warning Condition	Critical Condition
Server - Number of imported file systems	Server	n/a	Imported Filesystems >= 20
Server - Number of local file systems	Server	Local Filesystems >= 20	Local Filesystems >= 40
Filesystem - Percentage available	Filesystem	Free % <= 10.0%	Free % <= 5.0%
Filesystem - Usage	Filesystem	Used >= 85.0 GB	Used >= 100.0 GB
Phy Device - Read IOPs	Device File	Read IOPS >= 500.0	Read IOPS >= 700.0
Phy Device - Total transfers	Device File	Transfer >= 200.0 KB	n/a
Oracle - Number of data files	Oracle Instance	Data Files >= 8,000	Data Files >= 10,000
Oracle - Number of table spaces	Oracle Instance	Tablespaces >= 60	Tablespaces >= 100
Tablespace - Number rollback segments	Tablespace	Rollback Segments >= 160	Rollback Segments >= 200
Tablespace - Number sort segments	Tablespace	Sort Segments >= 250	Sort Segments >= 300

Figure 4.26 The Alert Activation 1 window

- Click on the alert you want to bind.

Server - Number of imported file systems	Server	Local Filesystems >= 20	Local Filesystems >= 40
Filesystem - Percentage available	Filesystem	Free % <= 10.0%	Free % <= 5.0%
Filesystem - Usage	Filesystem	Used >= 85.0 GB	Used >= 100.0 GB
Phy Device - Read IOPs	Device File	Read IOPS >= 500.0	Read IOPS >= 700.0

Figure 4.27 Selecting the alert to bind

6. Click on **Next**.

The Alert Activation 2 window appears.

Alert Definition			
Alert Name	Data Category	Warning Condition	Critical Condition
Filesystem - Percentage available	Filesystem	Free % <= 10.0%	Free % <= 5.0%

Type of Notification

Notification Type: Always

Perform Action			
Action Name	OK	Warning	Critical
Email George & send SNMP trap 1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Send SNMP trap 2	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Cancel <-Back Save

Figure 4.28 The Alert Activation 2 window

7. (Optional) To view an alert definition, click on the hyperlink for the alert name.
8. **Notification type:** Specify whether this alert condition will be set to notify repeatedly while the condition is met (**Always**) or one time only (**Once per condition**).

Type of Notification

Notification Type: Always

Perform Action

Action Name: Once Per Condition

[Send Mail](#)

Figure 4.29 The Alert Setting 2 window

Note: If you choose **Once per condition** you must manually reset the alert after it has been triggered. If you do not reset the alert, there will be no further notifications. (For more information, see [Resetting Alerts](#) on page 70.)

9. (Optional) To view the definition for your chosen action, click on the hyperlink for the **Action Name**.
You can choose which actions happen under each of the possible alert states. (OK, Critical and Warning)
10. To assign a given action to a specific state, click on the alert state checkbox(es) for the actions you want performed.

Perform Action			
Action Name	OK	Warning	Critical
Send Mail	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Figure 4.30 Alert state checkboxes

11. Click **Save** to complete activation. (Click on Cancel to abandon this operation.)
The Confirm window appears.
12. Click on **Close** to close the confirm window.

4.6.1 Using Bind Propagation (For Multiple Resources)

When you want to bind multiple resources sharing the same parent, bind propagation is more productive than selecting one resource at a time.

Example 1: You want to set an alert for all filesystems on a server.

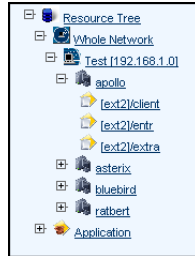


Figure 4.31 A server and its filesystems

1. Define an alert. (See [Creating An Alert Definition](#) on page 39.)
 - In this example you would set the **Data Category** to Filesystem. This will ensure that filesystems are being monitored for the alert condition.
2. Create an alert action. (See [Defining Alert Actions](#) on page 46.)
3. Navigate to the *server level* in the resource tree. (See Figure 4.31: A server and its filesystems.)
4. Bind the alert definition and alert action. (See [Binding Alerts](#) on page 53.)

HiCommand™ Tuning Manager will propagate this binding to all filesystems below the server.

Example 2: You want to bind an alert to all filesystems found on all servers on a given subnetwork.

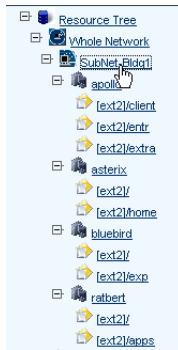


Figure 4.32 A subnetwork its contained servers and filesystems

1. Define an alert. (See [Creating An Alert Definition](#) on page 39.)
 - In this example you would set the **Data Category** to Filesystem. This will ensure that filesystems are being monitored for the alert condition.
 2. Create an alert action. (See [Defining Alert Actions](#) on page 46.)
 3. Navigate to the *subnetwork level* in the resource tree. (See Figure 4.32: A subnetwork its contained servers and filesystems.)
 4. Bind the alert definition and alert action. (See [Binding Alerts](#) on page 53.)
- HiCommand™ Tuning Manager will propagate this binding to all filesystems within that subnetwork.

Note: If you use bind propagation, you must unbind resources at the same parent level. For more information, see [Unbinding Propagated Alerts](#) on page 60.

4.7 Editing Alert Bindings

To edit a bound alert:

1. Click on **Alerts** in the [Control Strip](#) (page 14).



Figure 4.33 The Alerts hyperlink in the Control Strip for defining alert actions

2. (If not already selected) Click on **Bind**.

The alert list appears.

Capacity Performance Alerts					
Print View Export Bookmark Logout Viewpoint - Current time					
> Whole Network > SubNet-Bldg1					
View Edit Action Bind Reset					
Showing 1 - 10 of 18					
Bound Alerts : SubNet-Bldg1					
Alert Name	Resource	Data Category	Warning Condition	Critical Condition	Remarks
Filesystem - Percentage available	SubNet-Bldg1	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a
Filesystem - Percentage available	asterix > [ext2]/	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a
Filesystem - Percentage available	asterix > [ext2]/home	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a
Filesystem - Percentage available	ratbert > [ext2]/	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a
Filesystem - Percentage available	ratbert > [ext2]/apps	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a
Filesystem - Percentage available	apollo > [ext2]/client	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a
Filesystem - Percentage available	apollo > [ext2]/entr	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a
Filesystem - Percentage available	apollo > [ext2]/extra	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a
Filesystem - Percentage available	bluebird > [ext2]/	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a
Filesystem - Percentage available	bluebird > [ext2]/exp	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a

Figure 4.34 The Alert list

3. Click on Edit for the Alert you want to alter.

The alert binding window is displayed.

Alert Definition			
Alert Name	Data Category	Warning Condition	Critical Condition
Filesystem - Percentage available	Filesystem	Free % <= 10.0%	Free % <= 5.0%

Type of Notification	
Notification Type	Always

Perform Action			
Action Name	OK	Warning	Critical
Email George & send SNMP trap 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Send SNMP trap 2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

Cancel Save

Figure 4.35 Alert binding window

4. Make the desired changes.

5. Click **Save** to retain those changes.

The confirmation window appears.

6. Click **Close** to continue.

Note: If an alert was bound through propagation at a higher level, you will need to return to that level. The alert list indicates the origin of the binding. For more information, see [Unbinding Propagated Alerts](#) on page 60.

Showing 1 - 4 of 4					
Bound Alerts : apollo					
Alert Name	Resource	Data Category	Warning Condition	Critical Condition	Remarks
Filesystem - Percentage available	[ext2]/client	Filesystem	Free % <= 10.0%	Free % <= 5.0%	Bound by SubNet-Bldg1
Filesystem - Percentage available	[ext2]/entr	Filesystem	Free % <= 10.0%	Free % <= 5.0%	Bound by SubNet-Bldg1
Filesystem - Percentage available	[ext2]/extra	Filesystem	Free % <= 10.0%	Free % <= 5.0%	Bound by SubNet-Bldg1
Server - Number of local file systems	apollo	Server	Local Filesystems >= 20	Local Filesystems >= 40	Bound by Whole Network

Figure 4.36 Alerts bound through propagation

4.8 Unbinding Alerts

Note: This activity requires Manager or Administrator privileges.

Note: If an alert was bound through propagation at a higher level, you can only unbind that alert by returning to the originating level of the resource tree. For more information, see [Unbinding Propagated Alerts](#) on page 60.

To unbind an alert:

- 1. Click on **Resources** in the [Navigation Frame](#).
- 2. Click on **Alerts** in the [Control Strip](#) (page 14).



Figure 4.37 The Alerts hyperlink in the Control Strip

- 3. (If necessary) Click on **Bind**.

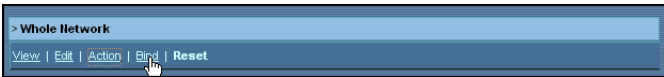


Figure 4.38 The Bind hyperlink
A list of bound alerts appears.

Capacity | Performance | Alerts

Print View | Export | Bookmark | Logout | Viewpoint - Current time

View | Edit | Action | Bind | Reset

Showing 1 - 10 of 25

Next >

Bound Alerts : Resource Tree

Alert Name	Resource	Data Category	Warning Condition	Critical Condition	Remarks	Action Links
Datafile - File size	Application > Oracle > Oracle : ora1	Data File	n/a	Size >= 50.0 GB	n/a	Edit Unbind
Datafile - File size	Application > Oracle > Oracle : ora1 > ora1 / TMP > tmp01.dat	Data File	n/a	Size >= 50.0 GB	n/a	Edit Unbind
Datafile - File size	Application > Oracle > Oracle : ora1 > ora1 / SYS > sys01.dat	Data File	n/a	Size >= 50.0 GB	n/a	Edit Unbind
Datafile - File size	Application > Oracle > Oracle : ora1 > ora1 / USER > data01.dat	Data File	n/a	Size >= 50.0 GB	n/a	Edit Unbind
Datafile - File size	Application > Oracle > Oracle : ora1 > ora1 / USER > data02.dat	Data File	n/a	Size >= 50.0 GB	n/a	Edit Unbind
Filesystem - Percentage available	Whole Network > SubNet-Bld01	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a	Edit Unbind
Filesystem - Percentage available	Whole Network > SubNet-Bld01 > asterix > /ext2/	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a	Edit Unbind
Filesystem - Percentage available	Whole Network > SubNet-Bld01 > asterix > /ext2/home	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a	Edit Unbind
Filesystem - Percentage available	Whole Network > SubNet-Bld01 > ratbert > /ext2/	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a	Edit Unbind
Filesystem - Percentage available	Whole Network > SubNet-Bld01 > ratbert > /ext2/apps	Filesystem	Free % <= 10.0%	Free % <= 5.0%	n/a	Edit Unbind

Bind Alert

Figure 4.39 The list of bound alerts

Note: To move through the list, click on **Next** or **Previous**.

- Click on **Unbind** for the Alert Name you have chosen to unbind.

Capacity | Performance | Alerts

Print View Export Bookmark Logout Viewpoint Current time

View | Edit | Action | Bind | Reset

Showing 1 - 10 of 25

Next->

Bound Alerts : Resource Tree

Alert Name	Resource	Data Category	Warning Condition	Critical Condition	Remarks	Action Links
Datafile - File size	Application > Oracle > Oracle > ora1	Data File	n/a	Size >= 50.0 GB	n/a	Edit Unbind
Datafile - File size	Application > Oracle > Oracle > ora1 > ora1 / TMP > tmp01.dat	Data File	n/a	Size >= 50.0 GB	n/a	Edit Unbind
Datafile - File size	Application > Oracle > Oracle > ora1 > ora1 / SYS > sys01.dat	Data File	n/a	Size >= 50.0 GB	n/a	Edit Unbind
Datafile - File size	Application > Oracle > Oracle > ora1 > ora1 / USER > data01.dat	Data File	n/a	Size >= 50.0 GB	n/a	Edit Unbind

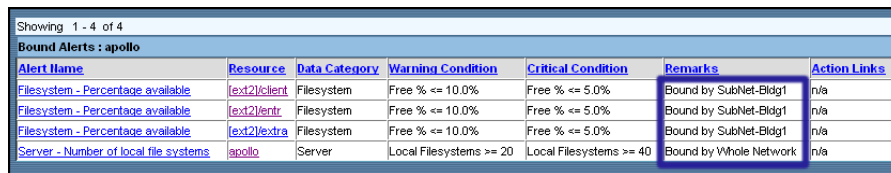
Figure 4.40 The Unbind link for alerts

The confirm window appears.

- Click on **Close** to close the confirm window.

4.8.1 Unbinding Propagated Alerts

If an alert was bound through propagation at a higher level, you can only unbind that alert by returning to the originating level of the resource tree. The alert list indicates the originating level when an alert was the result of propagation.



Showing 1 - 4 of 4						
Bound Alerts : apollo						
Alert Name	Resource	Data Category	Warning Condition	Critical Condition	Remarks	Action Links
Filesystem - Percentage available	lex21client	Filesystem	Free % <= 10.0%	Free % <= 5.0%	Bound by SubNet-Bldg1	n/a
Filesystem - Percentage available	lex21entr	Filesystem	Free % <= 10.0%	Free % <= 5.0%	Bound by SubNet-Bldg1	n/a
Filesystem - Percentage available	lex21extra	Filesystem	Free % <= 10.0%	Free % <= 5.0%	Bound by SubNet-Bldg1	n/a
Server - Number of local file systems	apollo	Server	Local Filesystems >= 20	Local Filesystems >= 40	Bound by Whole Network	n/a

Figure 4.41 Alerts bound through propagation

To unbind an alert:

To copy an alert:

- Click on **Alerts** in the [Control Strip](#) (page 14).

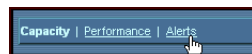


Figure 4.42 The Alerts hyperlink in the Control Strip

- (If necessary) Click on **Bind**.

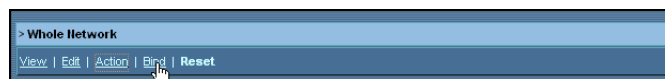


Figure 4.43 The Bind hyperlink

- In the Resource Tree, navigate to the level where the alert was bound.

Filename:

4. Click on Unbind for the alert.

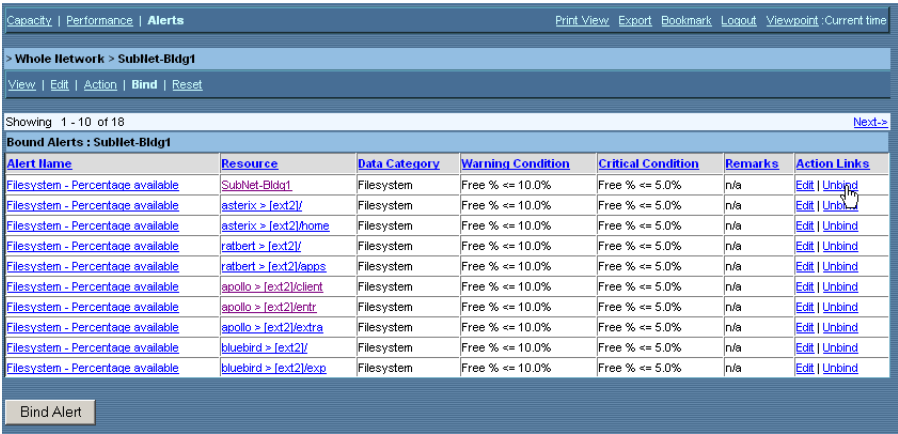


Figure 4.44 Selecting Unbind
An “are you sure?” dialog pops up.

5. Click **OK** to proceed with unbinding. (Or click **Cancel** to abandon unbinding.)
The confirmation window appears.
6. Click **Close** to close the confirm window.

4.9 Copying Alerts

Note: This activity requires Manager or Administrator privileges.

To copy an alert:

1. Click on **Alerts** in the [Control Strip](#) (page 14).



Figure 4.45 The Alerts hyperlink in the Control Strip

2. Click on **Edit**.



Figure 4.46 The Edit hyperlink for alerts

The Alert list appears.

Alert Name	Data Category	Warning Condition	Critical Condition	Action Links
Datafile - File size	Data File	n/a	Size >= 50.0 GB	Delete Copy
Datafile - Total IOPS	Data File	IOPS >= 800.0	IOPS >= 900.0	Delete Copy
Filesystem - Percentage available	Filesystem	Free % <= 10.0%	Free % <= 5.0%	Delete Copy
Filesystem - Usage	Filesystem	Used >= 85.0 GB	Used >= 100.0 GB	Delete Copy
Oracle - Number of data files	Oracle Instance	Data Files >= 8,000	Data Files >= 10,000	Delete Copy
Oracle - Number of table spaces	Oracle Instance	Tablespaces >= 60	Tablespaces >= 100	Delete Copy
Phy Device - Read IOPS	Device File	Read IOPS >= 500.0	Read IOPS >= 700.0	Delete Copy
Phy Device - Total transfers	Device File	Transfer >= 200.0 KB	n/a	Delete Copy
Server - Number of imported file systems	Server	n/a	Imported Filesystems >= 20	Delete Copy
Server - Number of local file systems	Server	Local Filesystems >= 20	Local Filesystems >= 40	Delete Copy

Figure 4.47 The Alert list

Note: To move through the list, click on **Next** or **Previous**.

- Click on **Copy** for the alert you wish to copy.

Alert Name	Data Category	Warning Condition	Critical Condition	Action Links
Datafile - File size	Data File	n/a	Size >= 50.0 GB	Delete Copy
Datafile - Total IOPS	Data File	IOPS >= 800.0	IOPS >= 900.0	Delete Copy

Figure 4.48 The Copy hyperlink for alerts

The Alert Settings 1 window appears with the same settings as the alert you chose.

Alert Definition

Alert Name :

Datafile - File size

User Name :

User unknown

Modification Date :

Feb 01, 2002 00:00

Period of Watching :

☒ Always Evaluated

From :

To :

Damping :

☒ Damping Enabled

25

Occurrence(s) During

50

Intervals

Data Category :

Data File

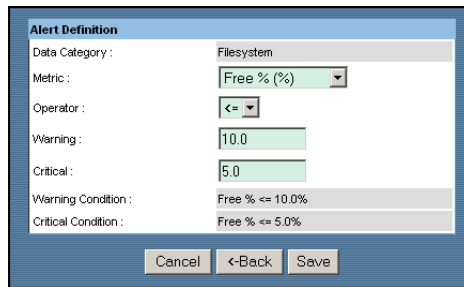
Cancel

Next->

Figure 4.49 The Alert Settings 1 window

- Change any relevant settings in this window.

5. Click **Next** to proceed to the second alert setting window.
The Alert Settings 2 window appears.



Alert Definition	
Data Category :	Filesystem
Metric :	Free % (%)
Operator :	<=
Warning :	10.0
Critical :	5.0
Warning Condition :	Free % <= 10.0%
Critical Condition :	Free % <= 5.0%

Cancel <-Back Save

Figure 4.50 The Alert Settings 2 window

6. Change any relevant settings in this window.
7. Click **Save**.

The Information Frame refreshes to include the newly copied alert definition.

4.10 Deleting Alerts

Note: This activity requires Manager or Administrator privileges.

1. Click on **Alerts** in the [Control Strip](#) (page 14).

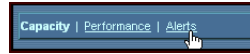


Figure 4.51 The Alerts hyperlink in the Control Strip

2. Click on **Edit**.

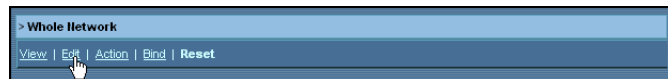


Figure 4.52 The Edit hyperlink in Alerts
The Alert list appears.

Capacity Performance Alerts				
Print View Export Bookmark Logout Viewpoint: Current time				
View Edit Action Bind Reset				
Showing 1 - 10 of 12 Next->				
Alert Definitions : Resource Tree				
Alert Name	Data Category	Warning Condition	Critical Condition	Action Links
Datafile - File size	Data File	n/a	Size >= 50.0 GB	Delete Copy
Datafile - Total IOPS	Data File	IOPS >= 800.0	IOPS >= 900.0	Delete Copy
Filesystem - Percentage available	Filesystem	Free % <= 10.0%	Free % <= 5.0%	Delete Copy
Filesystem - Usage	Filesystem	Used >= 85.0 GB	Used >= 100.0 GB	Delete Copy
Oracle - Number of data files	Oracle Instance	Data Files >= 8,000	Data Files >= 10,000	Delete Copy
Oracle - Number of table spaces	Oracle Instance	Tablespaces >= 60	Tablespaces >= 100	Delete Copy
Phy Device - Read IOPS	Device File	Read IOPS >= 500.0	Read IOPS >= 700.0	Delete Copy
Phy Device - Total transfers	Device File	Transfer >= 200.0 KB	n/a	Delete Copy
Server - Number of imported file systems	Server	n/a	Imported Filesystems >= 20	Delete Copy
Server - Number of local file systems	Server	Local Filesystems >= 20	Local Filesystems >= 40	Delete Copy
Add Alert Definition				

Figure 4.53 The Alert list

Note: To move through the list, click on **Next** or **Previous**.

3. Click on **Delete** for the alert you wish to remove.

Capacity Performance Alerts				
Print View Export Bookmark Logout Viewpoint: Current time				
View Edit Action Bind Reset				
Showing 1 - 10 of 12 Next->				
Alert Definitions : Resource Tree				
Alert Name	Data Category	Warning Condition	Critical Condition	Action Links
Datafile - File size	Data File	n/a	Size >= 50.0 GB	Delete Copy
Datafile - Total IOPS	Data File	IOPS >= 800.0	IOPS >= 900.0	Delete Copy

Figure 4.54 The Delete hyperlink in Alerts

An “Are you sure?” dialog pops up.

4. Click **OK** to proceed with deletion. (Or click **Cancel** to abandon deletion.)
The confirm window appears.
5. Click on **Close** to close the confirm window.

4.11 Copying Alert Actions

Note: This activity requires Manager or Administrator privileges.

To copy an alert action:

- 1. Click on **Alerts** in the [Control Strip](#) (page 14).



Figure 4.55 The Alerts hyperlink in the Control Strip

- 2. Click on **Action**.

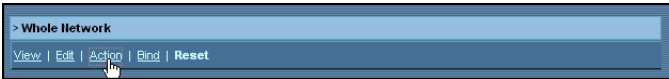


Figure 4.56 The Action hyperlink in Alerts
The alert actions list appears.

A screenshot of the 'Alert actions list' table. The table has a header row with columns: Action Name, Data Category, Email, SHMP, Command, and Action Links. Below the header, there are several rows of alert actions. At the bottom of the table, there is a button labeled 'Add Action Definition'.

Action Name	Data Category	Email	SHMP	Command	Action Links
Email Alice : URGENT	Device File	Email To : alice@comstocksys.com	n/a	n/a	Delete Copy
Email Betty & Execute command 3	Oracle Instance	Email To : betty@comstocksys.com	n/a	Command : /usr/local/bin/command3	Delete Copy
Email George & send SNMP trap 1	Filesystem	Email To : george@comstocksys.com	SNMP Destination:snmp.comstocksys.com	n/a	Delete Copy
Email Operations	Tablespace	Email To : operations@comstocksys.com	n/a	n/a	Delete Copy
Email to admin	Server	Email To : admin@comstocksys.com	n/a	n/a	Delete Copy
Execute Command 4 and Send SNMP trap 3	Oracle Instance	n/a	SNMP Destination:snmp.comstocksys.com	Command : /usr/local/bin/command4	Delete Copy
Execute command 2	Device File	n/a	n/a	Command : /usr/local/bin/command2	Delete Copy
Execute command 5	Data File	n/a	n/a	Command : /usr/local/bin/command5	Delete Copy
Execute command1	Server	n/a	n/a	Command : /usr/local/bin/command1	Delete Copy
Send SNMP trap 2	Filesystem	n/a	SNMP Destination:snmp.comstocksys.com	n/a	Delete Copy

Figure 4.57 The Alert actions list

Note: To move through the list, click on **Next** or **Previous**.

- 3. Click on **Copy** for the action you want to duplicate.

A screenshot of the 'Alert actions list' table, similar to Figure 4.57. In this view, the 'Action Links' column for the first row 'Email Alice : URGENT' is highlighted, showing 'Delete | Copy'. A mouse cursor is pointing at the 'Copy' link.

Action Name	Data Category	Email	SHMP	Command	Action Links
Email Alice : URGENT	Device File	Email To : alice@comstocksys.com	n/a	n/a	Delete Copy
Email Betty & Execute command 3	Oracle Instance	Email To : betty@comstocksys.com	n/a	Command : /usr/local/bin/command3	Delete Copy

Figure 4.58 The Copy hyperlink in alert actions

The Alert Action Definition window appears for the action.

Action Definition

Action Name: Email Alice : URGENT

Data Category: Device File

☒ **Email**

Email Host: mail.comstocksys.com

Email To: alice@comstocksys.com

Email Message: Dangerous situation, react soon.

☐ **SNMP**

SNMP Destination:

SNMP Community:

SNMP Message:

☐ **Command**

Command:

Parameters:

Cancel Save

Figure 4.59 The Alert Action Definition window

4. Change any relevant settings in this window. (For more information, see [Alert Action Definition Fields](#) on page 49.)
5. Click on **Save**.

The Information Frame refreshes to display the newly added alert action.

4.12 Deleting Alert Actions

Note: This activity requires Manager or Administrator privileges.

Note: If the action is still bound to an alert, unbind it first. (For detailed information, see [Unbinding Alerts](#) on page 59.)

To delete an Alert action:

- 1. Click on **Alerts** in the [Control Strip](#) (page 14).



Figure 4.60 The Alerts hyperlink in the Control Strip

- 2. Click on **Action**.

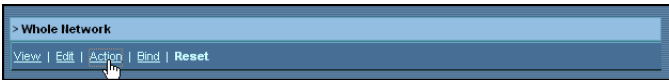


Figure 4.61 The Action hyperlink in Alerts
The list of Alert actions appears.

A screenshot of the 'Alerts' page showing a table of alert actions. The table has columns for Action Name, Data Category, Email, SNMP, Command, and Action Links. There are 10 rows of data. The 'Action Links' column contains 'Delete' and 'Copy' links for each row. A 'Next >' link is visible at the top right of the table. Below the table is an 'Add Action Definition' button.

Capacity Performance Alerts					
Print View Export Bookmark Logout Viewpoint Current time					
View Edit Action Bind Reset					
Showing 1 - 10 of 12					
Next >					
Action Definitions: Resource Tree					
Action Name	Data Category	Email	SNMP	Command	Action Links
Email Alice: URGENT	Device File	Email To: alice@comstocksys.com	n/a	n/a	Delete Copy
Email Betty & Execute command 3	Oracle Instance	Email To: betty@comstocksys.com	n/a	Command : /usr/local/bin/command3	Delete Copy
Email George & send SNMP trap 1	Filesystem	Email To: george@comstocksys.com	SNMP Destination: snmp.comstocksys.com	n/a	Delete Copy
Email Operations	Tablespace	Email To: operations@comstocksys.com	n/a	n/a	Delete Copy
Email to admin	Server	Email To: admin@comstocksys.com	n/a	n/a	Delete Copy
Execute Command 4 and Send SNMP trap 3	Oracle Instance	n/a	SNMP Destination: snmp.comstocksys.com	Command : /usr/local/bin/command4	Delete Copy
Execute command 2	Device File	n/a	n/a	Command : /usr/local/bin/command2	Delete Copy
Execute command 5	Data File	n/a	n/a	Command : /usr/local/bin/command5	Delete Copy
Execute command 1	Server	n/a	n/a	Command : /usr/local/bin/command1	Delete Copy
Send SNMP trap 2	Filesystem	n/a	SNMP Destination: snmp.comstocksys.com	n/a	Delete Copy
Add Action Definition					

Figure 4.62 The Alert actions list

Note: To move through the list, click on **Next** or **Previous**.

- 3. Click on **Delete** for the action you want to remove.

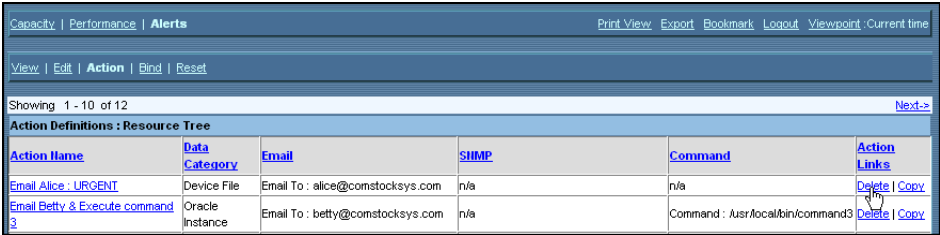


Figure 4.63 The Delete hyperlink for deleting alert actions

The confirm window appears.

4. Click on **Close** to close the confirm window.

4.13 **Resetting Alerts**

For alerts with the notification type of **Once per condition**, you will need to reset alerts manually. (For more information, see [Binding Alerts](#) on page 53.)

To reset an alert:

1. Click on **Alerts** in the [Control Strip](#) (page 14).



Figure 4.64 The Alerts hyperlink in the Control Strip

2. Click on **Reset**.

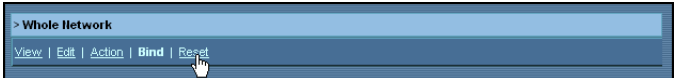


Figure 4.65 The Reset hyperlink in Alerts
The Alert reset list is displayed.

Capacity Performance Alerts			Print View Export Bookmark Logout Viewpoint Current time			
View Edit Action Bind Reset						
Showing 1 - 2 of 2						
Resettable Alert Conditions : Resource Tree						
Alert Name	Data Category	Resource	Warning Condition	Critical Condition	Status	Action Links
Phy Device - Read IOPS	Whole Network > SubNet-Bldg1 > ratterbert > /dev/sda1	Device File	Read IOPS >= 500.0	Read IOPS >= 700.0	WARNING	Reset
Server - Number of imported file systems	Whole Network > SubNet-Bldg1 > asterix	Server	n/a	Imported Filesystems >= 20	CRITICAL	Reset

Figure 4.66 The Alert reset list

3. Click on the **Reset** hyperlink for the Alert you wish to reset.

Critical Condition			Status	Action Links
Read IOPS >= 700.0			WARNING	Reset
Imported Filesystems >= 20			CRITICAL	Reset

Figure 4.67 The Reset hyperlink
The confirm window appears.

4. Click on **Close** to continue.

5 - About Charts, Reports And Metrics

HiCommand™ Tuning Manager provides a wealth of decision support information. Among other capabilities, HiCommand™ Tuning Manager's reports, charts and other metrics help you to:

- Determine what storage subsystems exist on the network
- Determine how many storage server hosts exist on your whole network and on its subnetworks
- Measure storage capacity network-wide and at progressively lower levels of your network
- Quantify filesystems, total capacity, amount used and amount remaining
- Detect and prevent capacity shortages
- Rearrange files and filesystems for effective capacity and performance use
- Detect and prevent storage server performance bottlenecks
- Determine when to acquire additional storage host capacity
- Understand the relationship between the host's filesystems, logical devices and the corresponding disks
- Understand the RAID configuration of the storage device associated with a host's filesystems.
- Ensure that the logical volumes are configured correctly for the applications accessing data stored in the host's filesystems

5.1 Terminology

- This chapter identifies the metrics HiCommand™ Tuning Manager displays at each level in the [Resource Tree](#) (page 8).
- Definitions for each of the metrics terms are available in the Glossary. (See [Glossary](#) on page 237.)

5.2 Selecting Resources

To view information about a given resource in HiCommand™ Tuning Manager, you first select the resource you want information about. This process is detailed in the chapter: [Touring The Graphical User Interface \(GUI\)](#) (page 7).

- For details on navigating through the hierarchy of storage servers and applications, see [Moving Through The Resource Tree](#) on page 11.

5.3 Organization

HiCommand™ Tuning Manager displays relevant metrics information for the resource level you select in the [Resource Tree](#) (page 8).

The [Information Frame](#) (page 13) includes these areas:

- [Control Strip](#) (page 14)- to select information category and other fundamental features.

5.4 Sections Of The Information Frame

The information frame displays these sections for every resource level:

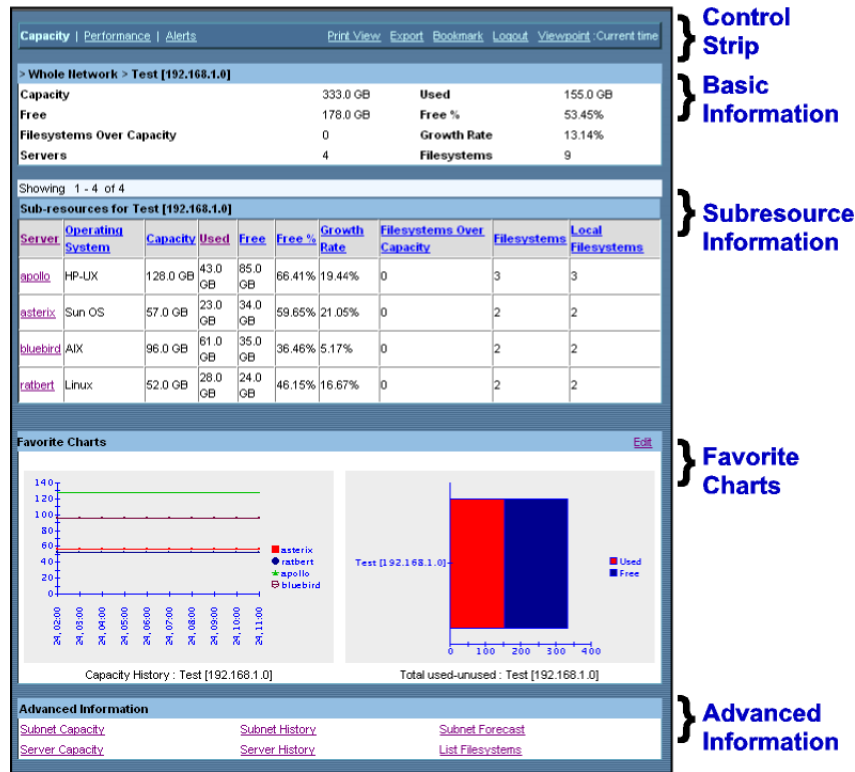


Figure 5.1 Sections of the Information Frame

- **Basic Information-** a table of key status measures for the resource level you have selected in the Navigation Frame. (This chapter details what basic information is displayed by HiCommand™ Tuning Manager at each level of the Resource Tree.)
 - For details about Basic Information reports, see [Print View](#) (page 16).
- **Sub-resource Information-** a table listing key status measures for the resources on the next lower level of the [Resource Tree](#) (page 8). (This chapter details which sub-resource information is displayed by HiCommand™ Tuning Manager at each level of the Resource Tree.)
- **Favorite Charts-** an array of graphical charts you previously saved from the Advanced Information reports. For detailed information, see [Adding Favorite Charts](#) on page 77.
- **Advanced Information-** listings of metrics reports indicating historical trends or forecasting future. Each advanced information metrics report contains a graphical chart and accompanying tables of underlying data. The advanced information reports share several characteristics regardless of the resource level being displayed.
 - For details about Advanced Information reports, see [About Advanced](#)

[Information Reports](#) (page 74).

5.4.1 **About Advanced Information Reports**

Advanced Information provides a variety of historical and forecast reports. When you select a report it appears in its own browser window.

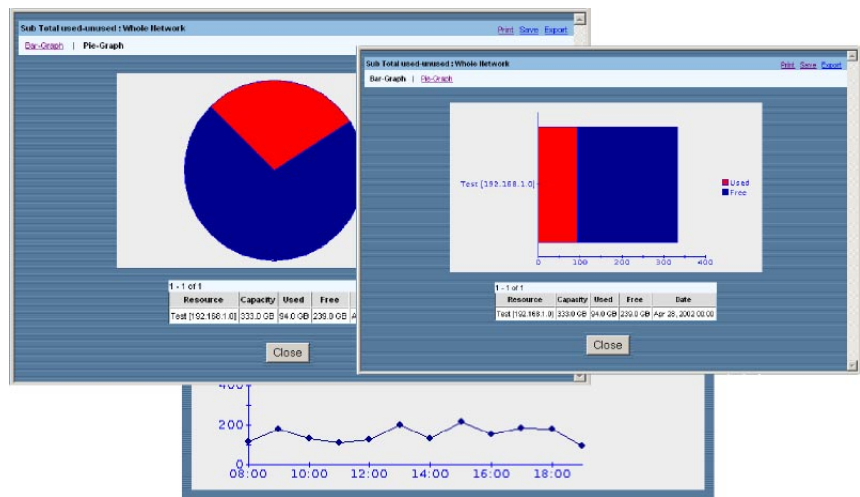


Figure 5.2 Examples of Advanced Information report windows
Most charts are accompanied by tables containing the charted data.

1 - 4 of 6 [Next](#)

Resource	Capacity	Used	Free	Date
[ext2]extra	28.0 GB	11.0 GB	17.0 GB	Jan 25, 1970 12:31
[ext2]entr	84.0 GB	46.0 GB	38.0 GB	Jan 25, 1970 12:31
[ext2]client	16.0 GB	0.0 Bytes	16.0 GB	Jan 25, 1970 12:31
/dev/hda2	N/A	N/A	N/A	Jan 25, 1970 12:31
Others	N/A	N/A	N/A	

Figure 5.3 Example of a data table

- To permit you to analyze the data further in external applications, most Advanced Information reports provide an Export feature. (See [Exporting Advanced Information Data](#) on page 82.)

5.4.2 Advanced Information Reports Layout

Advanced Information reports share these characteristics when displayed on screen:

- The time frame and [Collection Interval](#) displayed are determined by your current [Viewpoint](#) settings.
- Each Advanced Information report contains a graphical display accompanied by a table of the underlying metrics data.
 - Charts display a maximum of 8 resources as individually labelled items. HiCommand™ Tuning Manager charts label all additional resources as “Other.”
 - The metrics data table displays a maximum of 10 rows at a time. HiCommand™ Tuning Manager displays Next and Previous hyperlinks when the metrics contain more than 10 rows. (Use the Next and Previous hyperlinks to navigate up and down through groups of 10 rows.)

Note: For more information, see [Printing Advanced Information Reports](#) on page 81.

5.4.3 Opening Advanced Information Reports

To open an Advanced Information report, click on the hyperlink for the report you want to display.



Figure 5.4 Opening Advanced Information reports

5.4.4 Closing Advanced Information Reports

To close an Advanced Information report, click on the [Close](#) button.

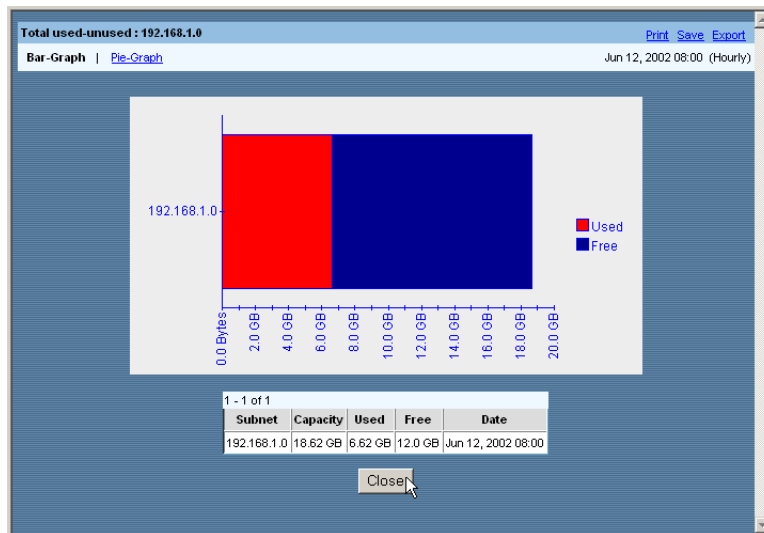


Figure 5.5 Closing an Advanced Information report

5.4.5 About Favorite Charts

- You can save many Advanced Information charts for routine display.
- When you save a chart, it appears in the **Favorite Charts** section for that particular resource. HiCommand™ Tuning Manager reloads these charts every time you select that particular resource in the [Navigation Frame](#) (page 8).
- All eligible charts display a **Save** hyperlink.
 - For instructions, see [Adding Favorite Charts](#) (page 77).

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report. Instructions for doing this appear in [Adding Favorite Charts](#) (page 77).

5.4.6 Adding Favorite Charts

Favorite Charts are Advanced Information graphs saved for ongoing display in the Information Frame.

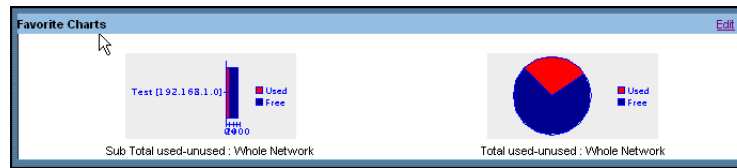


Figure 5.6 Examples of Favorite Charts

- When you save a chart, it appears in the **Favorite Charts** section for that particular resource. HiCommand™ Tuning Manager reloads these charts every time you select that particular resource in the [Navigation Frame](#) (page 8).
- All eligible charts display a **Save** hyperlink.

To save a chart:

1. Display an Advanced Information report.
2. Click on **Save**.

HiCommand™ Tuning Manager displays a window where you specify the description for this chart:

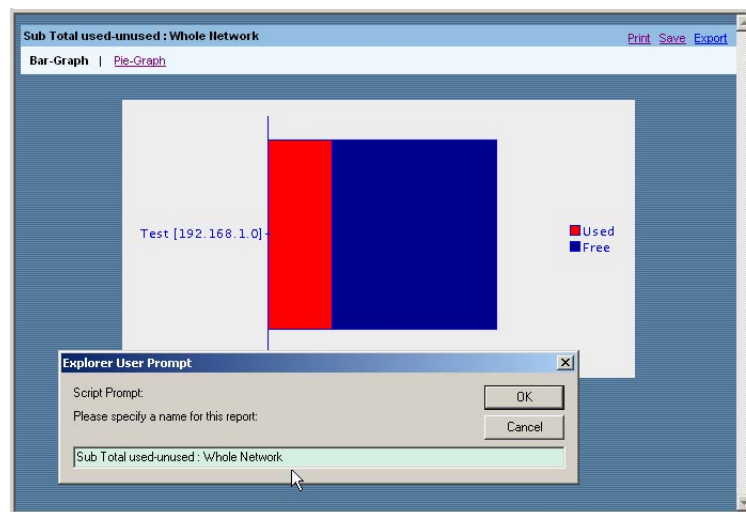


Figure 5.7 Adding a Favorite Chart by saving a report

3. Type in a chart description. (This will appear as a caption below the chart when it appears in Favorite Charts.)

- Click **OK**.

The confirmation dialog appears.

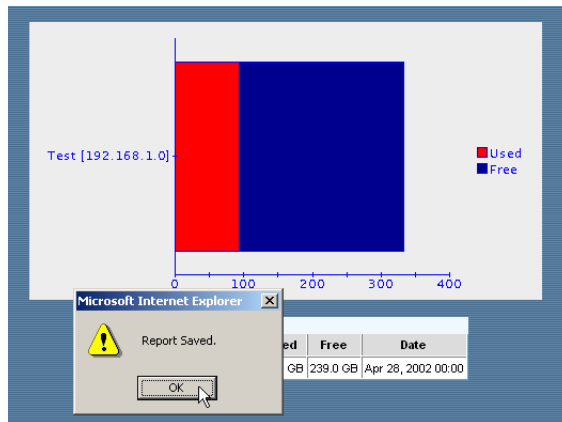


Figure 5.8 Saving a report: confirmation dialog

- Click **OK**.
- Close the report window.

The saved chart appears in the **Favorite Charts** section of the **Information Frame**.

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report.

5.4.7 Editing Favorite Charts

To edit a Favorite Chart:

- Click on the chart to display it.

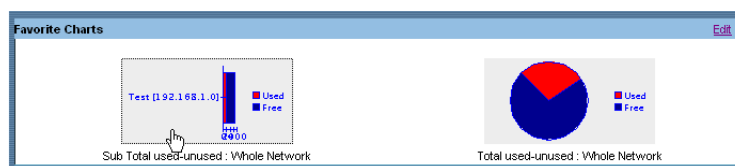


Figure 5.9 Editing Favorite Charts

- Follow the editing procedure appropriate to the report type:
 - [Editing History Reports](#) (page 93)
 - [Editing Forecasts](#) (page 96)

5.4.8 Displaying Favorite Charts As Full Size

- To display an individual Favorite Chart at full size, click on that chart.

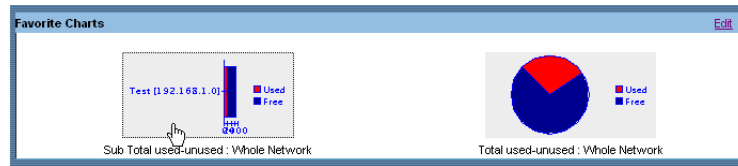


Figure 5.10 Displaying Favorite Charts as full size

A window appears containing the chart (and its accompanying table).

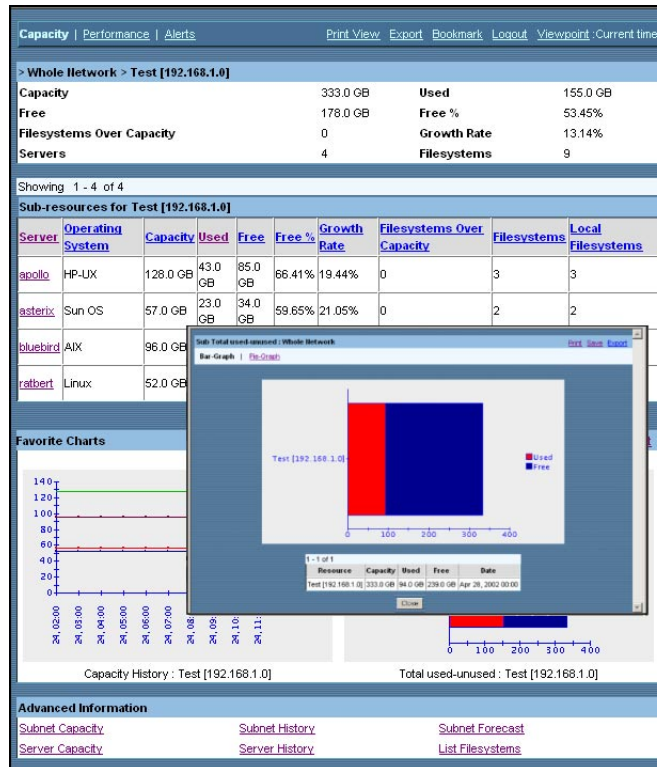


Figure 5.11 Favorite Chart appearing in its own window

Note: By displaying the chart in a window, you can now print the report and export the underlying data. For detailed information, see [About Advanced Information Reports](#) on page 74.

5.4.9 Deleting Favorite Charts

To remove a graph from the Favorite Charts section:

1. Select the level in the [Resource Tree](#) (page 8) to display the correct charts in the [Information Frame](#) (page 13).
2. Click on **Edit** in the Favorite Charts section.

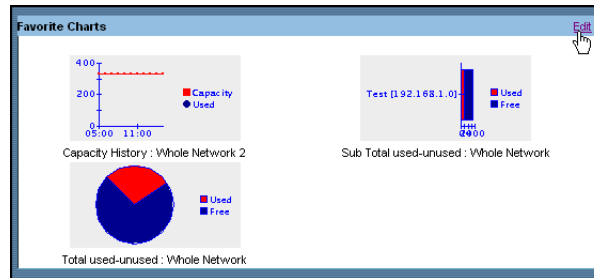


Figure 5.12 Deleting Favorite Charts

The Delete Saved Reports window appears.

3. For each report you want to remove from Favorite Charts, check its checkbox.

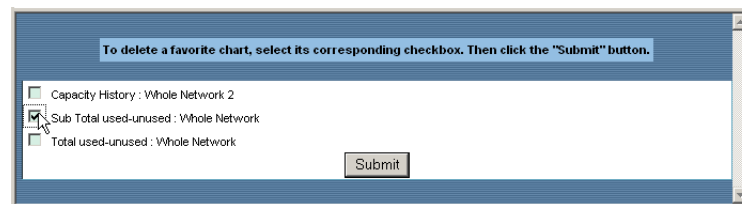


Figure 5.13 Selecting Favorite Charts to be deleted

4. Click on **Submit**.

5.4.10 Printing Advanced Information Reports

To print an Advanced Information data table:

1. Display an Advanced Information report.
2. Click on **Print View**. (Perform this step only if the displayed report includes **Previous** or **Next** hyperlinks for additional data.)

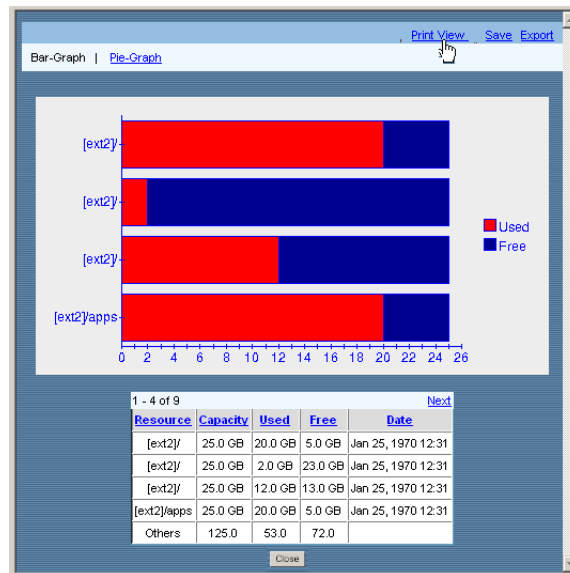


Figure 5.14 Clicking on Print View

When the on screen report includes **Previous** or **Next** hyperlinks, the web page is regenerated to display all records.

3. Click on **Print**.

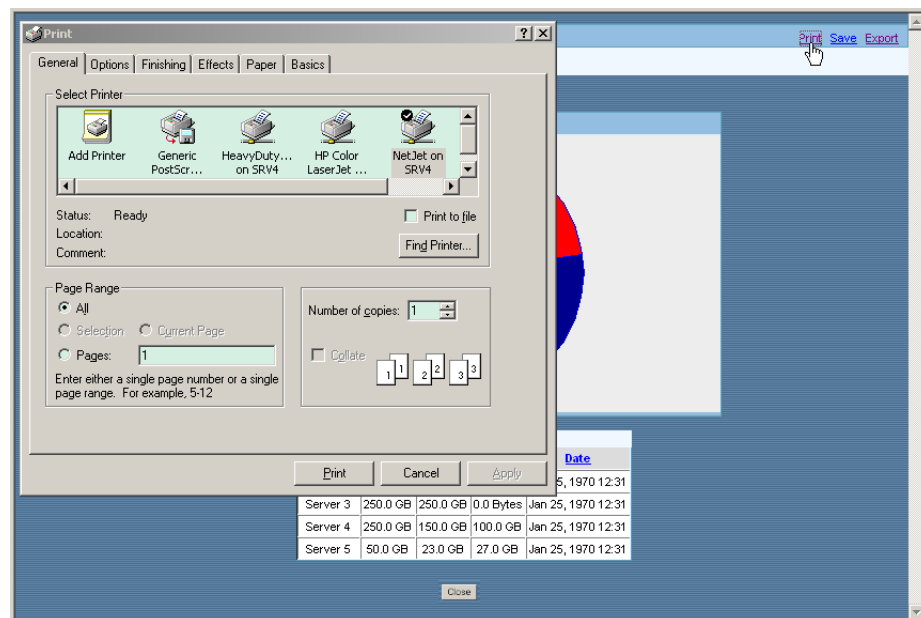


Figure 5.15 Browser printing facility
The browser invokes your operating system’s printing facility.

5.4.11 Exporting Advanced Information Data

HiCommand™ Tuning Manager exports data to comma-separated values file format (CSV) for use in spreadsheets, databases and other productivity applications.
To export an Advanced Information data table:

- 1. Display an Advanced Information report:

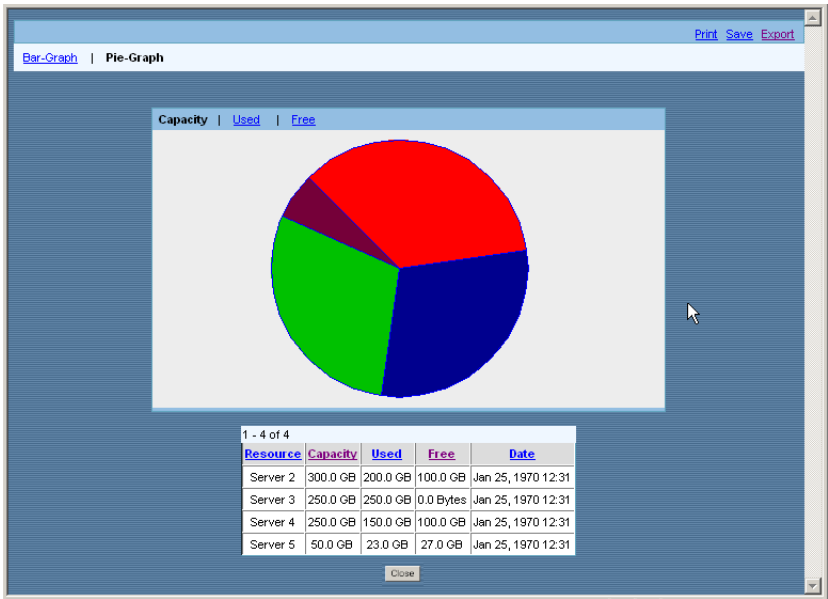


Figure 5.16 Example of an Advanced Information report

- 2. Click on **Export**.

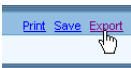


Figure 5.17 Clicking on Export
The web browser presents its file saving dialog.

- 3. Specify a file name.
- 4. Submit the file saving dialog.

Note: When exporting Forecast report data, HiCommand™ Tuning Manager only includes the forecasted data points. For data on the historical sample, generate the corresponding historical report.

- For more information on the CSV file format, see [Export File Format](#) on page 98.

5.4.12 Sorting Data Tables

Advanced Information reports consist of a chart with an accompanying data table.

- To sort the data by a column other than the default column, click on the column heading:

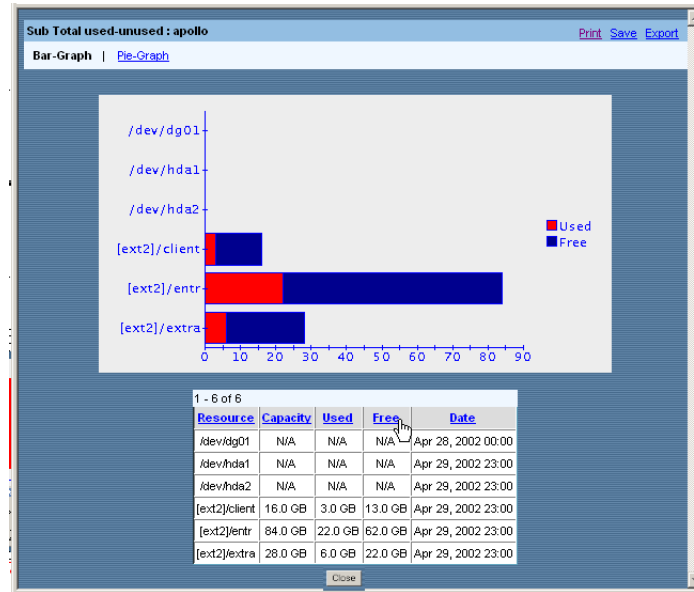


Figure 5.18 Sorting data tables

- To toggle the sort order from ascending to descending, click on the column heading again.

5.5 Information Category Selection: Capacity Or Performance

You can evaluate every resource from the Capacity or Performance perspective.

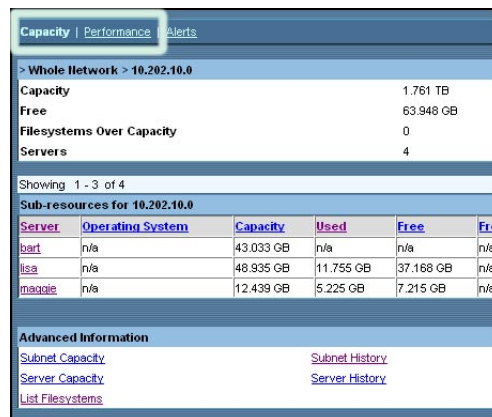


Figure 5.19 Selecting Capacity or Performance information

Capacity and Performance information use the same [Report Types](#) (page 87).

- Capacity reports can be changed to report on **Capacity** (total), **Used** or **Free**. Details appear in [Changing Capacity Reports](#).
- Performance reports can be changed to report on **IOPS** or **Transfer**. Details appear in [Changing Performance Reports](#).

5.5.1 Changing Capacity Reports

Many capacity reports offer the ability to view usage and free space.

To change which capacity metric to display:

- Click on the appropriate hyperlinks: **Used** or **Free**.

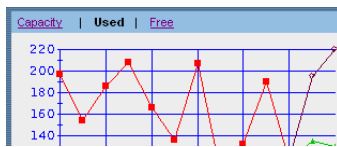


Figure 5.20 Changing Capacity reports

5.5.2 Changing Performance Reports

Performance reports display activity measured by either **IOPS** or **Transfer**. Most performance reports permit you to select **IOPS** or **Transfer**.

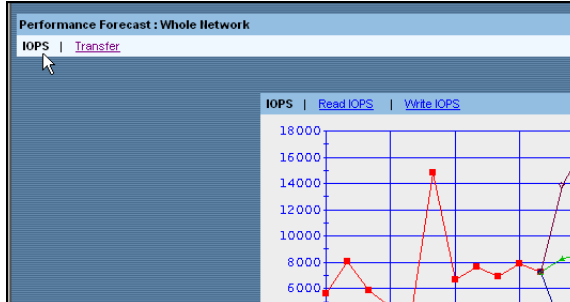


Figure 5.21 Changing Performance reports

To determine the measure to [IOPS](#) or [Transfer](#):

- Click on the appropriate hyperlink: [IOPS](#) or [Transfer](#).
The currently displayed metric basis appears as static text. The alternate metric appears as a hyperlink.

5.5.3 Changing IOPS Reports

By default these reports display IOPS values. Optionally, you can choose:

- [Read IOPS](#)
- [Write IOPS](#)

To change the chart to depict only read or only write operations:

- Click on the appropriate hyperlink: **Read IOPS** or **Write IOPS**.

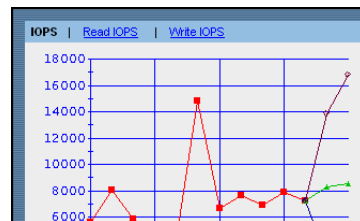


Figure 5.22 Changing IOPS reports

The currently displayed metric basis appears as static text. The alternate metric appears as a hyperlink.

5.5.4 Changing Transfer Reports

- [Read Transfer](#)
- [Write Transfer](#)

To change the chart to depict only read or only write operations:

- Click on the appropriate hyperlink: **Read Transfer** or **Write Transfer**.

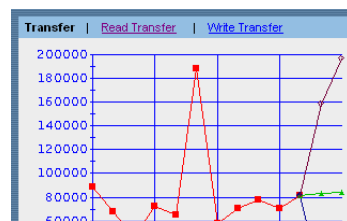


Figure 5.23 Changing Transfer reports

The currently displayed metric basis appears as static text. The alternate metric appears as a hyperlink.

5.6 Report Types

The Advanced Information section contains common report types for all resources monitored by HiCommand™ Tuning Manager. This section describes the characteristics of each report type:

- [List](#) (page 88)- List reports enumerate key metrics for a list of resources.
- [Resource Summary](#) (page 89)- Resource Summary reports display a key measure of capacity or performance for the current level in the [Resource Tree](#).
- [Sub-resource Summary](#) (page 90)- Sub-resource Summary reports display a key measure of capacity or performance for the resources below the current level in the [Resource Tree](#).
- [History](#) (page 92)- History reports enumerate key metrics collected from a resource for a specified time period.
- [Forecast](#) (page 95)- Forecasts use data collected on resources in the current time frame and recent time intervals to project future values.

5.6.1 List

List reports enumerate key metrics for a list of resources.

Table 5.1 List report

Data Aggregation	Detail
Chart Type(s)	None
Data Table(s)	Critical metrics for the given resource
Time Span	The datapoint displayed will be the current Viewpoint (if available in the HiCommand™ Tuning Manager). - When this is not possible, the data point will be the first available data point preceding the current Viewpoint.
Interval	Determined by the current Viewpoint.
Viewpoint	Determines the data point and Interval.
Save	No
Edit	No
Print	Yes. - For more information, see Printing Advanced Information Reports on page 81.
Export	Yes. - For more information, see Exporting Advanced Information Data on page 82.
Examples	- List Servers (page 108) - List Filesystems (page 109)

5.6.2 Resource Summary

Resource Summary reports display a key measure of capacity or performance for the current level in the [Resource Tree](#).

Table 5.2 Resource report

Data Aggregation	Summary
Chart Type(s)	Pie
Data Table(s)	Values collected as per time span (below).
Time Span	The datapoint displayed will be the current Viewpoint (if available in the HiCommand™ Tuning Manager). - When this is not possible, the data point will be the first available data point preceding the current Viewpoint.
Interval	Determined by the current Viewpoint.
Viewpoint	Determines the data point and Interval.
Save	Yes
Edit	No.
Print	Yes. - For more information, see Printing Advanced Information Reports on page 81.
Export	Yes. - For more information, see Exporting Advanced Information Data on page 82.
Examples	- Whole Network Capacity (page 103) - Tablespace Capacity (page 212)

5.6.3 Sub-resource Summary

Sub-resource Summary reports display a key measure of capacity or performance for the resources below the current level in the [Resource Tree](#).

Table 5.3 Sub-resource Summary report

Data Aggregation	Summary
Chart Type(s)	Pie or Bar graph (selectable)
Data Table(s)	- Values collected as per time span (below).
Time Span	The datapoint displayed will be the current Viewpoint (if available in the HiCommand™ Tuning Manager). - When this is not possible, the data point will be the first available data point preceding the current Viewpoint.
Interval	Determined by the current Viewpoint.
Viewpoint	Determines the data point and Interval.
Save	Yes
Edit	No.
Print	Yes. - For more information, see Printing Advanced Information Reports on page 81.
Export	Yes. - For more information, see Exporting Advanced Information Data on page 82.
Examples	When viewing Whole Network in the Resource Tree: - Subnet Capacity (page 106) - Subnet Performance (page 113)
Notes	Sub-resource summary reports are similar in most respects to Resource Summary (page 89). However Sub-resource Summary Reports display data for the next lower level in the Resource Tree.

5.6.4 Changing Chart Type (Bar or Pie)

To change the chart type, click on **Bar Graph** or **Pie Graph**.

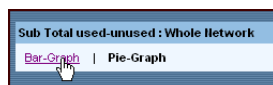


Figure 5.24 Changing sub-resource summary chart type (bar or pie)

5.6.5 History

History reports enumerate key metrics collected from a resource for a specified time period.

Table 5.4 History report

Data Aggregation	Detail
Chart Type(s)	Line chart
Data Table(s)	Listing of data points appearing in chart.
Time Span	By default: Determined by the current Viewpoint. Use Edit to customize.
Interval	By default: Last data point in the series is the current Viewpoint. Use Edit to customize. (For more information, see Editing History Reports on page 93.)
Viewpoint	For default report: The last datapoint displayed will be the current Viewpoint. When data is not available, the report displays n/a for those data points.
Save	Yes
Edit	Yes. For more information, see Editing History Reports on page 93.
Print	Yes. For more information, see Printing Advanced Information Reports on page 81.
Export	Yes. For more information, see Exporting Advanced Information Data on page 82.
Examples	Whole Network History (page 111) Subnet History (page 107)
Notes	If usage history continues after the last recorded time: When an agent is unavailable at a polling time, HiCommand™ Tuning Manager will perform metric substitution by using the most recently collected value. If this agent subsequently reconnects, it will be queried for the missing metrics. (At the next polling time, the newly available metrics will replace any substitute values in the Tuning Manager database.) If the agent cannot reconnect, metric substitution will continue until the agent is disconnected.

5.6.6 Editing History Reports

The first time you request a History report, HiCommand™ Tuning Manager uses the Viewpoint settings to determine the last possible ending point and time interval.

When you Edit the report, you can alter the following values:

- Time interval
- Time frame
 - Relative method: select a finite number of intervals. The report will use the current Viewpoint as the basis and build preceding the current Viewpoint. (For more information, see [Setting The Viewpoint](#) on page 24.)
 - Absolute method: specify a start date/time and ending date/time.

To edit a History report:

1. Display the report.
2. Click on **Edit**.

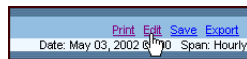


Figure 5.25 Clicking on Edit for a History report

The dialog for editing report parameters appears.

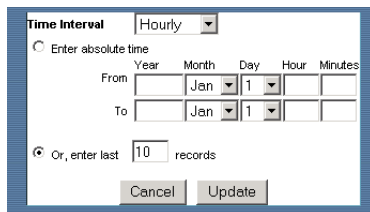


Figure 5.26 Editing dialog for a History report

3. Specify a time interval.

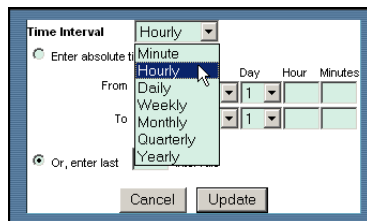


Figure 5.27 Specifying a time interval for a History report

4. Determine whether to use the relative or absolute method for the time frame:
 - For the **relative method**, make sure the current Viewpoint marks the last possible time period you want to appear in the report. Then specify the number of records preceding the Viewpoint.



Figure 5.28 Setting the number of intervals for a History report

- For the **absolute method**, specify the starting and ending dates/times.



Figure 5.29 Setting the start and end dates for a History report

5. Click **Update** (or click **Cancel** to abandon changes).

The report is regenerated and the window refreshes.

Note: By changing the settings for any history report you are setting the defaults for any other history reports you request during this session. (You may again edit reports to change settings as necessary.)

5.6.7 Forecast

Forecasts use data collected on resources in the current time frame and recent time intervals to project future values.

Table 5.5 Forecast report

Data Aggregation	Detail
Chart Type(s)	Line chart
Data Table(s)	<ul style="list-style-type: none"> - Forecast series - Historical data points
Time Span	<p>Forecasts are always relative to the current time.</p> <ul style="list-style-type: none"> - Historical data points immediately precede the current time. - Forecast periods immediately follow the current time. - Use Edit to customize.
Interval	<p>By default: Last data point in the series is the current Viewpoint.</p> <ul style="list-style-type: none"> - Use Edit to customize. (For more information, see Editing Forecasts on page 96.)
Viewpoint	<ul style="list-style-type: none"> - By default: Forecast uses interval setting found in Viewpoint. (Use Edit to customize.) - Forecasts disregard date/time information in Viewpoint.²
Save	Yes
Edit	<p>Yes.</p> <ul style="list-style-type: none"> - For more information, see Editing Forecasts on page 96.
Print	<p>Yes.</p> <ul style="list-style-type: none"> - For more information, see Printing Advanced Information Reports on page 81.
Export	<p>Yes. (When you export a forecast report, the table of historical data points is not included.¹)</p> <ul style="list-style-type: none"> - For more information, see Exporting Advanced Information Data on page 82.
Examples	<ul style="list-style-type: none"> - Whole Network Forecast (page 105) - Tablespace Forecast (page 219)
Notes	<p>²Forecast reports use the current date and time as the basis. The report retrieves sufficient data points working back from the current data and time. These data points are the basis for projecting future values.</p>

5.6.8 Editing Forecasts

HiCommand™ Tuning Manager samples historical data to project future trends.

Note: Forecasts are not dependent on Viewpoint date and time settings. Forecast reports use the current time frame (and retrospective historical data moving back from the current time frame) as the basis for projecting future values. Therefore you cannot impact forecasts by changing dates in the Viewpoint.

Forecasts are dependent on the Viewpoint interval setting. If your Viewpoint interval is currently set to Hourly, then your forecast will use Hourly data.

To edit a Forecast report:

1. Display the report.
2. Click on **Edit**.

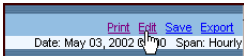


Figure 5.30 Clicking on Edit for a Forecast

The dialog for editing report parameters appears.

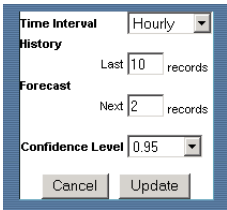


Figure 5.31 Edit dialog for a Forecast

3. In the **Time Interval** field, specify a time interval.

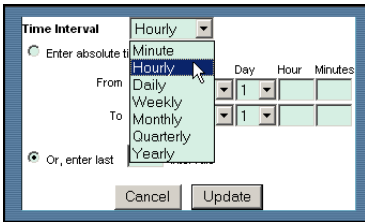


Figure 5.32 Setting Time Interval for a Forecast

4. In the **History** field, specify how many records in the HiCommand™ Tuning Manager’s database should be used as a historical sample (the basis for building a forecast).



Figure 5.33 Setting the number of historical intervals for a Forecast

-
5. In the **Forecast** field, specify how many records to be included in the forecasted period.



Figure 5.34 Setting the number of forecast intervals

Note: Good forecasts depend on a reasonable historical sample. At a minimum, HiCommand™ Tuning Manager requires 3 history data intervals. For the best possible results, specify a higher number of history intervals. We recommend maintaining a history-to-forecast interval ratio of at least 4:1. (Example: If you are seeking two forecast periods, specify at least eight history intervals.)

-
6. Specify the [Confidence Level](#).

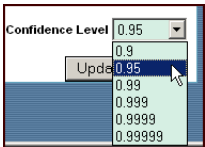


Figure 5.35 Setting the confidence level

-
7. Click **Update**.

The report is regenerated and the window refreshes.

Note: By changing the settings for any forecast, you are setting the defaults for any other forecasts you request during this session. (You may again edit forecasts to change settings as necessary.)

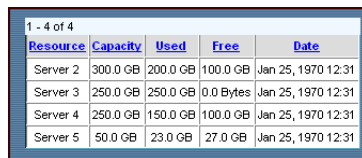
5.7 Export File Format

HiCommand™ Tuning Manager exports data to CSV files. This ASCII file format is suitable for use in popular spreadsheet applications and many popular desktop database programs.

- The first row specifies the column headings.
- Every following row in a CSV file represents a new row in the source data table.
- Each row displays the data items in the same sequence (column order) as the displayed table.
- Each item in a row is delimited by a double quote character.
- Each row is terminated by a newline.
- The last row in a data table includes an extra newline.
- Each value in a row (except the last item) is followed by a comma.

5.7.1 Sample CSV Output

An Advanced Information report displays this data table:



Resource	Capacity	Used	Free	Date
Server 2	300.0 GB	200.0 GB	100.0 GB	Jan 25, 1970 12:31
Server 3	250.0 GB	250.0 GB	0.0 Bytes	Jan 25, 1970 12:31
Server 4	250.0 GB	150.0 GB	100.0 GB	Jan 25, 1970 12:31
Server 5	50.0 GB	23.0 GB	27.0 GB	Jan 25, 1970 12:31

Figure 5.36 Example data table in Advanced Information report

Export produces an ASCII file with this output:

```
"Resource","Capacity","Used","Free","Date"
"Server 2","300.0 GB","200.0 GB","100.0 GB","Jan 25, 1970 12:31"
"Server 3","250.0 GB","250.0 GB","0.0 Bytes","Jan 25, 1970 12:31"
"Server 4","250.0 GB","150.0 GB","100.0 GB","Jan 25, 1970 12:31"
"Server 5","50.0 GB","23.0 GB","27.0 GB","Jan 25, 1970 12:31"
```


6 - Resource Tree

At the topmost level of the Resource Tree (when you first login), the Information Frame displays Basic Information summaries for Whole Network and Application.

6.1 Capacity (Resource Tree)

At this level, HiCommand™ Tuning Manager displays Basic Information capacity data for the Whole Network and Application resource levels.

Resource Tree			
Capacity Performance Alerts			
> Whole Network			
Capacity	333.0 GB	Used	155.0 GB
Free	178.0 GB	Free %	53.45%
Filesystems Over Capacity	0	Growth Rate	13.14%
Servers	4	Filesystems	9
> Application > Oracle			
Oracle Instances	3	Capacity	107.0 GB
Used	47.0 GB	Free	60.0 GB
Free %	56.07%	Growth Rate	-12.96%
Tablespaces	9	Data Files	13

Figure 6.1 Resource Tree level Capacity information

For details, see:

- [Capacity \(Whole Network\)](#) (page 101).
- [Capacity \(Application\)](#) (page 171).

6.2 Performance (Resource Tree)

At this level, HiCommand™ Tuning Manager displays Basic Information performance data for the Whole Network and Application resource levels.

Resource Tree			
Capacity Performance Alerts			
> Whole Network			
Servers	4	Capacity	333.0 GB
Filesystems	9	Used	155.0 GB
IOPS	6,460	Transfer	44,395 MB
Read IOPS	3,115	Read Transfer	22,287 MB
Write IOPS	3,345	Write Transfer	22,107 MB
> Application > Oracle			
Oracle Instances	3	Capacity	107.0 GB
Used	47.0 GB	IOPS	20,434,087,144
Read IOPS	11,166,727,508	Write IOPS	9,267,359,636
Tablespaces	9	Data Files	13

Figure 6.2 Resource Tree level Performance information

For details, see:

- [Performance \(Whole Network\)](#) (page 110).
- [Performance \(Application\)](#) (page 171).

7 - Whole Network

Data displayed here details or summarizes storage servers on the whole network.

7.1 Capacity (Whole Network)

7.1.1 Basic Information

- [Capacity](#)
- [Used](#)
- [Free](#)
- [Free %](#)
- [Filesystems Over Capacity](#)
- [Growth Rate](#)
- [Servers](#)
- [Filesystems](#)

Note: The time frame and [Collection Interval](#) displayed are determined by your current [Viewpoint](#) settings.

7.1.2 Sub-resource Information: Subnetworks

The next lower level consists of all subnetworks comprising this network. Each subnetwork is listed as a row in the table. The attributes displayed for each subnetwork are:

- Name- the name and/or IP range for this subnetwork
- [Capacity](#)
- [Used](#)
- [Free](#)
- [Free %](#)
- [Servers](#)
- [Local Filesystems](#)
- [Filesystems Over Capacity](#)
- [Growth Rate](#)

Note: The time frame and [Collection Interval](#) displayed are determined by your current [Viewpoint](#) settings.

Note: Administrators can create a friendly alias for subnetworks, see [Assigning A Subnetwork Alias](#) on page 117.

- See [Sorting Sub-resource Information](#) on page 19.

7.1.3 Favorite Charts

HiCommand™ Tuning Manager displays this area for Advanced Information charts you wish to monitor regularly.

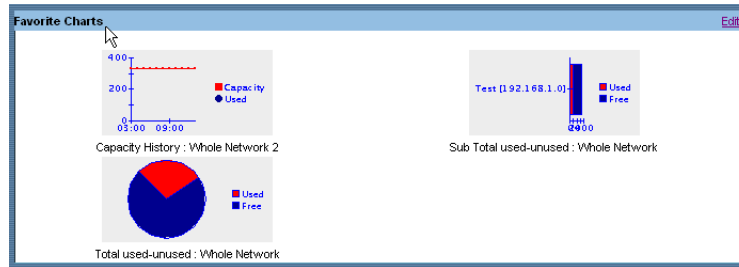


Figure 7.1 Favorite Charts

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report.

7.1.4 Advanced Information

Under Advanced Information, HiCommand™ Tuning Manager provides hyperlinks to the following Capacity-related reports:

- [Whole Network Capacity](#) (page 103)
- [Whole Network History](#) (page 104)
- [Whole Network Forecast](#) (page 105)
- [Subnet Capacity](#) (page 106)
- [Subnet History](#) (page 107)
- [List Servers](#) (page 108)
- [List Filesystems](#) (page 109)
 - For more about working with advanced reports, see [About Advanced Information Reports](#) on page 74. (This section covers [Changing Chart Type \(Bar or Pie\)](#), [Printing Advanced Information Reports](#), [Exporting Advanced Information Data](#), [Sorting Data Tables](#) and [Changing Performance Reports](#).)

Note: The time frame and [Collection Interval](#) displayed are determined by your current [Viewpoint](#) settings.

7.1.5 Whole Network Capacity

Table 7.1 [Capacity] Whole Network - Whole Network Capacity

Report Type	Resource Summary (page 89)
Data	<ul style="list-style-type: none"> - Used - Free - Capacity

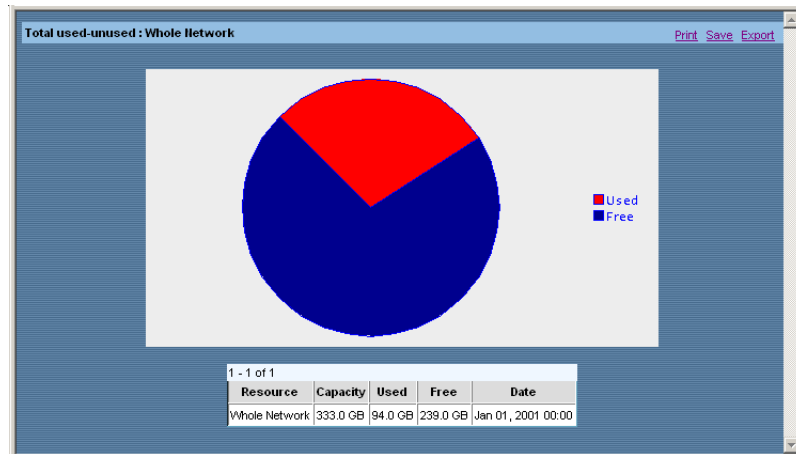


Figure 7.2 [Capacity] Whole Network - Whole Network Capacity

7.1.6 Whole Network History

Table 7.2 [Capacity] Whole Network - Whole Network History

Report Type	History (page 92)
Data	<ul style="list-style-type: none">- Used- Free- Capacity

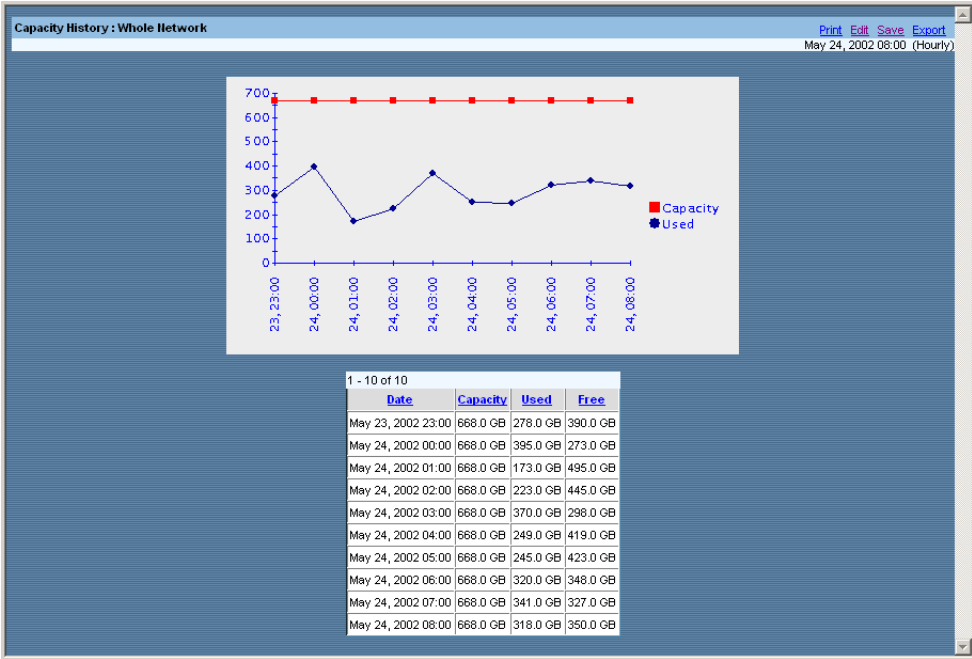


Figure 7.3 [Capacity] Whole Network - Whole Network History

7.1.7 Whole Network Forecast

Table 7.3 [Capacity] Whole Network - Whole Network Forecast

Report Type	Forecast (page 95)
Data	<ul style="list-style-type: none"> - Used - Free - Capacity
Notes	<ul style="list-style-type: none"> - For information on configuring capacity reports, see Changing Performance Reports on page 85.

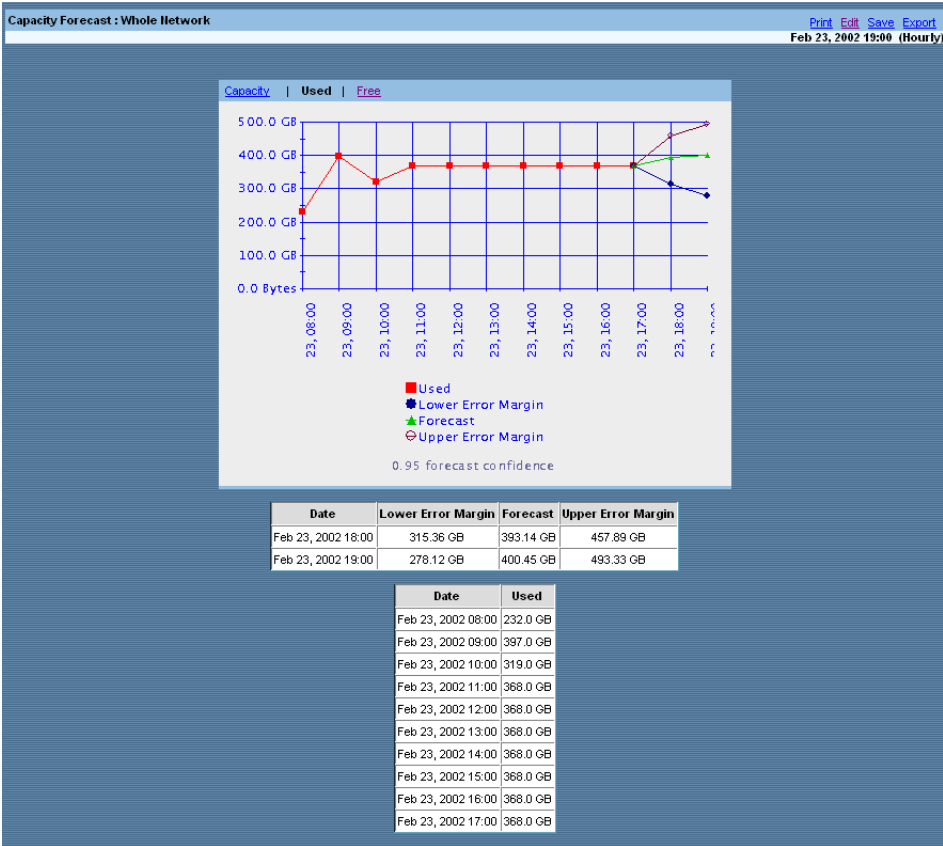


Figure 7.4 [Capacity] Whole Network - Whole Network Forecast

7.1.8 Subnet Capacity

Table 7.4 [Capacity] Whole Network - Subnet Capacity

Report Type	Sub-resource Summary (page 90)
Data	<ul style="list-style-type: none">- Used- Free- Capacity

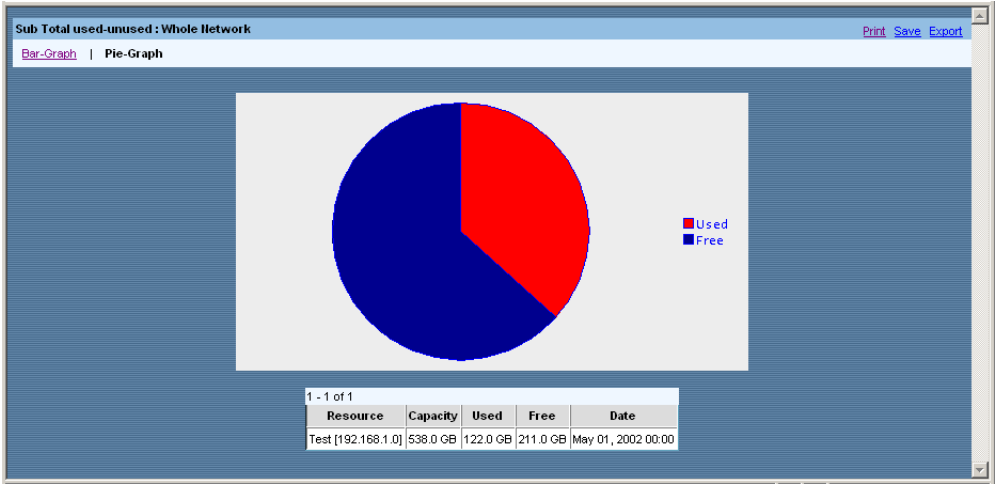


Figure 7.5 [Capacity] Whole Network - Subnet Capacity

7.1.9 Subnet History

Table 7.5 [Capacity] Whole Network - Subnet History

Report Type	History (page 92)
Data	<ul style="list-style-type: none"> - Used - Free - Capacity
Notes	<ul style="list-style-type: none"> - For information on configuring capacity reports, see Changing Performance Reports on page 85.

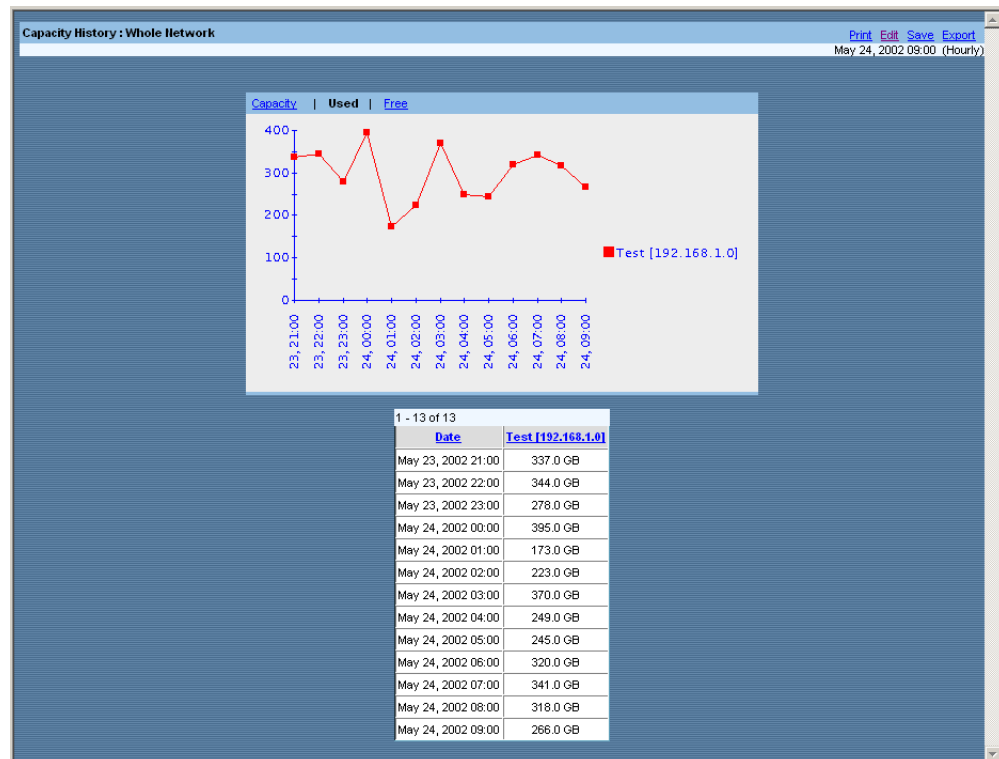
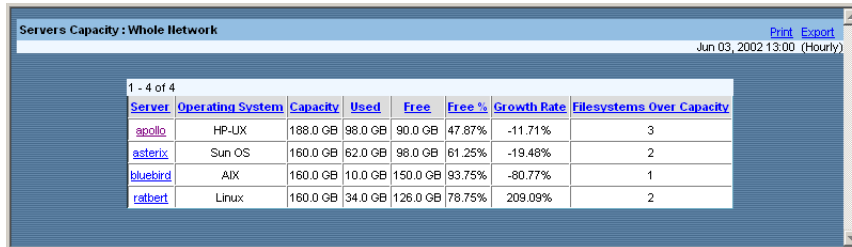


Figure 7.6 [Capacity] Whole Network - Subnet History

7.1.10 List Servers

Table 7.6 [Capacity] Whole Network - List Servers

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Used - Free - Free % 	<ul style="list-style-type: none"> - Capacity - Growth Rate - Filesystems Over Capacity



Servers Capacity: Whole Network
Jun 03, 2002 13:00 (Hourly)

1 - 4 of 4

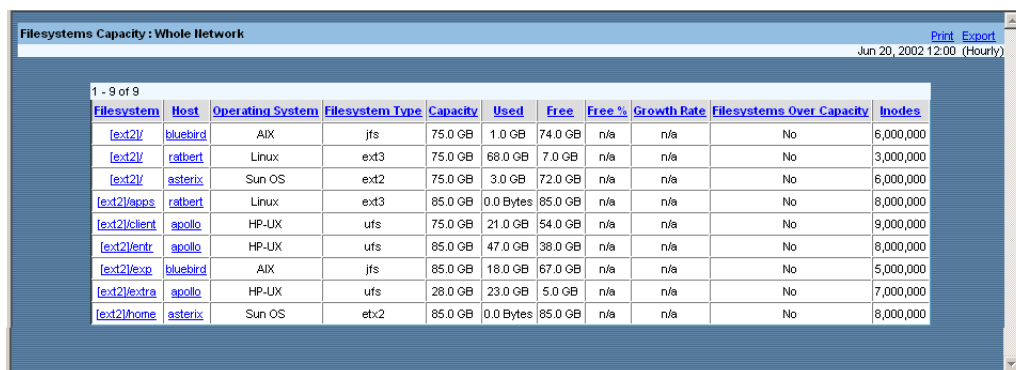
Server	Operating System	Capacity	Used	Free	Free %	Growth Rate	Filesystems Over Capacity
apollo	HP-UX	188.0 GB	98.0 GB	90.0 GB	47.87%	-11.71%	3
asterix	Sun OS	160.0 GB	62.0 GB	98.0 GB	61.25%	-19.48%	2
bluebird	AIX	160.0 GB	10.0 GB	150.0 GB	93.75%	-80.77%	1
ratbert	Linux	160.0 GB	34.0 GB	126.0 GB	78.75%	209.09%	2

Figure 7.7 [Capacity] Whole Network - List Servers

7.1.11 List Filesystems

Table 7.7 [Capacity] Whole Network - List Filesystems

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Host - Operating System - Filesystem Type - Capacity - Used 	<ul style="list-style-type: none"> - Free - Free % - Growth Rate - Filesystems Over Capacity - Inodes



Filesystems Capacity: Whole Network
Jun 20, 2002 12:00 (Hourly)

1 - 9 of 9

Filesystem	Host	Operating System	Filesystem Type	Capacity	Used	Free	Free %	Growth Rate	Filesystems Over Capacity	Inodes
[ext2]/bluebird		AIX	jfs	75.0 GB	1.0 GB	74.0 GB	n/a	n/a	No	6,000,000
[ext2]/ratbert		Linux	ext3	75.0 GB	68.0 GB	7.0 GB	n/a	n/a	No	3,000,000
[ext2]/asterix		Sun OS	ext2	75.0 GB	3.0 GB	72.0 GB	n/a	n/a	No	6,000,000
[ext2]/apps/ratbert		Linux	ext3	85.0 GB	0.0 Bytes	85.0 GB	n/a	n/a	No	8,000,000
[ext2]/client/apollo		HP-UX	ufs	75.0 GB	21.0 GB	54.0 GB	n/a	n/a	No	9,000,000
[ext2]/entr/apollo		HP-UX	ufs	85.0 GB	47.0 GB	38.0 GB	n/a	n/a	No	8,000,000
[ext2]/exp/bluebird		AIX	jfs	85.0 GB	18.0 GB	67.0 GB	n/a	n/a	No	5,000,000
[ext2]/extra/apollo		HP-UX	ufs	28.0 GB	23.0 GB	5.0 GB	n/a	n/a	No	7,000,000
[ext2]/home/asterix		Sun OS	etx2	85.0 GB	0.0 Bytes	85.0 GB	n/a	n/a	No	8,000,000

Figure 7.8 [Capacity] Whole Network - List Filesystems

7.2 Performance (Whole Network)

7.2.1 Basic Information

- [Servers](#)
- [Capacity](#)
- [Local Filesystems](#)
- [Used](#)
- [IOPS](#)
- [Transfer](#)
- [Read IOPS](#)
- [Read Transfer](#)
- [Write IOPS](#)
- [Write Transfer](#)

7.2.2 Sub-resource Information: Subnetworks

The next lower level consists of all subnetworks comprising this network. Each subnetwork is listed as a row in the table. The attributes displayed for each subnetwork are:

- Server Name- the name and/or IP range for this subnetwork
- [Servers](#)
- [Local Filesystems](#)
- [Capacity](#)
- [Used](#)
- [IOPS](#)
- [Read IOPS](#)
- [Write IOPS](#)
- [Transfer](#)
- [Read Transfer](#)
- [Write Transfer](#)

Note: Administrators can create a friendly alias for subnetworks, see [Assigning A Subnetwork Alias](#) on page 117.

7.2.3 Favorite Charts

HiCommand™ Tuning Manager provides this area for Advanced Information charts you wish to monitor regularly.

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report. Instructions for doing this appear in [Adding Favorite Charts](#) (page 77).

7.2.4 Advanced Information

Under Advanced Information, HiCommand™ Tuning Manager provides hyperlinks to the following Performance-related reports:

- [Whole Network Forecast](#) (page 112)
- [Whole Network History](#) (page 111)
- [Subnet Performance](#) (page 113)
- [Subnet History](#) (page 114)
- [List Servers](#) (page 115)
- [List Filesystems](#) (page 116)
- For more about working with advanced reports, see [About Advanced Information Reports](#) on page 74. (This section covers [Changing Chart Type \(Bar or Pie\)](#), [Printing Advanced Information Reports](#), [Exporting Advanced Information Data](#), [Sorting Data Tables](#) and [Changing Performance Reports](#).)

7.2.5 Whole Network History

Table 7.8 [Performance] Whole Network - Whole Network History

Report Type	History (page 92)	
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS 	<ul style="list-style-type: none"> - Transfer - Read Transfer - Write Transfer
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85. 	

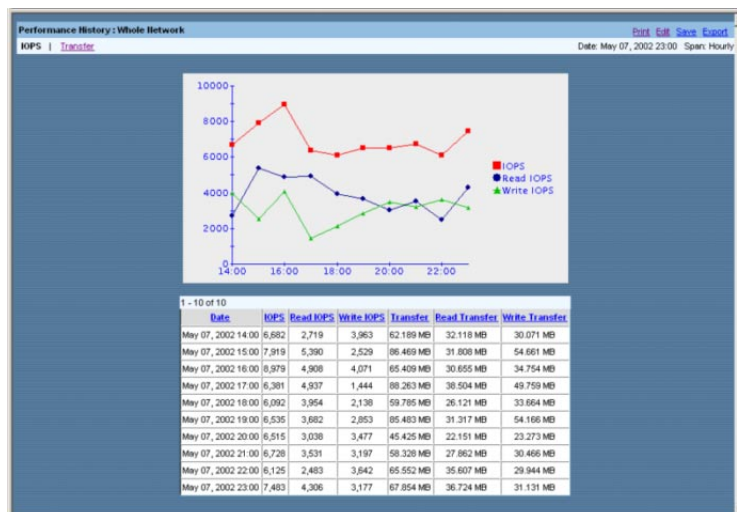


Figure 7.9 [Performance] Whole Network - Whole Network History

7.2.6 Whole Network Forecast

Table 7.9 [Performance] Whole Network - Whole Network Forecast

Report Type	Forecast (page 95)	
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS 	<ul style="list-style-type: none"> - Transfer - Read Transfer - Write Transfer
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85. 	

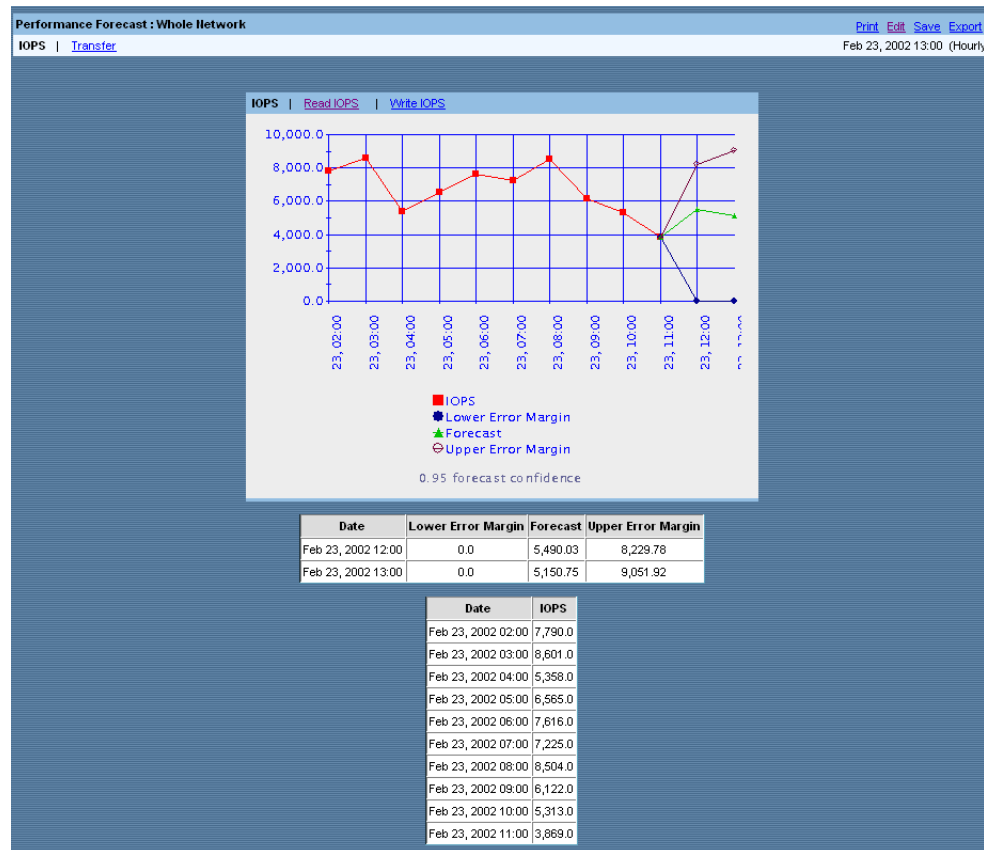


Figure 7.10 [Performance] Whole Network - Whole Network Forecast

7.2.7 Subnet Performance

Table 7.10 [Performance] Whole Network - Subnet Performance

Report Type	Sub-resource Summary (page 90)	
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS 	<ul style="list-style-type: none"> - Transfer - Read Transfer - Write Transfer
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85. 	

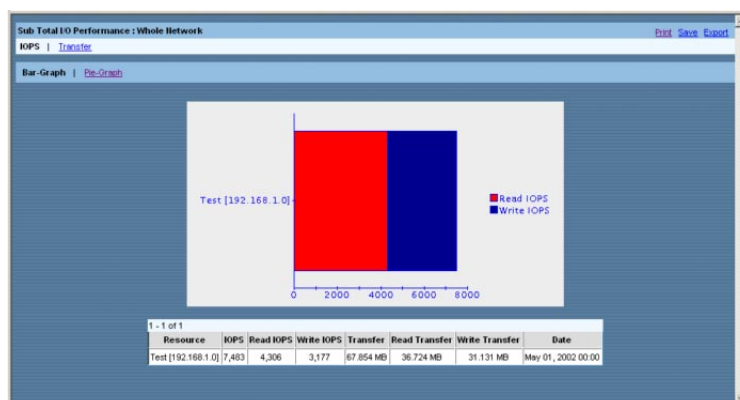


Figure 7.11 [Performance] Whole Network - Subnet Performance

7.2.8 Subnet History

Table 7.11 [Performance] Whole Network - Subnet History

Report Type	History (page 92)	
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS 	<ul style="list-style-type: none"> - Transfer - Read Transfer - Write Transfer
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85. 	

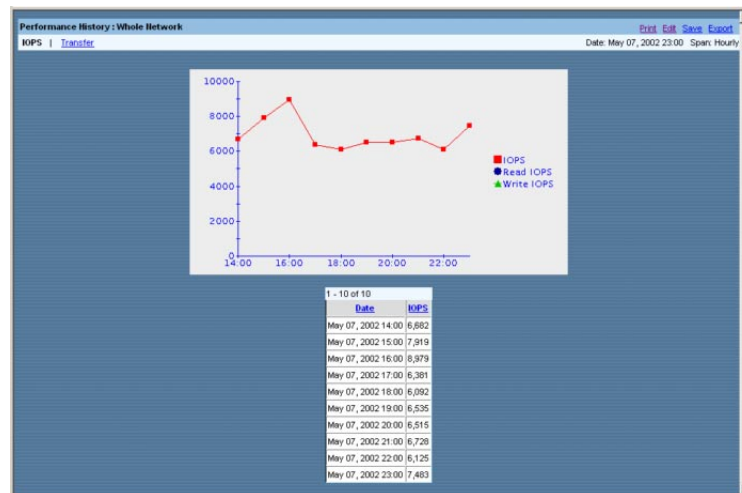


Figure 7.12 [Performance] Whole Network - Subnet History

7.2.9 List Servers

Table 7.12 [Performance] Whole Network - List Servers

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Server - Operating System - CPU Usage - Capacity - Used - Free - Free % 	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS - Transfer - Read Transfer - Write Transfer

Servers Performance : Whole Network Print Export
Jun 25, 2002 08:00 (Hourly)

1 - 4 of 4

Server	Operating System	CPU Usage	Capacity	Used	Free	Free %	IOPS	Read IOPS	Write IOPS	Transfer	Read Transfer	Write Transfer
apollo	HP-UX	100.0%	188.0 GB	80.0 GB	108.0 GB	57.45%	1,405.0	661.0	744.0	24.81 MB	7.36 MB	17.45 MB
asterix	Sun OS	100.0%	160.0 GB	56.0 GB	104.0 GB	65.0%	2,360.0	1,124.0	1,236.0	22.81 MB	21.15 MB	1.67 MB
bluebird	AIX	100.0%	160.0 GB	40.0 GB	120.0 GB	75.0%	1,468.0	760.0	708.0	11.2 MB	5.01 MB	6.19 MB
ratbert	Linux	100.0%	160.0 GB	78.0 GB	82.0 GB	51.25%	1,030.0	180.0	850.0	14.68 MB	5.12 MB	9.55 MB

Close

Figure 7.13 [Performance] Whole Network - List Servers

7.2.10 List Filesystems

Table 7.13 [Performance] Whole Network - List Filesystems

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Host - Operating System - Filesystem Type - Capacity - Used 	<ul style="list-style-type: none"> - Free - Free % - Filesystems Over Capacity - Inodes

Filesystems Performance : Whole Network Print Export
Jun 20, 2002 12:00 (Hourly)

1 - 3 of 3

Filesystem	Host	Operating System	Filesystem Type	Capacity	Used	Free	Free %	Filesystems Over Capacity	Growth Rate	Inodes
C:	SRM-TEST	Windows 2000	Win	4.0 GB	3.75 GB	253.0 MB	6.18%	Yes	0.08%	n/a
D:	SRM-TEST	Windows 2000	Win	5.32 GB	3.45 GB	1.87 GB	35.19%	Yes	0.0%	n/a
E:	SRM-TEST	Windows 2000	Win	9.3 GB	2.01 GB	7.29 GB	78.39%	Yes	0.0%	n/a

Close

Figure 7.14 [Performance] Whole Network - List Filesystems

8 - Subnetworks

8.1 Assigning A Subnetwork Alias

Note: This functionality is available to users with Administrator privileges.

When you would prefer a more friendly identification for a subnetwork instead of the default used by HiCommand™ Tuning Manager, you can assign an alias.

To assign an alias:

1. In the [Resource Tree](#), navigate to the subnetwork for you wish to assign an alias.



2. Click on the subnetwork's hyperlink to display the correct page in the [Information Frame](#).
3. Click on **Edit**.

Server Name	Operating System	Capacity	Used	Free	Free %	Filesystems Over Capacity	Growth Rate
apollo	HP-UX	128.0 GB	44.0 GB	84.0 GB	65.62%	0	-10.2%
asterix	Sun OS	57.0 GB	28.0 GB	29.0 GB	50.88%	1	-28.21%
bluebird	AIX	96.0 GB	31.0 GB	65.0 GB	67.71%	1	-35.42%

A window appears requesting the new alias for this subnetwork.

4. Click on **Save**.

5. Click on **OK**.

The Resource Tree refreshes, displaying the new alias.



8.2 Capacity (Subnetworks)

8.2.1 Basic Information

- [Servers](#)
- [Local Filesystems](#)
- [Capacity](#)
- [Used](#)
- [Free](#)
- [Free %](#)
- [Filesystems Over Capacity](#)
- [Growth Rate](#)

8.2.2 Sub-resource Information: Servers

The next lower level consists of all servers on this subnetwork. Each server is listed as a row in the table. The attributes displayed for each server are:

- Name- Name of storage-related hosts on the subnetwork
- [Local Filesystems](#)
- [Operating System](#)
- [Capacity](#)
- [Used](#)
- [Free](#)
- [Free %](#)
- [Servers](#)
- [Filesystems](#)
- [Filesystems Over Capacity](#)
- [Growth Rate](#)

Note: The time frame and [Collection Interval](#) displayed are determined by your current [Viewpoint](#) settings.

- See [Sorting Sub-resource Information](#) on page 19.

8.2.3 Favorite Charts

HiCommand™ Tuning Manager provides this area for Advanced Information charts you wish to monitor regularly.

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report. Instructions for doing this appear in [Adding Favorite Charts](#) (page 77).

8.2.4 **Advanced Information**

Under Advanced Information, HiCommand™ Tuning Manager provides hyperlinks to the following Capacity-related reports:

- [Subnet Capacity](#) (page 120)
- [Subnet History](#) (page 121)
- [Subnet Forecast](#) (page 122)
- [Server Capacity](#) (page 123)
- [Server History](#) (page 124)
- [List Filesystems](#) (page 126)
- For more about working with advanced reports, see [About Advanced Information Reports](#) on page 74. (This section covers [Changing Chart Type \(Bar or Pie\)](#), [Printing Advanced Information Reports](#), [Exporting Advanced Information Data](#), [Sorting Data Tables](#) and [Changing Performance Reports](#).)

8.2.5 **Subnet Capacity**

Table 8.1 Whole Network > Subnetwork- Subnet Capacity

Report Type	Sub-resource Summary (page 90)
Data	<ul style="list-style-type: none">- Used- Free- Capacity

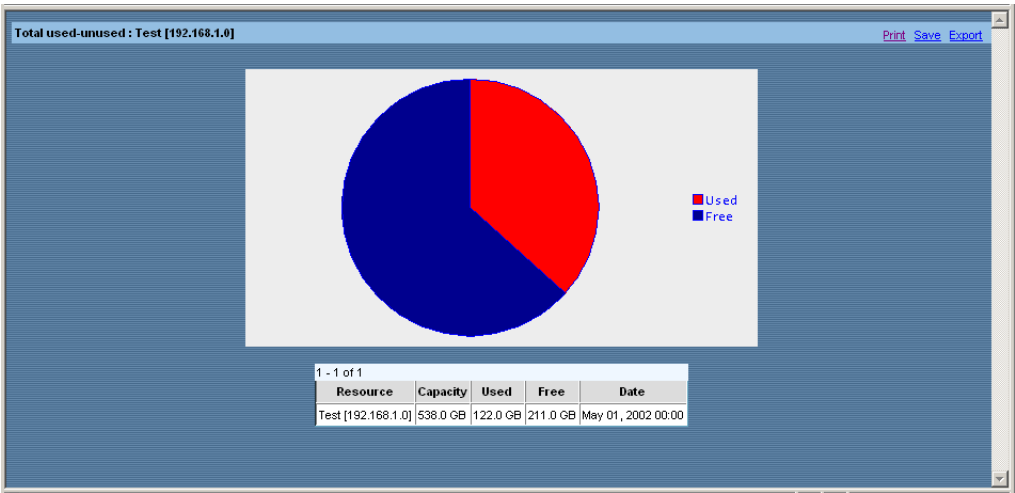


Figure 8.1 [Capacity] Whole Network > Subnetwork- Subnet Capacity

8.2.6 Subnet History

Table 8.2 [Capacity] Whole Network > Subnetwork- Subnet History

Report Type	History (page 92)
Data	<ul style="list-style-type: none"> - Used - Free - Capacity

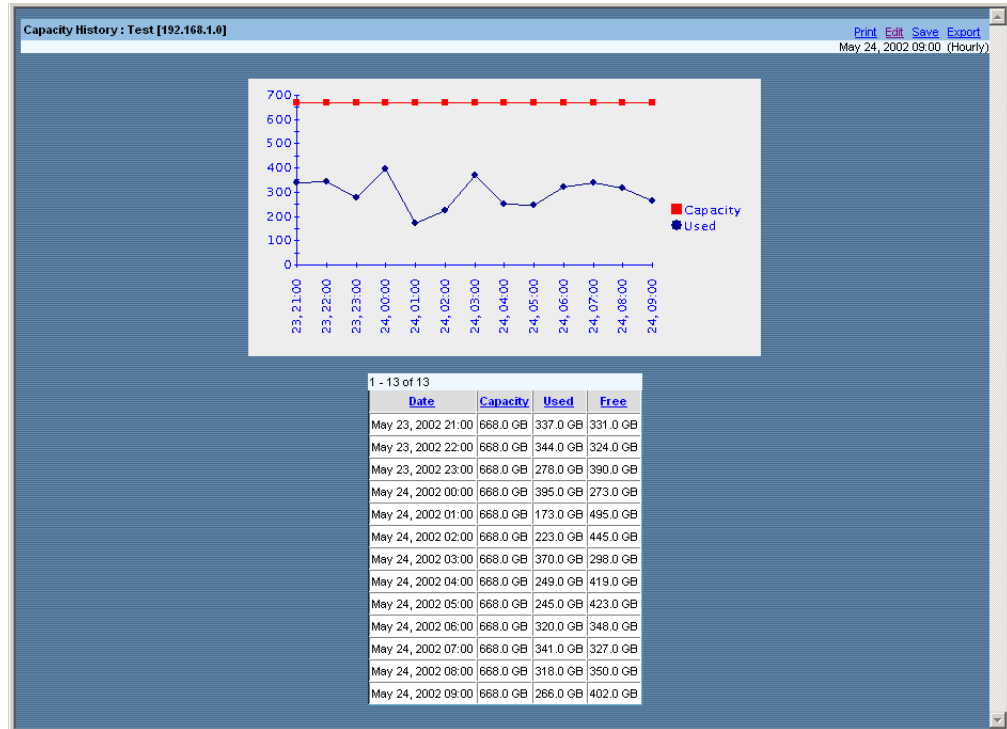


Figure 8.2 [Capacity] Whole Network > Subnetwork- Subnet History

8.2.7 Subnet Forecast

Table 8.3 [Capacity] Whole Network > Subnetwork- Subnet Forecast

Report Type	Forecast (page 95)
Data	<div><div>- Used</div><div>- Free</div><div>- Capacity</div></div>

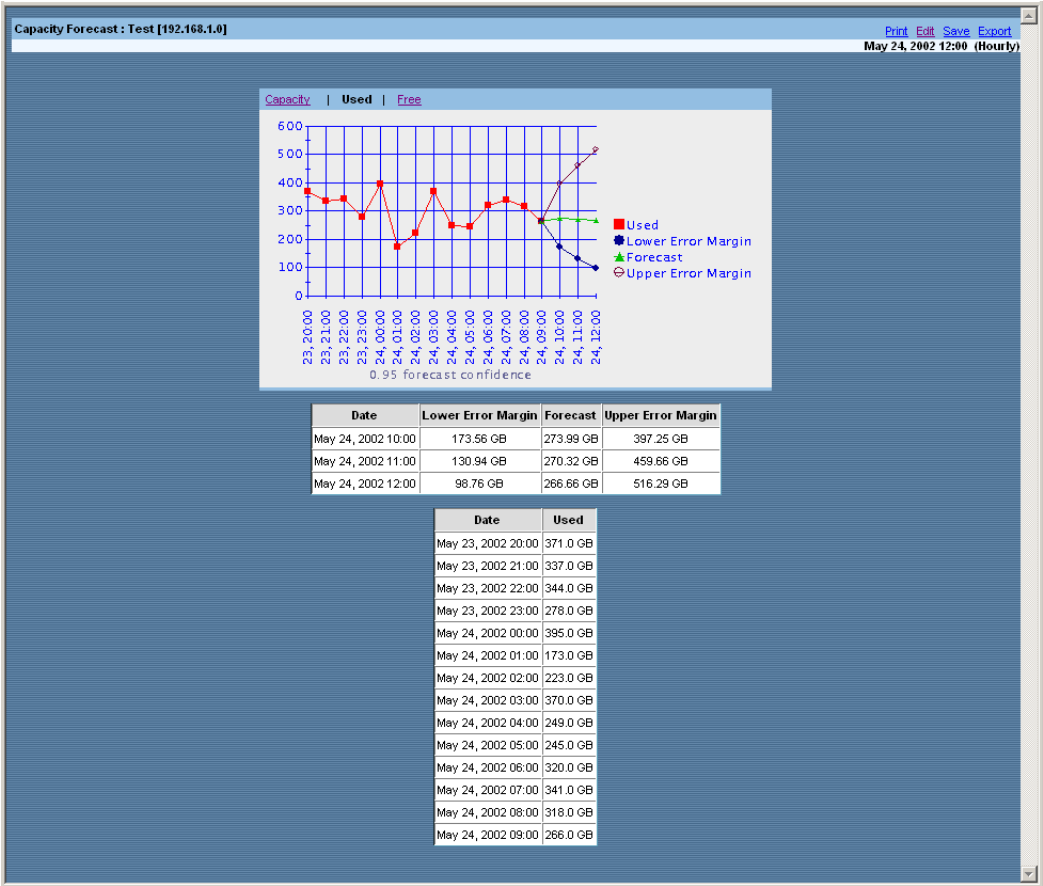


Figure 8.3 [Capacity] Whole Network > Subnetwork- Subnet Forecast

8.2.8 Server Capacity

Table 8.4 [Capacity] Whole Network > Subnetwork- Server Capacity

Report Type	Sub-resource Summary (page 90)
Data	<ul style="list-style-type: none"> - Used - Free - Capacity
Notes	For information on configuring capacity reports, see Changing Capacity Reports on page 85.

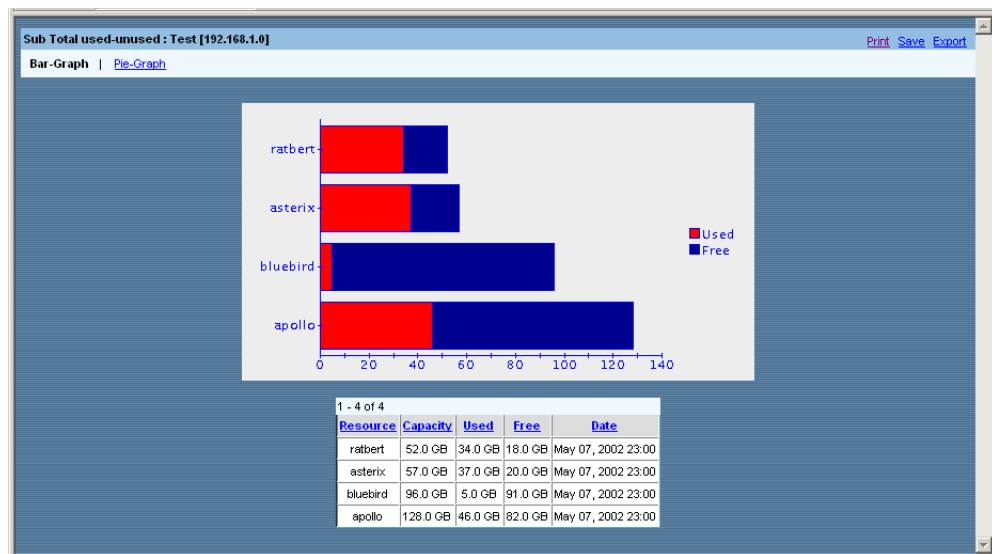


Figure 8.4 [Capacity] Whole Network > Subnetwork- Server Capacity

8.2.9 Server History

Table 8.5 [Capacity] Whole Network > Subnetwork- Server History

Report Type	History (page 92)
Data	<ul style="list-style-type: none">- Used- Free- Capacity
Notes	For information on configuring capacity reports, see Changing Capacity Reports on page 85.

To generate this report:

1. Select which servers you want included in the report.

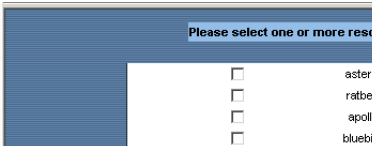


Figure 8.5 Selecting servers

2. Click **Get Report**.

The Server History report appears.

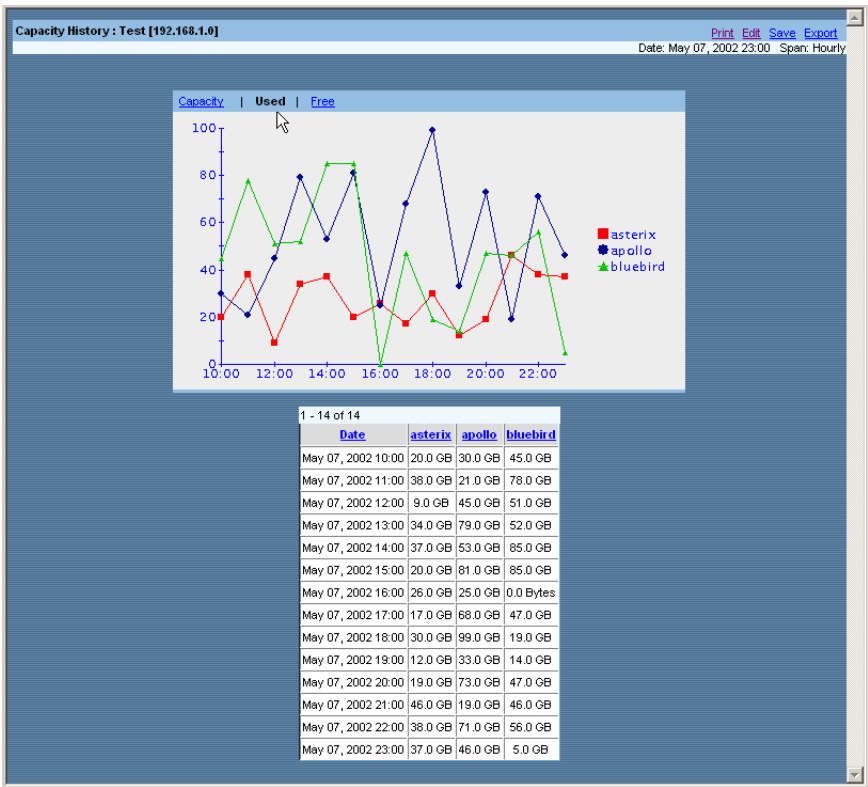


Figure 8.6 [Capacity] Whole Network > Subnetwork- Server History

8.2.10 List Filesystems

Table 8.6 [Capacity] Whole Network > Subnetwork- List Filesystems

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Host - Operating System - Filesystem Type - Capacity - Used 	<ul style="list-style-type: none"> - Free - Free % - Filesystems Over Capacity - Growth Rate - Inodes

Filesystems Performance : 192.168.1.0

Print Export

Jun 20, 2002 12:00 (Hourly)

1 - 3 of 3

Filesystem	Host	Operating System	Filesystem Type	Capacity	Used	Free	Free %	Filesystems Over Capacity	Growth Rate	Inodes
C:	SRM-TEST	Windows 2000	Win	4.0 GB	3.75 GB	253.0 MB	6.18%	Yes	0.08%	n/a
D:	SRM-TEST	Windows 2000	Win	5.32 GB	3.45 GB	1.87 GB	35.19%	Yes	0.0%	n/a
E:	SRM-TEST	Windows 2000	Win	9.3 GB	2.01 GB	7.29 GB	78.39%	Yes	0.0%	n/a

Figure 8.7 [Capacity] Whole Network > Subnetwork- List Filesystems

Note: The time frame and [Collection Interval](#) displayed are determined by your current [Viewpoint](#) settings.

8.3 Performance (Subnetworks)

8.3.1 Basic Information

- [Local Filesystems](#)
- [Servers](#)
- [Capacity](#)
- [Used](#)
- [IOPS](#)
- [Write IOPS](#)
- [Read IOPS](#)
- [Write Transfer](#)
- [Transfer](#)
- [Read Transfer](#)

8.3.2 Sub-resource Information: Servers

The next lower level consists of all servers on this subnetwork. Each server is listed as a row in the table. The attributes displayed for each server are:

- [Server](#)
- [Filesystems](#)
- [Local Filesystems](#)
- [Capacity](#)
- [Used](#)
- [IOPS](#)
- [Write IOPS](#)
- [Read IOPS](#)
- [Transfer](#)
- [Read Transfer](#)
- [Write Transfer](#)

Note: The time frame and [Collection Interval](#) displayed are determined by your current [Viewpoint](#) settings.

- See [Sorting Sub-resource Information](#) on page 19.

8.3.3 Favorite Charts

HiCommand™ Tuning Manager provides this area for Advanced Information charts you wish to monitor regularly.

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report. Instructions for doing this appear in [Adding Favorite Charts](#) (page 77).

8.3.4 Advanced Information

Under Advanced Information, HiCommand™ Tuning Manager provides hyperlinks to the following Capacity-related reports:

- [Subnet History](#) (page 128)
- [Subnet Forecast](#) (page 129)
- [Server Performance](#) (page 130)
- [Server History](#) (page 131)
- [List Filesystems](#) (page 133)
 - For more about working with advanced reports, see [About Advanced Information Reports](#) on page 74. (This section covers [Changing Chart Type \(Bar or Pie\)](#), [Printing Advanced Information Reports](#), [Exporting Advanced Information Data](#), [Sorting Data Tables](#) and [Changing Performance Reports](#).)

8.3.5 Subnet History

Table 8.7 [Performance] Whole Network > Subnetwork- Subnet History

Report Type	History (page 92)	
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS 	<ul style="list-style-type: none"> - Transfer - Read Transfer - Write Transfer
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85. 	

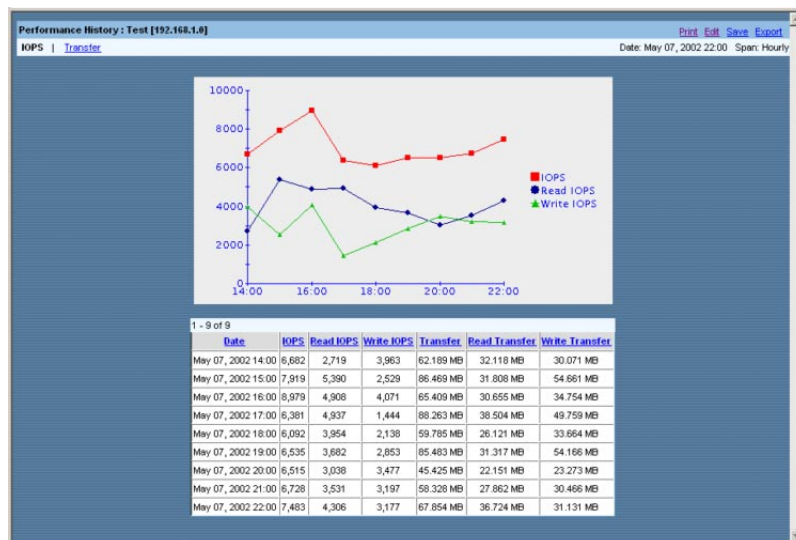


Figure 8.8 [Performance] Whole Network > Subnetwork- Subnet History

8.3.6 Subnet Forecast

Table 8.8 [Performance] Whole Network > Subnetwork- Subnet Forecast

Report Type	Forecast (page 95)	
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS 	<ul style="list-style-type: none"> - Transfer - Read Transfer - Write Transfer
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85. 	

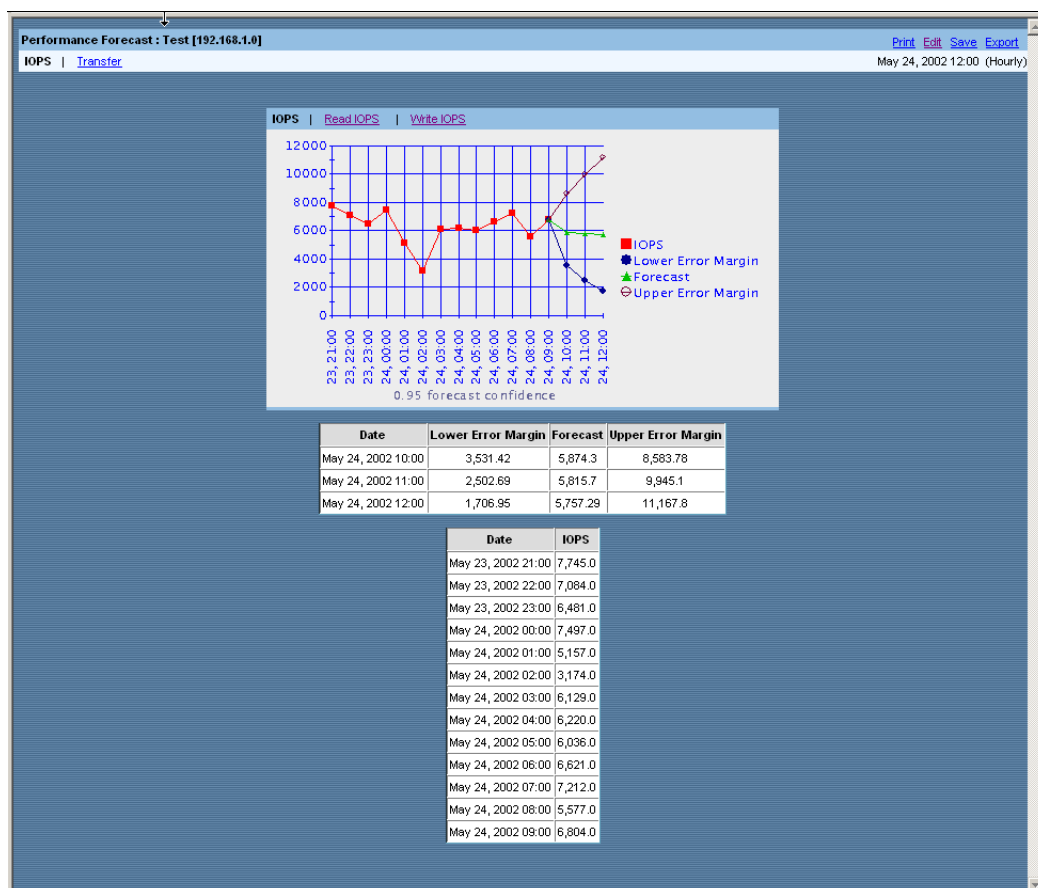


Figure 8.9 [Performance] Whole Network > Subnetwork- Subnet Forecast

8.3.7 Server Performance

Table 8.9 [Performance] Whole Network > Subnetwork- Server Performance

Report Type	Sub-resource Summary (page 90)	
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS 	<ul style="list-style-type: none"> - Transfer - Read Transfer - Write Transfer
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85. 	

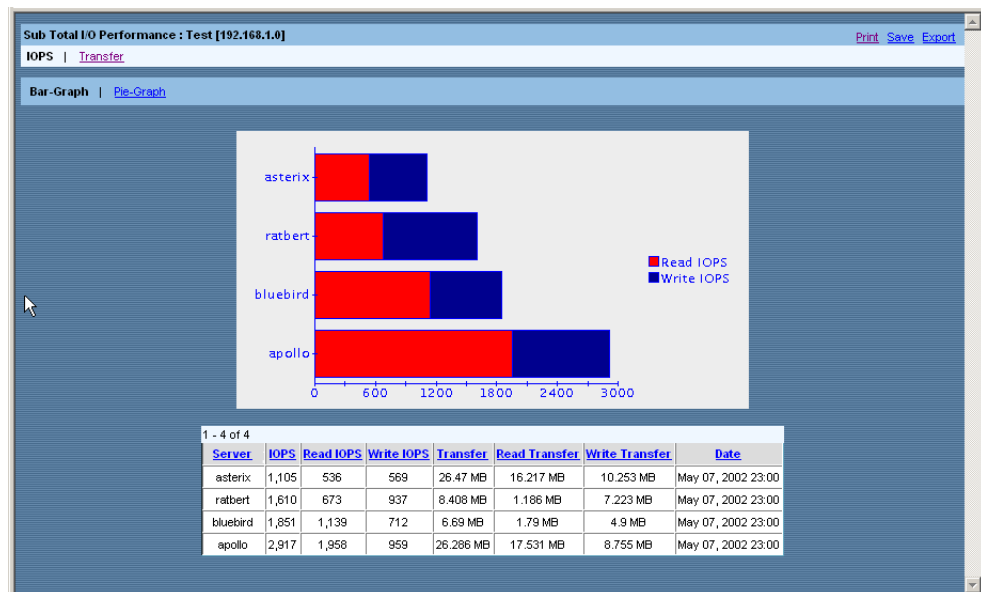


Figure 8.10 [Performance] Whole Network > Subnetwork- Server Performance

8.3.8 Server History

Table 8.10 [Performance] Whole Network > Subnetwork- Server History

Report Type	History (page 92)	
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS 	<ul style="list-style-type: none"> - Transfer - Read Transfer - Write Transfer
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85. 	

To generate this report:

1. Select which servers you want included in the report.

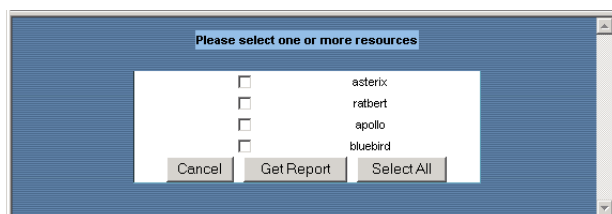


Figure 8.11 Selecting servers

2. Click **Get Report**.

The Server History report appears.

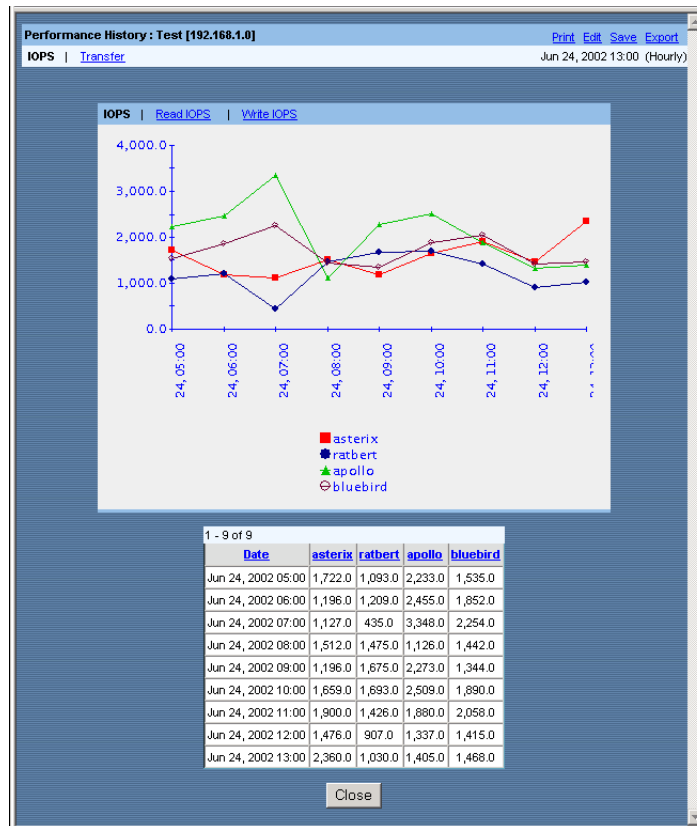


Figure 8.12 [Performance] Whole Network > Subnetwork- Server History

8.3.9 List Filesystems

Table 8.11 [Performance] Whole Network > Subnetwork- List Filesystems

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Filesystems - Host - Operating System - Filesystem Type - Capacity - Used 	<ul style="list-style-type: none"> - Free - Free % - Filesystems Over Capacity - Growth Rate - Inodes

Filesystems Performance : Test [192.168.1.0] Print Export
Jun 24, 2002 14:00 (Hourly)

1 - 9 of 9

Filesystem	Host	Operating System	Filesystem Type	Capacity	Used	Free	Free %	Filesystems Over Capacity	Growth Rate	Inodes
/text2/	bluebird	AIX	jfs	75.0 GB	2.0 GB	73.0 GB	97.33%	No	-93.1%	6,000,000
/text2/	ratbert	Linux	ext3	75.0 GB	23.0 GB	52.0 GB	69.33%	No	-63.49%	3,000,000
/text2/	asterix	Sun OS	ext2	75.0 GB	26.0 GB	49.0 GB	65.33%	No	-50.0%	6,000,000
/text2/apps	ratbert	Linux	ext3	85.0 GB	55.0 GB	30.0 GB	35.29%	No	-17.91%	8,000,000
/text2/client	apollo	HP-UX	ufs	75.0 GB	2.0 GB	73.0 GB	97.33%	No	-71.43%	9,000,000
/text2/entr	apollo	HP-UX	ufs	85.0 GB	72.0 GB	13.0 GB	15.29%	No	350.0%	8,000,000
/text2/exp	bluebird	AIX	jfs	85.0 GB	38.0 GB	47.0 GB	55.29%	No	90.0%	5,000,000
/text2/extra	apollo	HP-UX	ufs	28.0 GB	6.0 GB	22.0 GB	78.57%	No	-70.0%	7,000,000
/text2/home	asterix	Sun OS	etx2	85.0 GB	30.0 GB	55.0 GB	64.71%	No	20.0%	8,000,000

Close

Figure 8.13 [Performance] Whole Network > Subnetwork- List Filesystems

9 - Servers

9.1 Capacity (Servers)

9.1.1 Basic Information

- [Operating System](#)
- [IP Address](#)
- [Capacity](#)
- [Local Filesystems](#)
- [Imported Filesystem](#)
- [Used](#)
- [Raw Devices](#)
- [Free](#)
- [Free %](#)
- [Filesystems Over Capacity](#)
- [Growth Rate](#)

9.1.2 Sub-resource Information: Filesystems

The next lower level consists of all filesystems on this server. Each is listed as a row in the table. The attributes displayed for each filesystem are:

- [Mountpoint](#)
- [Filesystem Type](#)
- [Capacity](#)
- [Used](#)
- [Free](#)
- [Free %](#)
- [Growth Rate](#)
- [Filesystems Over Capacity](#)
- [Over Capacity](#)
- [Inodes](#)

Note: The time frame and [Collection Interval](#) displayed are determined by your current [Viewpoint](#) settings.

- See [Sorting Sub-resource Information](#) on page 19.

9.1.3 Favorite Charts

HiCommand™ Tuning Manager provides this area for Advanced Information charts you wish to monitor regularly.

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report. Instructions for doing this appear in [Adding Favorite Charts](#) (page 77).

9.1.4 Advanced Information (Servers)

Under Advanced Information, HiCommand™ Tuning Manager provides hyperlinks to the following Capacity-related reports:

- [Server Capacity](#) (page 137)
- [Server History](#) (page 138)
- [Server Forecast](#) (page 139)
- [Filesystem Capacity](#) (page 140)
- [Filesystem History](#) (page 141)
- [List Device Files](#) (page 142)
 - For more about working with advanced reports, see [About Advanced Information Reports](#) on page 74. (This section covers [Changing Chart Type \(Bar or Pie\)](#), [Printing Advanced Information Reports](#), [Exporting Advanced Information Data](#), [Sorting Data Tables](#) and [Changing Performance Reports](#).)

Note: The time frame and [Collection Interval](#) displayed are determined by your current [Viewpoint](#) settings.

9.1.5 Server Capacity

Table 9.1 [Capacity] Whole Network > Subnetwork > Servers - Server Capacity

Report Type	Resource Summary (page 89)
Data	<ul style="list-style-type: none"> - Capacity - Used - Free
- Notes	<ul style="list-style-type: none"> - For information on configuring capacity reports, see Changing Capacity Reports on page 85.

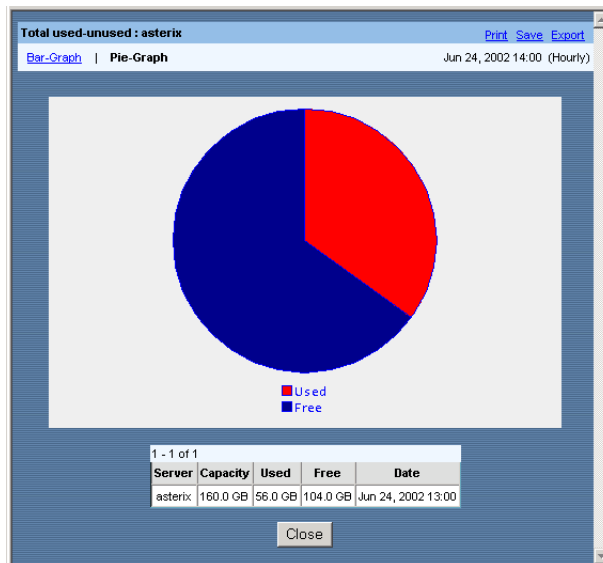


Figure 9.1 [Capacity] Whole Network > Subnetwork > Servers - Server Capacity

9.1.6 Server History

Table 9.2 [Capacity] Whole Network > Subnetwork > Servers - Server History

Report Type	History (page 92)
Data	<ul style="list-style-type: none">- Used- Free- Capacity

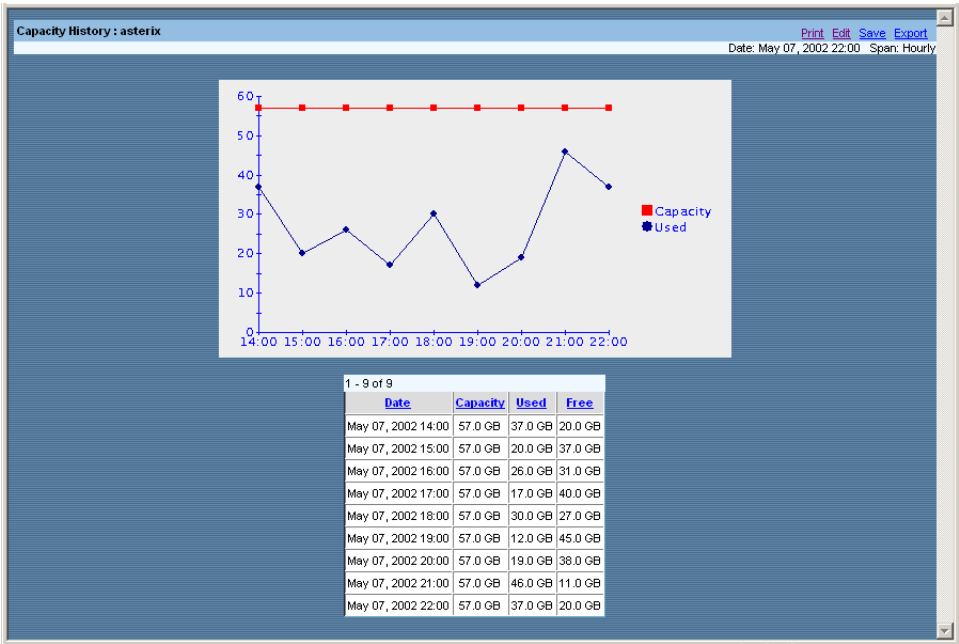


Figure 9.2 [Capacity] Whole Network > Subnetwork > Servers - Server History

9.1.7 Server Forecast

Table 9.3 [Capacity] Whole Network > Subnetwork > Servers - Server Forecast

Report Type	Forecast (page 95)
Data	<ul style="list-style-type: none"> - Used - Free - Capacity
Notes	<ul style="list-style-type: none"> - For information on configuring capacity reports, see Changing Capacity Reports on page 85.

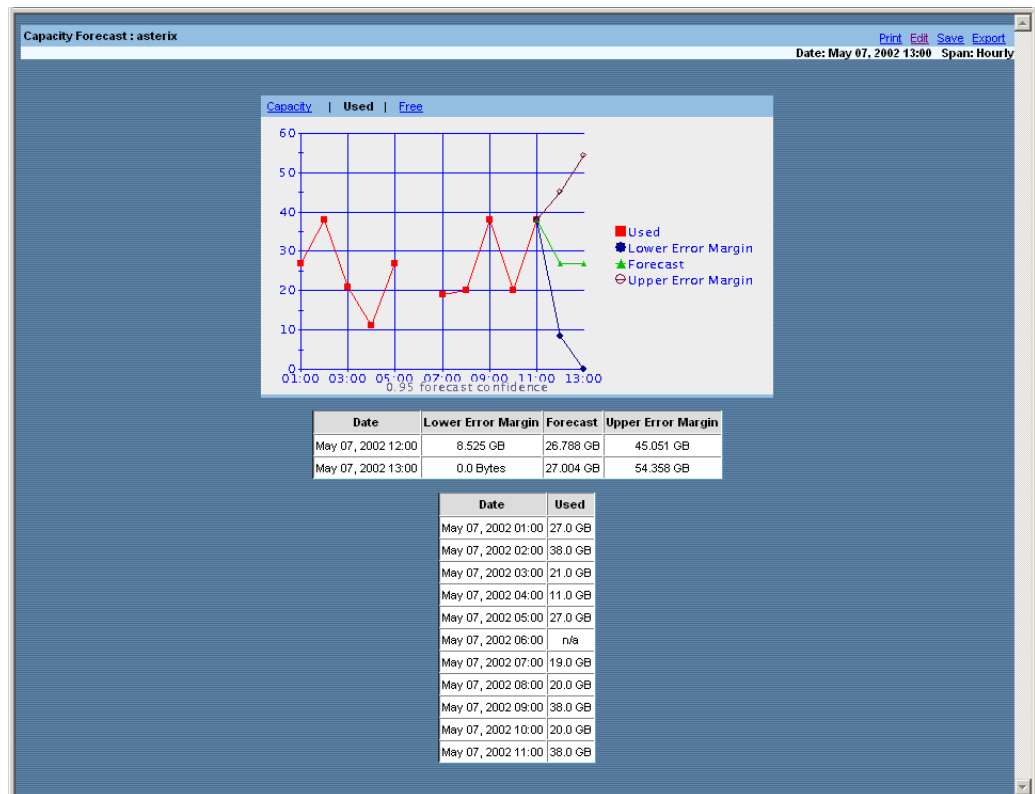


Figure 9.3 [Capacity] Whole Network > Subnetwork > Servers - Server Forecast

9.1.8 Filesystem Capacity

Table 9.4 [Capacity] Whole Network > Subnetwork > Servers - Filesystem Capacity

Report Type	Sub-resource Summary (page 90)
Data	<ul style="list-style-type: none">- Filesystems- Capacity- Used- Free
Notes	<ul style="list-style-type: none">- For information on configuring capacity reports, see Changing Capacity Reports on page 85.

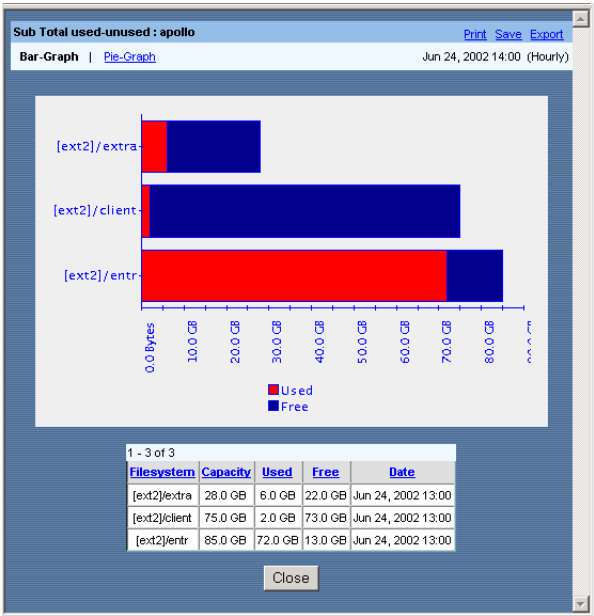


Figure 9.4 [Capacity] Whole Network > Subnetwork > Servers - Filesystem Capacity

9.1.9 Filesystem History

Table 9.5 [Capacity] Whole Network > Subnetwork > Servers - Filesystem History

Report Type	History (page 92)
Data	<ul style="list-style-type: none"> - Used - Free - Capacity
Notes	<ul style="list-style-type: none"> - For information on configuring capacity reports, see Changing Capacity Reports on page 85.

1. Select which filesystems to include in the report.

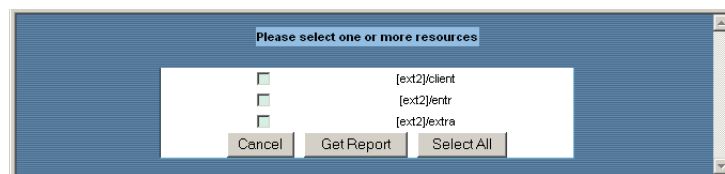


Figure 9.5 Selecting filesystems

2. Click on **Get Report**.

The Filesystem History report appears.

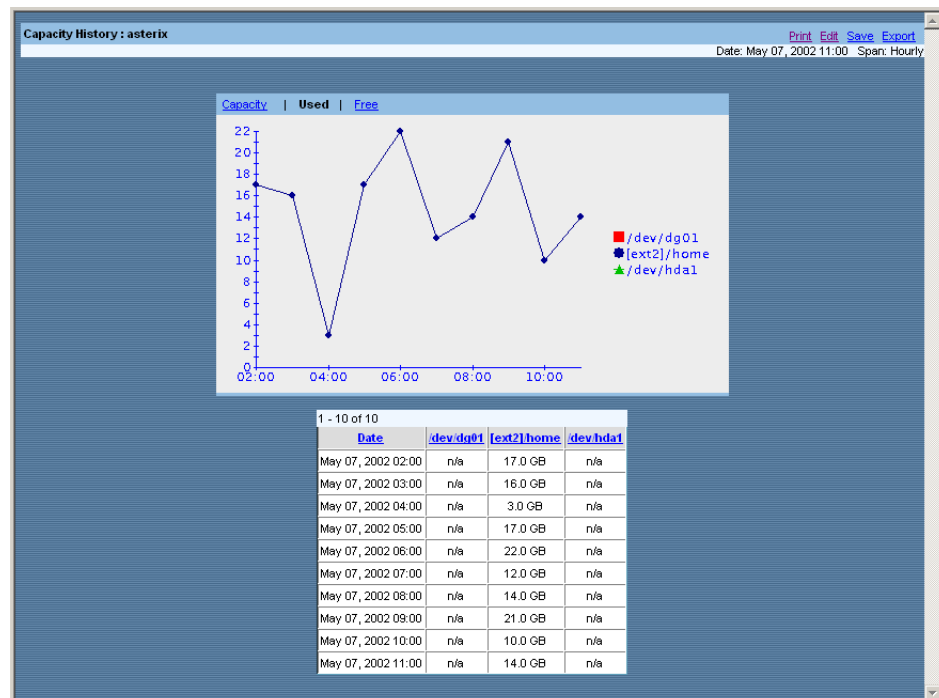
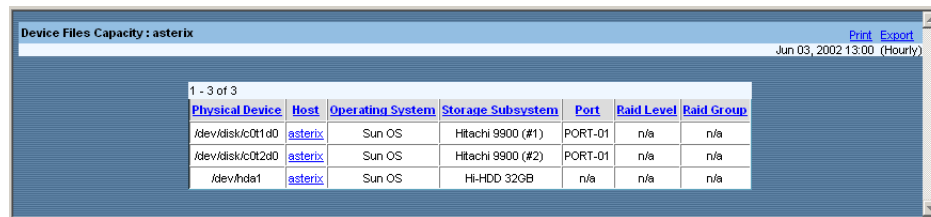


Figure 9.6 [Capacity] Whole Network > Subnetwork > Servers - Filesystem History

9.1.10 List Device Files

Table 9.6 [Capacity] Whole Network > Subnetwork > Servers - List Device Files

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Physical Device - Host - Operating System - Storage Subsystem 	<ul style="list-style-type: none"> - Port - RAID Level - RAID Group



Physical Device	Host	Operating System	Storage Subsystem	Port	Raid Level	Raid Group
/dev/disk/c0t1d0	asterix	Sun OS	Hitachi 9900 (#1)	PORT-01	n/a	n/a
/dev/disk/c0t2d0	asterix	Sun OS	Hitachi 9900 (#2)	PORT-01	n/a	n/a
/dev/hda1	asterix	Sun OS	Hi-HDD 32GB	n/a	n/a	n/a

Figure 9.7 [Capacity] Whole Network > Subnetwork > Servers - List Device Files

9.2 Performance (Servers)

9.2.1 Basic Information

- [Operating System](#)
- [Capacity](#)
- [Used](#)
- [CPU Usage](#)
- [Memory](#)
- [IOPS](#)
- [Write IOPS](#)
- [Read IOPS](#)
- [Transfer](#)
- [Write Transfer](#)
- [Read Transfer](#)
- [Local Filesystems](#)
- [Imported Filesystem](#)
- [Raw Devices](#)

9.2.2 Sub-resource Information: Filesystems

The next lower level consists of all filesystems on this server. Each is listed as a row in the table. The attributes displayed for each filesystem are:

- [Mountpoint](#)
- [Filesystem Type](#)
- [Capacity](#)
- [Used](#)
- [Free](#)
- [Free %](#)
- [Growth Rate](#)
- [Over Capacity](#)
- [Inodes](#)

Note: The time frame and [Collection Interval](#) displayed are determined by your current [Viewpoint](#) settings.

- See [Sorting Sub-resource Information](#) on page 19.

9.2.3 Favorite Charts

HiCommand™ Tuning Manager provides this area for Advanced Information charts you wish to monitor regularly.

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report. Instructions for doing this appear in [Adding Favorite Charts](#) (page 77).

9.2.4 Advanced Information

Under Advanced Information, HiCommand™ Tuning Manager provides hyperlinks to the following Performance-related reports:

- [Server History](#) (page 145)
- [Device History](#) (page 146)
- [Server Forecast](#) (page 147)
- [Device Forecast](#) (page 148)
- [List Device Files](#) (page 150)
- [Device Performance](#) (page 151)
 - For more about working with advanced reports, see [About Advanced Information Reports](#) on page 74. (This section covers [Changing Chart Type \(Bar or Pie\)](#), [Printing Advanced Information Reports](#), [Exporting Advanced Information Data](#), [Sorting Data Tables](#) and [Changing Performance Reports](#).)

9.2.5 Server History

Table 9.7 [Performance] Whole Network > Subnetwork > Servers - Server History

Report Type	History (page 92)	
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS 	<ul style="list-style-type: none"> - Transfer - Read Transfer - Write Transfer
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85. 	

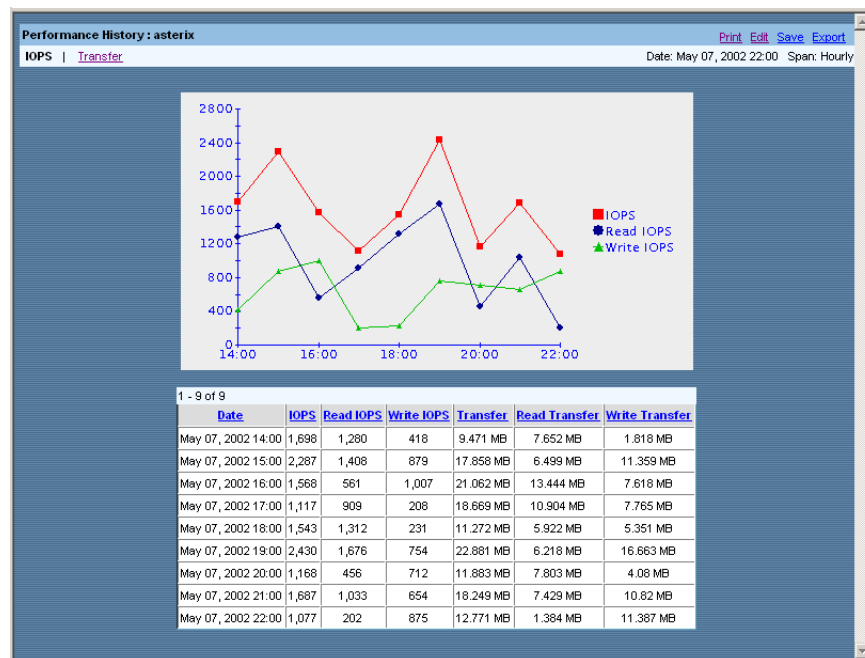


Figure 9.8 [Performance] Whole Network > Subnetwork > Servers - Server History

9.2.6 Device History

Table 9.8 [Performance] Whole Network > Subnetwork > Servers - Device History

Report Type	History (page 92)	
Data	<div><div>- IOPS</div><div>- Read IOPS</div><div>- Write IOPS</div></div>	<div><div>- Transfer</div><div>- Read Transfer</div><div>- Write Transfer</div></div>
Notes	<div>- For more information on configuring this report, see Changing Performance Reports on page 85.</div>	

To produce a device history:

- Select the device.

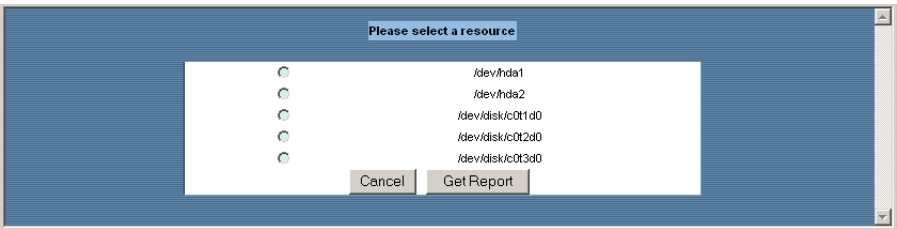


Figure 9.9 Selecting a device

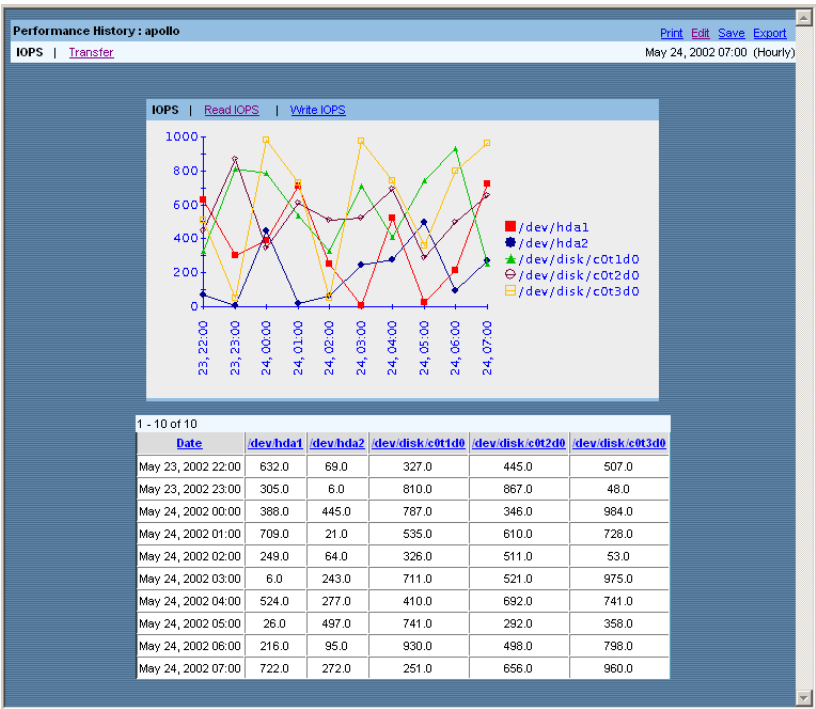


Figure 9.10 [Performance] Whole Network > Subnetwork > Servers - Device History

9.2.7 Server Forecast

Table 9.9 [Performance] Whole Network > Subnetwork > Servers - Server Forecast

Report Type	Forecast (page 95)	
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS 	<ul style="list-style-type: none"> - Transfer - Read Transfer - Write Transfer
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85. 	

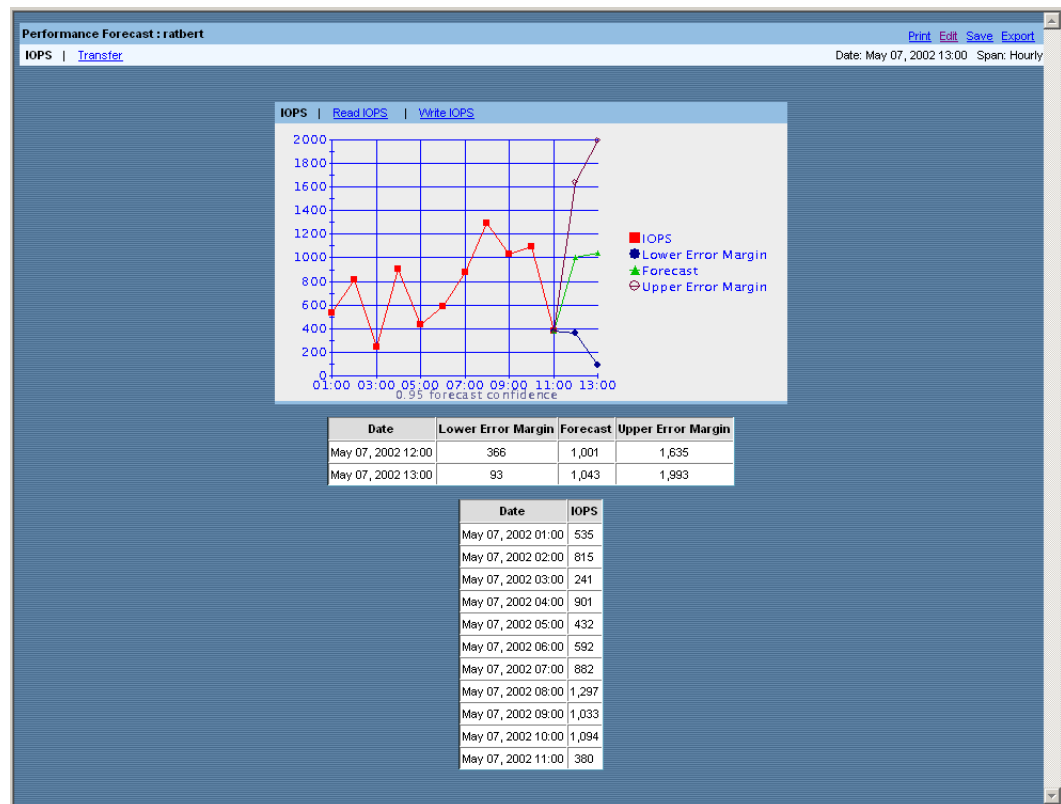


Figure 9.11 [Performance] Whole Network > Subnetwork > Servers - Server Forecast

9.2.8 Device Forecast

Table 9.10 [Performance] Whole Network > Subnetwork > Servers - Device Forecast

Report Type	Forecast (page 95)	
Data	<ul style="list-style-type: none">- IOPS- Read IOPS- Write IOPS	<ul style="list-style-type: none">- Transfer- Read Transfer- Write Transfer
Notes	<ul style="list-style-type: none">- For more information on configuring this report, see Changing Performance Reports on page 85.	

To produce a device forecast:

- Select the device to be forecasted.

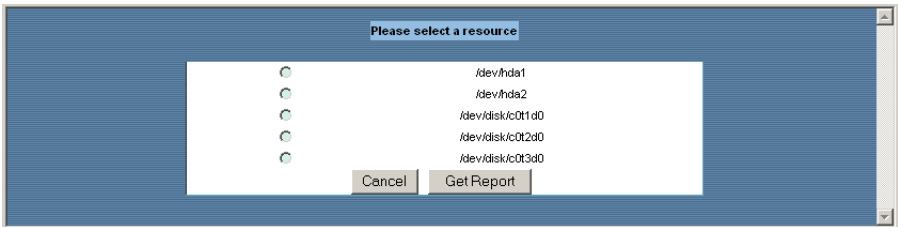


Figure 9.12 Selecting a device to be forecasted

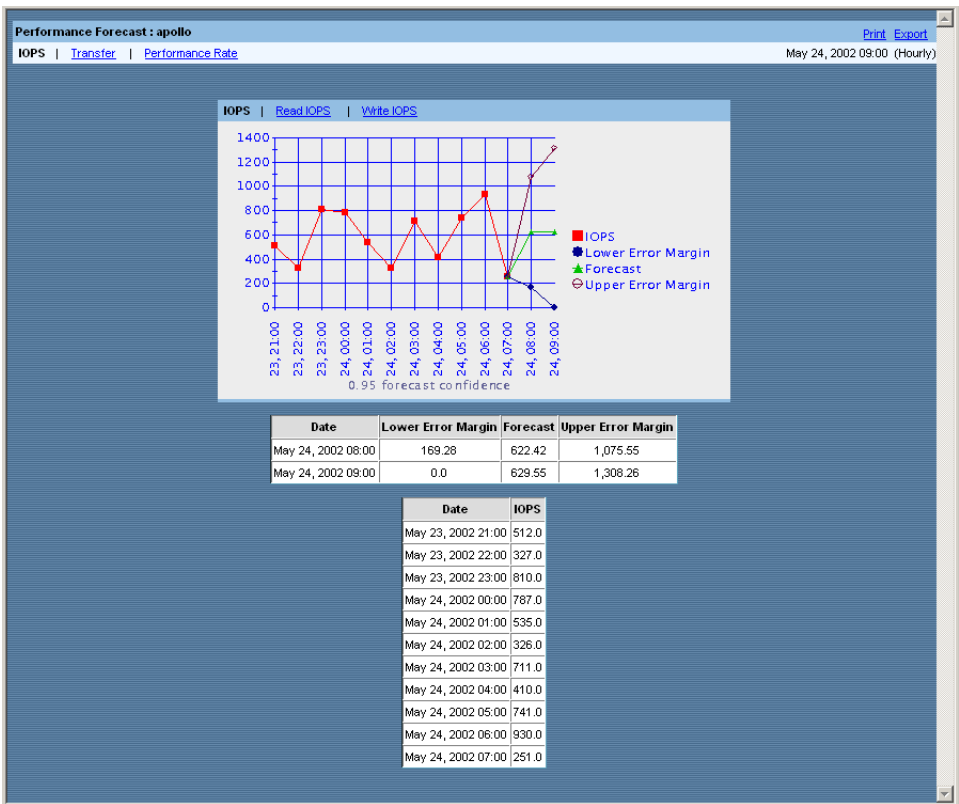
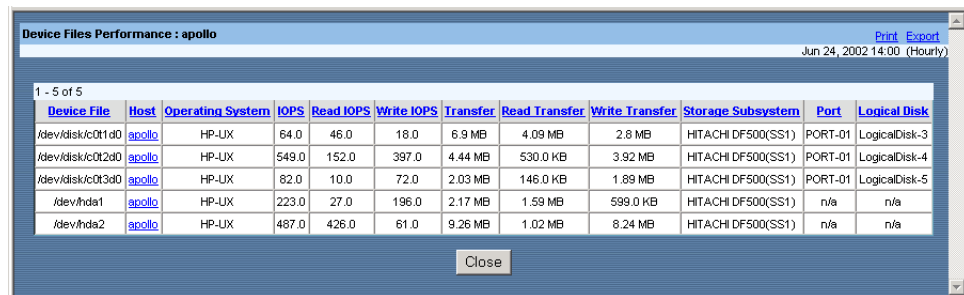


Figure 9.13 [Performance] Whole Network > Subnetwork > Servers - Device Forecast

9.2.9 List Device Files

Table 9.11 [Performance] Whole Network > Subnetwork > Servers - List Device Files

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Device File - Host - Operating System - IOPS - Read IOPS - Write IOPS 	<ul style="list-style-type: none"> - Transfer - Read Transfer - Write Transfer - Storage Subsystem - Port - Logical Disk



The screenshot shows a window titled "Device Files Performance : apollo" with a "Print Export" button and a timestamp "Jun 24, 2002 14:00 (Hourly)". Below the title bar, it indicates "1 - 5 of 5" records. The table has the following columns: Device File, Host, Operating System, IOPS, Read IOPS, Write IOPS, Transfer, Read Transfer, Write Transfer, Storage Subsystem, Port, and Logical Disk. The data rows are as follows:

Device File	Host	Operating System	IOPS	Read IOPS	Write IOPS	Transfer	Read Transfer	Write Transfer	Storage Subsystem	Port	Logical Disk
/dev/disk/c0t1d0	apollo	HP-UX	64.0	46.0	18.0	6.9 MB	4.09 MB	2.8 MB	HITACHI DF500(SS1)	PORT-01	LogicalDisk-3
/dev/disk/c0t2d0	apollo	HP-UX	549.0	152.0	397.0	4.44 MB	530.0 KB	3.92 MB	HITACHI DF500(SS1)	PORT-01	LogicalDisk-4
/dev/disk/c0t3d0	apollo	HP-UX	82.0	10.0	72.0	2.03 MB	146.0 KB	1.89 MB	HITACHI DF500(SS1)	PORT-01	LogicalDisk-5
/dev/hda1	apollo	HP-UX	223.0	27.0	196.0	2.17 MB	1.59 MB	599.0 KB	HITACHI DF500(SS1)	n/a	n/a
/dev/hda2	apollo	HP-UX	487.0	426.0	61.0	9.26 MB	1.02 MB	8.24 MB	HITACHI DF500(SS1)	n/a	n/a

A "Close" button is located at the bottom right of the window.

Figure 9.14 [Performance] Whole Network > Subnetwork > Servers - List Device Files

9.2.10 Device Performance

Table 9.12 [Performance] Whole Network > Subnetwork > Servers - Device Performance

Report Type	Sub-resource Summary (page 90)	
Data	<ul style="list-style-type: none">- Device File- IOPS- Read IOPS- Write IOPS	<ul style="list-style-type: none">- Transfer- Read Transfer- Write Transfer
Notes	<ul style="list-style-type: none">- For more information on configuring this report, see Changing Performance Reports on page 85.	

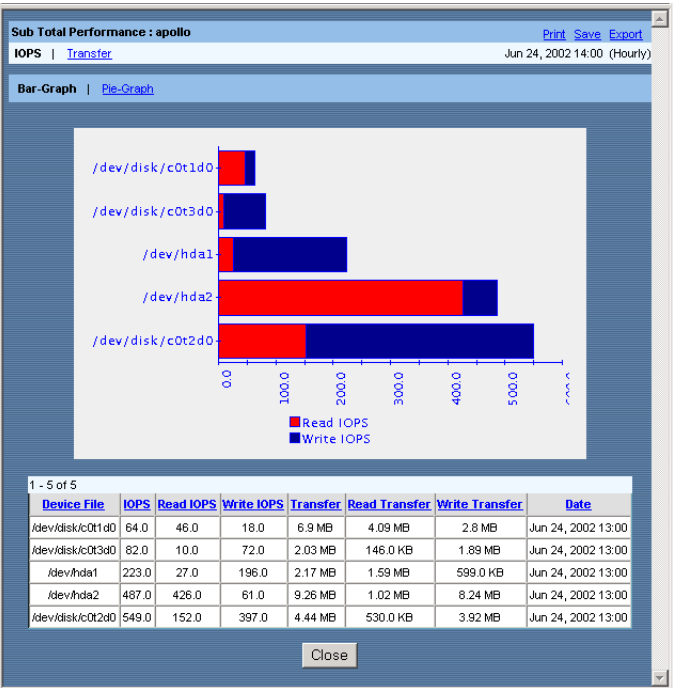


Figure 9.15 [Performance] Whole Network > Subnetwork > Servers - Device Performance

10 - Filesystem

10.1 Capacity (Filesystem)

10.1.1 Basic Information

- [Mountpoint](#)
- [Capacity](#)
- [Used](#)
- [Free](#)
- [Free %](#)
- [Growth Rate](#)
- [Filesystem Type](#)
- [Inodes](#)
- [Volume](#)
- [Disk Group](#)

Note: The time frame and [Collection Interval](#) displayed are determined by your current [Viewpoint](#) settings.

10.1.2 Sub-resource Information (Disk Group)

The next lower level consists of all disk groups within this filesystem. Each is listed as a row in the table. The attributes displayed for each disk group are:

- [Device File](#)
- Product
- [Port](#)
- [Logical Disk](#)
- [LUN \(Logical Unit\)](#)

Note: The time frame and [Collection Interval](#) displayed are determined by your current [Viewpoint](#) settings.

- See [Sorting Sub-resource Information](#) on page 19.

10.1.3 Favorite Charts

HiCommand™ Tuning Manager provides this area for Advanced Information charts you wish to monitor regularly.

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report. Instructions for doing this appear in [Adding Favorite Charts](#) (page 77).

10.1.4 Advanced Information

Under Advanced Information, HiCommand™ Tuning Manager provides hyperlinks to the following Capacity-related reports:

- [Filesystem Capacity](#) (page 155)
- [Filesystem History](#) (page 156)
- [Filesystem Forecast](#) (page 157)
- [Device Files Detail](#) (page 158)
 - For more about working with advanced reports, see [About Advanced Information Reports](#) on page 74. (This section covers [Changing Chart Type \(Bar or Pie\)](#), [Printing Advanced Information Reports](#), [Exporting Advanced Information Data](#), [Sorting Data Tables](#) and [Changing Performance Reports](#).)

10.1.5 Filesystem Capacity

Table 10.1 [Capacity] Whole Network > Subnetwork > Servers > Filesystems - Filesystem Capacity

Report Type	Resource Summary (page 89)
Data	<ul style="list-style-type: none"> - Filesystems - Capacity - Used - Free
Notes	<ul style="list-style-type: none"> - For information on configuring capacity reports, see Changing Capacity Reports on page 85.

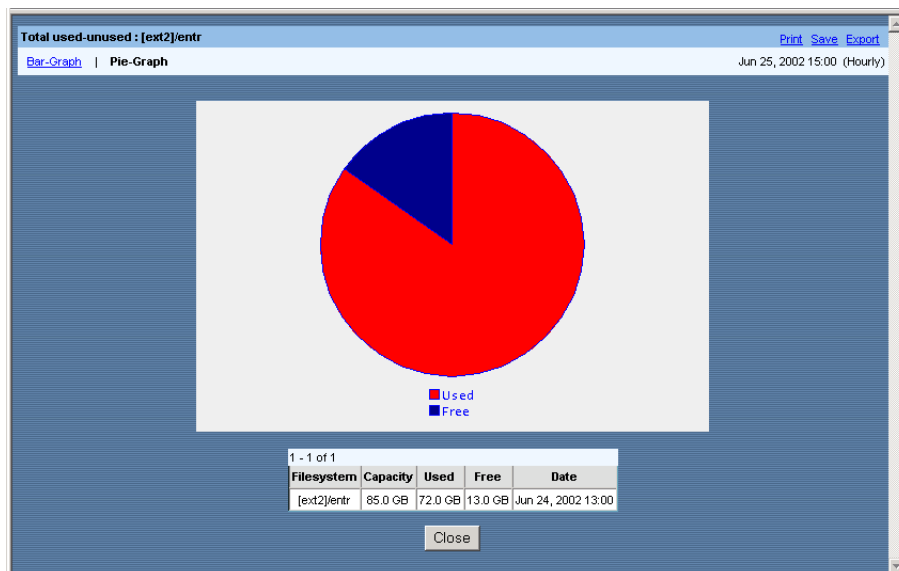


Figure 10.1 [Capacity] Whole Network > Subnetwork > Servers > Filesystems - Filesystem Capacity

10.1.6 Filesystem History

Table 10.2 [Capacity] Whole Network > Subnetwork > Servers > Filesystems - Filesystem History

Report Type	History (page 92)
Data	<ul style="list-style-type: none"> - Used - Free - Capacity

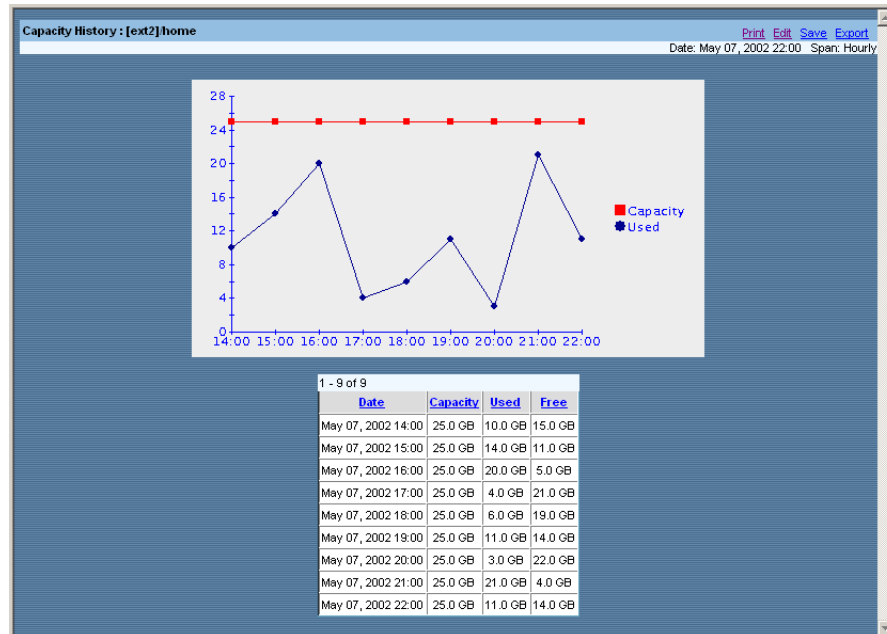


Figure 10.2 [Capacity] Whole Network > Subnetwork > Servers > Filesystems - Filesystem History

10.1.7 Filesystem Forecast

Table 10.3 [Capacity] Whole Network > Subnetwork > Servers > Filesystems - Filesystem Forecast

Report Type	Forecast (page 95)
Data	<ul style="list-style-type: none">- Used- Free- Capacity
Notes	<ul style="list-style-type: none">- For information on configuring capacity reports, see Changing Capacity Reports on page 85.

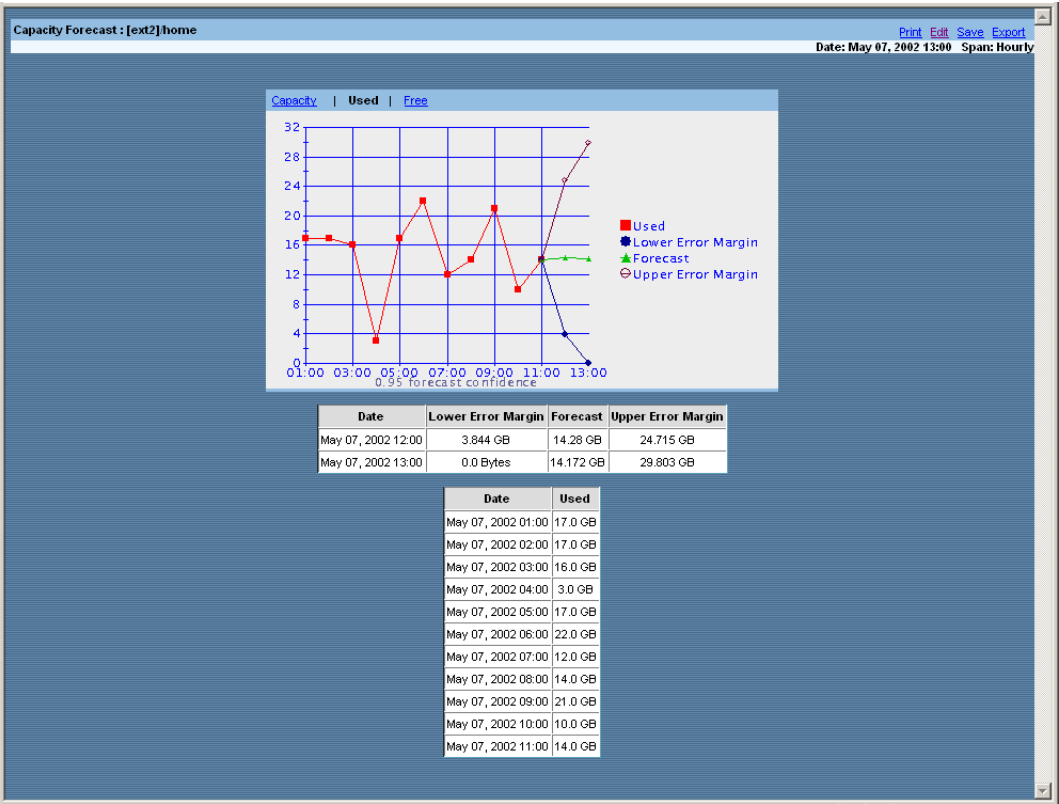


Figure 10.3 [Capacity] Whole Network > Subnetwork > Servers > Filesystems - Filesystem Forecast

10.1.8 Device Files Detail

Table 10.4 [Capacity] Whole Network > Subnetwork > Servers > Filesystems - Device Files Detail

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Device File - Target - LUN (Logical Unit) - WWN Node - Port - WWN Port 	<ul style="list-style-type: none"> - Storage Subsystem - Logical Disk - RAID Level - RAID Group
Notes	<ul style="list-style-type: none"> - .For information on configuring capacity reports, see Changing Capacity Reports on page 85. 	

Device Files : /mnt1 [Print](#) [Export](#)
Jul 09, 2002 15:00 (Hourly)

1 - 10 of 10

Device File	Target	LUN	WWN Node	WWN Port	Storage Subsystem	Port	Logical Disk	Raid Level	Raid Group
sd0	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A0	0	RAID5	0
sd1	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A1	1	RAID5	0
sd2	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A2	2	RAID5	0
sd3	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A3	3	RAID5	0
sd4	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A4	4	RAID5	0
sd5	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A5	5	RAID5	0
sd6	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A6	6	RAID5	0
sd7	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A7	7	RAID5	0
sd8	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A8	8	RAID5	0
sd9	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A9	9	RAID5	0

Close

Figure 10.4 [Capacity] Whole Network > Subnetwork > Servers > Filesystems - Device Files Detail

10.2 Performance (Filesystem)

10.2.1 Basic Information

- [Mountpoint](#)
- [Capacity](#)
- [Used](#)
- [Free](#)
- [Free %](#)
- [Growth Rate](#)
- [Filesystem Type](#)
- [Inodes](#)
- [Volume](#)
- [Disk Group](#)

Note: The time frame and [Collection Interval](#) displayed are determined by your current [Viewpoint](#) settings.

10.2.2 Sub-resource (Disk Group)

The next lower level consists of all disk groups within this filesystem. Each is listed as a row in the table. The attributes displayed for each disk group are:

- [Device File](#)
- [IOPS](#)
- [Transfer](#)
- [Write IOPS](#)
- [Read IOPS](#)
- [Write Transfer](#)
- [Read Transfer](#)
- Product
- Port
- [Logical Disk](#)
- [LUN \(Logical Unit\)](#)

- See [Sorting Sub-resource Information](#) on page 19.

10.2.3 Favorite Charts

HiCommand™ Tuning Manager provides this area for Advanced Information charts you wish to monitor regularly.

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report. Instructions for doing this appear in [Adding Favorite Charts](#) (page 77).

10.2.4 Advanced Information

Under Advanced Information, HiCommand™ Tuning Manager provides hyperlinks to the following Performance-related reports:

- [Device History](#) (page 160)
- [Device Forecast](#) (page 162)
- [Device Detail](#) (page 164)
- [Port History](#) (page 165)
- [Port Forecast](#) (page 166)
- [Logical Disk History](#) (page 167)
- [Logical Disk Forecast](#) (page 169)
 - For more about working with advanced reports, see [About Advanced Information Reports](#) on page 74. (This section covers [Changing Chart Type \(Bar or Pie\)](#), [Printing Advanced Information Reports](#), [Exporting Advanced Information Data](#), [Sorting Data Tables](#) and [Changing Performance Reports](#).)

10.2.5 Device History

Table 10.5 [Performance] Whole Network > Subnetwork > Servers > Filesystems - Device History

Report Type	History (page 92)	
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS 	<ul style="list-style-type: none"> - Transfer - Read Transfer - Write Transfer
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85. 	

To produce a history report:

- Select the device.

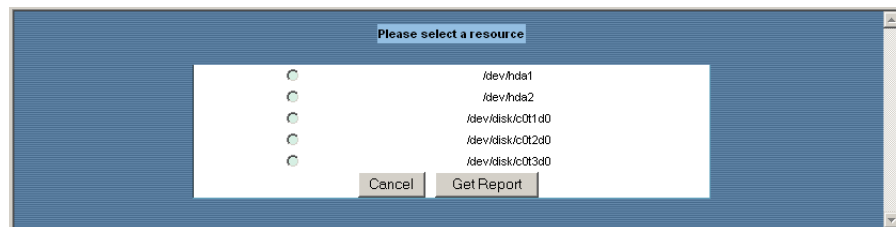


Figure 10.5 Selecting a device

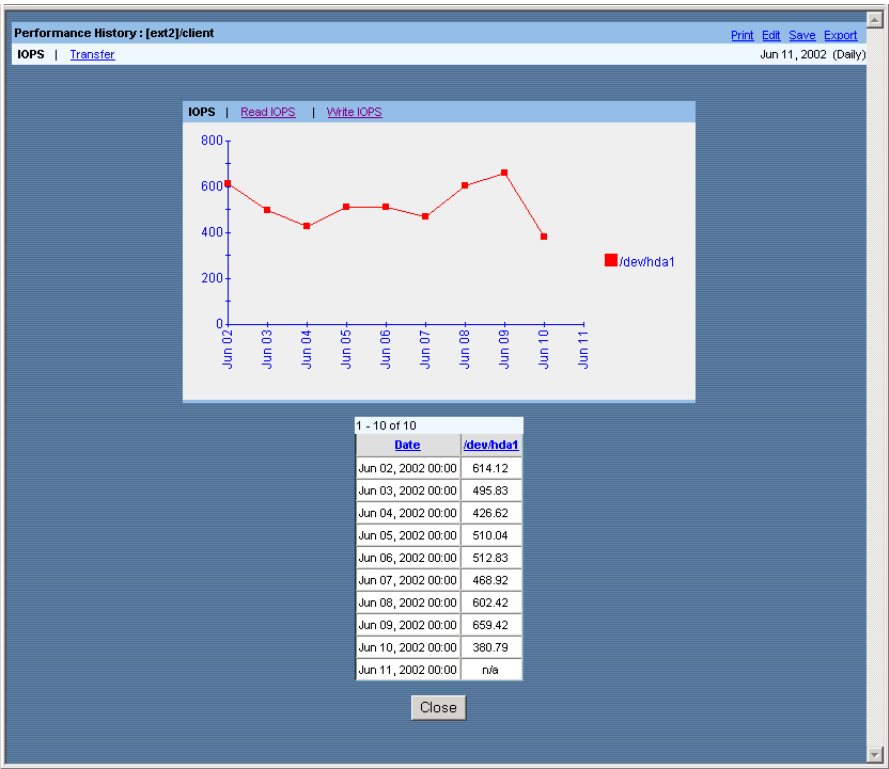


Figure 10.6 [Performance] Whole Network > Subnetwork > Servers > Filesystems - Device History

10.2.6 Device Forecast

Table 10.6 [Performance] Whole Network > Subnetwork > Servers > Filesystems - Device Forecast

Report Type	Forecast (page 95)	
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS 	<ul style="list-style-type: none"> - Transfer - Read Transfer - Write Transfer
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85. 	

To produce a device forecast:

- Select the device.

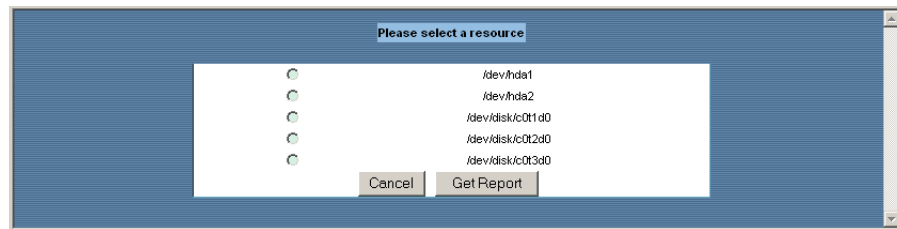


Figure 10.7 Selecting a device

Filename:

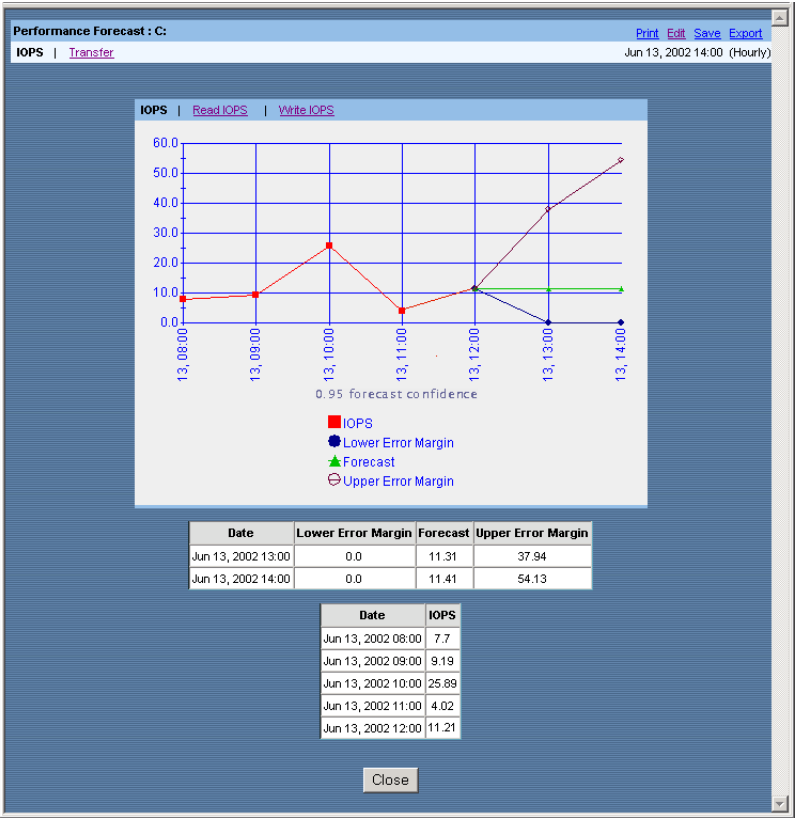


Figure 10.8 [Performance] Whole Network > Subnetwork > Servers > Filesystems - Device Forecast

10.2.7 Device Detail

Table 10.7 [Performance] Whole Network > Subnetwork > Servers > Filesystems - Device Detail

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Device File - Target - LUN - WWN Node - Port 	<ul style="list-style-type: none"> - WWN Port - Storage Subsystem - Logical Disk - Raid Level - Raid Group

Device Files : /mnt1 Print Export
Jul 09, 2002 15:00 (Hourly)

1 - 10 of 10

Device File	Target	LUN	WWN Node	WWN Port	Storage Subsystem	Port	Logical Disk	Raid Level	Raid Group
sd0	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A0	0	RAID5	0
sd1	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A1	1	RAID5	0
sd2	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A2	2	RAID5	0
sd3	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A3	3	RAID5	0
sd4	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A4	4	RAID5	0
sd5	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A5	5	RAID5	0
sd6	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A6	6	RAID5	0
sd7	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A7	7	RAID5	0
sd8	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A8	8	RAID5	0
sd9	1	0	ABCD	DEFG	HITACHI DF500(SS3)	CL1-A9	9	RAID5	0

Close

Figure 10.9 [Capacity] Whole Network > Subnetwork > Servers > Filesystems - Device Detail

10.2.8 Port History

Table 10.8 [Performance] Whole Network > Subnetwork > Servers > Filesystems - Port History

Report Type	History (page 92)	
Data	<ul style="list-style-type: none">- Port- Maximum IOPS- Minimum IOPS- Average IOPS	<ul style="list-style-type: none">- Maximum Transfer- Minimum Transfer- Average Transfer
Notes	<ul style="list-style-type: none">- For more information on configuring this report, see Changing Performance Reports on page 85.	

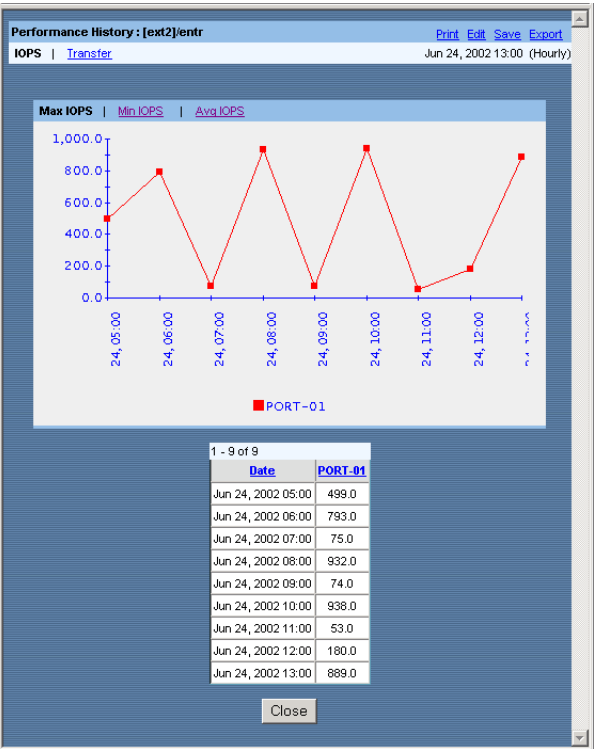


Figure 10.10[Performance] Whole Network > Subnetwork > Servers > Filesystems - Port History

10.2.9 Port Forecast

Table 10.9 [Performance] Whole Network > Subnetwork > Servers > Filesystems - Port Forecast

Report Type	Forecast (page 95)	
Data	<ul style="list-style-type: none"> - Maximum IOPS - Minimum IOPS - Average IOPS 	<ul style="list-style-type: none"> - Maximum Transfer - Minimum Transfer - Average Transfer
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85. 	

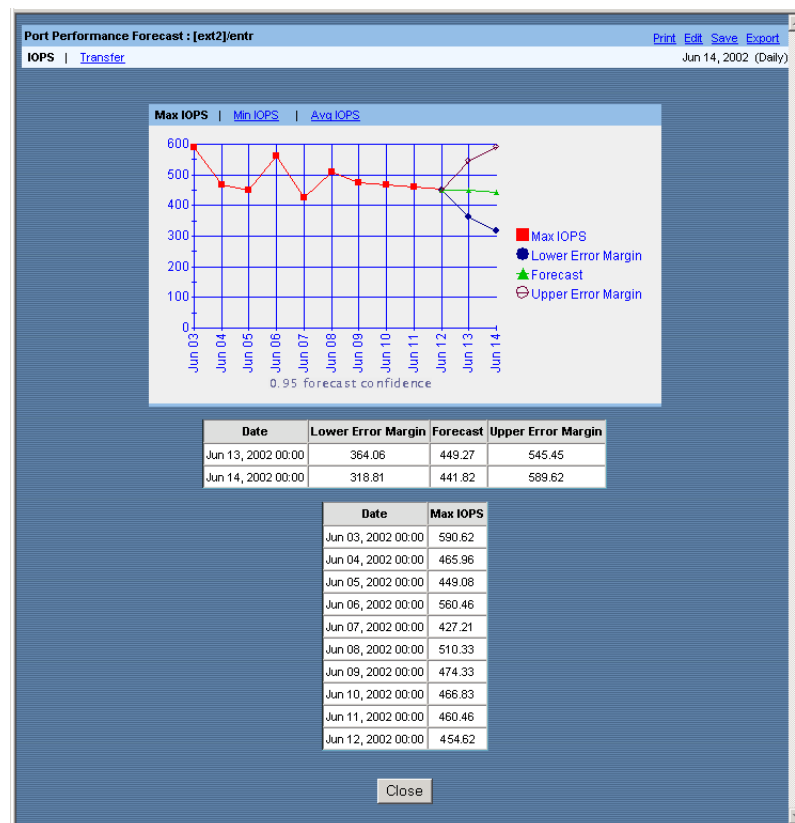


Figure 10.11[Performance] Whole Network > Subnetwork > Servers > Filesystems - Port Forecast

10.2.10 Logical Disk History

Table 10.10[Performance] Whole Network > Subnetwork > Servers > Filesystems - Logical Disk History

Report Type	History (page 92)	
Data	<ul style="list-style-type: none">- Logical Disk- IOPS- Read IOPS- Write IOPS	<ul style="list-style-type: none">- Transfer- Read Transfer- Write Transfer- Write Hit Ratio- Read Hit Ratio
Notes	<ul style="list-style-type: none">- For more information on configuring this report, see Changing Performance Reports on page 85.	

To generate this report:

1. Select which logical disks you want included in the report.

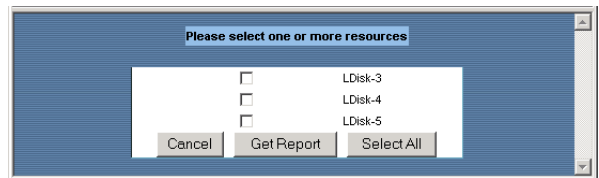


Figure 10.12Selecting logical disks

2. Click **Get Report**.

The Logical Disk History report appears.

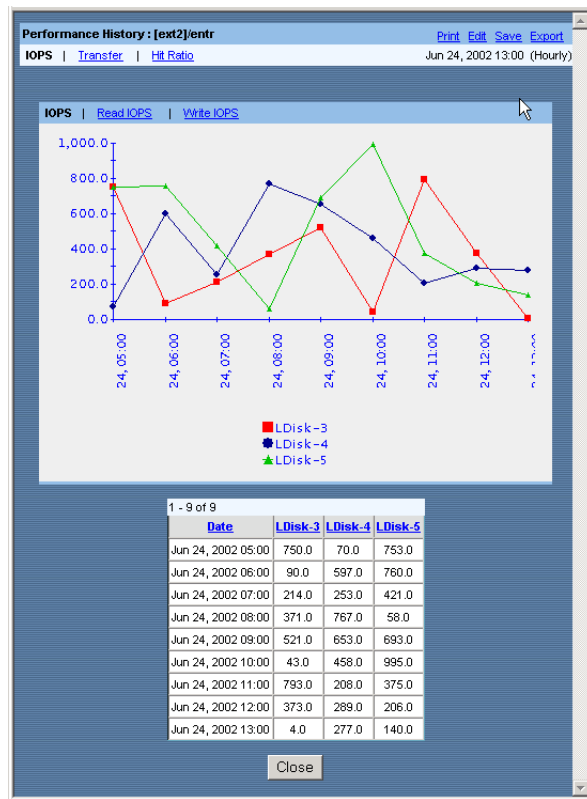


Figure 10.13[Performance] Whole Network > Subnetwork > Servers > Filesystems - Logical Disk History

10.2.11 Logical Disk Forecast

Table 10.11[Performance] Whole Network > Subnetwork > Servers > Filesystems - Logical Disk Forecast

Report Type	Forecast (page 95)	
Data	<ul style="list-style-type: none">- IOPS- Read IOPS- Write IOPS	<ul style="list-style-type: none">- Transfer- Read Transfer- Write Transfer
Notes	<ul style="list-style-type: none">- For more information on configuring this report, see Changing Performance Reports on page 85.	

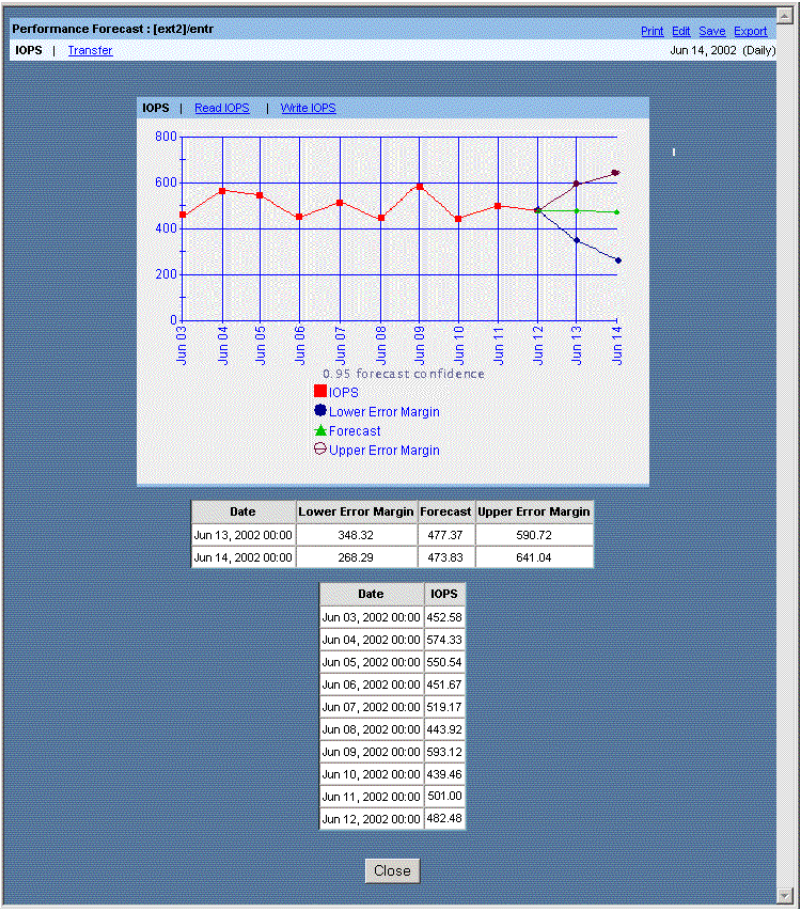


Figure 10.14[Performance] Whole Network > Subnetwork > Servers > Filesystems - Logical Disk Forecast

11 - Application

11.1 Capacity (Application)

11.1.1 Basic Information

- [Instances](#)
- [Capacity](#)
- [Used](#)
- [Free](#)
- [Free %](#)
- [Growth Rate](#)
- [Tablespaces](#)
- [Data Files](#)

Note: The time frame and [Collection Interval](#) displayed are determined by your current [Viewpoint](#) settings.

11.2 Performance (Application)

11.2.1 Basic Information

- [Instances](#)
- [Capacity](#)
- [Used](#)
- [IOPS](#)
- [Read IOPS](#)
- [Write IOPS](#)
- [Tablespaces](#)
- [Data Files](#)

Note: The time frame and [Collection Interval](#) displayed are determined by your current [Viewpoint](#) settings.

12 - Oracle

12.1 Capacity (Oracle)

12.1.1 Basic Information

- [Oracle Instances](#)
- [Capacity](#)
- [Used](#)
- [Free](#)
- [Free %](#)
- [Growth Rate](#)
- [Tablespaces](#)
- [Data Files](#)

12.1.2 Sub-resource (Instances)

The next lower level consists of all Oracle instances. Each is listed as a row in the table. The attributes displayed for each Oracle instance are:

- [Instance](#)
- Version- Oracle version number
- [Host](#)
- [Capacity](#)
- [Used](#)
- [Free](#)
- [Free %](#)
- [Growth Rate](#)
- [Tablespaces](#)
- [Data Files](#)

- See [Sorting Sub-resource Information](#) on page 19.

12.1.3 Favorite Charts

HiCommand™ Tuning Manager provides this area for Advanced Information charts you wish to monitor regularly.

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report. Instructions for doing this appear in [Adding Favorite Charts](#) (page 77).

12.1.4 Advanced Information

Under Advanced Information, HiCommand™ Tuning Manager provides hyperlinks to the following Capacity-related reports:

- [Oracle Capacity](#) (page 174)
 - [Oracle History](#) (page 175)
 - [Oracle Forecast](#) (page 176)
 - [Instances Capacity](#) (page 177)
 - [Instances History](#) (page 178)
 - [List Tablespace](#) (page 179)
 - [List Data Files](#) (page 180)
 - [List Used Servers](#) (page 181)
- For more about working with advanced reports, see [About Advanced Information Reports](#) on page 74. (This section covers [Changing Chart Type \(Bar or Pie\)](#), [Printing Advanced Information Reports](#), [Exporting Advanced Information Data](#), [Sorting Data Tables](#) and [Changing Performance Reports](#).)

12.1.5 Oracle Capacity

Table 12.1 [Capacity] Application > Oracle - Oracle Capacity

Report Type	Resource Summary (page 89)
Data	<ul style="list-style-type: none">- Used- Free- Capacity

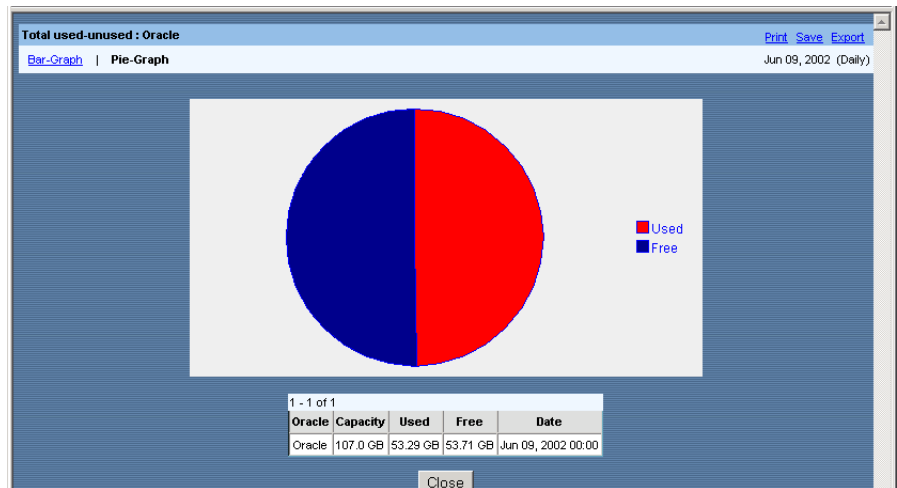


Figure 12.1 [Capacity] Application > Oracle - Oracle Capacity

12.1.6 Oracle History

Table 12.2 [Capacity] Application > Oracle - Oracle History

Report Type	History (page 92)
Data	<ul style="list-style-type: none"> - Used - Free - Capacity

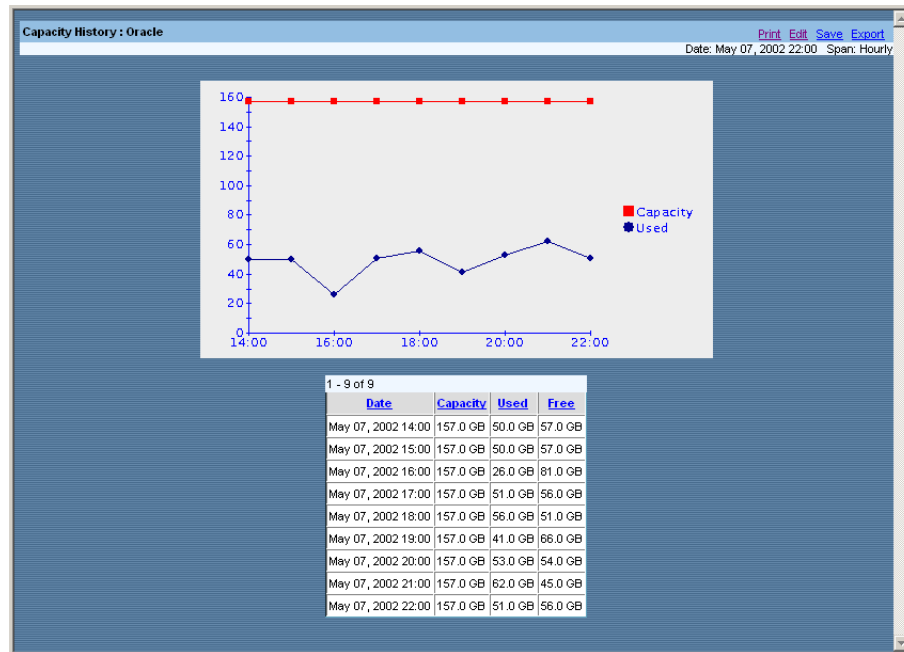


Figure 12.2 [Capacity] Application > Oracle - Oracle History

12.1.7 Oracle Forecast

Table 12.3 [Capacity] Application > Oracle - Oracle Forecast

Report Type	Forecast (page 95)
Data	<ul style="list-style-type: none">- Used- Free- Capacity
Notes	<ul style="list-style-type: none">- For information on configuring capacity reports, see Changing Capacity Reports on page 85.

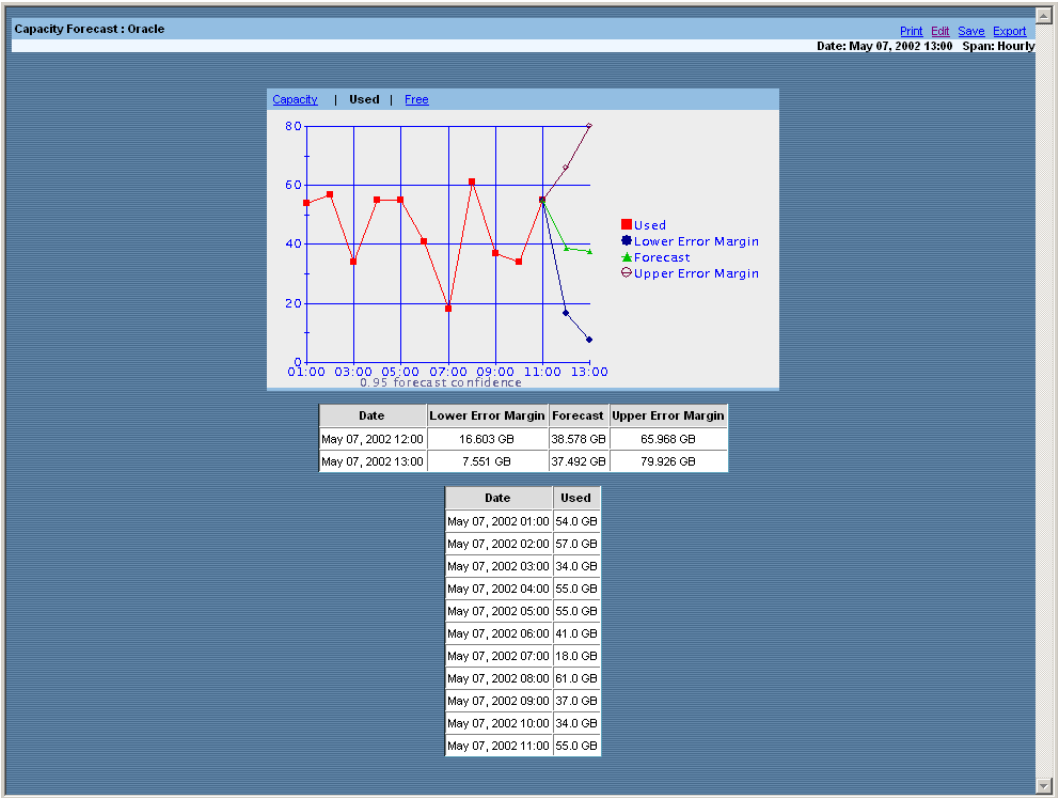


Figure 12.3 [Capacity] Application > Oracle - Oracle Forecast

12.1.8 Instances Capacity

Table 12.4 [Capacity] Application > Oracle - Instances Capacity

Report Type	Sub-resource Summary (page 90)
Data	<ul style="list-style-type: none"> - Oracle Instances - Capacity - Used - Free
Notes	<ul style="list-style-type: none"> - For information on configuring capacity reports, see Changing Capacity Reports on page 85.

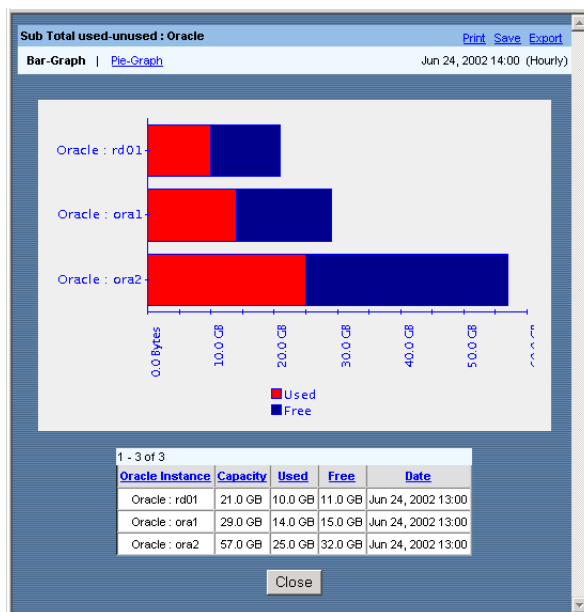


Figure 12.4 [Capacity] Application > Oracle - Instances Capacity

12.1.9 Instances History

Table 12.5 [Capacity] Application > Oracle - Instances History

Report Type	History (page 92)
Data	<ul style="list-style-type: none">- Used- Free- Capacity
Notes	<ul style="list-style-type: none">- For information on configuring capacity reports, see Changing Capacity Reports on page 85.

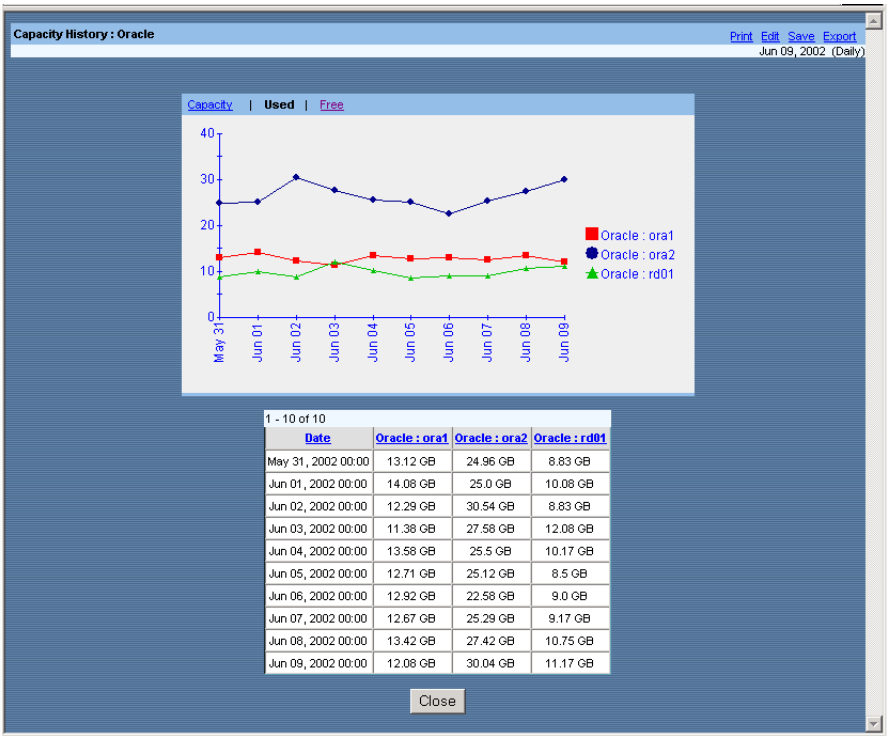
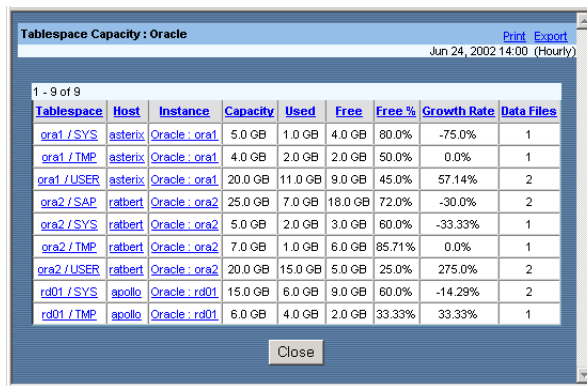


Figure 12.5 [Capacity] Application > Oracle - Instances History

12.1.10 List Tablespaces

Table 12.6 [Capacity] Application > Oracle - List Tablespaces

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Tablespace - Host - Instance - Capacity 	<ul style="list-style-type: none"> - Used - Free - Free % - Growth Rate - Data Files



The screenshot shows a window titled 'Tablespace Capacity : Oracle' with a 'Print' and 'Export' button in the top right. Below the title bar, it says 'Jun 24, 2002 14:00 (Hourly)'. The main area contains a table with 10 columns: Tablespace, Host, Instance, Capacity, Used, Free, Free %, Growth Rate, and Data Files. There are 9 rows of data. A 'Close' button is at the bottom center.

Tablespace	Host	Instance	Capacity	Used	Free	Free %	Growth Rate	Data Files
ora1 / SYS	asterix	Oracle : ora1	5.0 GB	1.0 GB	4.0 GB	80.0%	-75.0%	1
ora1 / TMP	asterix	Oracle : ora1	4.0 GB	2.0 GB	2.0 GB	50.0%	0.0%	1
ora1 / USER	asterix	Oracle : ora1	20.0 GB	11.0 GB	9.0 GB	45.0%	57.14%	2
ora2 / SAP	ratbert	Oracle : ora2	25.0 GB	7.0 GB	18.0 GB	72.0%	-30.0%	2
ora2 / SYS	ratbert	Oracle : ora2	5.0 GB	2.0 GB	3.0 GB	60.0%	-33.33%	1
ora2 / TMP	ratbert	Oracle : ora2	7.0 GB	1.0 GB	6.0 GB	85.71%	0.0%	1
ora2 / USER	ratbert	Oracle : ora2	20.0 GB	15.0 GB	5.0 GB	25.0%	275.0%	2
rd01 / SYS	apollo	Oracle : rd01	15.0 GB	6.0 GB	9.0 GB	60.0%	-14.29%	2
rd01 / TMP	apollo	Oracle : rd01	6.0 GB	4.0 GB	2.0 GB	33.33%	33.33%	1

Figure 12.6 [Capacity] Application > Oracle - List Tablespaces

12.1.11 List Data Files

Table 12.7 [Capacity] Application > Oracle - List Data Files

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Data File - Host 	<ul style="list-style-type: none"> - Instance - Tablespace - Size

Data File	Host	Instance	Tablespace	Size
catalog.dat	ratbert	Oracle : ora2	ora2 / SAP	8.0 GB
data01.dat	asterix	Oracle : ora1	ora1 / USER	4.0 GB
data01.dat	ratbert	Oracle : ora2	ora2 / USER	3.0 GB
data02.dat	ratbert	Oracle : ora2	ora2 / USER	0.0 Bytes
data02.dat	asterix	Oracle : ora1	ora1 / USER	5.0 GB
journal.dat	ratbert	Oracle : ora2	ora2 / SAP	8.0 GB
sys01.dat	ratbert	Oracle : ora2	ora2 / SYS	1.0 GB
sys01.dat	apollo	Oracle : rd01	rd01 / SYS	4.0 GB
sys01.dat	asterix	Oracle : ora1	ora1 / SYS	2.0 GB
sys02.dat	apollo	Oracle : rd01	rd01 / SYS	3.0 GB
tmp01.dat	apollo	Oracle : rd01	rd01 / TMP	5.0 GB
tmp01.dat	ratbert	Oracle : ora2	ora2 / TMP	1.0 GB
tmp01.dat	asterix	Oracle : ora1	ora1 / TMP	1.0 GB

Figure 12.7 [Capacity] Application > Oracle - List Data Files

12.1.12 List Used Servers

Table 12.8 [Capacity] Application > Oracle - List Used Servers

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Server - Operating System - Capacity - Used 	<ul style="list-style-type: none"> - Free - Free % - Growth Rate - Filesystems Over Capacity

Server	Operating System	Capacity	Used	Free	Free %	Growth Rate	Filesystems Over Capacity
apollo	HP-UX	188.0 GB	119.0 GB	69.0 GB	36.7%	32.22%	0
asterix	Sun OS	160.0 GB	80.0 GB	80.0 GB	50.0%	-19.19%	0
ratbert	Linux	160.0 GB	104.0 GB	56.0 GB	35.0%	-7.14%	0

Figure 12.8 [Capacity] Application > Oracle - List Used Servers

12.2 Performance (Oracle)

12.2.1 Basic Information

- [Oracle Instances](#)
- [Capacity](#)
- [Used](#)
- [IOPS](#)
- [Write IOPS](#)
- [Read IOPS](#)
- [Tablespaces](#)
- [Data Files](#)

12.2.2 Sub-resource (Instances)

The next lower level consists of all Oracle instances. Each is listed as a row in the table. The attributes displayed for each Oracle instance are:

- [Instance](#)
- Version- Oracle version number
- [Host](#)
- [Capacity](#)
- [Used](#)
- [IOPS](#)
- [Read IOPS](#)
- [Write IOPS](#)
- [Tablespaces](#)
- [Data Files](#)

- See [Sorting Sub-resource Information](#) on page 19.

12.2.3 Favorite Charts

HiCommand™ Tuning Manager provides this area for Advanced Information charts you wish to monitor regularly.

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report. Instructions for doing this appear in [Adding Favorite Charts](#) (page 77).

12.2.4 Advanced Information

Under Advanced Information, HiCommand™ Tuning Manager provides hyperlinks to the following Performance-related reports:

- [Oracle History](#) (page 184)
- [Oracle Forecast](#) (page 185)
- [Instances Performance](#) (page 186)
- [Instance History](#) (page 187)
- [List Tablespaces](#) (page 189)
- [List Data Files](#) (page 190)
- [List Used Servers](#) (page 191)
- For more about working with advanced reports, see [About Advanced Information Reports](#) on page 74. (This section covers [Changing Chart Type \(Bar or Pie\)](#), [Printing Advanced Information Reports](#), [Exporting Advanced Information Data](#), [Sorting Data Tables](#) and [Changing Performance Reports](#).)

12.2.5 Oracle History

Table 12.9 [Performance] Application > Oracle - Oracle History

Report Type	History (page 92)
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS

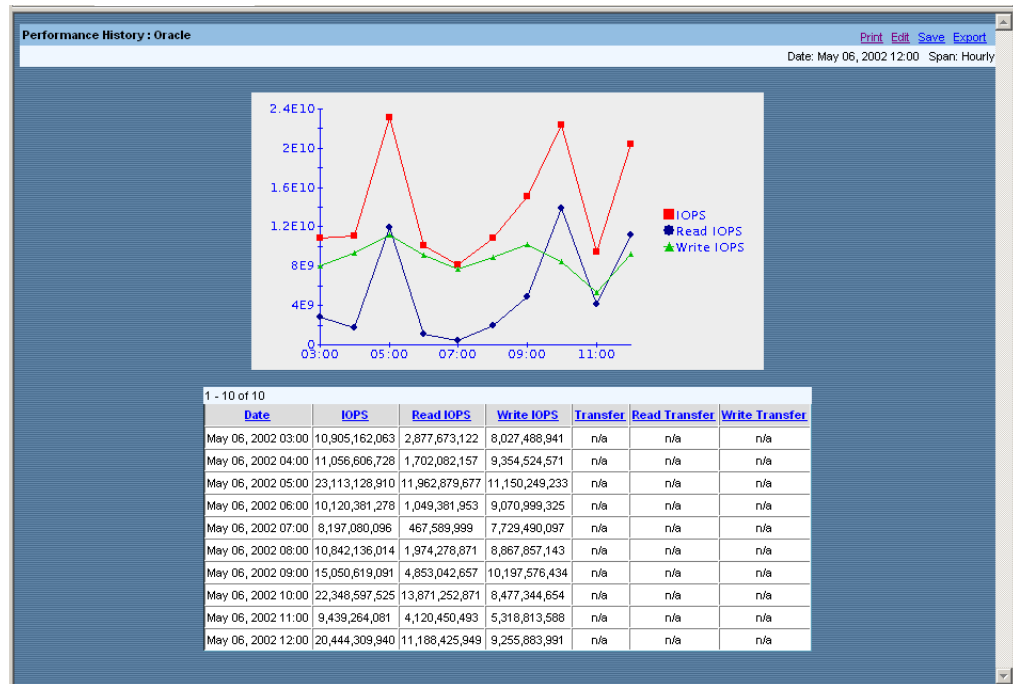


Figure 12.9 [Performance] Application > Oracle - Oracle History

12.2.6 Oracle Forecast

Table 12.10[Performance] Application > Oracle - Oracle Forecast

Report Type	Forecast (page 95)
Data	<ul style="list-style-type: none">- IOPS- Read IOPS- Write IOPS

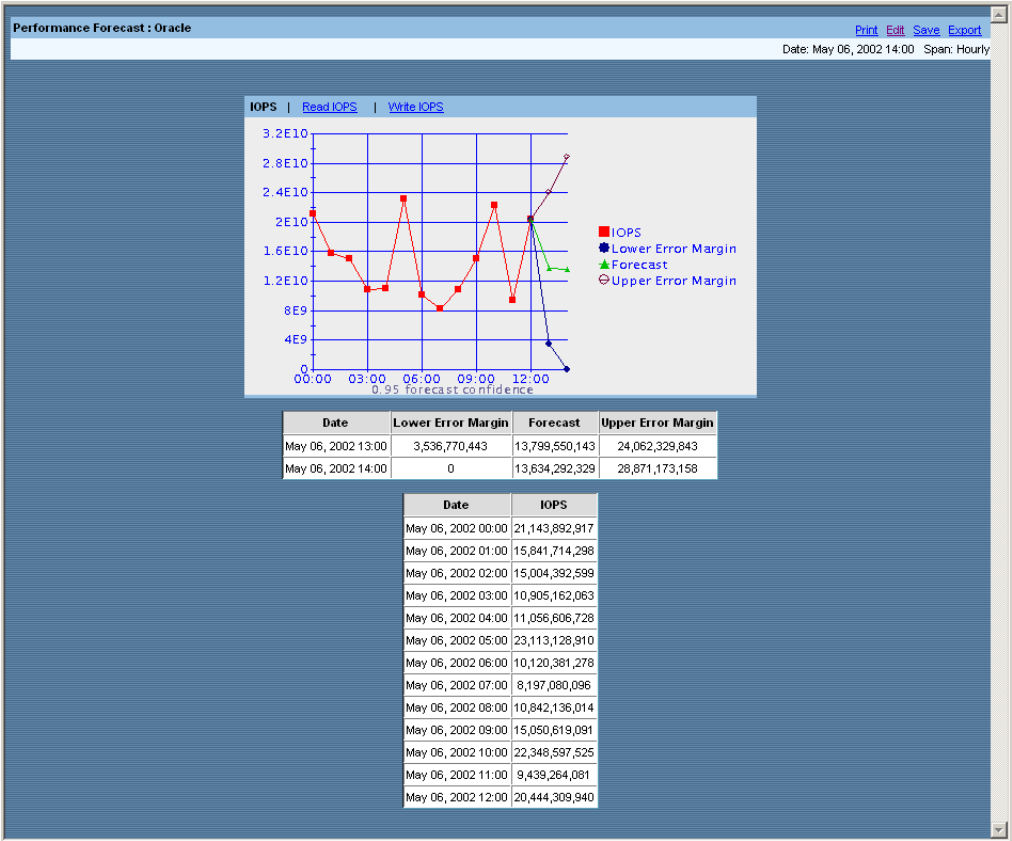


Figure 12.10[Performance] Application > Oracle - Oracle Forecast

12.2.7 Instances Performance

Table 12.11[Performance] Application > Oracle - Instances Performance

Report Type	Sub-resource Summary (page 90)
Data	<ul style="list-style-type: none"> - Oracle Instances - IOPS - Read IOPS - Write IOPS
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85.

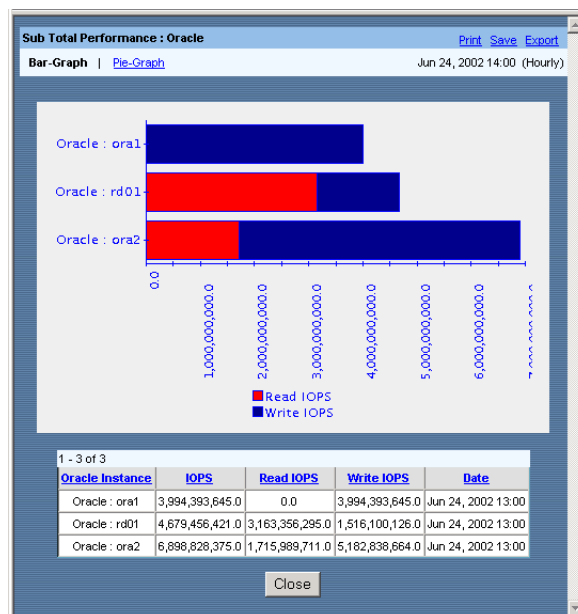


Figure 12.11[Performance] Application > Oracle - Instances Performance

12.2.8 Instance History

Table 12.12[Performance] Application > Oracle - Instance History

Report Type	History (page 92)
Data	<ul style="list-style-type: none">- IOPS- Read IOPS- Write IOPS
Notes	<ul style="list-style-type: none">- For more information on configuring this report, see Changing Performance Reports on page 85.

To generate this report:

1. Select which Oracle instances you want included in the report.

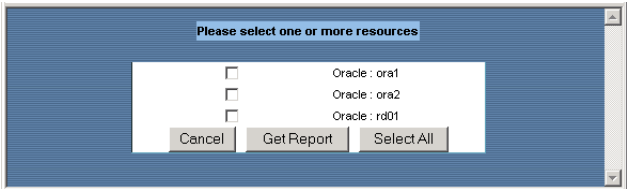


Figure 12.12Selecting Oracle instances

2. Click **Get Report**.

The Instance History report appears.

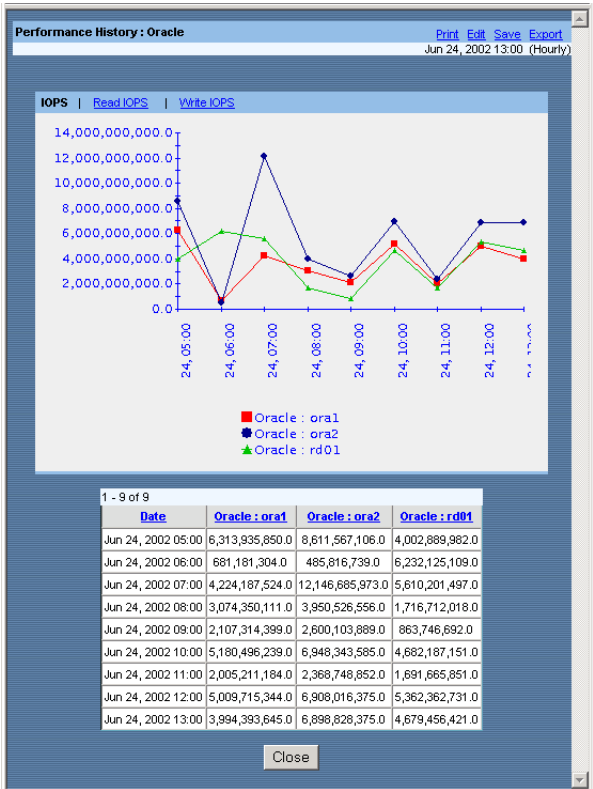


Figure 12.13[Performance] Application > Oracle - Instance History

12.2.9 List Tablespaces

Table 12.13[Performance] Application > Oracle - List Tablespaces

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Tablespace - Instance - Capacity - Used 	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS

Resource	Capacity	Used	Free	IOPS	Read IOPS	Write IOPS	Date
ora1 / SYS	5.0 GB	3.0 GB	2.0 GB	1,828,717,447	47,485,872	1,781,231,575	May 07, 2002 23:00
ora1 / TMP	4.0 GB	2.0 GB	2.0 GB	1,782,932,328	802,468,783	980,463,545	May 07, 2002 23:00
ora1 / USER	20.0 GB	10.0 GB	10.0 GB	3,403,885,370	2,775,280,889	628,604,701	May 07, 2002 23:00
ora2 / SAP	25.0 GB	6.0 GB	19.0 GB	3,064,729,213	2,119,292,903	945,436,310	May 07, 2002 23:00
ora2 / SYS	5.0 GB	4.0 GB	1.0 GB	1,614,219,935	137,684,157	1,476,535,778	May 07, 2002 23:00
ora2 / TMP	7.0 GB	6.0 GB	1.0 GB	1,754,460,909	1,504,043,844	250,417,065	May 07, 2002 23:00
ora2 / USER	20.0 GB	0.0 Bytes	20.0 GB	3,335,977,188	2,707,361,766	628,615,422	May 07, 2002 23:00
rd01 / SYS	15.0 GB	13.0 GB	2.0 GB	2,489,929,681	1,021,808,304	1,468,121,377	May 07, 2002 23:00
rd01 / TMP	6.0 GB	0.0 Bytes	6.0 GB	1,169,457,869	72,999,651	1,096,458,218	May 07, 2002 23:00

Figure 12.14[Performance] Application > Oracle - List Tablespaces

12.2.10 List Data Files

Table 12.14[Performance] Application > Oracle - List Data Files

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Data File - Host - Instance - Tablespace 	<ul style="list-style-type: none"> - Size - IOPS - Read IOPS - Write IOPS

Data Files Performance : Oracle [Print](#) [Export](#)
Jun 24, 2002 14:00 (Hourly)

1 - 13 of 13

Data File	Host	Instance	Tablespace	Size	IOPS	Read IOPS	Write IOPS
catalog.dat	ratbert	Oracle : ora2	ora2 / SAP	8.0 GB	1,587,841,352.0	956,185,550.0	631,655,802.0
data01.dat	asterix	Oracle : ora1	ora1 / USER	4.0 GB	1,022,068,094.0	0.0	1,022,068,094.0
data01.dat	ratbert	Oracle : ora2	ora2 / USER	3.0 GB	901,834,063.0	0.0	901,834,063.0
data02.dat	ratbert	Oracle : ora2	ora2 / USER	0.0 Bytes	939,731,830.0	0.0	939,731,830.0
data02.dat	asterix	Oracle : ora1	ora1 / USER	5.0 GB	1,009,563,755.0	0.0	1,009,563,755.0
journal.dat	ratbert	Oracle : ora2	ora2 / SAP	8.0 GB	1,551,097,832.0	759,804,161.0	791,293,671.0
sys01.dat	ratbert	Oracle : ora2	ora2 / SYS	1.0 GB	892,022,966.0	0.0	892,022,966.0
sys01.dat	apollo	Oracle : rd01	rd01 / SYS	4.0 GB	1,619,775,511.0	664,237,561.0	955,537,950.0
sys01.dat	asterix	Oracle : ora1	ora1 / SYS	2.0 GB	993,019,552.0	0.0	993,019,552.0
sys02.dat	apollo	Oracle : rd01	rd01 / SYS	3.0 GB	1,455,102,981.0	1,290,397,031.0	164,705,950.0
tmp01.dat	apollo	Oracle : rd01	rd01 / TMP	5.0 GB	1,604,577,929.0	1,208,721,703.0	395,856,226.0
tmp01.dat	ratbert	Oracle : ora2	ora2 / TMP	1.0 GB	1,026,300,332.0	0.0	1,026,300,332.0
tmp01.dat	asterix	Oracle : ora1	ora1 / TMP	1.0 GB	969,742,244.0	0.0	969,742,244.0

Close

Figure 12.15[Performance] Application > Oracle - List Data Files

12.2.11 List Used Servers

Table 12.15[Performance] Application > Oracle - List Used Servers

Report Type	List (page 88)	
Data	<ul style="list-style-type: none"> - Server - Operating System - Capacity - Used 	<ul style="list-style-type: none"> - Free - Free % - Growth Rate - Filesystems Over Capacity

Used Servers Performance : Oracle [Print](#) [Export](#)
May 29, 2002 12:00 (Hourly)

1 - 3 of 3

Server	Operating System	Capacity	Used	Free	Free %	Growth Rate	Filesystems Over Capacity
apollo	HP-UX	188.0 GB	119.0 GB	69.0 GB	36.7%	32.22%	0
asterix	Sun OS	160.0 GB	80.0 GB	80.0 GB	50.0%	-19.19%	0
ratbert	Linux	160.0 GB	104.0 GB	56.0 GB	35.0%	-7.14%	0

Figure 12.16[Performance] Application > Oracle - List Used Servers

13 - Oracle Instance

13.1 Capacity (Oracle Instance)

13.1.1 Basic Information

- Version- Oracle version
- [Host](#)
- [Capacity](#)
- [Used](#)
- [Free](#)
- [Free %](#)
- [Growth Rate](#)
- [Data Files](#)
- [Tablespaces](#)

13.1.2 Sub-resource (Tablespaces)

The next lower level consists of all tablespaces within this Oracle instance. Each tablespace is listed as a row in the table. The attributes displayed for each tablespace are:

- [Tablespace](#)
- [Capacity](#)
- [Used](#)
- [Free](#)
- [Free %](#)
- [Growth Rate](#)
- [Data Files](#)
- [Rollback Segments](#)
- [Sort Segments](#)

- See [Sorting Sub-resource Information](#) on page 19.

13.1.3 Favorite Charts

HiCommand™ Tuning Manager provides this area for Advanced Information charts you wish to monitor regularly.

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report. Instructions for doing this appear in [Adding Favorite Charts](#) (page 77).

13.1.4 Advanced Information

Under Advanced Information, HiCommand™ Tuning Manager provides hyperlinks to the following Capacity-related reports:

- [Instance Capacity](#) (page 195)
- [Instance History](#) (page 196)
- [Instance Forecast](#) (page 197)
- [Tablespaces Capacity](#) (page 198)
- [Tablespaces History](#) (page 199)
- [List Data Files](#) (page 201)
- [List Used Servers](#) (page 201)
- For more about working with advanced reports, see [About Advanced Information Reports](#) on page 74. (This section covers [Changing Chart Type \(Bar or Pie\)](#), [Printing Advanced Information Reports](#), [Exporting Advanced Information Data](#), [Sorting Data Tables](#) and [Changing Performance Reports](#).)

13.1.5 Instance Capacity

Table 13.1 [Capacity] Application > Oracle > Oracle Instance - Instance Capacity

Report Type	Resource Summary (page 89)
Data	<ul style="list-style-type: none"> - Oracle Instances - Capacity - Used - Free
Notes	<ul style="list-style-type: none"> - For information on configuring capacity reports, see Changing Capacity Reports on page 85.

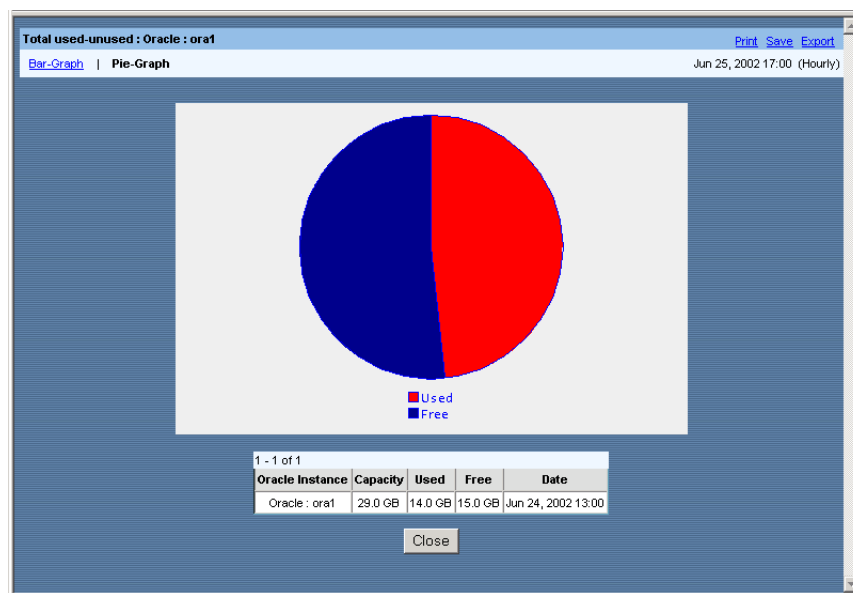


Figure 13.1 [Capacity] Application > Oracle > Oracle Instance - Instance Capacity

13.1.6 Instance History

Table 13.2 [Capacity] Application > Oracle > Oracle Instance - Instance History

Report Type	History (page 92)
Data	<ul style="list-style-type: none">- Used- Free- Capacity

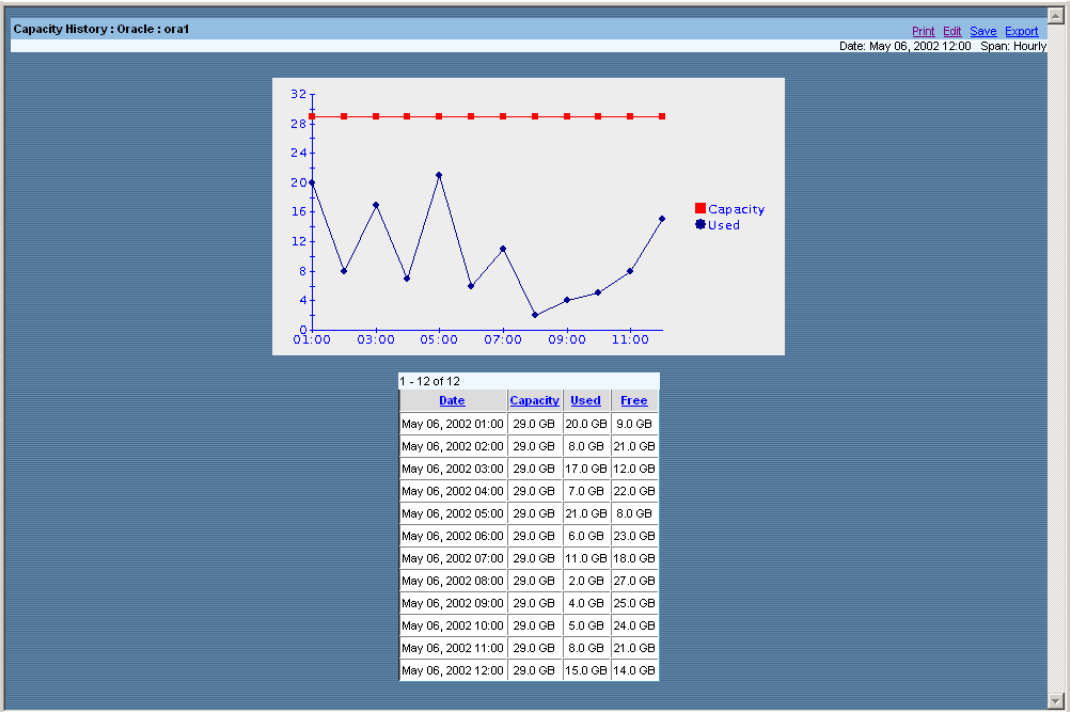


Figure 13.2 [Capacity] Application > Oracle > Oracle Instance - Instance History

13.1.7 Instance Forecast

Table 13.3 [Capacity] Application > Oracle > Oracle Instance - Instance Forecast

Report Type	Forecast (page 95)
Data	<ul style="list-style-type: none"> - Used - Free - Capacity

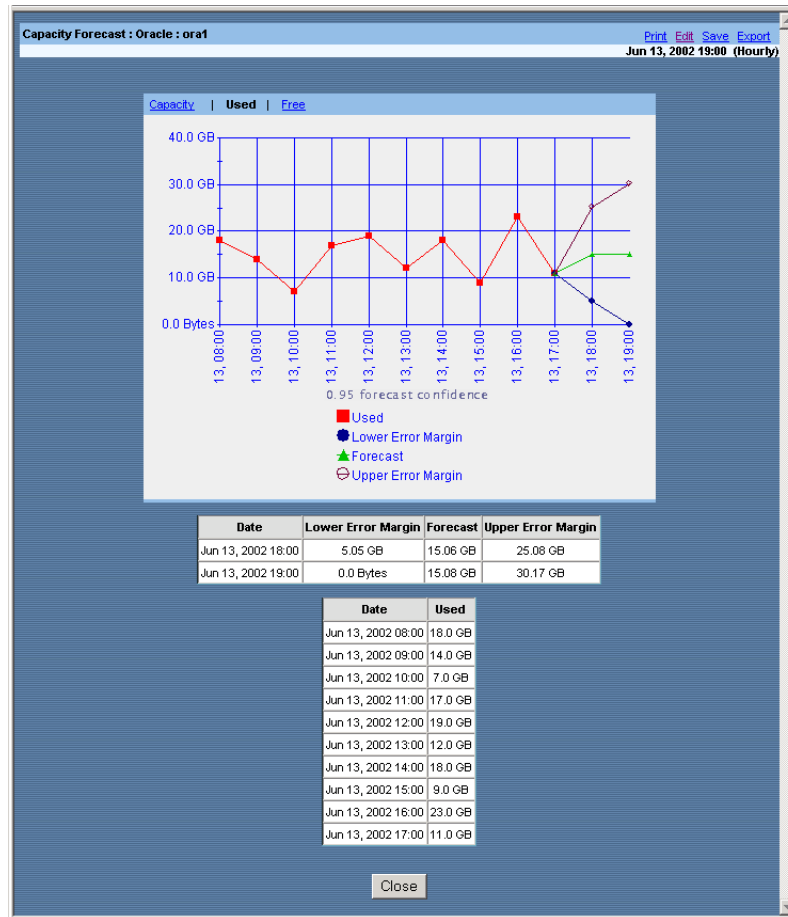


Figure 13.3 [Capacity] Application > Oracle > Oracle Instance - Instance Forecast

13.1.8 Tablespaces Capacity

Table 13.4 [Capacity] Application > Oracle > Oracle Instance - Tablespaces Capacity

Report Type	Sub-resource Summary (page 90)
Data	<ul style="list-style-type: none">- Tablespace- Capacity- Used- Free
Notes	<ul style="list-style-type: none">- For information on configuring capacity reports, see Changing Capacity Reports on page 85.

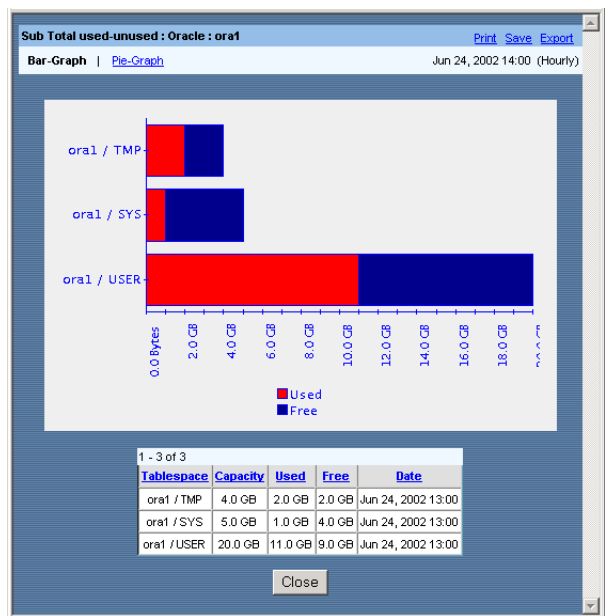


Figure 13.4 [Capacity] Application > Oracle > Oracle Instance - Tablespaces Capacity

13.1.9 Tablespaces History

Table 13.5 [Capacity] Application > Oracle > Oracle Instance - Tablespaces History

Report Type	History (page 92)
Data	<ul style="list-style-type: none"> - Tablespace - Capacity - Used - Free
Notes	<ul style="list-style-type: none"> - For information on configuring capacity reports, see Changing Capacity Reports on page 85.

To generate this report:

1. Select which tablespaces you want included in the report.

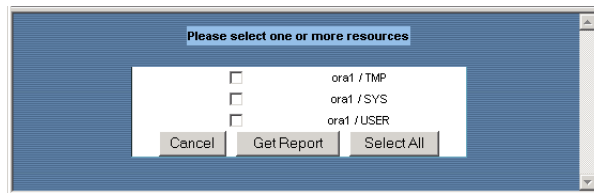


Figure 13.5 Selecting tablespaces

2. Click **Get Report**.

The Tablespaces History report appears.

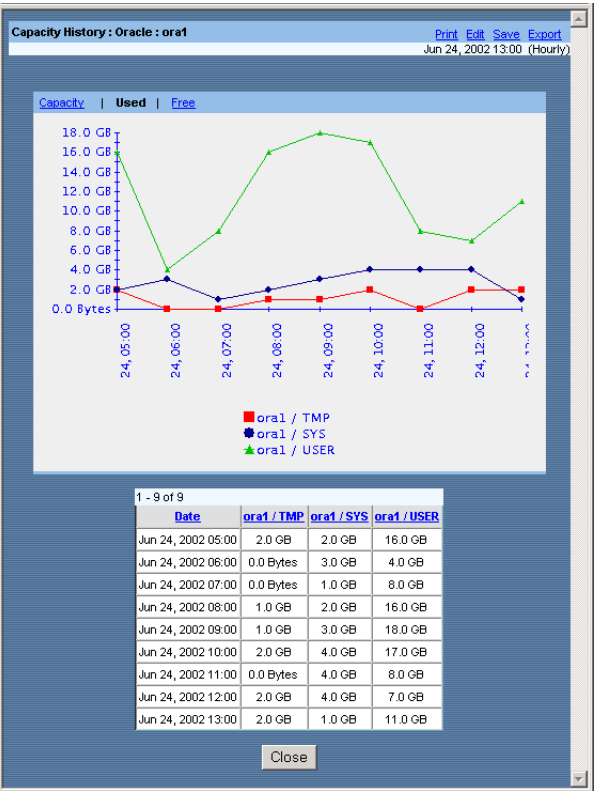
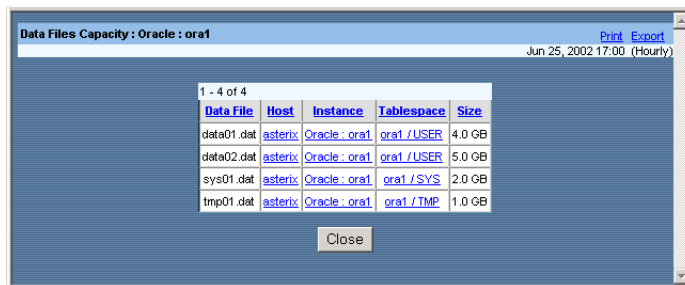


Figure 13.6 [Capacity] Application > Oracle > Oracle Instance - Tablespaces History

13.1.10 List Data Files

Table 13.6 [Capacity] Application > Oracle > Oracle Instance - List Data Files

Report Type	List (page 88)
Data	<ul style="list-style-type: none"> - Data File - Host - Instance - Tablespace - Size



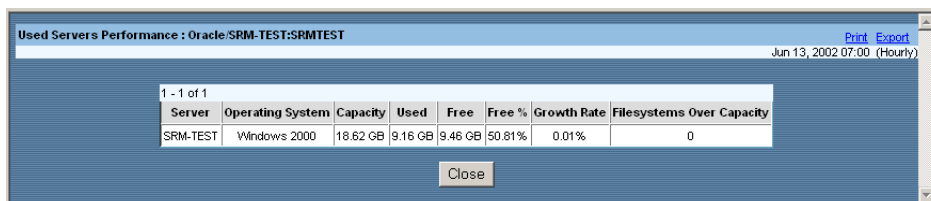
Data File	Host	Instance	Tablespace	Size
data01.dat	asterix	Oracle : ora1	ora1 / USER	4.0 GB
data02.dat	asterix	Oracle : ora1	ora1 / USER	5.0 GB
sys01.dat	asterix	Oracle : ora1	ora1 / SYS	2.0 GB
tmp01.dat	asterix	Oracle : ora1	ora1 / TMP	1.0 GB

Figure 13.7 [Capacity] Application > Oracle > Oracle Instance - List Data Files

13.1.11 List Used Servers

Table 13.7 [Capacity] Application > Oracle > Oracle Instance - List Used Servers

Report Type	List (page 88)
Data	<ul style="list-style-type: none"> - Operating System - Capacity - Used - Free - Free % - Growth Rate - Filesystems Over Capacity



Server	Operating System	Capacity	Used	Free	Free %	Growth Rate	Filesystems Over Capacity
SRM-TEST	Windows 2000	18.62 GB	9.16 GB	9.46 GB	50.81%	0.01%	0

Figure 13.8 [Capacity] Application > Oracle > Oracle Instance - List Used Servers

13.2 Performance (Oracle Instance)

13.2.1 Basic Information

- Version- Oracle version number
- [Host](#)
- [Capacity](#)
- [Used](#)
- [IOPS](#)
- [Read IOPS](#)
- [Write IOPS](#)
- [Tablespaces](#)
- [Data Files](#)

13.2.2 Sub-resource (Tablespaces)

The next lower level consists of all tablespaces within this Oracle instance. Each tablespace is listed as a row in the table. The attributes displayed for each tablespace are:

- [Tablespace](#)
- [Capacity](#)
- [Used](#)
- [IOPS](#)
- [Read IOPS](#)
- [Write IOPS](#)
- [Data Files](#)
- [Rollback Segments](#)
- [Sort Segments](#)

- See [Sorting Sub-resource Information](#) on page 19.

13.2.3 Favorite Charts

HiCommand™ Tuning Manager provides this area for Advanced Information charts you wish to monitor regularly.

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report. Instructions for doing this appear in [Adding Favorite Charts](#) (page 77).

13.2.4 Advanced Information

Under Advanced Information, HiCommand™ Tuning Manager provides hyperlinks to the following Performance-related reports:

- [Instance Performance](#) (page 204)
- [Instance History](#) (page 205)
- [Tablespaces History](#) (page 206)
- [Instance Forecast](#) (page 208)
- [Tablespaces Performance](#) (page 209)
- [List Data Files](#) (page 210)
- [List Used Servers](#) (page 210)
- For more about working with advanced reports, see [About Advanced Information Reports](#) on page 74. (This section covers [Changing Chart Type \(Bar or Pie\)](#), [Printing Advanced Information Reports](#), [Exporting Advanced Information Data](#), [Sorting Data Tables](#) and [Changing Performance Reports](#).)

13.2.5 Instance Performance

Table 13.8 [Performance] Application > Oracle > Oracle Instance - Instance Performance

Report Type	Resource Summary (page 89)
Data	<ul style="list-style-type: none">- Oracle Instances- IOPS- Read IOPS- Write IOPS
Notes	<ul style="list-style-type: none">- For more information on configuring this report, see Changing Performance Reports on page 85.

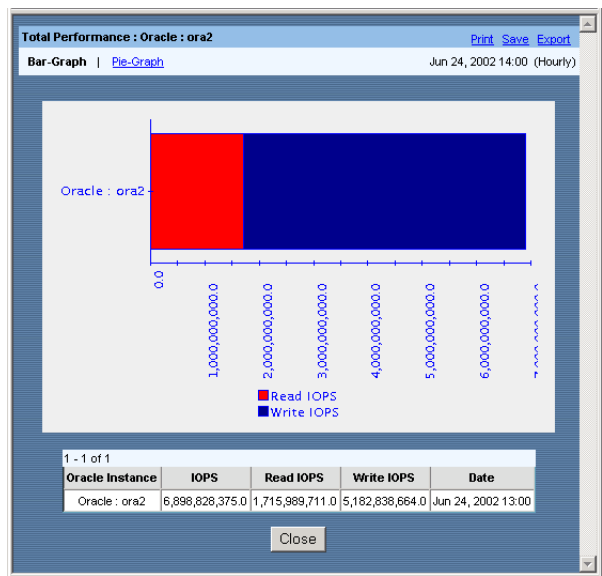


Figure 13.9 [Performance] Application > Oracle > Oracle Instance - Instance Performance

13.2.6 Instance History

Table 13.9 [Performance] Application > Oracle > Oracle Instance - Instance History

Report Type	History (page 92)
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS

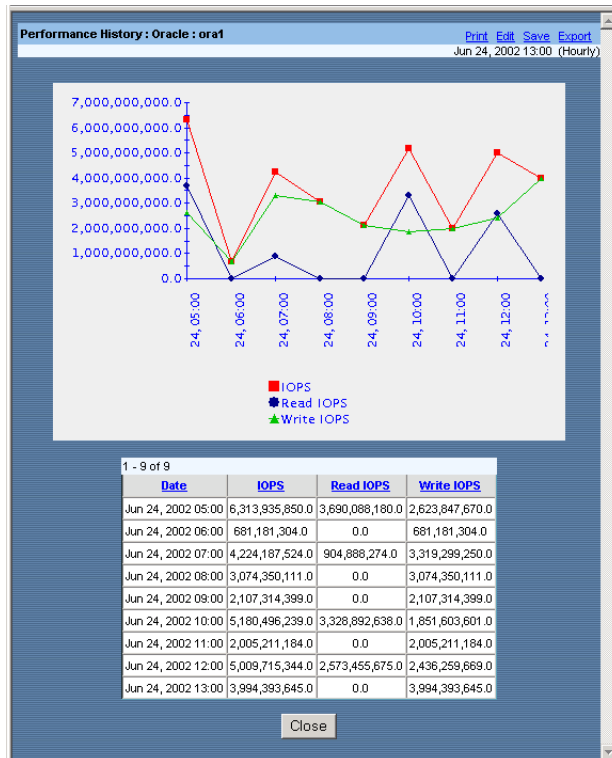


Figure 13.10[Performance] Application > Oracle > Oracle Instance - Instance History

13.2.7 Tablespaces History

Table 13.10[Performance] Application > Oracle > Oracle Instance - Tablespaces History

Report Type	History (page 92)
Data	<ul style="list-style-type: none"> - Tablespace - IOPS - Read IOPS - Write IOPS
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85.

To generate this report:

1. Select which tablespaces you want included in the report.

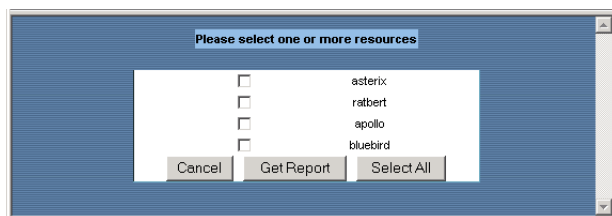


Figure 13.11 Selecting tablespaces

2. Click **Get Report**.

The Tablespaces History report appears.

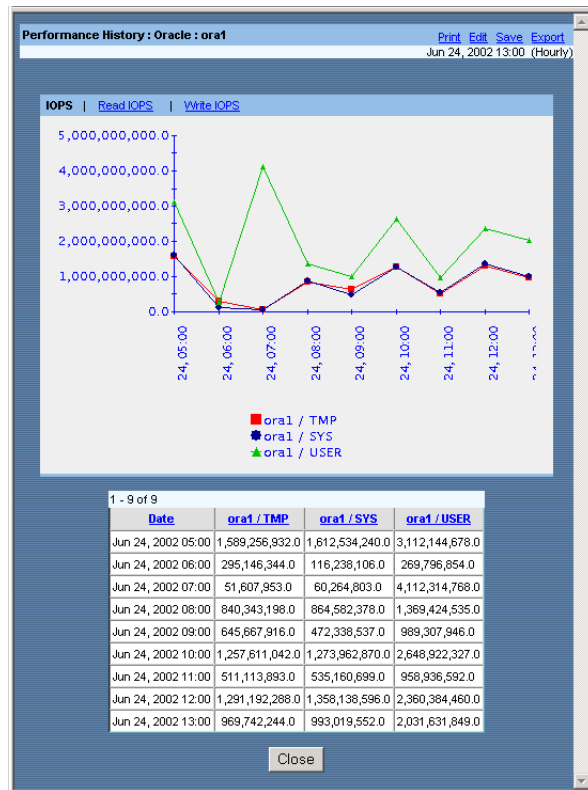


Figure 13.12[Performance] Application > Oracle > Oracle Instance - Tablespaces History

13.2.8 Instance Forecast

Table 13.11[Performance] Application > Oracle > Oracle Instance - Instance Forecast

Report Type	Forecast (page 95)
Data	<ul style="list-style-type: none">- IOPS- Read IOPS- Write IOPS

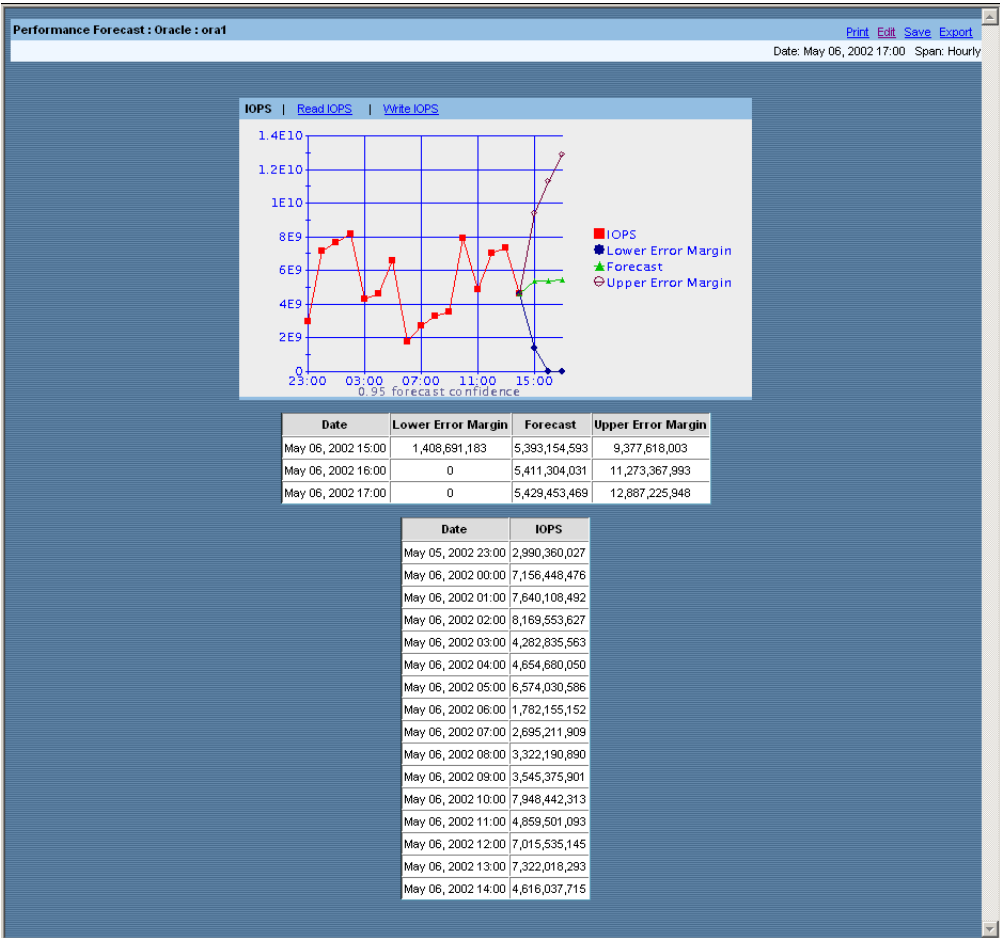


Figure 13.13[Performance] Application > Oracle > Oracle Instance - Instance Forecast

13.2.9 Tablespaces Performance

Table 13.12[Performance] Application > Oracle > Oracle Instance - Tablespaces Performance

Report Type	Sub-resource Summary (page 90)
Data	<ul style="list-style-type: none"> - Tablespace - IOPS - Read IOPS - Write IOPS
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85.

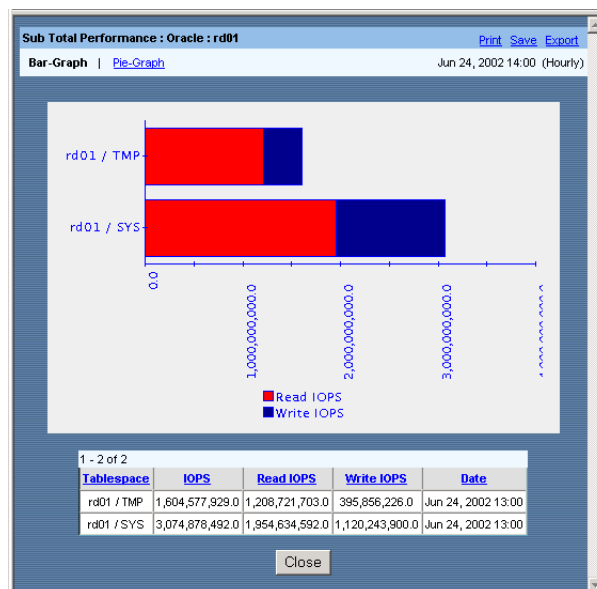


Figure 13.14[Performance] Application > Oracle > Oracle Instance - Tablespaces Performance

13.2.10 List Data Files

Table 13.13[Performance] Application > Oracle > Oracle Instance - List Data Files

Report Type	List (page 88)	
Data	<ul style="list-style-type: none">- Data File- Host- Instance- Tablespace	<ul style="list-style-type: none">- Size- IOPS- Read IOPS- Write IOPS

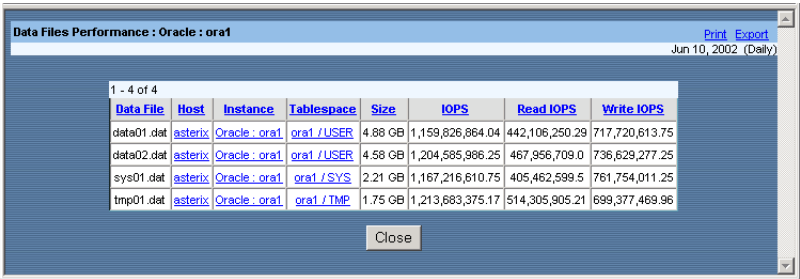


Figure 13.15[Performance] Application > Oracle > Oracle Instance - List Data Files

13.2.11 List Used Servers

Table 13.14[Performance] Application > Oracle > Oracle Instance - List Used Servers

Report Type	List (page 88)	
Data	<ul style="list-style-type: none">- Operating System- Capacity- Used	<ul style="list-style-type: none">- Free- Free %- Growth Rate- Filesystems Over Capacity

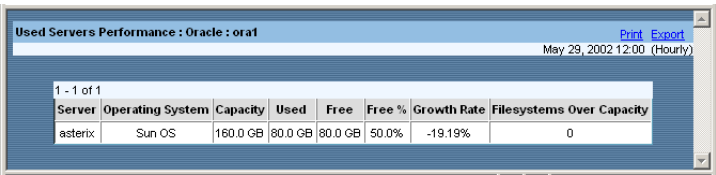


Figure 13.16[Performance] Application > Oracle > Oracle Instance - List Used Servers

14 - Tablespace

14.1 Capacity (Tablespace)

14.1.1 Basic Information

- [Capacity](#)
- [Used](#)
- [Free](#)
- [Free %](#)
- [Growth Rate](#)
- [Data Files](#)
- [Rollback Segments](#)
- [Sort Segments](#)

14.1.2 Sub-resource (Data Files)

The next lower level consists of all data files within this tablespace. Each data file is listed as a row in the table. The attributes displayed for each data file are:

- [Data File](#)
- Size

14.1.3 Favorite Charts

HiCommand™ Tuning Manager provides this area for Advanced Information charts you wish to monitor regularly.

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report. Instructions for doing this appear in [Adding Favorite Charts](#) (page 77).

14.1.4 Advanced Information

Under Advanced Information, HiCommand™ Tuning Manager provides hyperlinks to the following Capacity-related reports:

- [Tablespace Capacity](#) (page 212)
- [Tablespace History](#) (page 213)
- [Tablespace Forecast](#) (page 214)
 - For more about working with advanced reports, see [About Advanced Information Reports](#) on page 74. (This section covers [Changing Chart Type \(Bar or Pie\)](#), [Printing Advanced Information Reports](#), [Exporting Advanced Information Data](#), [Sorting Data Tables](#) and [Changing Performance Reports](#).)

14.1.5 Tablespace Capacity

Table 14.1 [Capacity] Application > Oracle > Oracle Instance > Tablespace - Tablespace Capacity

Report Type	Resource Summary (page 89)
Data	<ul style="list-style-type: none">- Tablespace- Capacity- Used- Free

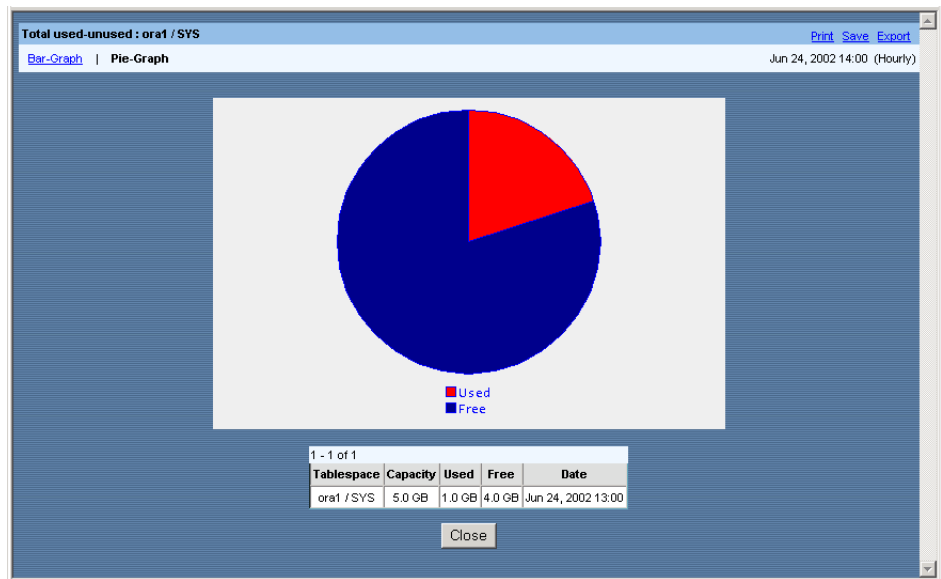


Figure 14.1 [Capacity] Application > Oracle > Oracle Instance > Tablespace - Tablespace Capacity

14.1.6 Tablespace History

Table 14.2 [Capacity] Application > Oracle > Oracle Instance > Tablespace - Tablespace History

Report Type	History (page 92)
Data	<ul style="list-style-type: none"> - Used - Free - Capacity

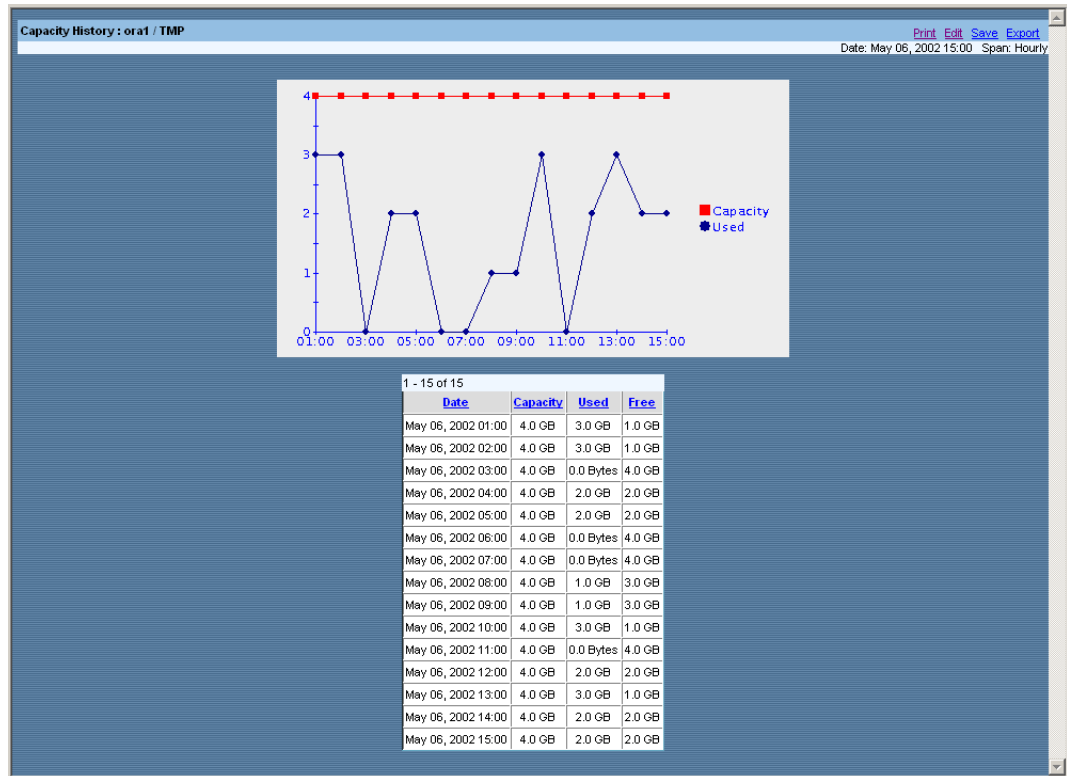


Figure 14.2 [Capacity] Application > Oracle > Oracle Instance > Tablespace - Tablespace History

14.1.7 Tablespace Forecast

Table 14.3 [Capacity] Application > Oracle > Oracle Instance > Tablespace - Tablespace Forecast

Report Type	Forecast (page 95)
Data	<ul style="list-style-type: none">- Used- Free- Capacity
Notes	<ul style="list-style-type: none">- For information on configuring capacity reports, see Changing Capacity Reports on page 85.

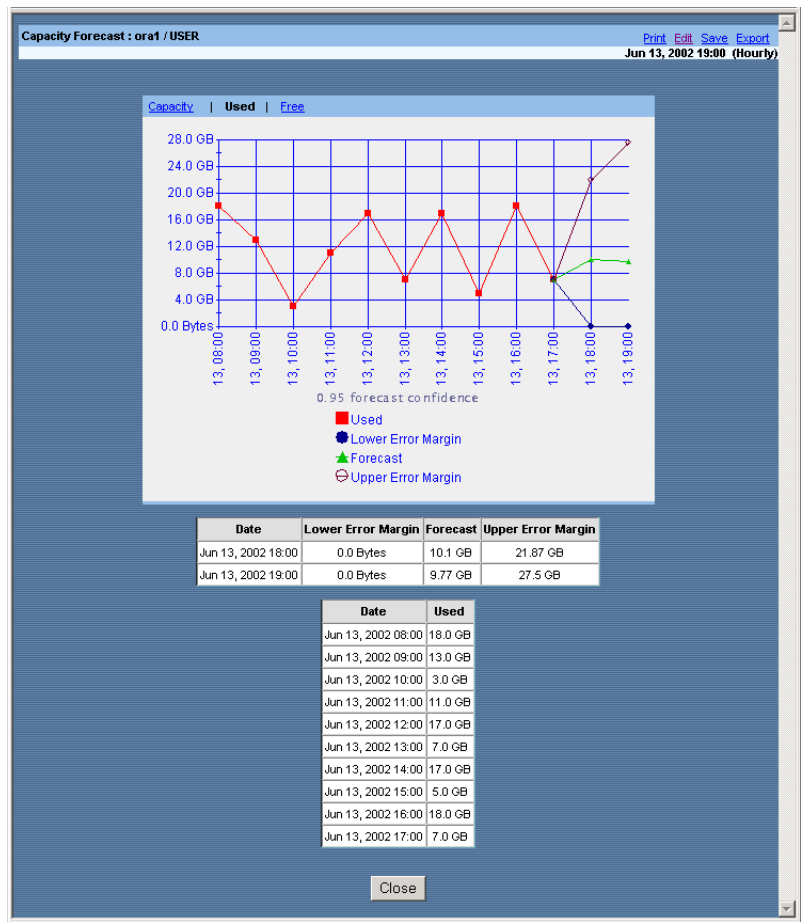


Figure 14.3 [Capacity] Application > Oracle > Oracle Instance > Tablespace - Tablespace Forecast

14.2 Performance (Tablespace)

14.2.1 Basic Information

- [Capacity](#)
- [Used](#)
- [IOPS](#)
- [Write IOPS](#)
- [Read IOPS](#)
- [Data Files](#)
- [Rollback Segments](#)
- [Sort Segments](#)

14.2.2 Sub-resource (Data Files)

The next lower level consists of all data files within this tablespace. Each data file is listed as a row in the table. The attributes displayed for each data file are:

- [Data File](#)
- Size
- [IOPS](#)
- [Write IOPS](#)
- [Read IOPS](#)

- See [Sorting Sub-resource Information](#) on page 19.

14.2.3 Favorite Charts

HiCommand™ Tuning Manager provides this area for Advanced Information charts you wish to monitor regularly.

Note: The Favorite Charts section does not appear until you have saved at least one Advanced Information report. Instructions for doing this appear in [Adding Favorite Charts](#) (page 77).

14.2.4 Advanced Information

Under Advanced Information, HiCommand™ Tuning Manager provides hyperlinks to the following Performance-related reports:

- [Tablespace Performance](#) (page 217)
- [Tablespace History](#) (page 218)
- [Tablespace Forecast](#) (page 219)
- [Data Files Performance](#) (page 220)
- [Data Files History](#) (page 221)
- [Data Files Forecast](#) (page 222)
- For more about working with advanced reports, see [About Advanced Information Reports](#) on page 74. (This section covers [Changing Chart Type \(Bar or Pie\)](#), [Printing Advanced Information Reports](#), [Exporting Advanced Information Data](#), [Sorting Data Tables](#) and [Changing Performance Reports](#).)

14.2.5 Tablespace Performance

Table 14.4 [Performance] Application > Oracle > Oracle Instance > Tablespace - Tablespace Performance

Report Type	Resource Summary (page 89)
Data	<ul style="list-style-type: none">- IOPS- Read IOPS- Write IOPS
Notes	<ul style="list-style-type: none">- For more information on configuring this report, see Changing Capacity Reports on page 85.

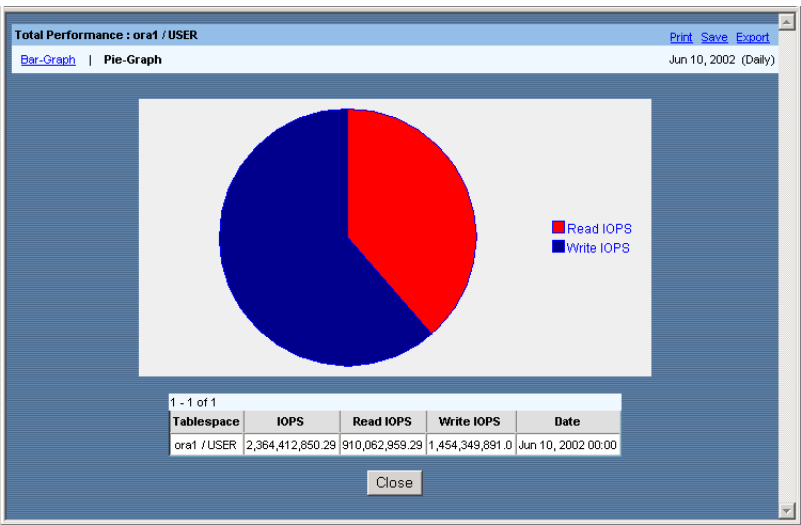


Figure 14.4 [Performance] Application > Oracle > Oracle Instance > Tablespace - Tablespace Performance

14.2.6 Tablespace History

Table 14.5 [Performance] Application > Oracle > Oracle Instance > Tablespace - Tablespace History

Report Type	History (page 92)
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85.

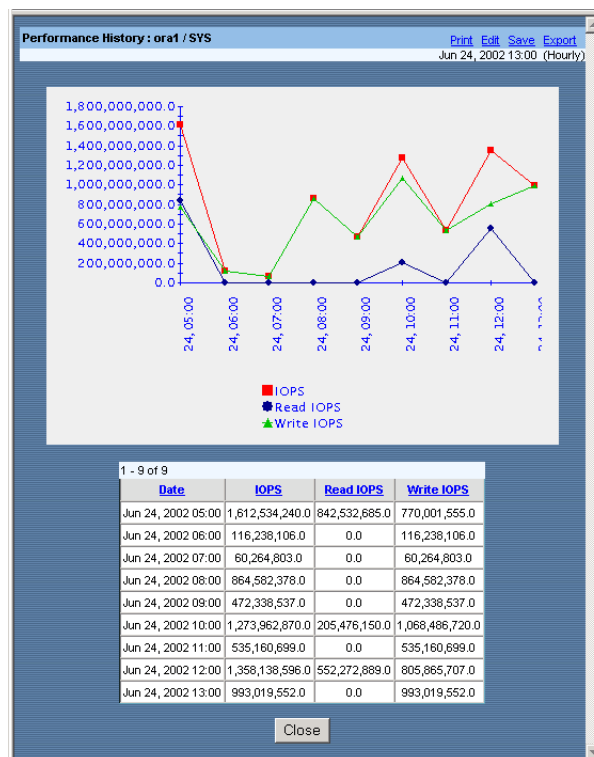


Figure 14.5 [Performance] Application > Oracle > Oracle Instance > Tablespace - Tablespace History

14.2.7 Tablespace Forecast

Table 14.6 [Performance] Application > Oracle > Oracle Instance > Tablespace - Tablespace Forecast

Report Type	Forecast (page 95)
Data	<ul style="list-style-type: none">- IOPS- Read IOPS- Write IOPS
Notes	<ul style="list-style-type: none">- For more information on configuring this report, see Changing Performance Reports on page 85.

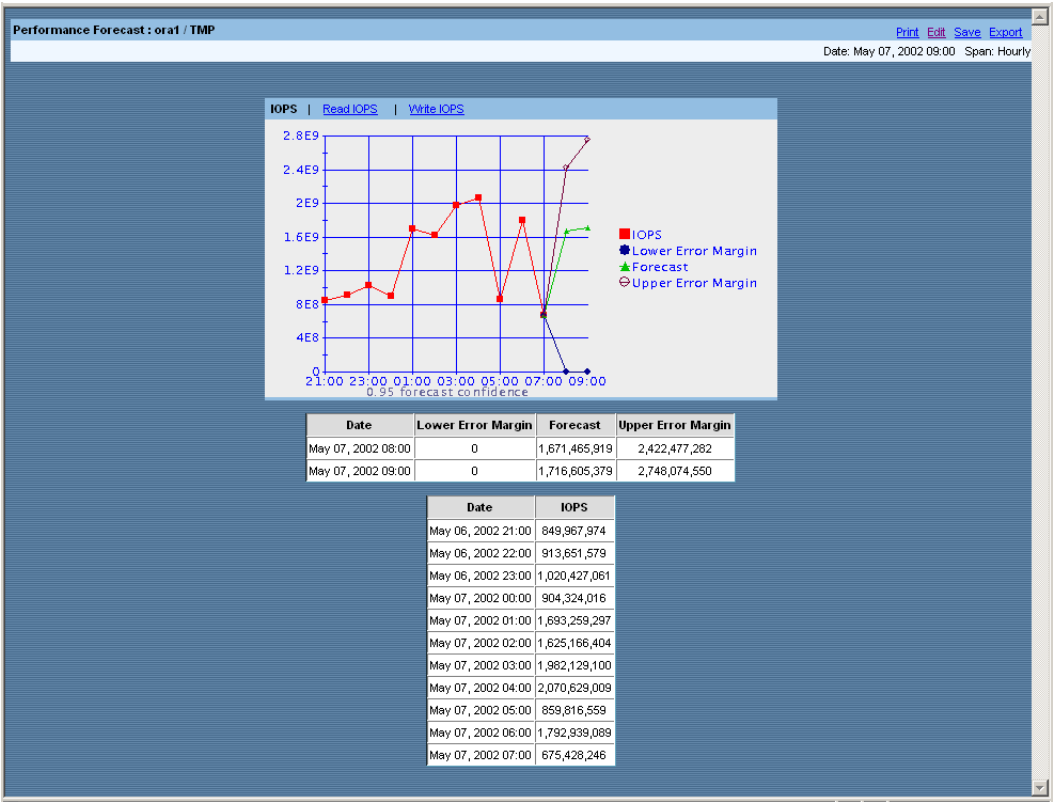


Figure 14.6 [Performance] Application > Oracle > Oracle Instance > Tablespace - Tablespace Forecast

14.2.8 Data Files Performance

Table 14.7 [Performance] Application > Oracle > Oracle Instance > Tablespace - Data Files Performance

Report Type	Sub-resource Summary (page 90)
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Performance Reports on page 85.

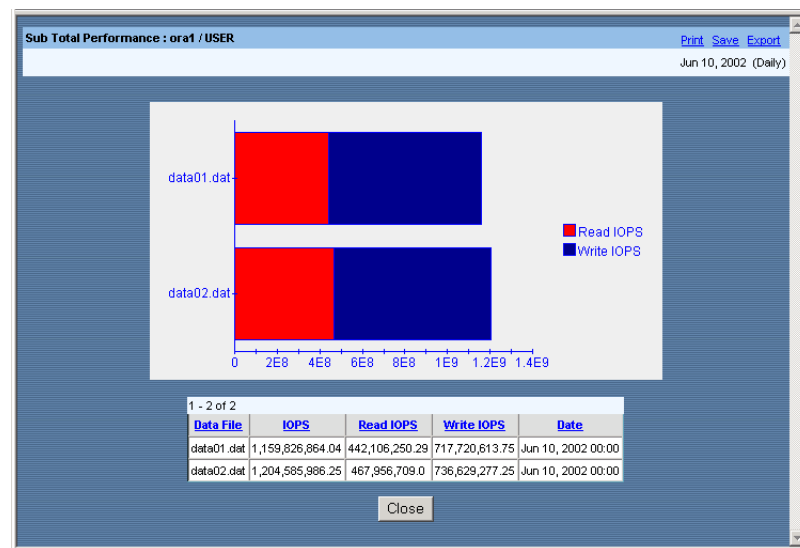


Figure 14.7 [Performance] Application > Oracle > Oracle Instance > Tablespace - Data Files Performance

14.2.9 Data Files History

Table 14.8 [Performance] Application > Oracle > Oracle Instance > Tablespace - Data Files History

Report Type	History (page 92)
Data	<ul style="list-style-type: none">- Tablespace- IOPS- Read IOPS- Write IOPS
Notes	<ul style="list-style-type: none">- For more information on configuring this report, see Changing Performance Reports on page 85.

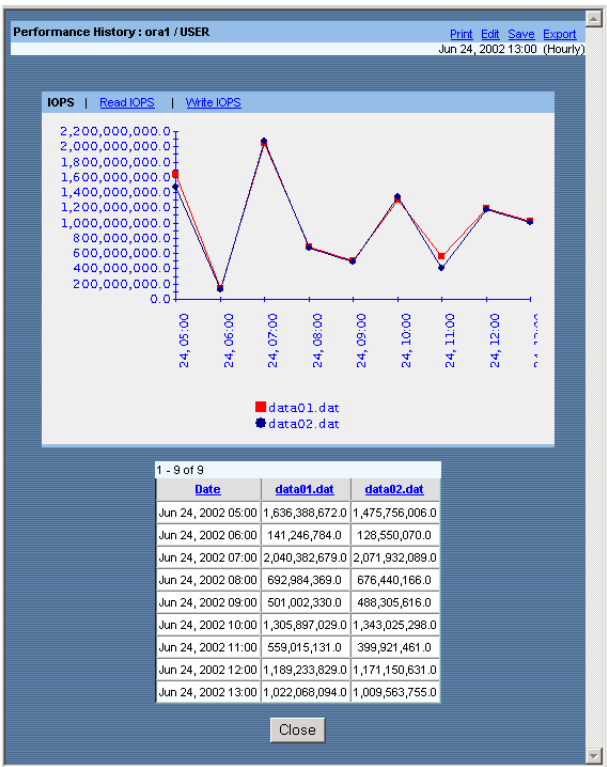


Figure 14.8 [Performance] Application > Oracle > Oracle Instance > Tablespace - Data Files History

14.2.10 Data Files Forecast

Table 14.9 [Performance] Application > Oracle > Oracle Instance > Tablespace - Data Files Forecast

Report Type	Forecast (page 95)
Data	<ul style="list-style-type: none"> - IOPS - Read IOPS - Write IOPS
Notes	<ul style="list-style-type: none"> - For more information on configuring this report, see Changing Capacity Reports on page 85.

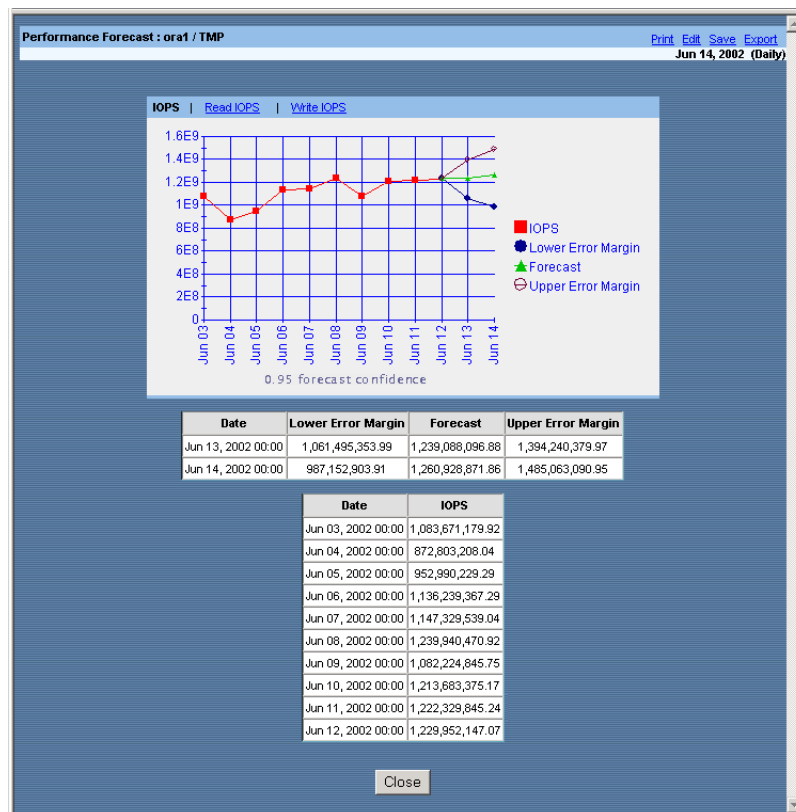


Figure 14.9 [Performance] Application > Oracle > Oracle Instance > Tablespace - Data Files Forecast

15 - Command Line Interface (CLI)

The HiCommand™ Tuning Manager command line interface (CLI) provides a simple stateless way to access HiCommand™ Tuning Manager data.

Common ways to use the CLI are:

- By manually executing the CLI programs at the command line in the operating system.
- By invoking CLI programs within scripts, macros and development products. Perl, Microsoft Visual Basic and Tcl are among the most common tools used for this purpose. Scripts enable you to integrate HiCommand™ Tuning Manager data and automate reporting. (Examples: scheduled execution of scripts, customized reports by parsing/manipulating results.)

15.1 General Characteristics

- Data is returned as a series of tab-delimited lines terminated with newline characters. Each output stream begins with a header row: Sample output examples appear in the following sections.
- Each time you invoke a command line program, you must pass login values. (If you don't specify the login and password at the command line, the programs will prompt you for them.)

Example: This command line requests capacity data at the whole network level and provides login information:

```
htm-networks -c --u myUser1 -p myPassword
```

Note: Specifying login information at the command line requires passing them as clear, unencrypted strings.

15.2 Network Capacity/Performance (htm-networks)

`htm-networks [option] [] ...`

Show overall capacity and/or performance of the network.

Table 15.1 Parameters to htm-networks command

Option	Purpose
<code>-c</code> <code>--capacity</code>	Retrieve capacity information for the networks. (This returns the same information as Capacity (Whole Network) (page 101) in graphical user interface.) -
<code>-p</code> <code>--performance</code>	Retrieve performance information for the networks. (This returns the same information as Performance (Whole Network) (page 110) in graphical user interface.) -

Additional parameters for setting a date range, time period and logging in are available for this command. See [Universal Command Parameters](#) on page 235.

15.2.1 Example: htm-networks --capacity

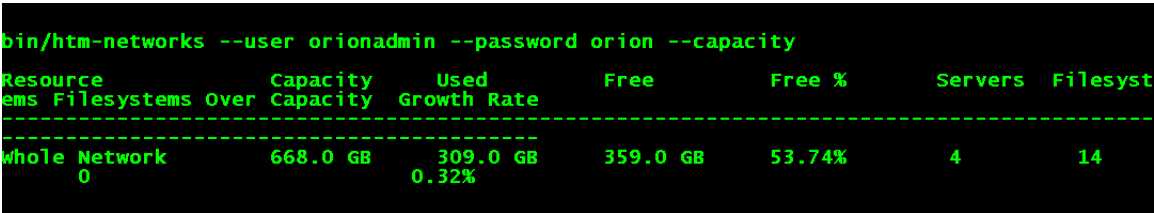


Figure 15.1 Command: htm-networks --capacity

15.2.2 Example: htm-networks --performance

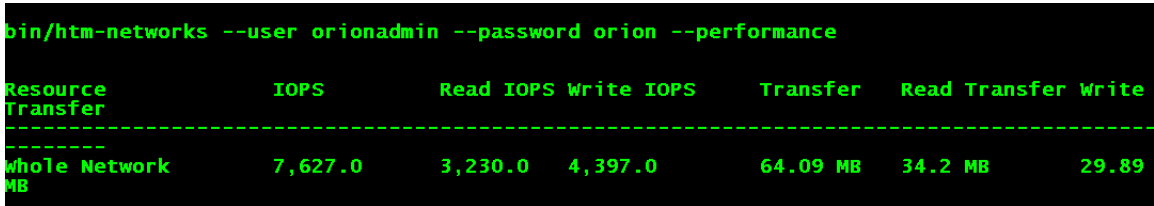


Figure 15.2 Command: htm-networks --performance

15.3 Subnetworks Capacity/Performance (htm-subnets)

htm-subnets [option] <networkID>

Show a list of subnetworks with the capacity or performance for each.

Required: A network ID must be specified as the last argument.

Table 15.2 Parameters to htm-subnets command

Option	Purpose
-c --capacity	Retrieve capacity information only for the subnetworks on the specified network. (This returns the same information as Capacity (Subnetworks) (page 119) in graphical user interface.)
-p --performance	Retrieve performance information only for the subnetworks on the specified network (This returns the same information as Capacity (Subnetworks) (page 119) in graphical user interface.)

Additional parameters for setting a date range, time period and logging in are available for this command. See [Universal Command Parameters](#) on page 235.

15.3.1 Example: htm-subnets --capacity --date

```
bin/htm-subnets --user orionadmin --password orion --date 2002/07/09/16/00 --capacity
Resource      Resource Id  Capacity    Used        Free        Free %    Growth R
ate   Filesystems
-----
Test [192.168.1.0] SN_100      668.0 GB    336.0 GB    332.0 GB    49.7%    26.32%
14
```

Figure 15.3 Command: htm-subnets --capacity --date

15.3.2 Example: htm-subnets --capacity --period

```
bin/htm-subnets --user orionadmin --password orion --period WEEKLY --capacity
Resource      Resource Id  Capacity    Used        Free        Free %    Growth R
ate   Filesystems
-----
Test [192.168.1.0] SN_100      662.42 GB   308.5 GB    342.75 GB    51.74%    59.84%
14
```

Figure 15.4 Command: htm-subnets --capacity --period

15.3.3

Example: htm-subnets --performance

```
bin/htm-subnets --user orionadmin --password orion --performance
```

Resource Transfer	Resource Id	IOPS	Read IOPS	Write IOPS	Transfer	Read
Test [192.168.1.0] MB	SN_100	7,627.0	3,230.0	4,397.0	64.09 MB	34.2

Figure 15.5 Command: htm-subnets --performance

15.4 Servers Capacity/Performance (htm-servers)

htm-servers [option] <subnetID>

Show a list of servers with the capacity or performance for each.

Required: A subnetwork ID must be specified as the last argument.

Table 15.3 Parameters to htm-servers command

Option	Purpose
-c --capacity	Retrieve capacity information only for the servers on the specified subnetwork. (This returns the same information as Capacity (Servers) (page 135) in graphical user interface.)
-p --performance	Retrieve performance information only for the servers on the specified subnetwork. (This returns the same information as Capacity (Servers) (page 135) in graphical user interface.)

Additional parameters for setting a date range, time period and logging in are available for this command. See [Universal Command Parameters](#) on page 235.

15.4.1 Example: htm-servers --capacity

```
bin/htm-servers --user orionadmin --password orion --capacity SN_100
```

Resource	Resource Id	Operating System	Capacity	Used	Free	F
Free %	Growth Rate	Filesystems Over Capacity				
asterix	SV_102	Sun OS	160.0 GB	93.0 GB	67.0 GB	4
1.88%	0					
ratbert	SV_111	Linux	160.0 GB	113.0 GB	47.0 GB	2
9.38%	0					
apollo	SV_118	HP-UX	188.0 GB	66.0 GB	122.0 GB	6
4.89%	0					
bluebird	SV_129	AIX	160.0 GB	37.0 GB	123.0 GB	7
6.88%	0					

Figure 15.6 Command htm-servers --capacity

15.4.2 Example: htm-servers --performance

```
bin/htm-servers --user orionadmin --password orion --performance SN_100
```

Resource	Resource Id	Operating System	IOPS	Read IOPS	Write IOPS
asterix	SV_102	Sun OS	2,227.0	1,428.0	799.0
ratbert	SV_111	Linux	1,309.0	273.0	1,036.0
apollo	SV_118	HP-UX	2,780.0	1,375.0	1,405.0
bluebird	SV_129	AIX	1,311.0	154.0	1,157.0

Figure 15.7 Command: htm-servers --performance

15.5 Filesystems Capacity (htm-filefilesystems)

`htm-filefilesystems [option] <serverID>`

Show a list of filesystems with the capacity or performance for each.

Required: A server ID must be specified as the last argument.

Table 15.4 Parameters to htm-filefilesystems command

Option	Purpose
<code>-c</code> <code>--capacity</code>	Retrieve capacity information only for the filesystems on the specified subnetwork. (This returns the same information as Capacity (Filesystem) (page 153) in graphical user interface.)

Note: Performance metrics are not available for filesystems.

Additional parameters for setting a date range, time period and logging in are available for this command. See [Universal Command Parameters](#) on page 235.

15.5.1 Example: htm-filefilesystems --capacity

```
bin/htm-filefilesystems --user orionadmin --password orion --capacity SV_102
```

Resource	Resource Id	Capacity	Used
/dev/dg01	FS_103	n/a	n/a
[ext2]/	FS_106	75.0 GB	10.0 GB
[ext2]/home	FS_107	85.0 GB	83.0 GB
/dev/hda1	FS_108	n/a	n/a
[nfs]/imp1	FS_109	75.0 GB	61.0 GB
[nfs]/imp2	FS_110	85.0 GB	26.0 GB

Figure 15.8 Command: htm-filefilesystems --capacity

15.6 Oracle Servers Capacity/Performance (htm-oracle)

htm-oracle [option]

Show a list of Oracle database servers with the capacity or performance for each.

Required: A server ID must be specified as the last argument.

Table 15.5 Parameters to htm-oracle command

Option	Purpose
-c --capacity	Retrieve capacity information only for the Oracle database servers on the network. (This returns the same information as basic information section of Capacity (Oracle) (page 173) in graphical user interface.)
-p --performance	Retrieve performance information only for the Oracle database servers on the network. (This returns the same information as basic information section of Performance (Oracle) (page 182) in graphical user interface.)

Additional parameters for setting a date range, time period and logging in are available for this command. See [Universal Command Parameters](#) on page 235.

15.6.1 Example: htm-oracle --capacity

```
bin/htm-oracle --user orionadmin --password orion --capacity
Resource      Capacity      Used      Free      Free %      Growth Rate Oracle Instances
Tablespaces Data Files
-----
Oracle
9             13          107.0 GB   45.0 GB    62.0 GB     57.94%     40.62%        3
```

Figure 15.9 Command: htm-oracle --capacity

15.6.2 Example: htm-oracle --performance

```
bin/htm-oracle --user orionadmin --password orion --performance
Resource      IOPS      Read IOPS      Write IOPS      Oracle Instances Tab
Tablespaces Data Files
-----
Oracle
13          4,087,908,778.0  0.0            4,087,908,778.0 3          9
```

Figure 15.10 Command: htm-oracle --performance

15.7 Instances Capacity/Performance (htm-instances)

htm-instances [option]

Show a list of Oracle instances with the capacity or performance for each.

Required: A server ID must be specified as the last argument.

Table 15.6 Parameters to htm-instances command

Option	Purpose
-c --capacity	Retrieve capacity information only for the Oracle instances on the network. (This returns the same information as sub-resource section of Capacity (Oracle Instance) (page 193)in graphical user interface.)
-p --performance	Retrieve performance information only for the Oracle instances on the network. (This returns the same information as basic information section of Performance (Oracle Instance) (page 202) in graphical user interface.)

Additional parameters for setting a date range, time period and logging in are available for this command. See [Universal Command Parameters](#) on page 235.

15.7.1 Example: htm-instances --capacity

```
bin/htm-instances --user orionadmin --password orion --capacity
Resource      Resource Id  Capacity    Used      Free      Free %    Growth Rate
Oracle Instances Tablespaces
-----
Oracle : oral 3      OI_137      29.0 GB   13.0 GB   16.0 GB   55.17%    85.71%
n/a           n/a
Oracle : ora2 4      OI_145      57.0 GB   24.0 GB   33.0 GB   57.89%    26.32%
n/a           n/a
Oracle : rd01 2      OI_156      21.0 GB   8.0 GB    13.0 GB   61.9%     33.33%
n/a           n/a
```

Figure 15.11Command: htm-instances --capacity

15.7.2 Example: htm-instances --performance

```
bin/htm-oracle --user orionadmin --password orion --performance
Resource      IOPS      Read IOPS    Write IOPS    Oracle Instances Tab
lespaces Data Files
-----
Oracle 13      4,087,908,778.0 0.0          4,087,908,778.0 3          9
```

Figure 15.12Command: htm-instances --performance

15.8 Tablespaces Capacity/Performance (htm-tablespaces)

htm-tablespaces [option] <instanceID>

Show a list of Oracle tablespaces in the specified instance with the capacity or performance for each.

Required: A server ID must be specified as the last argument.

Table 15.7 Parameters to htm-tablespaces command

Option	Purpose
-c --capacity	Retrieve capacity information only for the Oracle tablespaces for the specified instance. (This returns the same information as sub-resource section of Capacity (Tablespace) (page 211) in graphical user interface.)
-p --performance	Retrieve performance information only for the Oracle tablespaces for the specified instance. (This returns the same information as basic information section of Capacity (Tablespace) (page 211) in graphical user interface.)

Additional parameters for setting a date range, time period and logging in are available for this command. See [Universal Command Parameters](#) on page 235.

15.8.1 Example: htm-tablespaces --capacity

```
bin/htm-tablespaces --user orionadmin --password orion --capacity OI_137
```

Resource	Data Files	Rollback	Segments	Resource Id	Capacity	Used	Free	Free %	Growth Rate
oral / TMP				OT_138	4.0 GB	0.0 Bytes	4.0 GB	100.0%	-100.0%
oral / SYS	4			OT_140	5.0 GB	2.0 GB	3.0 GB	60.0%	100.0%
oral / USER	4			OT_142	20.0 GB	11.0 GB	9.0 GB	45.0%	83.33%

Figure 15.13 Command: htm-tablespaces --capacity

15.8.2 Example: htm-tablespaces --performance

```
bin/htm-tablespaces --user orionadmin --password orion --performance OI_137
```

Resource	Back	Segments	Resource Id	IOPS	Read IOPS	Write IOPS	Data Files	Rollb
oral / TMP			OT_138	390,590,410.0	0.0	390,590,410.0	1	4
oral / SYS			OT_140	383,087,806.0	0.0	383,087,806.0	1	4
oral / USER			OT_142	830,813,427.0	0.0	830,813,427.0	2	4

Figure 15.14 Command: htm-tablespaces --performance

15.9 Datafiles Capacity/Performance (htm-datafiles)

htm-datafiles [option] <tablespaceID>

Show a list of Oracle datafiles in the specified tablespace with the capacity or performance for each.

- A tablespace ID must be specified as the last argument.

Table 15.8 Parameters to htm-tablespaces command

Option	Purpose
-c --capacity	Retrieve capacity information only for datafiles in the specified tablespace. (This returns the same information as Sub-resource (Data Files) (page 211) in the graphical user interface.)
-p --performance	Retrieve performance information only for datafiles in the specified tablespace. (This returns the same information as Sub-resource (Data Files) (page 215) in the graphical user interface.)

Additional parameters for setting a date range, time period and logging in are available for this command. See [Universal Command Parameters](#) on page 235.

15.9.1 Example: htm-datafiles --capacity

```
bin/htm-datafiles --user orionadmin --password orion --capacity OT_142
Resource          Resource Id
-----
data01.dat        OD_143
data02.dat        OD_144
```

Figure 15.15Command: htm-datafiles --performance

15.9.2 Example: htm-datafiles --performance

```
bin/htm-datafiles --user orionadmin --password orion --performance OT_142
Resource  Resource Id Size   IOPS      Read IOPS
-----
data01.dat OD_143    6.0 GB 418,099,956.0 0.0
data02.dat OD_144    1.0 GB 412,713,471.0 0.0
```

Figure 15.16Command: htm-datafiles --performance

15.10 Universal Command Parameters

These parameters are available as command line options for all HiCommand™ Tuning Manager commands:

Table 15.9 Parameters common to all command line programs
(universal command parameters)

Parameter	Value(s)	Purpose
-d --date	YYYY/MM/DD/hh/mm where: <ul style="list-style-type: none"> - YYYY = year in 4 digits - MM = Month of year (integer months 01 = January, 12 = December) - DD = Day of month - HH = Hour of day (using 24 hour clock) - mm = Minute of hour 	The ending date/time value to use when calculating capacity or performance. <hr/> Note: Both date and time values must be specified.
	(See Example: htm-subnets --capacity --date on page 226.)	
-o --period	<ul style="list-style-type: none"> - YEARLY - QUARTERLY - MONTHLY - DAILY - HOURLY 	The reporting period to use for metrics.
	(See Example: htm-subnets --capacity --period on page 226.)	
-u --user	<userLoginID>	Specifies what user the command will log in as.
-w --password	<password>	Specifies the password for the user login used in this run of the command. <hr/> Note: The password appears as clear text when using this parameter. When this parameter is omitted, the user will be prompted to type the password at the console.

16 - Glossary

Average IOPS

The mean value of all [IOPS](#) measures for the [Viewpoint](#) time period.

Average Transfer

The mean value of all [Transfer](#) measures for the [Viewpoint](#) time period.

Bookmarks

Named links kept in HiCommand™ Tuning Manager which you save for easy access to pages throughout the software.

Capacity

Total storage space.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Capacity Forecast

Predicted future storage free space and usage. A [Forecast](#) uses historical data as a sample to anticipate future values.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Capacity History

Total storage space over your specified time span.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Collection Interval

HiCommand™ Tuning Manager stores metrics values for these intervals: hourly (every hour), daily (every day), monthly (every month) and yearly (every year).

Confidence Level

The confidence level you select for a forecast determines how broad a charted region will be drawn between likely upper and lower bounds.

At a 0.95 confidence level, there is a 95% likelihood that the forecasted values will appear between the upper and lower error margins. (If you specify a 0.99 confidence level, the resulting chart presents a broader region between the upper and lower error margins.)

CPU Usage

Percentage of total CPU capacity used.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Damping

A technique to avoid excessive alerts. HiCommand™ Tuning Manager only triggers an alert when a specified number of occurrences ([Damping Occurrences](#)) within the specified number of samples ([Damping Interval](#)). (See [Creating An Alert Definition](#) on page 39.)

Damping Interval

When you enable damping in alert monitoring, this value determines how many samples will be evaluated. If your specified number of [Damping Occurrences](#) is reached within the damping interval, an alert will be issued. (See [Creating An Alert Definition](#) on page 39.)

Damping Occurrences

If damping is enabled, the number of times an alert condition must be met before an alert is issued. These occurrences must all be contained within your specified [Damping Interval](#). (See [Creating An Alert Definition](#) on page 39.)

Data File

A collection of data stored on media as a unit within the filesystem.

Data Files

Collections of data stored on media as a unit within the filesystem.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Data Point

A value for a specific metric at a specific point in time.

Device File

On systems running the UNIX operating system, a file with specifications for a physical device. A device file indicates the location, type and method of access to a physical device

Disk Group

A group of disks representing a single logical storage resource.

Filesystems

The number of filesystems.

A filesystem is the scheme defining logical structures and software routines used to control access to the storage on a hard disk system.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Also see [Local Filesystems](#), [Filesystem Type](#), [Imported Filesystem](#) and [Filesystems Over Capacity](#).

Filesystems Over Capacity

[Filesystems](#) where usage exceeds a predetermined percentage threshold of used capacity.

You set this threshold in the [Profile](#) section.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Filesystem Type

The method used for storing and organizing data within a given operating system.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Forecast

Forecast reports depict linear and non-linear trends in time series and allow you to project (forecast) those data in to the future. **Forecast History**

The collection of [Data Points](#) used to make a forecast. At least 6 data points should be in the history to ensure meaningful forecasts.

Forecast Horizon

The number of [Data Points](#) to be forecasted, or the time span to be forecasted e.g.: 3 months, 5 days. The forecast horizon should not span more than 20% to 25% of the forecast history. (e.g.: If you have 12 monthly data points in your history, then your forecast horizon should be set no higher than 3 monthly [Data Points](#).)

The data period is always the same for history and horizon. (If the history is made up of daily data points, then the periods used in the forecast are also daily.)

Forecast Interval

See [Forecast Period](#).

Forecast Period

Defines the time between two forecasted data points. (e.g.: monthly, weekly, daily)

Free

The total available capacity.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Free %

The percentage of free capacity as a percentage of all capacity.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Growth Rate

The growth rate compares the current and previous capacity usage values within the [Collection Interval](#) currently set in your [Viewpoint](#). (If your Viewpoint is set to hourly, the base value will be the [Used](#) measured in the previously collected hour. This will be compared to the current usage measure.

Assuming that the current Viewpoint period is set to Hourly, the growth rate reported by HiCommand™ Tuning Manager is the result of this formula:

$$\frac{(\text{Current Hour Capacity} - \text{Previous Hour Capacity})}{\text{Previous Hour Capacity}}$$

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Host

A TCP/IP-accessible computer (or entity) to which one or more storage subsystems are attached. In addition to its TCP/IP address, each host also has a name or alias.

Imported Filesystem

The number of external filesystems mounted on a UNIX host or made accessible to a Windows operating systems via sharing.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Information Frame

The area in the HiCommand™ Tuning Manager web client displaying data about the level you have chosen in the [Resource Tree](#).

Inodes

In UNIX filesystems, inodes contain critical information about a file's user and group ownership and access permissions.

- To find the inode number for a given UNIX file, use the command:
`ls -li.`
- To determine the inode information for a given UNIX file, use the command
`ls -li.`

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Instance

An allocated memory area known as the "SystemGlobalArea" and one or more Oracle processes. Every Oracle database must be associated with one Oracle instance.

Instances

See [Oracle Instances](#).

IOPS

Input/Output operations per second.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Also see [Read IOPS](#) and [Write IOPS](#).

IP Address

Internet Protocol. A multi segment address delimited by dots used to uniquely identify devices and hosts on a network.

Local Filesystems

The number of filesystems directly connected to a host computer.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Logical Device

A numbered component using a logical or physical connection to a host. Each logical device has its own set of resources.

Logical Disk

A series of drives linked in such a way that the operating system views the entirety as a single storage device.

RAID controllers provide one form of managing logical disks while providing benefits in the form of improved reliability, data availability and performance.

(Also known as: logical drives, volumes, volume sets, logical storage units, logical units, units, and LUNS.)

LUN (Logical Unit)

See [Logical Disk](#).

Maximum IOPS

The highest value of all [IOPS](#) measures for the [Viewpoint](#) time period.

Maximum Transfer

The highest value of all [Transfer](#) measures for the [Viewpoint](#) time period.

Memory

Random Access Memory.

Minimum IOPS

The minimum value of all [IOPS](#) measures for the [Viewpoint](#) time period.

Minimum Transfer

The minimum value of all [Transfer](#) measures for the [Viewpoint](#) time period.

Mountpoint

Before a device is accessible (mounted) by UNIX, a directory must be specified as the logical location for that device. The mountpoint is a directory used for that purpose.

HiCommand™ Tuning Manager reports the number of mountpoints on the monitored whole network and its resources. (This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Navigation Frame

The area in the HiCommand™ Tuning Manager web client where you control what kinds of data will be displayed. The Navigation Frame includes the [Resource Tree](#) and choices for editing your [Profile](#) and setting [Bookmarks](#).

For more detailed information, see [Navigation Frame](#) on page 8.

Operating System

The controlling software managing a computer's routing of storage, memory, display and peripheral devices.

Oracle Capacity

The total storage capacity allocated to Oracle.

Oracle Instances

One or more Oracle processes. Every Oracle database must be associated with one Oracle instance.

Over Capacity

See [Filesystems Over Capacity](#).

Performance

The efficiency of input/output operations.

Port

A logical connection to a disk array allowing multiple simultaneous read and write transactions.

Profile

Your user identity for HiCommand™ Tuning Manager, login, email account.

RAID

Redundant Array of Independent Disks. An assemblage of two or more disk drives to improve fault tolerance and/or performance.

RAID Level

Level of functionality for a RAID subsystem:

Level 0: provides data striping (placing blocks of each file across multiple drives). This provides performance benefits but no redundancy.

Level 1: provides mirroring where duplicate data is written redundantly to more than one drive.

Level 3: provides striping plus error correction. One drive is dedicated to storing error correction data.

Level 5: provides byte-level data striping and also stripe error correction.

RAID Group

A logical volume consisting of an array of disk drives that uses ports in one or more multiples of 4 channels. Normally this array makes use of striping. This provides good load balancing with a high degree of data availability

Raw Devices

Devices not allocated to a filesystem.

Read IOPS

Read operations per second.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Read Hit Ratio

The number of read transactions divided by the number of transactions. (When presented as a percentage, the resulting value is multiplied times 100.)

Read Transfer

The speed of data movement for read operations.

Resource Tree

A hierarchical presentation of the storage-related and application-related resources monitored by HiCommand™ Tuning Manager. The Resource Tree appears within the [Navigation Frame](#).

For more detailed information, see [Resource Tree](#) on page 8.

Rollback Segments

The number of rollback segments within the tablespace(s).

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Server

Servers are storage-oriented hosts on a given network or subnetworks.

The Servers metric displays the number of storage hosts at the level you have selected in the [Resource Tree](#). For more detailed information, see [Resource Tree](#) on page 8.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Servers

Servers are storage-oriented hosts on a given network or subnetworks.

The Servers metric displays the number of storage hosts at the level you have selected in the [Resource Tree](#). For more detailed information, see [Resource Tree](#) on page 8.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Session

The period of interaction with the software beginning after each new login and ending when you logout.

SNMP

Simple Network Management Protocol. A standard protocol with interfaces for managing and monitoring network resources.

SNMP trap

An event notification issued by an SNMP agent.

Sort Segments

The number of sort segments within the tablespace(s).

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Storage Subsystem

A physical device containing an array of disk drives acting as a single unit for the purposes of data storage and retrieval.

Subnetwork

A subset of a larger network with its own IP range.

Subnet Capacity

Total storage capacity for a subnetwork.

Subnet Capacity History

Total storage capacity for a subnetwork for the time frame you specify.

Subnet

The name and/or IP range for a subnetwork (a subset of a larger network with its own IP range).

Tablespace

A logical allocation of Oracle capacity dedicated to storing table data.

Tablespaces

A logical allocation of Oracle capacity dedicated to storing table data.

Tablespace name

Name of an Oracle logical allocation dedicated to storing table data.

Target

The resource for which information is requested or has been gathered.

Transfer

The rate at which data is moved.

Also see [Read Transfer](#) and [Write Transfer](#).

URL

Uniform Resource Locator: the global address scheme for documents and other resources on the World Wide Web.

Used

The portion of capacity consumed.

Viewpoint

Your specifications for time frame and interval:

- Time
- Period interval

A viewpoint yields a snapshot for:

- A point in time
Specify current time (default), or a date/time combination of your choice.
- A specific reporting period interval.
Your choices are hourly (default), daily, weekly, monthly, yearly.

Virtual Disk

See [Logical Disk](#).

Volume

Storage organized as either a subset of a single disk or spanning multiple disks.

Whole Network

The entire scope of resources available to HiCommand™ Tuning Manager along with its subnetworks and storage-related servers.

Whole Network Capacity

Total storage space for all resources available to HiCommand™ Tuning Manager along with its subnetworks and storage-related servers.

Write Hit Ratio

The number of write transactions divided by the number of transactions. (When presented as a percentage, the resulting value is multiplied times 100.)

Write IOPS

Write operations per second.

(This value is aggregated for all sub-resources below the level you have selected in the [Resource Tree](#).)

Write Transfer

The speed of data movement for write operations.

WWN Node

A resource with at least one unique IP address addressable by [URL](#).

WWN Port

A port on an [WWN Node](#).

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