Bull System Manager

BSM 1.1

User's Guide

NOVASCALE & ESCALA

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User's Guide

Software

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Preface

Scope and Audience of this Manual

This manual is intended for operators in charge of monitoring and managing Bull servers with Bull System Manager, in particular via the Bull System Manager Console. It comprises the following chapters:

Chapter 1	**About Bull System Manager** presents Bull System Manager architecture and components.
Chapter 2	**Getting Started** explains how to use Bull System Manager to perform basic monitoring and management tasks.
Chapter 3	**Using Bull System Manager Console** describes Bull System Manager Console functionalities and use.
Chapter 4	**Using Bull System Manager Console Applications** describes Bull System Manager Console applications and use.
Chapter 5	**Categories and Services Reference List** describes Bull System Manager monitored categories and default services, according to operating system and hardware

Highlighting

The following highlighting conventions are used in this manual:

Bold	Identifies commands, keywords, files, structures, directories, and other items predefined by the system. Also identifies graphical resources such as buttons, labels and icons that the user selects.
Italics	Identifies chapters, sections, paragraphs and book names to which the reader must refer for more information.
`Monospace`	Identifies examples of specific data values, examples of text similar to what you might see displayed, messages from the system, or information you should actually type.

Note	Important information

Related Publications

For more information about Bull System Manager, please refer to:

- *Bull System Manager Installation Guide* (Ref. 86 A2 54FA)
- *Bull System Manager Administrator's Guide* (Ref. 86 A2 56FA)
- *Bull System Manager Remote Hardware Management CLI Reference Manual* (Ref. 86 A2 58FA)
- *Bull System Manager Server Add-ons Installation and Administrator's Guide* (Ref. 86 A2 59FA)

- Restrictions and well-known problems are described in the associated *Release Notes* document (Ref. 86 A2 57FA).

- For information about the Open Source products used by Bull System Manager, please refer to:
  http://www.nagios.org (for Nagios product)
  http://www.webmin.com (for Webmin product)
  http://www.mrtg.hdl.com (for MRTG product)

Chapter 1. About Bull System Manager

1.1 Scope

Bull System Manager is the graphical interface tool used to manage Bull servers. It provides two main functions:

Supervision (monitoring, reporting, information)

Supervises system resources.
Detects anomalies and notifies them to defined entities. It also provides the interface that displays all important information.

Administration (remote control)

Used to configure target hosts and to execute actions on these hosts via the OS or via a Hardware Management tool.

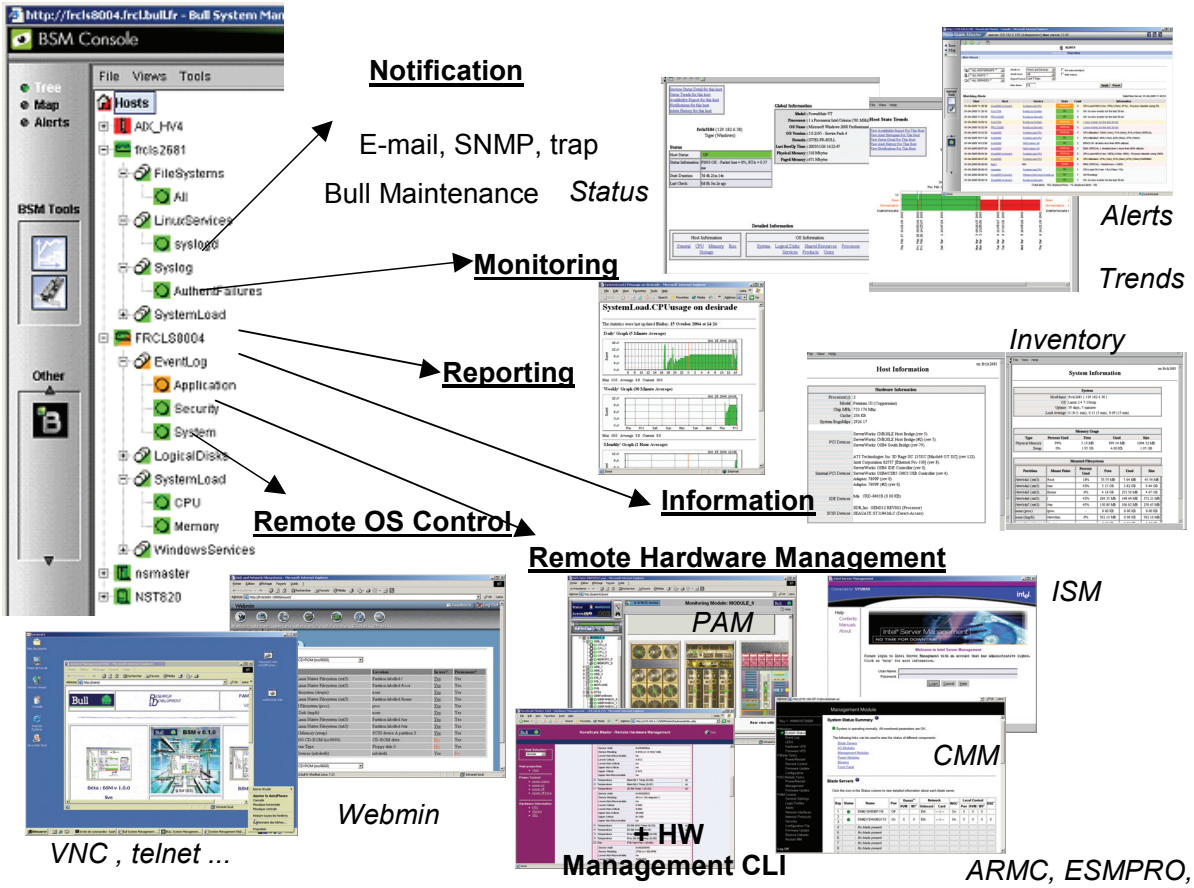


Figure 1-1 Overview of Bull System Manager functions

Two Bull System Manager user roles are pre-defined:

- **Operator Role:**
  An operator can read host and operating system information, but has no access to the administration tools.
- **Administrator Role:**
  An administrator can perform administration, configuration, update, and remote control tasks on target hosts.

1.1.1 Supervision Features

- **Host Monitoring:**
  Checks if the target host is accessible (via the **ping** command).
- **Monitoring Services:**
  Monitors OS CPU load, memory usage, disk usage, number of users, processes and services execution, http and ftp services.
  Thresholds are used to assign a state (**ok**, **warning**, **critical**, **unknown**) to hosts and to each monitored element.
  Alerts (in a log file) and notifications (by email) are generated when anomalies occur or when normal states are recovered (return to ok state).
  Monitoring Services are classified into Monitoring Categories: **SystemLoad**, **Filesystems**, **EventLog**...
- **Hardware Monitoring:**
  - **NovaScale servers** get hardware health status via a call to CMM, ISM and PAM Hardware Managers or via an IPMI OutOfBand access.
  - **Blade servers** get hardware health status via a call to CMM.
  - **Escala servers** get hardware health status via a call to HMC or IVM.
  - **Express 5800 servers** get power status via a call to the RMC Management Card.
- **Virtualization Monitoring:**
  - **Escala LPARs** get virtualization status via a call to HMC or IVM.
- **Selectable View Displays:**
  Presentation of hosts and monitoring services through different views. A view is a tree structure that can display:
  - the entire list of hosts,
  - managers and the hosts they manage,
  - host groups.

  From each tree node, the user can display detailed information about a host or a service, according to user roles (Administrator or Operator).
- **Group Definitions:**
  Host groups and Group groups can be defined to organize server infrastructure as a tree.
- **Alerts:**
  Notifications of problems via email, SNMP traps or Bull format autocalls.

- **Selectable Map Displays:**
  Presentation of hostgroups (with the status of their hosts and monitoring services) through different maps.
  A **map** is a layout, in general with a background image, which displays associated hostgroups. Hostgroups are located at specified positions (x,y) on the map and are animated with the status of associated hosts and monitoring services.
  From a hostgroup, the user can display detailed information about all associated hosts.

1.1.2 Administration Features

- **Eventhandling** mechanism based on status changes.
- **Webmin Management Tool for Linux hosts**:
  Webmin is an Open Source product that gives OS information (about users, filesystems...) or executes OS commands, in a graphical environment, locally on Linux target hosts.
- **Remote Operation Tools:**
  - **telnet** to access Linux and Windows hosts.
  - **Rdesktop** or **UltraVNC** to access Windows hosts. UltraVNC is an Open Source product that allows you to take control of remote hosts as if you were in the remote host Windows environment.
- **Hardware Manager Calls:**
  - **PAM** for NovaScale 5000 and 6000 Series platforms.
  - **CMM** for NovaScale and EvolutiveLine Blade Series Chassis platforms.
  - **HMC for Escala PL servers.**
  - **ExpressScope or SIMSO+ for NS T800 and NS R400 servers**
  - **ARMC** for Express 5800 servers.

  Targeted systems can be powered on / off via these managers and Bull System Manager provides a single Hardware Management GUI for basic tasks.
- **Virtualization Manager Calls:**
  - **ESX WEB GUI** for VMware ESX platforms.
  - **HN Master** for Xen platforms.
  - **IVM** or HMC for Escala LPAR platforms.
- **Storage Manager Calls:**
  Embedded Storage Manager GUI that are integrated in the Storage bays.

1.2 Basic Definitions

1.2.1 Service

A **service** is a monitoring check, which supervises a monitored item. Monitoring agents compute service status (OK, Warning, Critical, Unknown or Pending) and status information (a text giving more information on the service state) for each service.

Example:
The **CPU** service, which returns a status about CPU utilization, displays the following information on Windows:

```
CPU Load OK (1mn: 8%) (10mn: 5%)
```

1.2.2 Category

A **category** is a container for a group of services.

Example:
The **SystemLoad** category for Windows systems contains both CPU and Memory services.

1.2.3 View

A **view** is how monitored hosts are displayed on the screen. Views differ in structure, but they all display hosts with an animation reflecting service status (ok, warning, critical, or unknown) and associated monitoring services, classified into categories, under the host node.

The advantage of views is to display only what the user wants to see at a given time. For example, if a user is interested in Hosts and not in Managers or Hostgroups, he can display the Hosts view.

Notes

- According to configuration, a category may or may not be present. For details, refer to the *Administrator's Guide*.
- Each type of node in a view has specific menus detailed later in this manual.

1.2.4 Map

A **map** can be used to display the status of a selection of hostgroups (with their monitored hosts) on the screen.

In general, the map has a background image and hostgroups are located at specified positions (x,y) on the map. Maps differ in appearance, but they all display hostgroups with an animation reflecting service status computed from the status of the associated hosts and monitoring services.

When you zoom in on a hostgroup, you can view associated hosts and overall service status (the worst status of the associated monitoring services).

The advantage of maps is to display only what the user wants to see for a given context.

As Administrator, you can create customized maps for hostgroups in different contexts. Refer to the *Administrator's Guide* for details.

1.3 Bull System Manager Components

Bull System Manager is based on a 3-tier architecture:

- **Monitoring Console**
  This WEB-based application running in a browser (Internet Explorer or Mozilla) accesses collected monitoring data using WEB technology.
- **Monitoring Server**
  Collects, processes and stores monitoring and reporting data. It runs on both Windows and Linux platforms.
- **Monitoring Agent**
  Contains the basic programs used to obtain monitoring and inventory information. It is installed on each target system.

Bull System Manager comprises Open Source software:

- **Nagios**
  For the monitoring function.
- **MRTG**
  For the reporting indicators function.
- **Webmin**
  A Linux administration tool (a standard Webmin package and a Bull System Manager Webmin restricted to obtaining information).
- **UltraVNC Server**
  For remote operation on Windows hosts.
- **IPMItool**
  For remote operation on hardware systems that contain the Intel BMC (Baseboard Management Controller).

Bull System Manager also comprises an optional component for scripting applications on Linux platforms:

- **Hardware Commands**
  A Command Line Interface (CLI) for remote hardware management, providing an easy interface for automating scripts to power on/off or get the power status of a system.
  These commands can only be used on:
  - Express 5800,
  - NovaScale R400 & T800 series or NovaScale 4000, 5000,6000 and 9006 series servers.,
  - Blade servers,
  - Escala servers.

1.4 Bull System Manager and Security

Bull System Manager security is based on a combination of secured applications using authentication and profiling (role based) mechanisms.

1.4.1 Authentication

Each Bull System Manager application uses a user/password or single password authentication mechanism for access. Users are defined on the Bull System Manager server.

1.4.2 Role-based Management

Each Bull System Manager Console user is associated to a role (or set of functionalities). There are two types of profiled users:

- Operator
  An operator can read host and operating system information, but has no access to the administration tools.
- Administrator
  An administrator can perform administration, configuration, update, and remote control tasks on target hosts.

Chapter 2. Getting Started

This chapter explains how to use Bull System Manager for basic monitoring and administration tasks.

2.1 Starting the Console

See Chapter 6 of the *Installation Guide* for details on how to launch the console and applications.

2.1.1 Console Basics

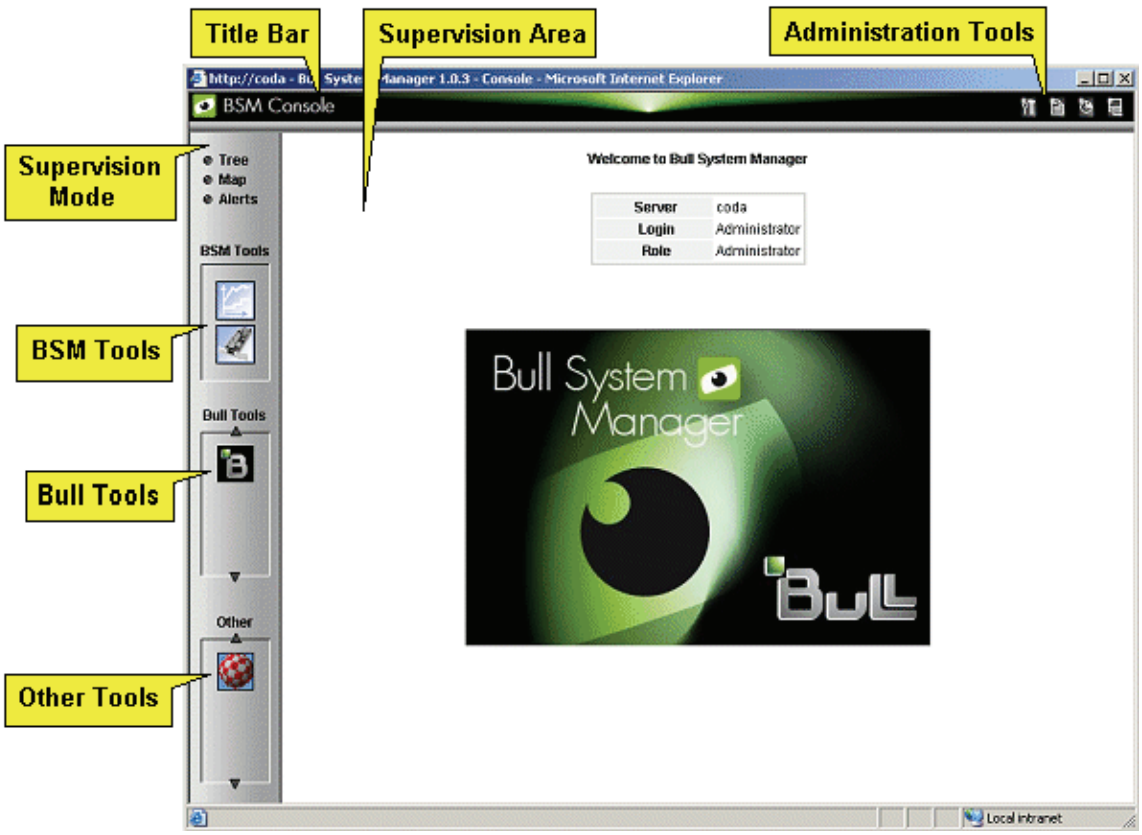


Figure 2-1 Bull System Manager console

The Bull System Manager console is divided into the following functional parts:

Title Bar displays the server name.

Administration Tools enables access to the administration tools:
Bull System Manager configuration application,
Bull System Manager documentation,
Bull System Manager download page,
Bull System Manager Server control,
Displays server information: Netname, Date/Time, Login and Role.

Supervision Mode allows you to choose one of the three modes of supervision:
supervision through a tree,
supervision through a map,
supervision through alerts.

Supervision Area displays information about the monitored resources, related to the type of supervision (see *Supervision Information*, on page 55).

BSM Tools enables access to the Bull System Manager Tools:
Reports, Hardware Management.

Bull Tools enables access to the Bull Applications:
Bull Support, Cassatt Controller, Cassatt Manager, BPRSE, BPREE, ARF.

Other Tools enables access to external applications.

2.1.2 Bull System Manager Authentication and Roles

Bull System Manager applications must be authenticated. They use common Bull System Manager users defined on the server part.
Authentication type varies according to the Bull System Manager Server operating system (Linux or Windows) and to the WEB Server (Apache or Microsoft IIS) (see next paragraphs).

Note In order to change the current authentication for Bull System Manager. You MUST close all the opened WEB browser windows and relaunch a new session of this browser. Else, the browser will keep the previous authentication context.

2.1.2.1 Role Based Management

The authenticated user is used to apply a user profile or role. Two default roles have been defined for Bull System Manager:

Operator with access only to supervision information.

Administrator with access to supervision information, configuration tasks and Remote Control functions.

Applications	Role	Functions
Monitoring and Reporting	Operator	Information access
	Administrator	+ server control access
Remote Control OS	Operator	None
	Administrator	Remote Control access
Hardware & Storage managers	Operator	Information access
	Administrator	+ Remote Control access

Table 2-1. Roles and Functions

Note User roles can be only configured by a user with Administrator role. For further details, refer to the *Administrator's Guide*.

2.1.2.2 Bull System Manager Server User Authentication - Linux

Apache server authentication

A default Apache user called **bsmadm** (password **bsmadm**) is created when Bull System Manager Server is installed. This user is not a Linux user and will only be used contextually by this WEB Server.

Figure 2-2 bsmadm user authentication – Linux

The users database is stored in the following file:
/opt/BSMServer/core/etc/htpasswd.users

Adding a New User / Modifying a Password

To add a new user or to modify a password on the Apache server:

1. Log on as root and launch the following command followed by the required user name:

```
# htpasswd /opt/BSMServer/core/etc/htpasswd.users <USERNAME>
```

   where <USERNAME> is the user name you want to add or modify.

2. Enter the new password: *****

3. Re-type the new password: *****
   Adding password for user <USERNAME>

2.1.2.3 Bull System Manager User Authentication - Windows

Authenticated users are users declared in the Windows users database.

Using Apache WEB Server

Any user in the Windows user database of the server, or any trusted domain to which the server belongs, will be granted access.
The user name must be entered in the following format: **DOMAINNAME\Username**, even for local users. The domain name must be fully qualified.

Figure 2-3 User authentication with Apache WEB Server - Windows

This chapter continues with the description of what you can do with the console.

2.2 Displaying Monitoring Information

2.2.1 Starting with the Tree mode

Notes

- Tree Mode concepts are explained in detail in Chapter 3.
- When the Console is started, the default view is opened, i.e. the **Hosts** view, displaying all the declared hosts at the same level.
  By clicking on , you can load four other views: the **Hostgroups** view, the **HardwareManager** view, **StorageManager** view or the VirtualManager view.
  As Administrator, you can change the default view.

The left part of the console is a tree representing all the managed platforms. It can be expanded as shown below:

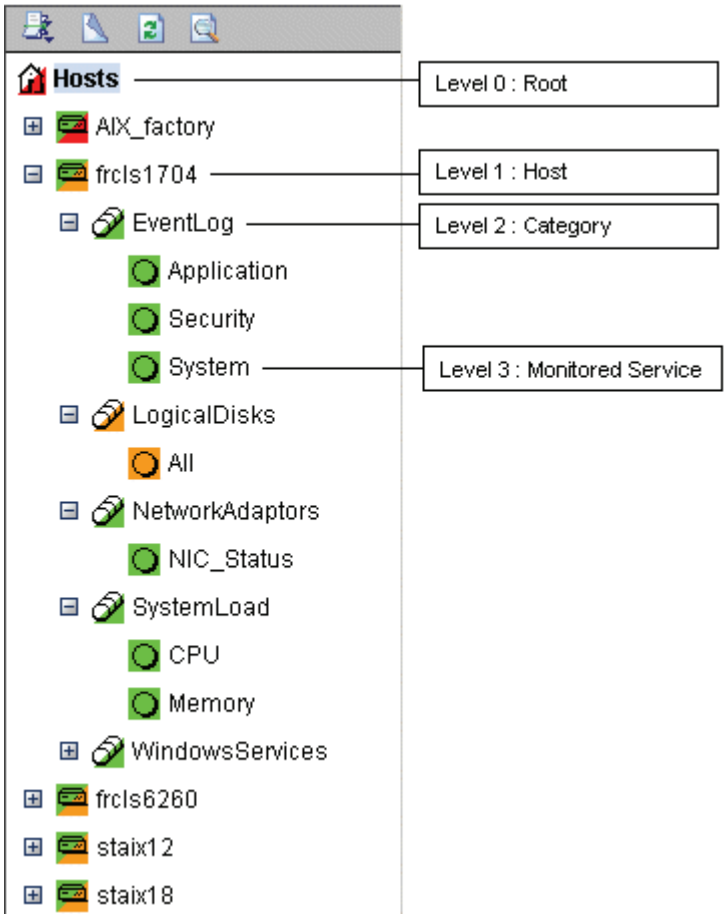


Figure 2-4 Example of expanded Hosts tree

A **Service** is a **Monitored Entity** and the color of the icon reflects service status: red (critical), orange (warning), magenta (unknown) or green (ok).

Each icon is divided into two sections:

- the top left is reserved for the animation for itself,
- the bottom right is reserved to cascade animation from its subtrees.

For instance, for a Host node, when there is a service status change, the color of the bottom right corner of the category icon changes to reflect this change.

The color of the top left corner of a host icon indicates if this host is alive or not (result of a **ping** command).

Example

The top left corner of the `nsmaster` host node is green because it is alive and the bottom right corner is green because all its services are ok.

A **Category** is a node grouping monitored services logically. Category status reflects the worst status of its associated services.

2.2.2 Looking in the Past

When a problem occurs, it is interesting to know if it already occurred in the past, and how many times it occurred.
Bull System Manager offers many ways to analyze what occurred in the past.

2.2.2.1 Looking in the Past with Alert History

From the Applications pane, click **Reporting > Alert History**. The following display appears (in this example, the host is called `FRCLS8004`).

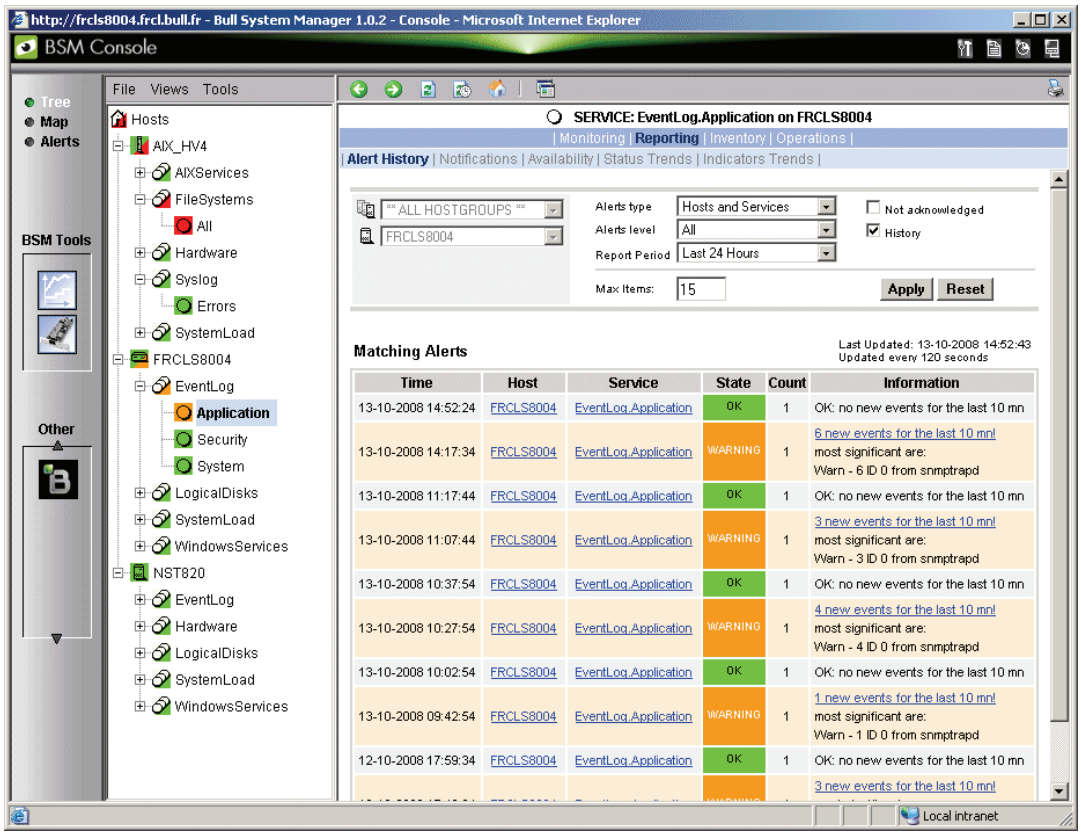


Figure 2-5 Alert History window

The history shows all the alerts that occurred for this service, in periods of time. Service information is also logged, providing all the information required to decide if a corrective action is needed.

2.2.2.2 Looking in the Past with Status Trends Information

The **Alerts** and **Trends** functions use monitoring logs to display past information:

- Alerts shows events.
- Trends shows a status graph for a given period of time.

In the example shown in Figure 2-5. the monitored system is `FRCLS8004`. The tree shows a WARNING state on **EventLog.Application**. Click **Application** to display status information.

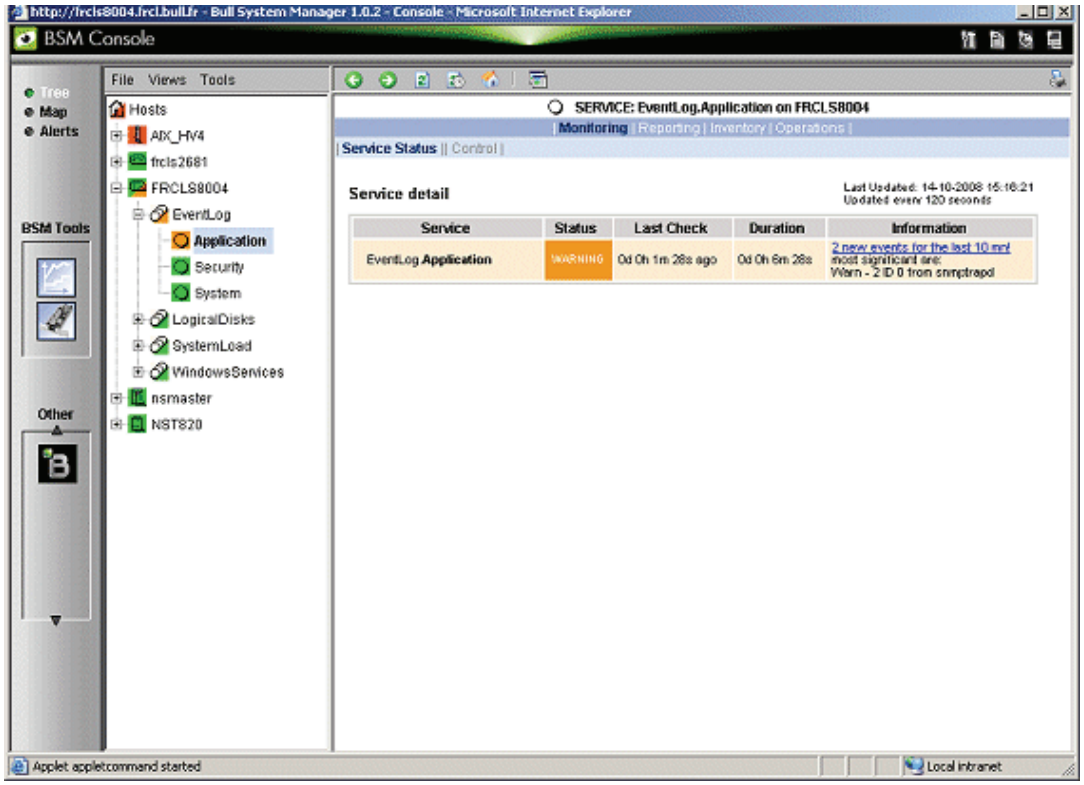


Figure 2-6 Status Information for EventLog.Application service

If you want to know if this situation often occurs, and when it occurs, click **Reporting > Status Trends**. The following display appears:

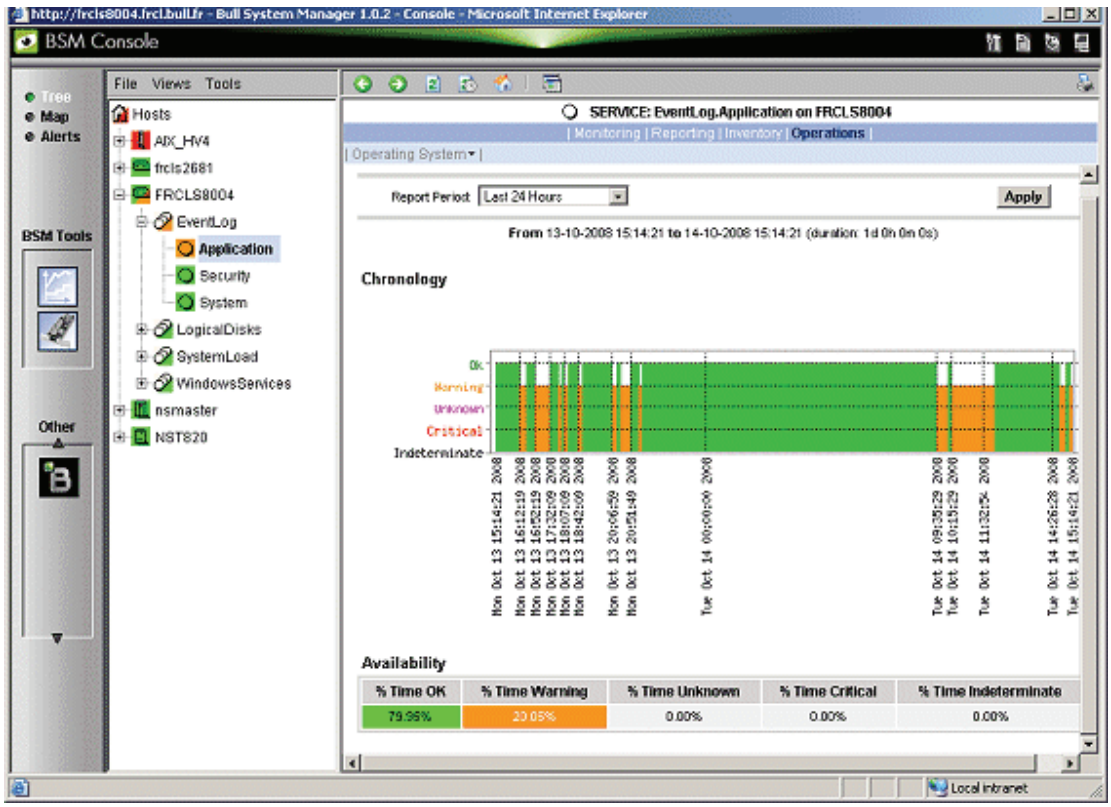


Figure 2-7 Status Trends for EventLog.Application service (last 24 hours) - example

The graph of the situation for the last 24 hours shows that BSM has detected some recent EventLog.Application warning.

2.2.3 Viewing More Information

The Applications pane is used to display information requested by menu items or links.

- Click a node in the Tree pane to display basic monitoring information, according to node type.
- Right-click a node in the Tree pane to display a popup menu giving access to all operations available for that node.
- Click an option in the double level menu in the Applications pane to access to all information available for that node.

Example

When you click the `FRCLS8004` node, the following display appears, indicating that the status for this host is UP:

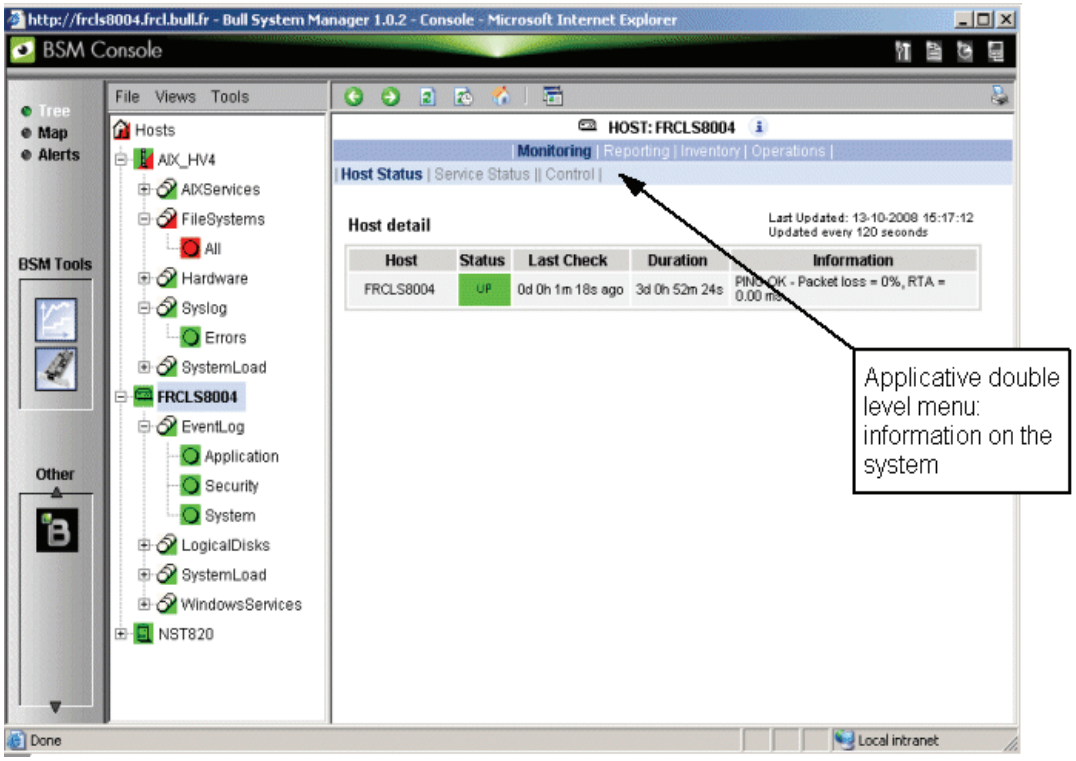


Figure 2-8 Host status display - example

From the Applications pane, click **Hardware Information > Inventory** to display the host hardware inventory.

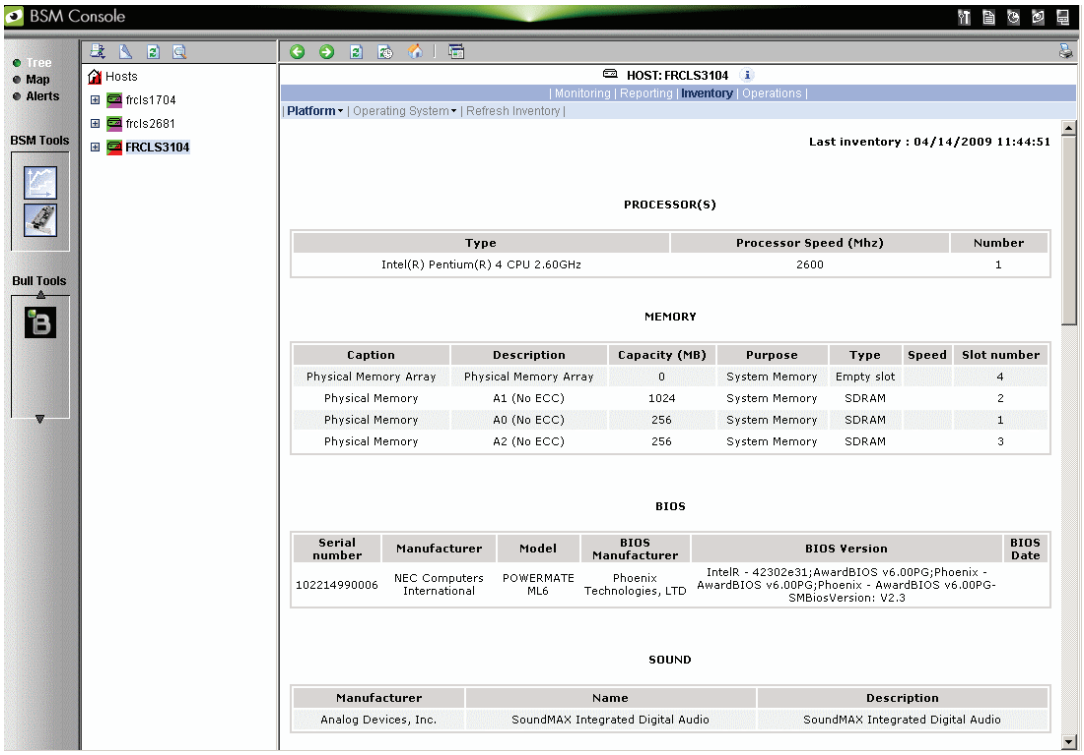


Figure 2-9 Host information - example

2.3 Receiving Alerts

As Administrator, once you have built your configuration, you can set up email and/or snmp notifications for enhanced operational monitoring

2.3.1 Sending Email Notifications

To configure the email notification mechanism, proceed as follows:

Step 1: Start Bull System Manager Configuration.

Step 2: Configure the Mail Server (only if Bull System Manager Server runs on a Windows system).

Step 3: Specify the mail address of the receiver.

Step 4: Reload the monitoring server to take the modifications into account.

Refer to the *Administrator's Guide* for details.

2.3.2 Sending SNMP Traps Notifications

To configure the SNMP notification mechanism, proceed as follows:

Step 1: Start Bull System Manager Configuration.

Step 2: Specify the SNMP managers to which the traps will be sent.

Step 3: Reload the monitoring server to take the modifications into account.

Refer to the *Administrator's Guide* for details.

2.3.3 Viewing Notifications

In the following example, an authentication failure has generated an email notification:

```
***** Bull Bull System Manager *****
Notification Type: PROBLEM
Service: LogicalDisks.All
Host: w2k-addc01 Description: Portal DC (current network name: w2k-
addc01)
Address: w2k-addc01
State: CRITICAL
Date/Time: Wed May 18 16:26:21 GMTDT 2005
Additional Info:
DISKS CRITICAL: (Z:) more than 95% utilized.
```

The Bull System Manager Console allows you to view all the notifications sent by the monitoring server.

2.4 Taking Remote Control of a Host

As Administrator, if you want to investigate a problem and fix it, you need to take a remote control of the platform concerned. Bull System Manager uses standard, commonly used tools to perform this function. These tools differ according to whether the remote operating system is Windows or Linux.

2.4.1 Windows Hosts

UltraVNC Viewer is used to connect remotely to Windows hosts.

Note Prerequisite: The VNC package delivered with Bull System Manager must be installed and started on the remote host. Refer to the *Installation Guide* for details.

Example

Bull System Manager informs you that the **C:** disk is nearly full on the `nsmaster` Windows host, via the **LogicalDisks** node, and you decide to connect to `nsmaster` to see if you can free some disk space.

To connect to the remote host:

1. Start VNC Viewer from the `nsmaster` host menu (**Operations > Operating System > VNC Viewer**).

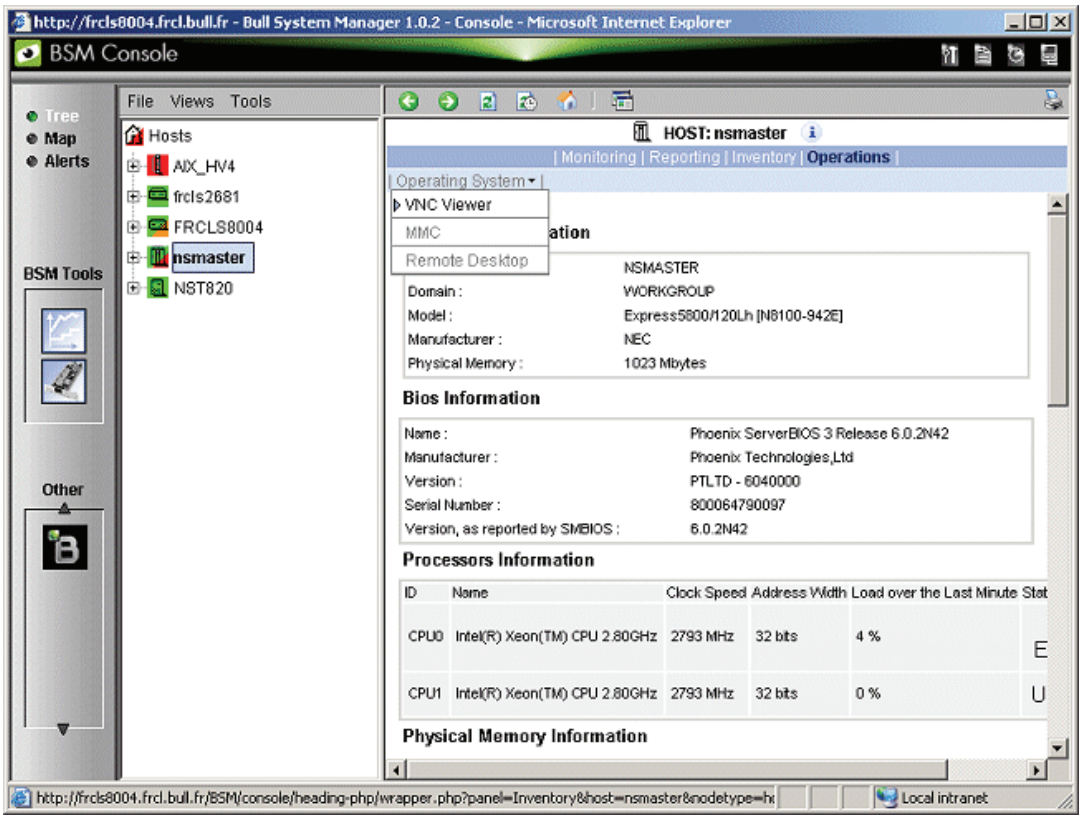


Figure 2-10 Starting UltraVNC Viewer on a host

2. When prompted, enter the password used when VNC Server was installed or configured on the target host (`nsmaster` in the example).

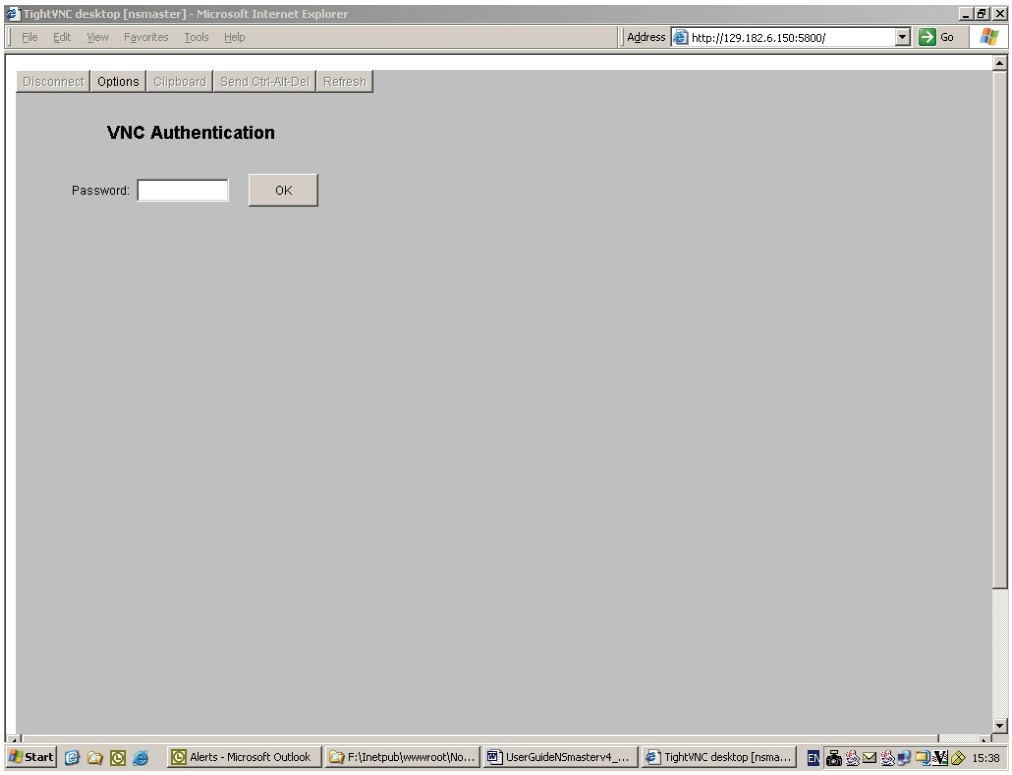


Figure 2-11 VNC Authentication window

3. Click OK. You now have full access to the remote host (`nsmaster`), although response times may be longer.

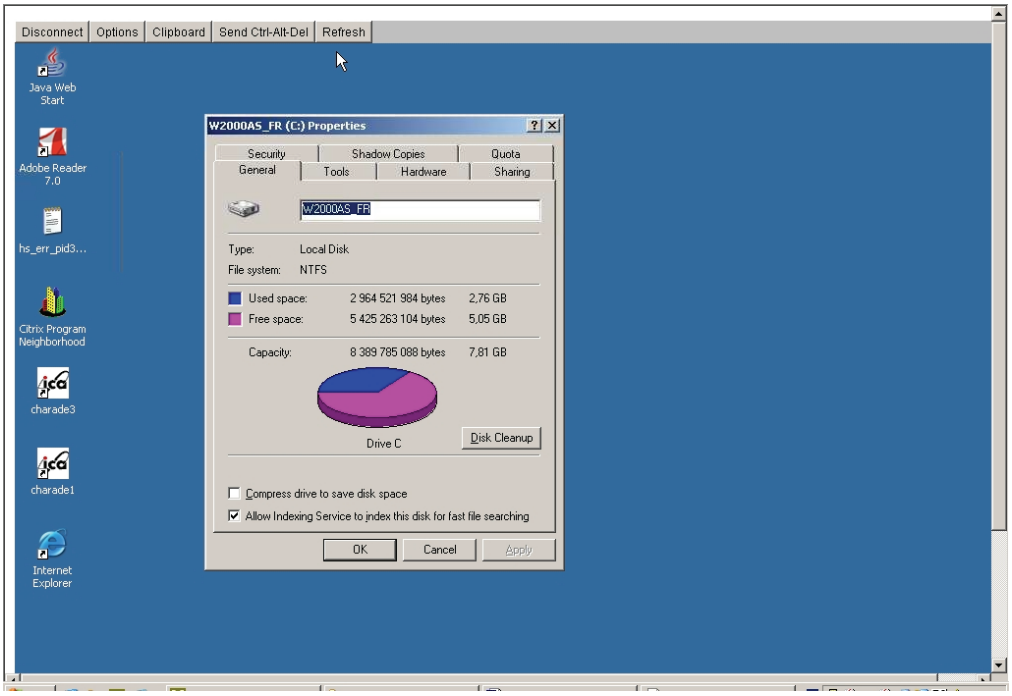


Figure 2-12 Remote connection to a Windows host with VNC Viewer

You can now display information related to disk C: and perform corrective actions.

Note If you do not require full access to the remote desktop, you can also open a telnet connection, if the telnet service is started on the remote host.

2.4.2 Linux and AIX Hosts

Webmin is used to connect remotely to Linux and AIX hosts.

Note Webmin is a graphical tool for managing Linux and AIX systems and allows you to configure the system, application servers (http, mail...), the network, and many other parameters. Webmin is Open Source software and the Open Source Community regularly adds new modules.

Example:

You want to add a new user to your `FRCLS2681` Linux host.

1. From the `FRCLS2681` host menu, select **Operations > Operating System > UsersActions > Users**.

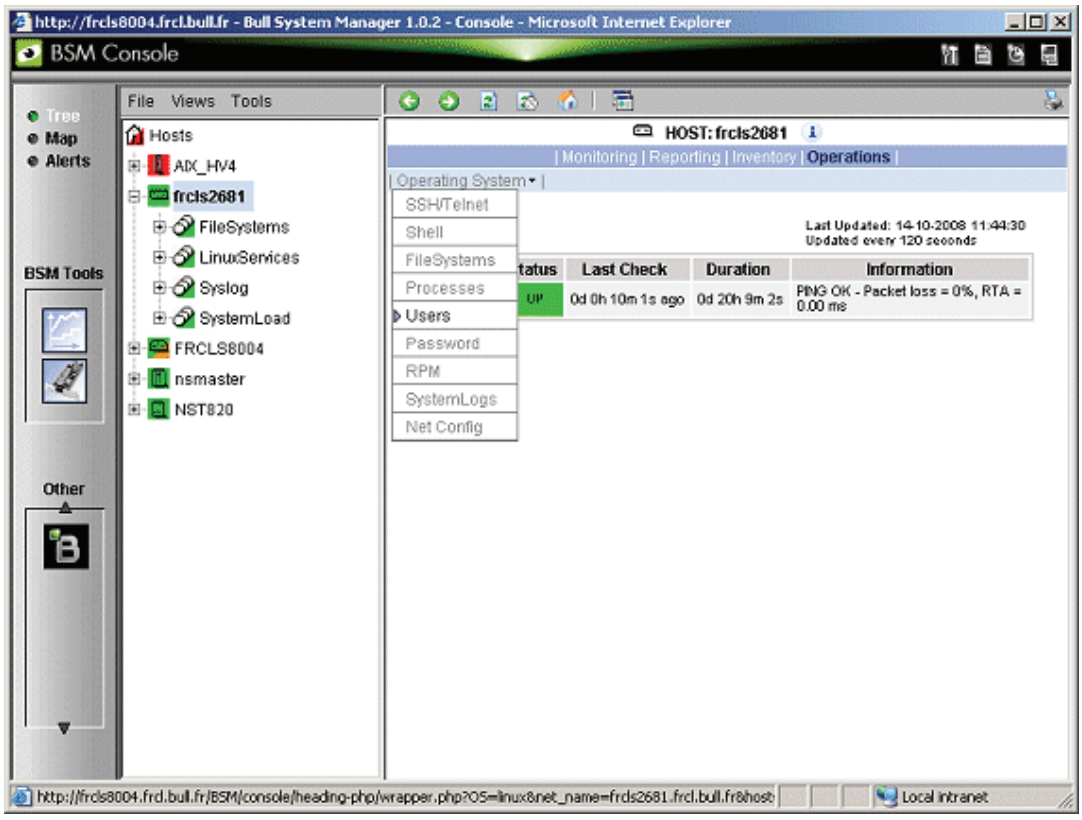


Figure 2-13 Launching Webmin window

A Webmin page opens and prompts you for a user / password. As Administrator, you can connect as root, with the corresponding Linux password.

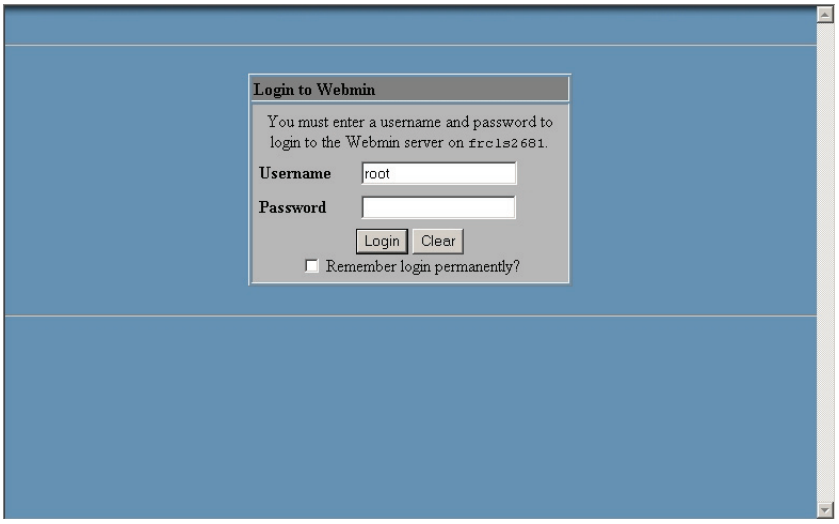


Figure 2-14 Webmin login window

Note If the Linux host is running in SSL mode the following message appears, before the Webmin login page:
`This web server is running in SSL mode. Try the URL https://<hostname>:10000/ instead.`
You must click the link indicated in this message.

You are now in the Webmin page that manages Users and Groups:

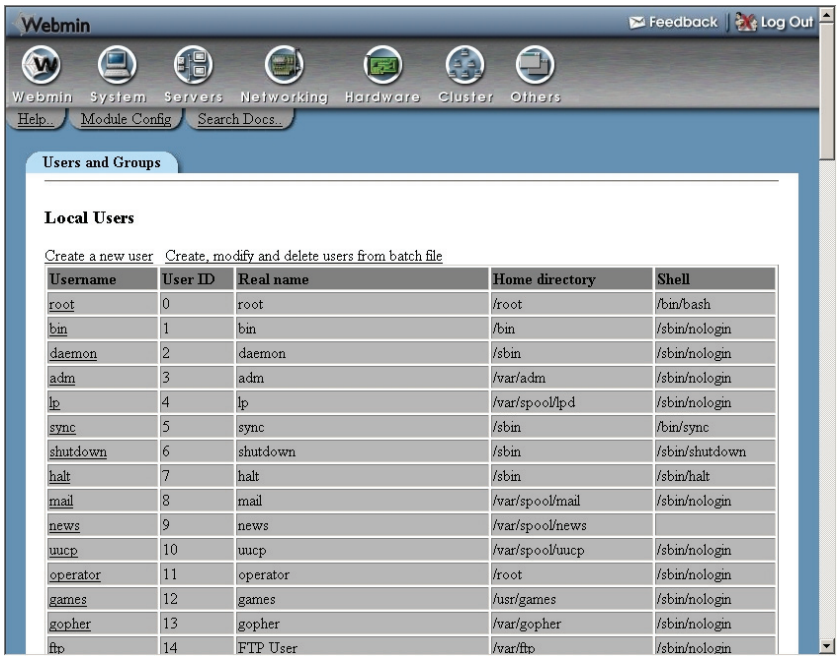


Figure 2-15 Webmin interface on Linux hosts

2. Add a new user by clicking Create a new user.

2.5 Managing Hardware

2.5.1 Using the System Native Hardware Manager

Hardware monitoring and management - such as temperature or voltage monitoring, remote power control, access to BIOS or system logs - is not directly performed from Bull System Manager.

Each type of server has a dedicated hardware manager that Bull System Manager uses to perform these operations. Bull System Manager provides the appropriate menu item for each server type, that is:

- PAM for NovaScale 5000 and 6000 series
- ISM for NovaScale 4000 series
- CMM for NovaScale Blade series
- HMC for Escala servers,
- ExpressScope for NovaScale R400 or T800 series
- RMC or ARMC for Express5800 Series
- Any other manager that can be accessed via a URL.

Notes

- The corresponding Hardware Manager MUST be installed and configured. Please refer to the documentation delivered with the server for details.
- When the Hardware Manager is launched via a URL (Web GUI), the browser on the console must be configured to access this URL without using an HTTP proxy.
- Connection to PAM, ISM, RMC, ExpressScope,CMM and HMC hardware managers **requires authentication.**
  Logins must be defined in the management modules before they can be used by Bull System Manager.
  CMM: only one session is allowed per user. You must therefore register one user for each Bull System Manager Console (used when the Manager GUI is launched from the Management Tree).
- NovaScale **Blade hardware monitoring** is performed through the CMM SNMP interface. You must therefore declare the Bull System Manager server as SNMP Manager when you configure the CMM.
- Escala monitoring is performed through remote secure shell. You must therefore configured a non-prompted ssh connection between BSM and the HMC.

To manage hardware, proceed as follows:

Step 1: Declare a HW manager and the hosts or platforms it manages.

Step 2: Reload the monitoring server to take the modifications into account.

Step 3: Call the HW Manager from the Tree pane.

Example: Calling a configured PAM Manager:

The **Operations > Platform > Hardware Manager GUI** item appears in the menu of the `nsmaster` host.

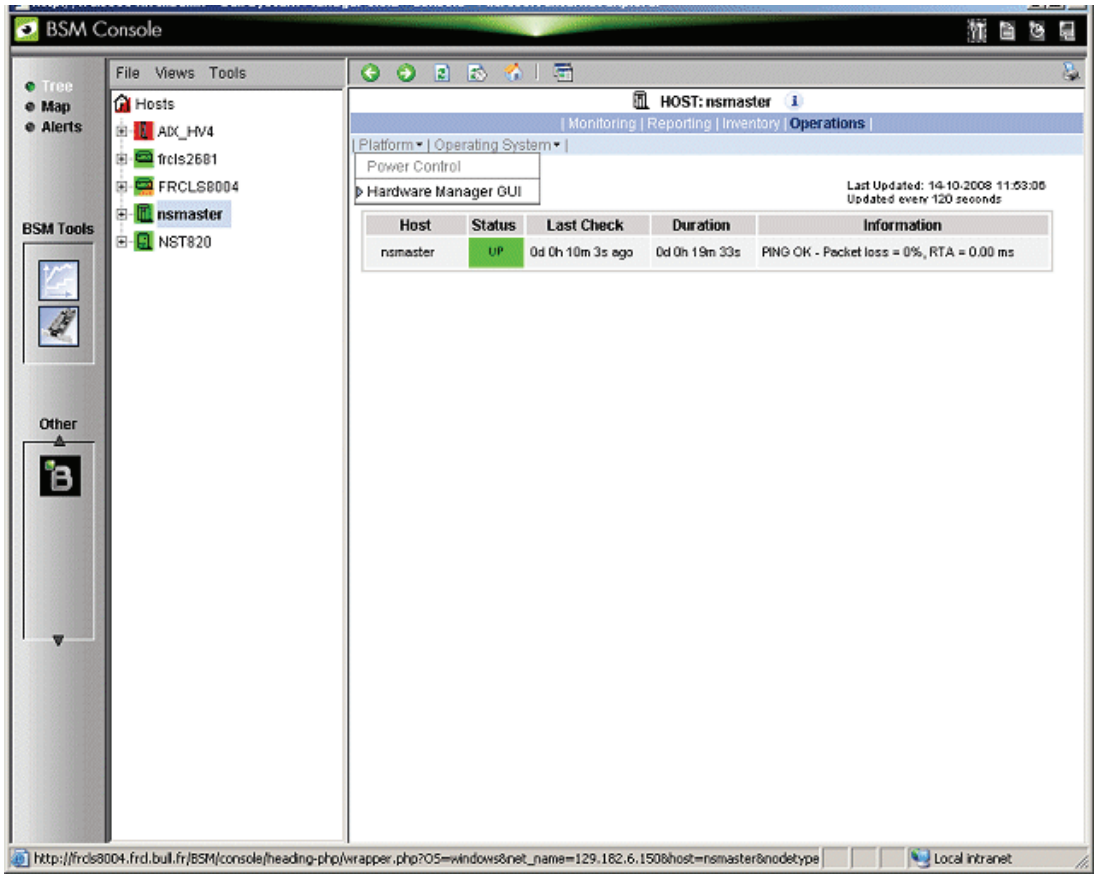


Figure 2-16 HW Manager GUI menu

Activating the **Hardware Manager GUI** menu item calls the associated PAM Hardware Manager:

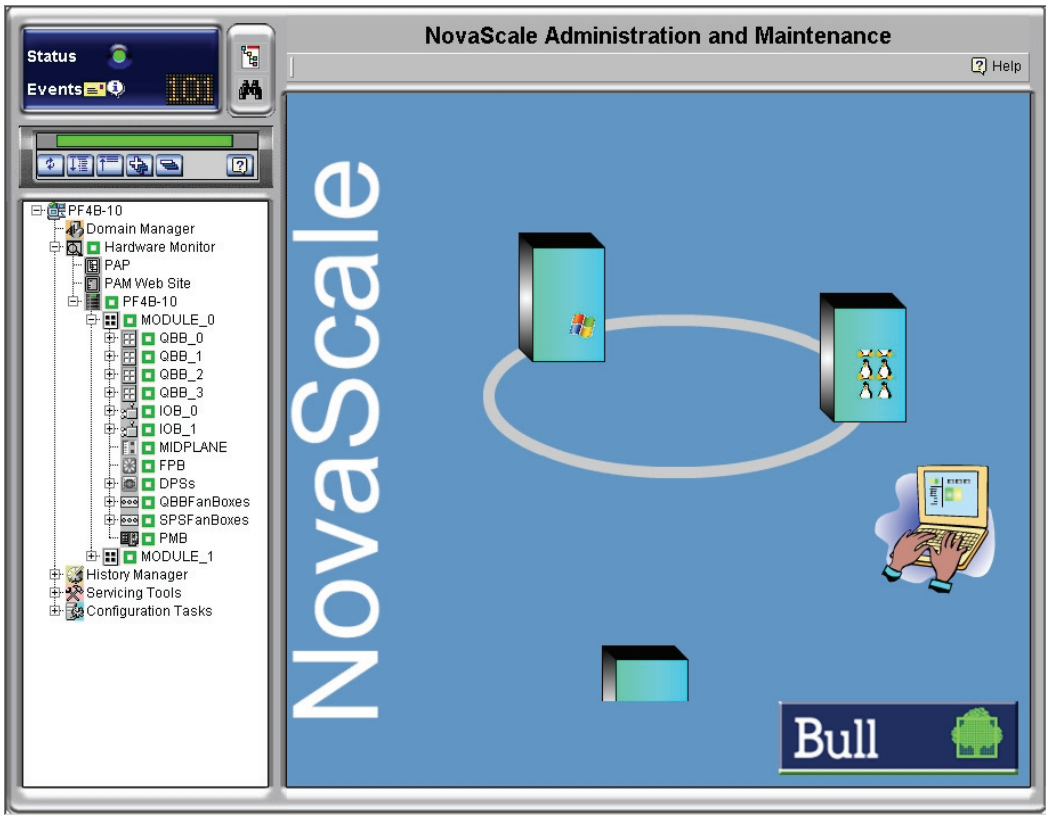


Figure 2-17 PAM Hardware Manager - Home Page

See the *Administrator's Guide* for details.

2.5.2 Using the Bull System Manager Hardware Management Application

Bull System Manager also provides its own Hardware Management application that can be used instead of the native hardware managers (e.g. PAM, CMM ...). The Bull System Manager Hardware Management application gives the same look and feel for all hardware operations, independently of the target server type.

The application manages Power Control, and displays FRUs, Sensors and System Event Logs for Express 5800, NovaScale R400 & T800 series and NovaScale 4000, 5000 and 6000 series servers.

To start the application:
From the Console Management Tree, click the **Operations > Platform > Power Control** item in the host menu.

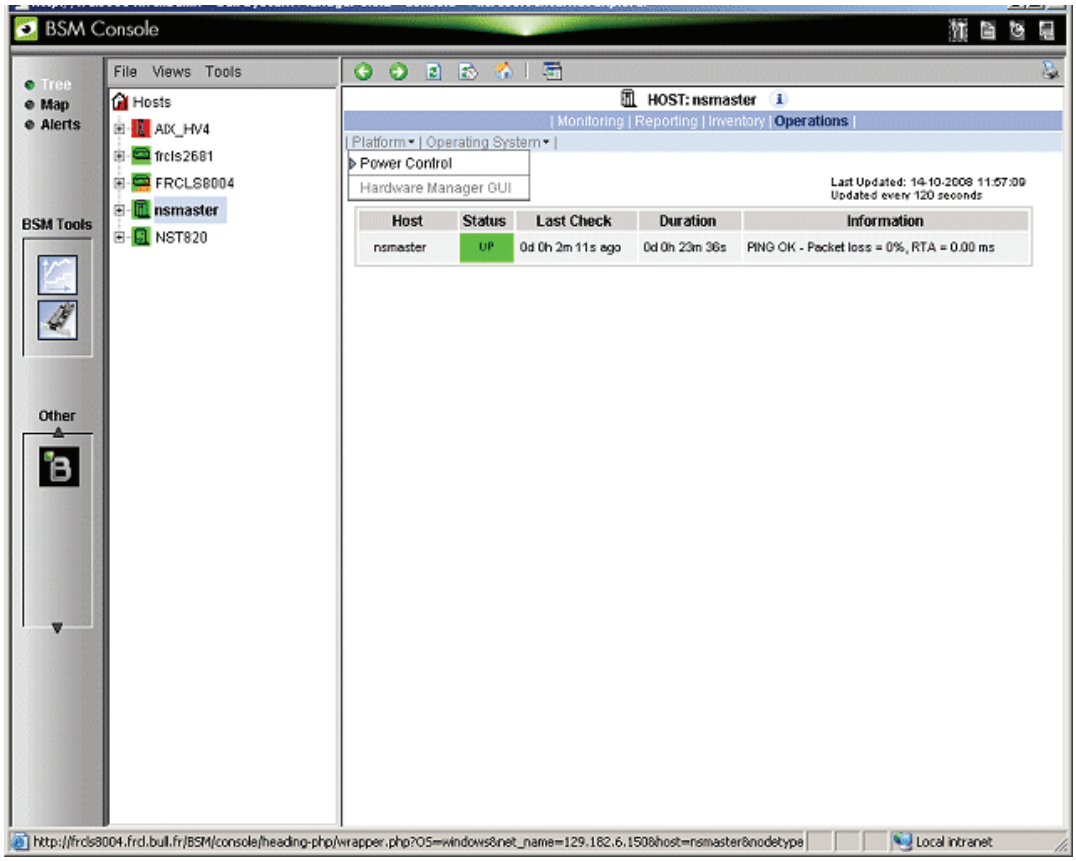


Figure 2-18 Launching Remote Hardware Management window

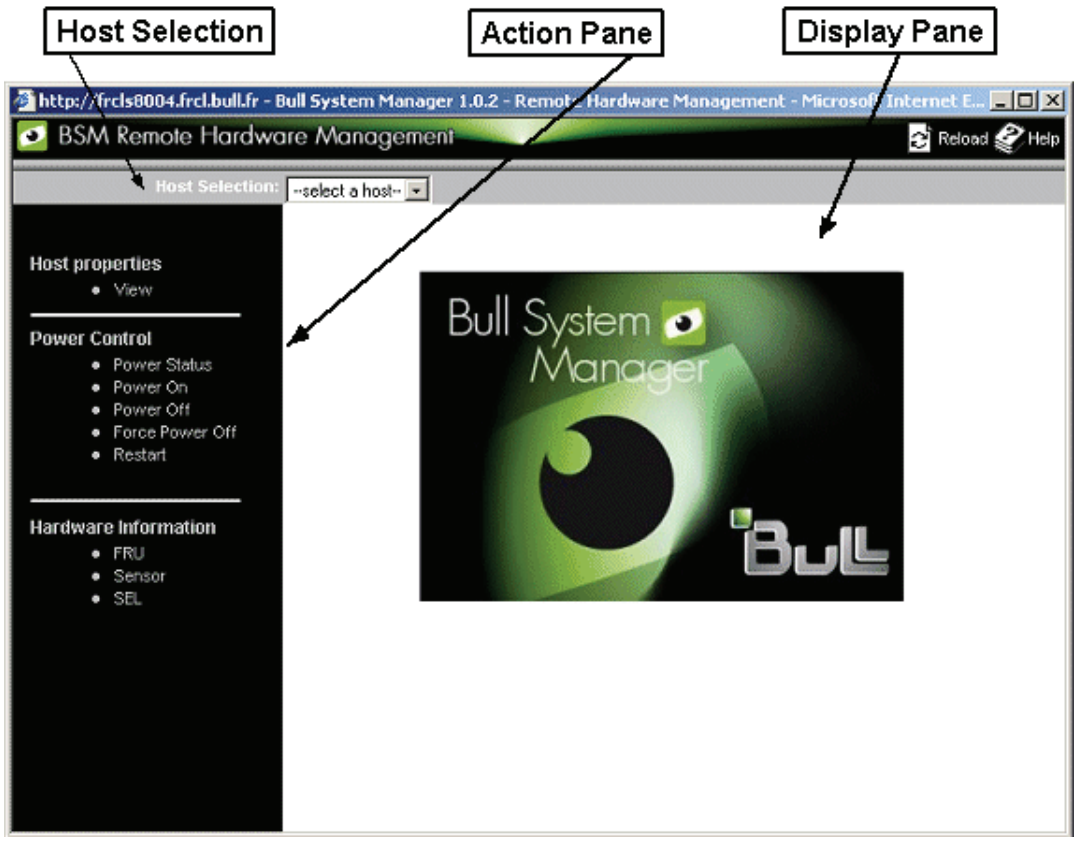


Figure 2-19 Remote Hardware Management window

The Bull System Manager Remote Hardware Management application window is divided into the following functional parts:

Host Selection Pane allows you to select the current host from all declared Express 5800, NovaScale R400 or T800 series and NovaScale 4000, 5000, 6000 or 6009 series servers, Blade servers and Escala servers.

Action Pane displays the hardware operations that can be performed:

- Power control functions
- FRU visualization
- Sensor visualization
- Event log visualization

Display Pane displays parameters forms, messages and command results.

2.6 Following a Performance Indicator over a Large Period

It may be interesting to follow the evolution of certain performance indicators over a large period (e.g. the evolution of the memory use).

Performance indicators can be collected from Bull System Manager monitoring data or SNMP protocol, as described below.

To collect and visualize performance indicator reports, proceed as follows:

1. Launch Bull System Manager Console from the Bull System Manager Home Page.
2. Click the **Reports** icon to display the list of all available reports.
3. Select the report you want to display from the indicators list.

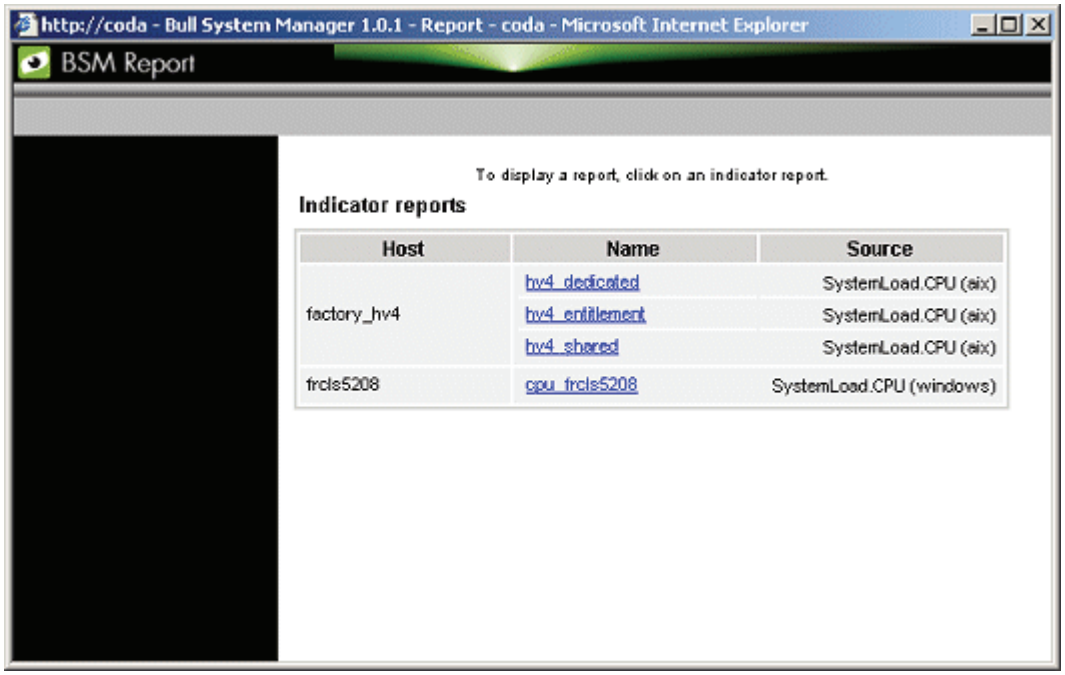


Figure 2-20 Bull System Manager Reporting Indicators Home Page

The following display appears:

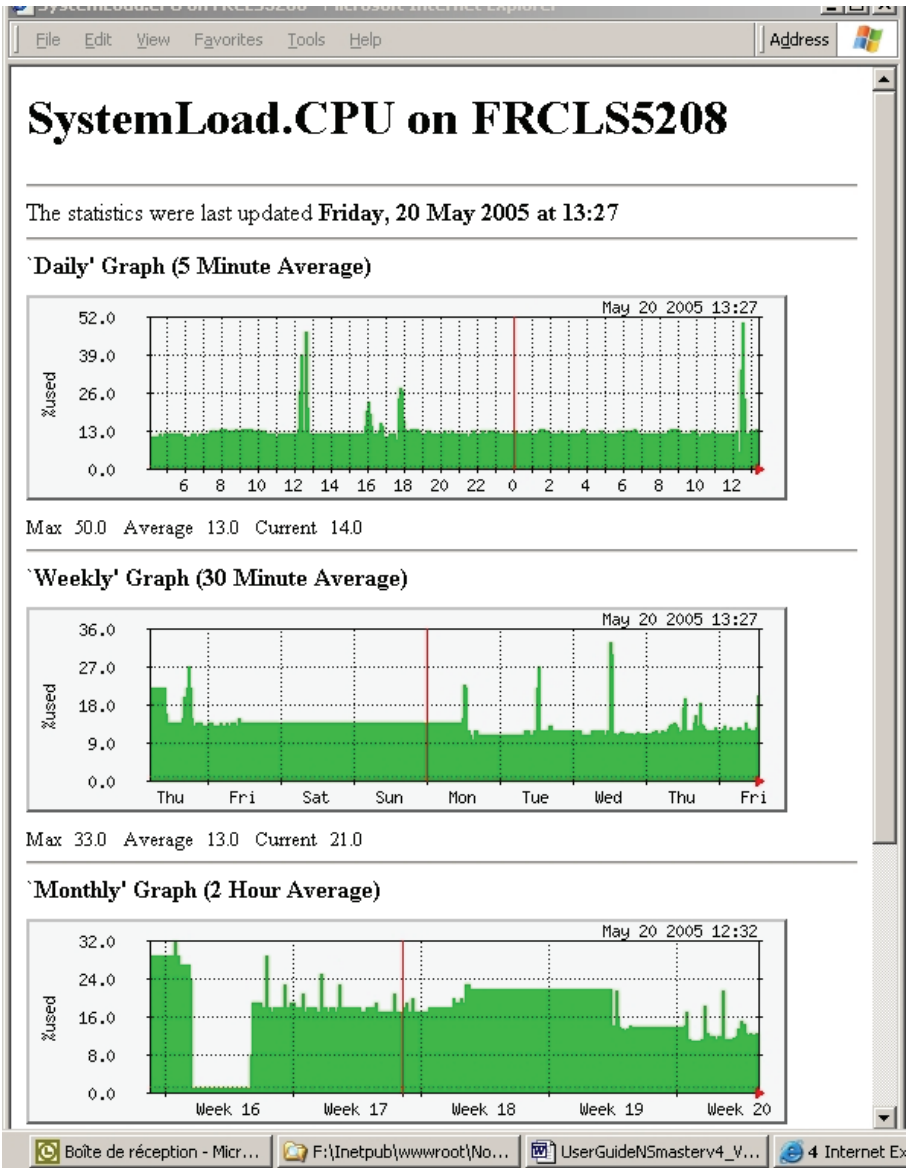


Figure 2-21 Bull System Manager Reporting Indicators - example

This display shows four graphs (three are visible in the example). Each graph shows the evolution of an indicator (here CPU load) for different periods (daily, weekly, monthly and yearly).

2.7 Bull System Manager Configuration

Please refer to the *Administrator's Guide*, 86 A2 56FA, for details about configuration tasks.

2.8 Bull System Manager Server Control

The **Bull System Manager Server Control** application can be launched by clicking on the "control" icon in the Console "Administration Tools" toolbar.

Figure 2-22 Bull System Manager Server Control

The **Bull System Manager Server Control** application allows you to start, stop or restart the BSM Server, according to your requirements.

When the BSM Server Control application is launched, the current status of the server is displayed, as displayed in the following figure :

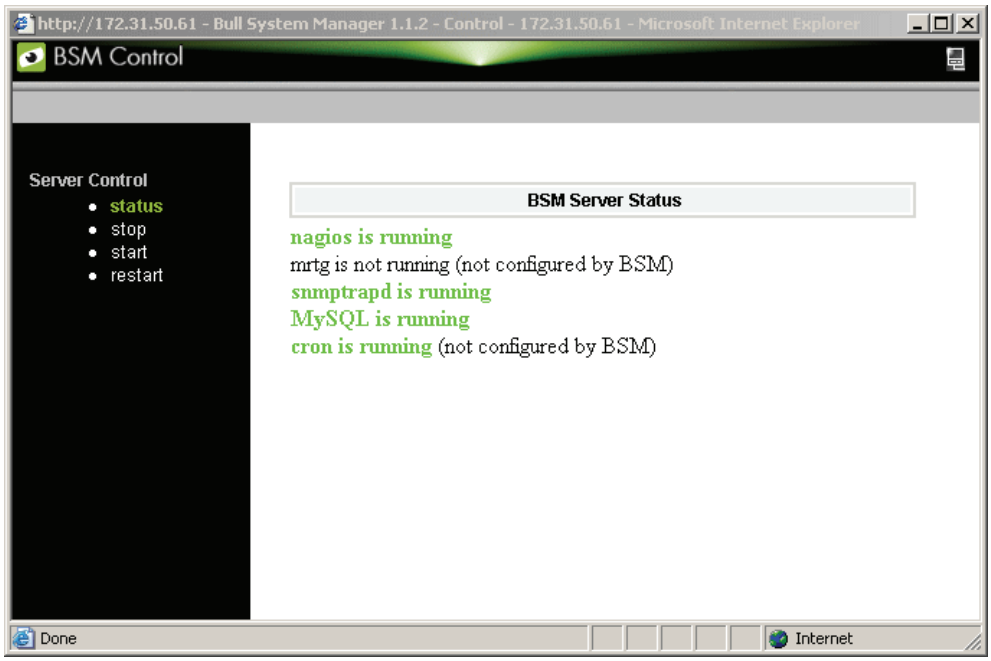


Figure 2-23 Bull System Manager Server Status

Chapter 3. Using Bull System Manager Console Supervision Modes

The Bull System Manager console provides three supervision modes, each providing its own representation of the Bull System Manager monitored resource:

- Tree mode
- Map mode
- Alerts mode

Whatever the mode, the characteristics of a selected monitored resource are automatically displayed in the Supervision Pane.

Note For further information about Console Basics and Console Security Access, refer to Console Basics and Bull System Manager Authentication and Roles.

3.1 Working in the Tree Mode

When you select the Tree radio button, a Management Tree is displayed in the Supervision Pane.

3.1.1 Management Tree Basics

The Management Tree is a hierarchical representation of the resources defined in the Bull System Manager configuration. Each resource displayed in the tree is represented by a node that may have subnodes.

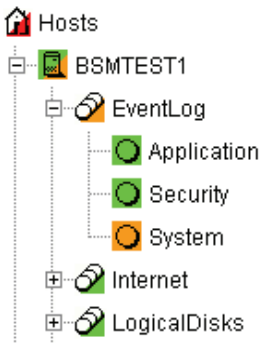


Figure 3-1 Management Tree

- Double-click a node or click the **+/-** expand/collapse icon to display subnodes.
- Select a node to display automatically its characteristics in the Supervision Pane.
- Right-click to display the specific node menu.

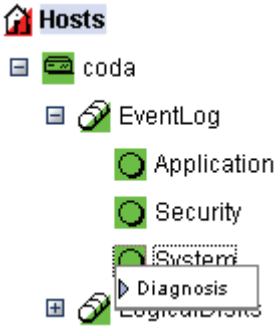


Figure 3-2 A service node menu

Upper the Management Tree, a menu provides the select View, Hide Tree, Refresh and Search commands:

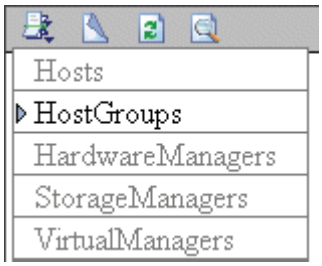


Figure 3-3 Management Tree menu

Management Tree Menu	
Select View	Selects a view to be loaded.
Hide Tree	Hides the tree to display the whole Supervision Pane
Refresh	Reloads the current view if the configuration has been modified.
Search	Allows you to search a node in the current view according to its name or part of its name.

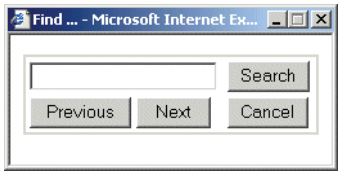


Figure 3-4 Management Tree commands

3.1.2 Management Tree Animation

The Management Tree is animated according to the following rules:

- Color is dependent on status:

Red	CRITICAL
Orange	WARNING
Magenta	UNKNOWN
Green	OK
Blank	UNMONITORED

  This color scheme is applicable to **hosts** and **services**.
- When a node has subnodes, the node icon is split in two. The top left triangle is animated to represent node status and the bottom right triangle to represent subnode status (i.e. most degraded status).
- Host and associated monitoring services node icons are animated to represent self-status. All other node icons are animated to represent subnode status (i.e. most degraded status).

Example:

SYSMAN (root node) and associated services are self-monitored. The top left triangle is GREEN, showing that host status is OK (the **ping** operation is successful), but the bottom right triangle is RED, showing that **at least one service status is CRITICAL**.

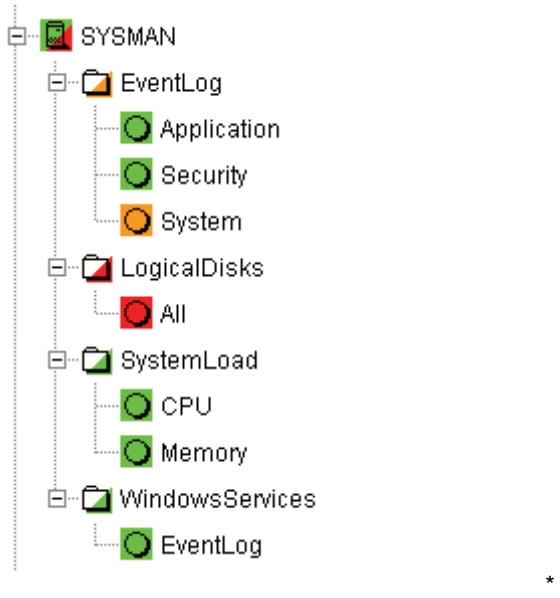


Figure 3-5 Management Tree animation - example

Right-click the animated nodes to display the **Diagnosis** and **On/Off** menus:

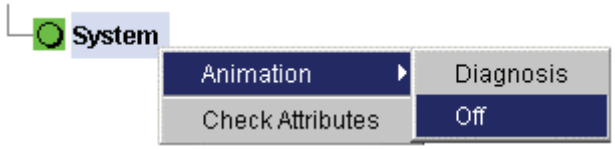


Figure 3-6 Animated node menu

Diagnosis	Displays an animation information window.
On	Activates node animation.
Off	Deactivates node animation. This option is useful if you decide not to animate a specific service or host.

Example:

Animation of the **System** and **All** services nodes has been deactivated. As these nodes are no longer monitored, status is not propagated (icons are BLANK) and SYSMAN (root node) status is now OK.

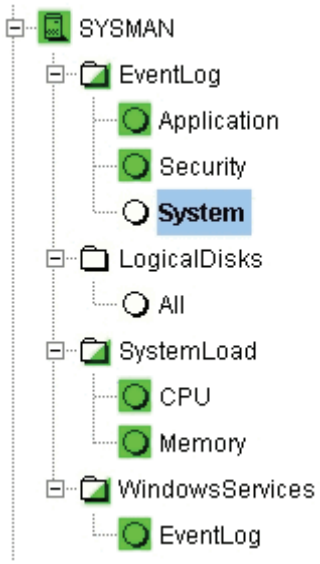


Figure 3-7 Deactivating supervision - example

Note Monitoring services are independent due to the server polling mechanism. This may create a temporary de-synchronization during an animation refresh.

3.1.3 Management Tree Nodes

Each Bull System Manager monitored resource is represented as a node with a specific icon in the animated Management Tree. Management Tree nodes are animated according to node status. When a node is selected, its characteristics are automatically displayed in the Supervision Pane.

Monitored Resource	Icon	Description
Root Node		First node in the tree.
HostGroup		Hosts can be grouped into hostgroups. For example, an administrator can define a hostgroup containing all NT servers. Doing so allows you to identify quickly a host in a degraded state, as host status is propagated up to the hostgroup node.
Group		Groups allow you to gather other groups and hostgroups in coherent entities. Refer to the *Administrator's Guide* for details.
Platform		A platform is a physical group of hosts of the same type.
Hardware Manager		Several hardware managers can be displayed: – PAM Manager for NovaScale 5000 and 6000 Series Platforms. – CMM Manager for NovaScale Blade Series Chassis. – ISM Manager for NovaScale 4000 series Platforms. – ESMPRO Manager for Express 5800 hosts. – RMC manager for Express 5800 hosts. – Any other hardware manager.
Storage Manager		Two storage managers can be displayed: S@N.IT! Manager for shared host storage via a SAN. Any other storage manager.
Virtual Manager		A Virtual Manager is composed of Virtual Platform.
Host	ia64 ia32 other	A host is composed of categories.
Category		A category contains specific monitoring services. For example, the SystemLoad category contains the CPU service and the Memory service.
Service		Each service belongs to a category.

Table 3-1. Management Tree nodes

Note	Currently, NovaScale 64 bits is applicable to NovaScale 4xxx, 5xxx and 6xxx servers and NovaScale 32 bits is applicable to NovaScale 2xxx and Express 5800 servers.

3.1.3.1 Root Node

The Root node is the first node in the tree. The top left triangle reflecting self-status is always blank (unmonitored). The bottom right triangle reflects the most degraded subnode status (host and services).

Root node menu	
Expand	Shows a tree view of all hosts, hostgroups or managers in the configuration.
Animation	Briefly explains resource status.

Table 3-2. Root node menu

3.1.3.2 Hardware Manager Node and Status Levels

A Hardware Manager node represents one of the hardware managers listed in Table 3-5.

PAM and CMM Managers Status Levels

The top left triangle reflects self-status and the bottom right triangle reflects the most degraded subnode status (hosts and services), as shown in the following table:

Manager (PAM, CMM) Status Levels	
Status	Description
PENDING (gray)	The service has not been checked yet. Pending status occurs only when nagios is started. Status changes as soon as services are checked.
OK (green)	The manager is up and running.
WARNING (orange)	The manager has a problem, but is still partially up and running.
UNKNOWN (magenta)	An internal plugin error has prevented status checking. An unknown status is considered as a warning status.
CRITICAL (red)	The manager has a serious problem or is completely unavailable.

Table 3-3. PAM and CMM status levels

RMC Managers Status Levels

The top left triangle reflects power status and the bottom right triangle reflects the most degraded subnode status (hosts and services), as shown in the following table:

Manager (RMC) Status Levels	
Status	**Description**
PENDING (gray)	The service has not been checked yet. Pending status occurs only when nagios is started. Status changes as soon as services are checked.
OK (green)	The power status is on.
UNKNOWN (magenta)	An internal plugin error has prevented status checking. An unknown status is considered as a warning status.
CRITICAL (red)	The power status is off.

Table 3-4. RMC status levels

ISM and ESMPRO Managers Status Levels

The top left triangle reflecting self-status is always blank (unmonitored). The bottom right triangle reflects the most degraded subnode status (hosts and services).

Hardware Manager node menu	
Expand -> PAM manager	Shows all NovaScale 5000 and 6000 Series platforms managed by this PAM manager.
-> CMM manager	Shows all NovaScale Blade Series Chassis managed by this CMM manager.
-> RMC, ISM or ESMPRO	Shows all hosts managed by these managers.
-> other managers	Shows all hosts managed by these managers.
Animation	Briefly explains resource status.

Table 3-5. Hardware Manager node menu

3.1.3.3 Storage Manager Node

The Storage Manager node represents either the S@N.IT! Manager or any other storage manager.
The top left triangle reflecting self-status is always blank (unmonitored). The bottom right triangle reflects the most degraded subnode status (hosts).

Storage Manager node menu	
Expand	Shows all hosts managed by this manager.
Animation	Briefly explains resource status.

Table 3-6. Storage Manager node menu

Note The S@NIT Web GUI is based on a java applet technology. So, do not close the first launched browser windows, which does not contain the GUI but the applet itself.

3.1.3.4 Virtual Manager Node

The Virtual Manager node represents the interface used to manage the virtual elements. The Virtual Manager administrates the Virtual Platform which contains the native host and the VM hosts.
The top left triangle reflecting self-status is always blank (unmonitored). The bottom right triangle reflects the most degraded subnode status.

Virtual Manager node menu	
Expand	Shows all virtual Platforms managed by this manager.
Animation	Briefly explains resource status.

3.1.3.5 Platform Node and Hostgroup Node

A Hostgroup node represents a group of hosts. A platform node is a specific hostgroup node, which represents a group of hosts of the same type.
The top left triangle reflecting self-status is always blank (unmonitored). The bottom right triangle reflects the most degraded subnode status (hosts and services).

Platform node and Hostgroup node menu	
Expand	Shows the hosts contained in this hostgroup or this platform.
Animation	Briefly explains resource status.

Table 3-7. Platform node and Hostgroup node menus

3.1.3.6 Host Node and Status Levels

A Host node represents a single host. The top left triangle reflects self-status and the bottom right triangle reflects the most degraded subnode status (services).

Host Status Levels	
Status	Description
PENDING (gray)	Host status is unknown because no associated service has been checked yet. Pending status occurs only when NetSaint is started. Status changes as soon as at least one associated service is checked.
UP (green)	The host is up and running.
DOWN (red)	The host is down or unreachable.

Table 3-8. Host status levels

Host node menu		
Expand		Shows all monitoring categories associated with this host.
Animation	**-> Diagnosis**	Briefly explains resource status.
	->On / Off	Activates / deactivates node animation.

Table 3-9. Host node menu

3.1.3.7 Category Node

A Category node contains specific monitoring services.
The top left triangle reflecting self-status is always blank (unmonitored). The bottom right triangle reflects the most degraded subnode status (services).

Category node	
Expand	Shows all monitoring services belonging to this category.
Animation	Briefly explains resource status.

Table 3-10. Category node menu

3.1.3.8 Services Node and Status Levels

A Services node is a leaf node.
The service node reflects the service status computed by the monitoring process, as shown in the following table:

Service Status Levels	
Status	Description
PENDING (gray)	The service has not been checked yet. Pending status occurs only after NetSaint is started. Status changes as soon as services are checked.
OK (green)	The monitored service is up and running.
WARNING (orange)	The monitored service has a problem, but it is still partially up and running.
UNKNOWN (magenta)	An unreachable or internal plugin error has prevented service status checking. An unknown status is considered as a warning status.
CRITICAL (red)	The service has a serious problem or is completely unavailable.

Table 3-11. Service status levels

Service node menu		
Animation	-> Diagnosis	Briefly explains resource status.
	-> On / Off	Activates / deactivates node animation.

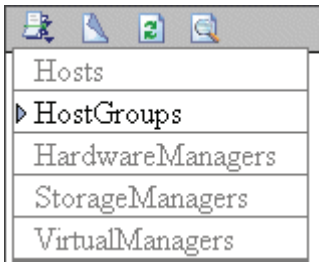
Table 3-12. Service node menu

3.1.4 Management Tree Views

Management Tree views allow you to represent monitored resources according to your needs at a given time. The Management Tree provides five standard views:

- Hosts
- HostGroups
- HardwareManagers
- StorageManagers
- VirtualManagers

The default view is the **Hosts** view, but you can load another view by clicking on and selecting the view:



Standard Tree Views	
Hosts View	All hosts are displayed under the root node.
HostGroups View	All hostgroups in the configuration plus all NovaScale 5000 and 6000 Series platforms and NovaScale Blade Chassis are displayed as hostgroup nodes with their associated hosts.
HardwareManagers View	All hardware managers in the configuration are displayed. Each manager node contains the hosts that it manages. For example, the PAM manager nodes contain the NovaScale 5000 and 6000 Series platforms and the CMM manager nodes contain the NovaScale Blade Chassis.
StorageManagers View	All storage managers in the configuration are displayed. Each manager node contains the hosts that it manages.
VirtualManager View	All virtual managers in the configuration are displayed. Each manager node manages a set of virtual machines, viewed as Virtualization Platform.

Table 3-13. Tree views

3.1.4.1 Hosts View

The Hosts view is the default view. All the hosts in the configuration are displayed with their monitoring services classified by category (**EventLog**, **LogicalDisk** ...), as shown in the following figure.

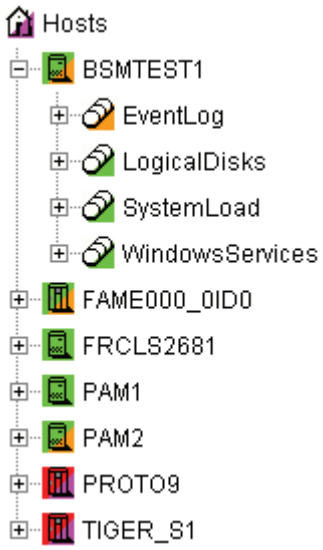


Figure 3-8 Hosts view

3.1.4.2 HostGroups View

The **HostGroups** view displays all the hostgroups in the configuration.
Hosts are displayed under each hostgroup, with their monitoring services classified by category (**EventLog**, **LogicalDisk** ...), as shown in the following figure.

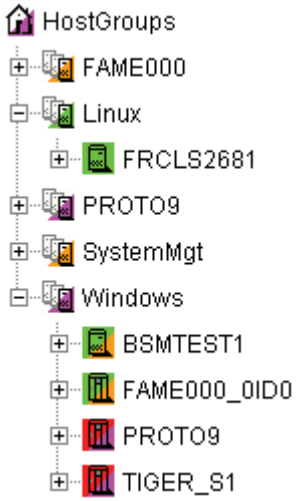


Figure 3-9 HostGroups view

In the example above, the administrator has defined a Windows hostgroup grouping all Windows servers. The bottom right triangle of a hostgroup icon is not green, meaning that a host or a service has a problem. The operator can expand the hostgroup icon to identify the host or service with a problem.

3.1.4.3 Hardware Managers View

The **HWManagers** view displays all the managers in the configuration:

- PAM Managers, displaying NovaScale 5000 and 6000 Series platforms with their hosts (domains)
- CMM Managers displaying NovaScale Blade Chassis with their hosts (NS 20x0)
- RMC, ISM or ESMPRO Managers displaying other hosts.

Hosts are displayed with monitoring services classified by supported category (**Hardware**, **EventLog**, **LogicalDisk**...), as shown in the following figure:

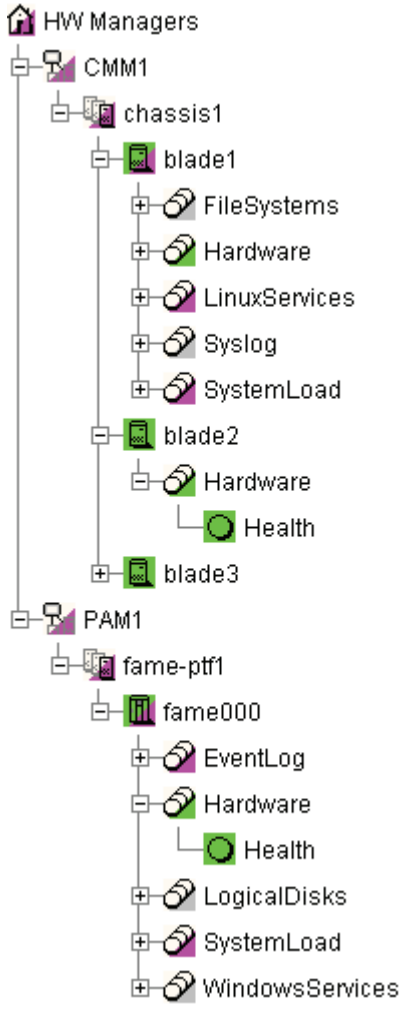


Figure 3-10 HW Managers view

3.1.4.4 Storage Managers View

The **Storage Managers** view displays all the storage managers in the configuration.

Hosts are displayed with monitoring services classified by supported category (**Storage**, **EventLog**, **LogicalDisk** ...), as shown in the following figure:

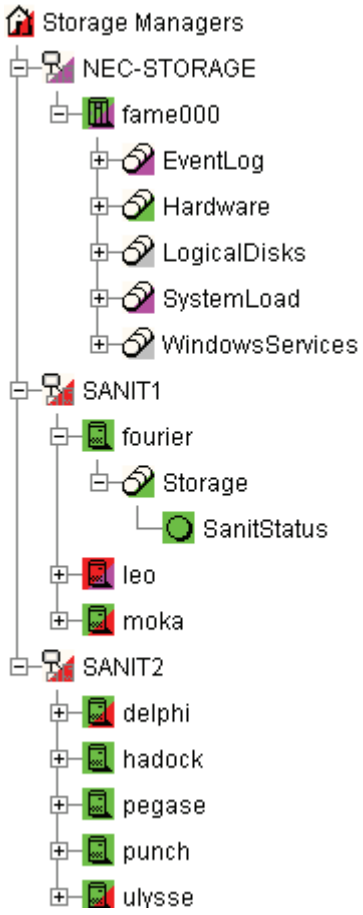
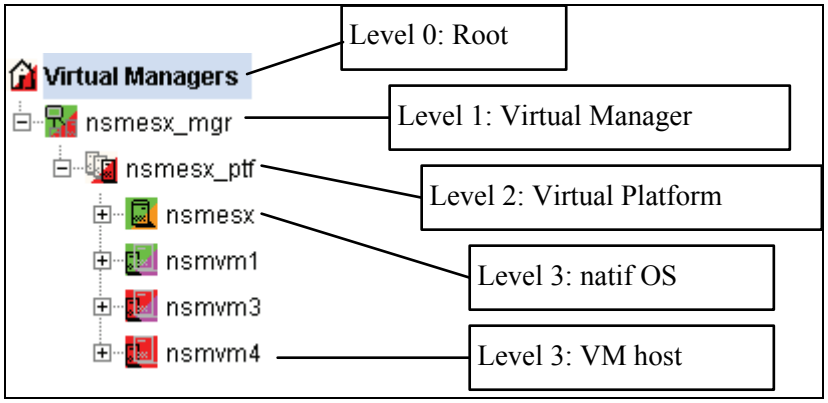


Figure 3-11 Storage Managers view

3.1.4.5 Virtual Managers View

The **Virtual Managers** view displays all the virtual managers in the configuration.

Under the root node, the first node is the Virtual Manager that administrates the Virtual Platform. The Virtual Platform contains the native host and the VM hosts. Hosts are displayed with monitoring services sorted by supported category.



For details, refer to the *Bull System Manager Server Add-ons Installation and Administrator's Guide*, 86 A2 59FA.

3.2 Working in the Map Mode

When you select the Map radio button, the Map, Focus and Problem Panes are displayed.

Note The **Map** and **Problem** panes are always synchronized.

- The **Problem** pane lists the problems that occurred on hosts belonging to hostgroups on the current map. Each hostgroup is represented by an animated rectangle (rectangle dimensions are specified in the Configuration GUI). The Select a map box allows you to select another configured map.
- The **Focus** Pane lists all the services (with their status) configured to be displayed in this pane. As Administrator, these monitoring services are highly important and need to be displayed in a specific pane. This pane appears only when configured focus services exist. (See the *Administrator's Guide* for more information).

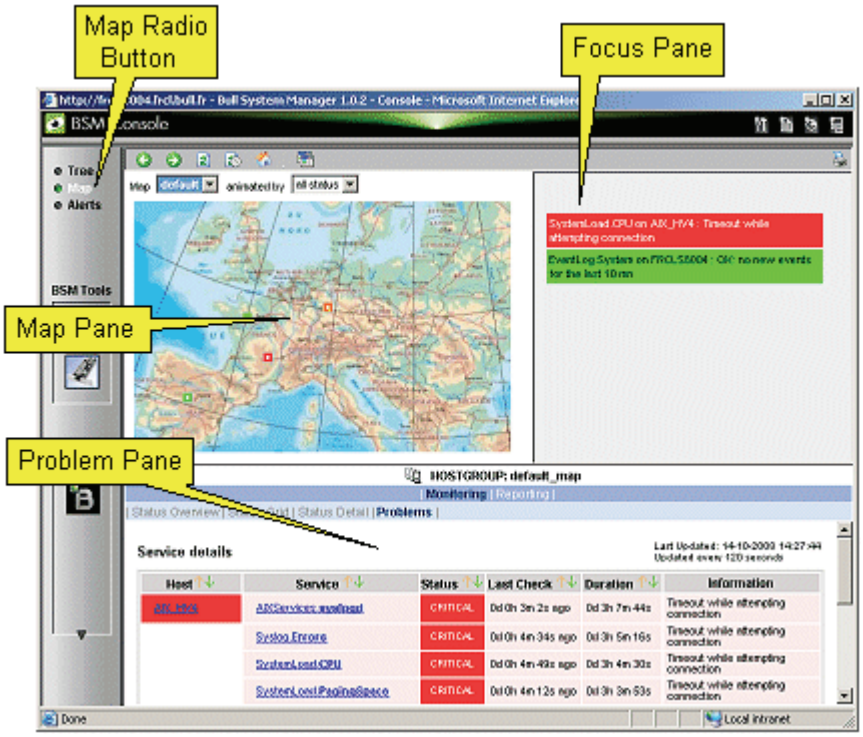


Figure 3-12 Map mode

In the **Map** Pane, hostgroups and hosts are displayed and animated with their computed status. Their positions (x,y) are specified in the Configuration GUI.
Hostgroup status is the most degraded status of corresponding hosts and monitoring services.

The **Problem** Pane lists all the problems that occurred on any host belonging to the hostgroups on the map. You can navigate thru Internet links and return using the **Back** button.

Note For each Map, a corresponding internal hostgroup (with name = <MapName>_map) is generated for the monitoring server (used by the Problem Pane).

If you want to zoom on a specific hostgroup or host, select it on the map. When the mouse is hovered over a square representing a hostgroup, an Infotip displays the hostgroup name and position (x,y):

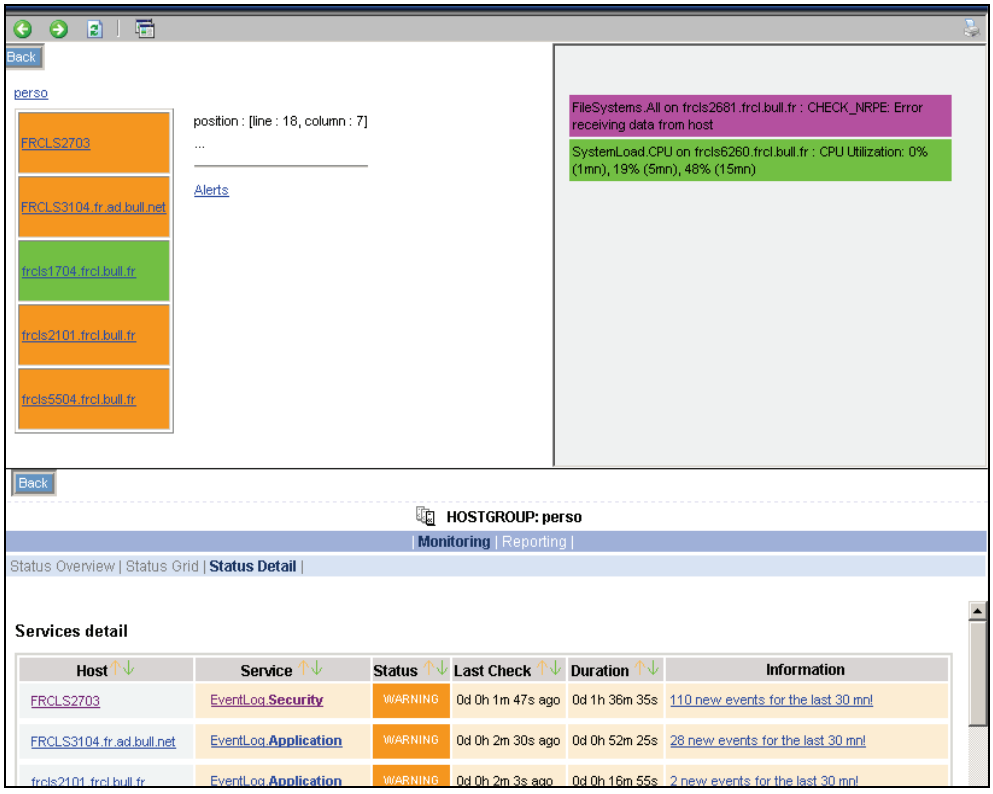


Figure 3-13 Hostgroup details

When a hostgroup is selected, the status of all the hosts belonging to that hostgroup are displayed, along with three links to more information:

- Hostgroup name link (`perso` in the figure below):
  This link opens a new window giving grid status information about all current hostgroup host services.

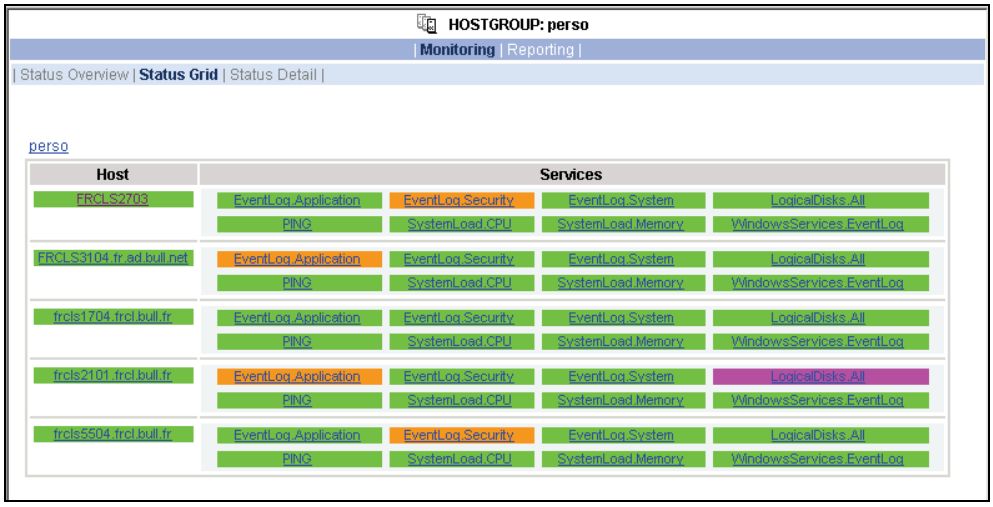


Figure 3-14 Hostgroup link information

- Host name link (`frcls2101.frcl.bull.fr` in the figure):
  This link opens a new window giving monitoring information about all current host services.

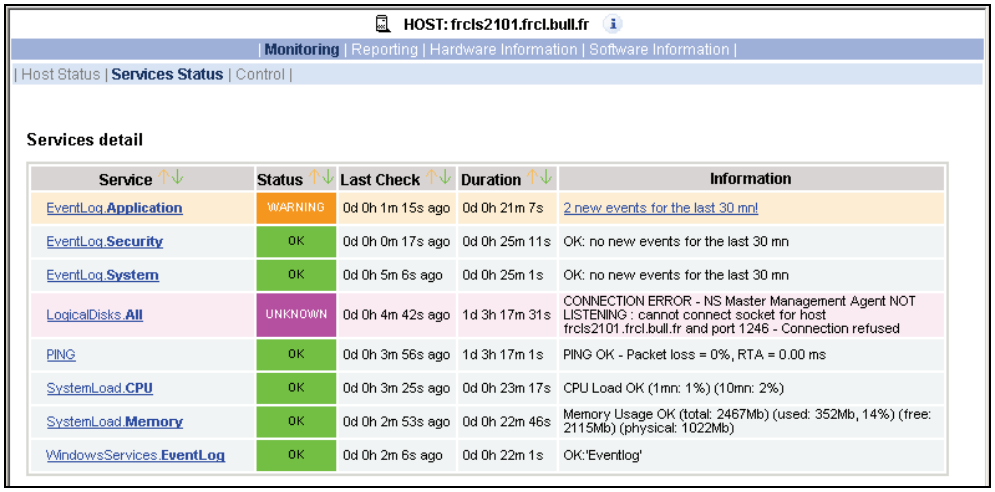


Figure 3-15 Host services

- **Alerts link:**
  This link opens a new window giving alert information about all current hostgroup host alerts.

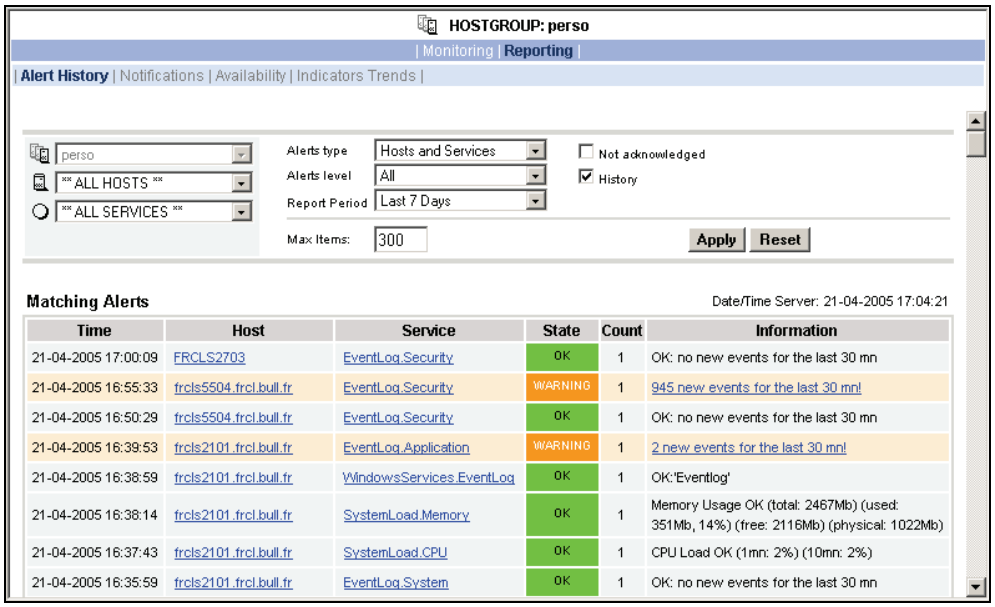


Figure 3-16 Hostgroup alerts

3.3 Working in the Alerts Mode

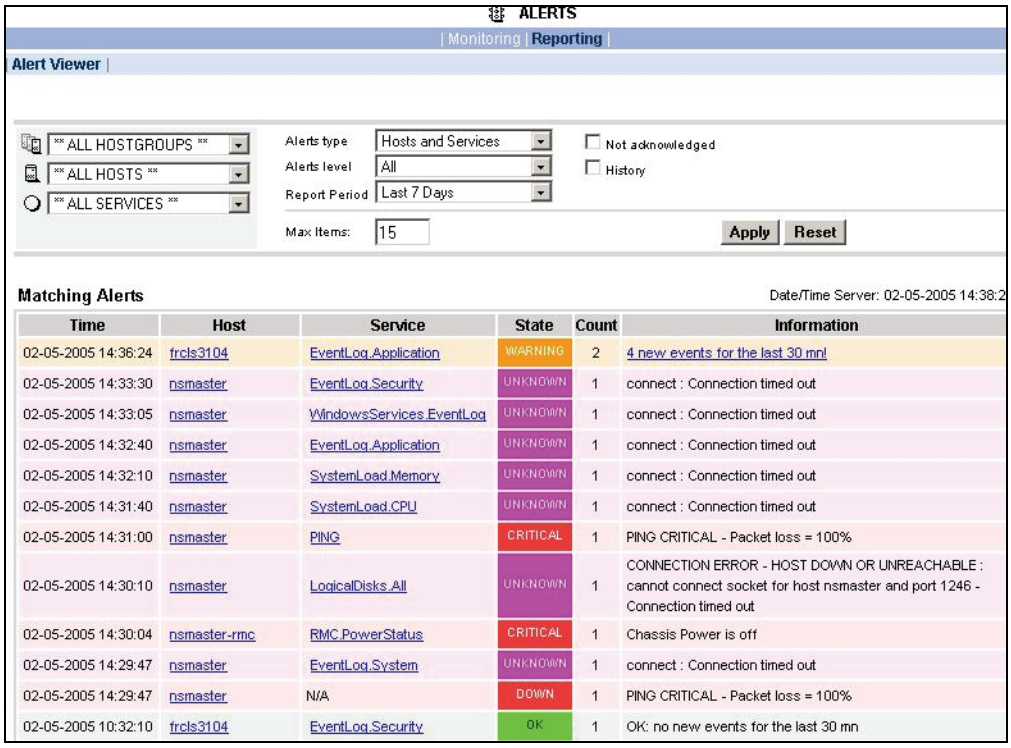
3.3.1 Alert Basics

The **Nova Scale Master Alert Viewer** application displays monitoring alerts (also called events) concerning a set of hostgroups, hosts and services.

The application provides filter functions in order to display alerts on all monitored resources or on only a subset of these resources.

Whenever a service or host status change takes place, the monitoring server generates an alert, even when status passes from CRITICAL to RECOVERY and then to OK. Alerts are stored in the current monitoring log and are then archived.

The Bull System Manager Alert Viewer application scans the current monitoring log and archives according to filter report period settings.



Time	Host	Service	State	Count	Information
02-05-2005 14:36:24	frcls3104	EventLog.Application	WARNING	2	4 new events for the last 30 mn!
02-05-2005 14:33:30	nsmaster	EventLog.Security	UNKNOWN	1	connect : Connection timed out
02-05-2005 14:33:05	nsmaster	WindowsServices.EventLog	UNKNOWN	1	connect : Connection timed out
02-05-2005 14:32:40	nsmaster	EventLog.Application	UNKNOWN	1	connect : Connection timed out
02-05-2005 14:32:10	nsmaster	SystemLoad.Memory	UNKNOWN	1	connect : Connection timed out
02-05-2005 14:31:40	nsmaster	SystemLoad.CPU	UNKNOWN	1	connect : Connection timed out
02-05-2005 14:31:00	nsmaster	PING	CRITICAL	1	PING CRITICAL - Packet loss = 100%
02-05-2005 14:30:10	nsmaster	LogicalDisks.All	UNKNOWN	1	CONNECTION ERROR - HOST DOWN OR UNREACHABLE : cannot connect socket for host nsmaster and port 1246 - Connection timed out
02-05-2005 14:30:04	nsmaster-rmc	RMC.PowerStatus	CRITICAL	1	Chassis Power is off
02-05-2005 14:29:47	nsmaster	EventLog.System	UNKNOWN	1	connect : Connection timed out
02-05-2005 14:29:47	nsmaster	N/A	DOWN	1	PING CRITICAL - Packet loss = 100%
02-05-2005 10:32:10	frcls3104	EventLog.Security	OK	1	OK: no new events for the last 30 mn

Figure 3-17 Nova Scale Master Alert Viewer

Nova Scale Master Alert Viewer is divided into two main functional parts:

- The **Selection** Pane, where all filters are taken into account like a logical AND. Exception: when the **Alert** level is set to **display Current problems only**, the **Time Period** is automatically set to This Year, and cannot be modified.
- The **Information** Pane, which displays filtered alerts.

3.3.2 Alert Selection

Note By default, alerts for all hostgroups, all hosts and all services are displayed.

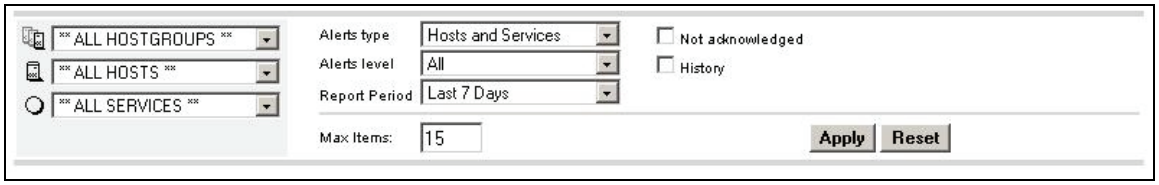


Figure 3-18 Alert Selection

Selecting Hostgroups, Hosts and Services

You can filter hostgroup, host and service Alerts from the Selection Pane, in any combination:

- When you select a **specific hostgroup**, only the hosts belonging to that hostgroup are selected.
- When you select ****ALL HOSTS****, all the hosts belonging to the previously selected hostgroup are selected.
- When you select a **specific host**, only the services belonging to that host are selected.
- When you select ****ALL SERVICES****, all the services belonging to the previously selected host are selected.
- When you select ****ALL HOSTS**** and ****ALL SERVICES****, all the hosts belonging to the previously selected hostgroup (or all hostgroups) are selected and all the services belonging to those hosts are selected.

Example:

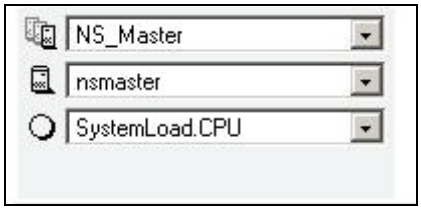


Figure 3-19 Alert selection - example

In this example, the user has decided to select all alerts concerning **SystemLoad.CPU** on the `nsmaster` host in the **NS_Master** hostgroup.

Selecting Alert Type

You can filter alerts according to the following alert types:

- Hosts and Services
- Hosts
- Services

Note By default, **Hosts and Services** is selected.

Selecting Alert Level

You can filter alerts according to the following alert levels:

- **All**
  Displays all alerts.
- **Major and Minor problems**
  Displays host alerts with DOWN or UNREACHABLE status levels.
  Displays service alerts with WARNING, UNKNOWN or CRITICAL status levels.
- **Major problems**
  Displays host alerts with DOWN or UNREACHABLE status levels.
  Displays service alerts with UNKNOWN or CRITICAL status levels.
- **Current problems**
  Displays alerts with a current non-OK status level.
  When this alert level is selected, the Time Period is automatically set to 'This Year' and cannot be modified.

Note By default, **All** is selected.

Selecting Acknowledged Alerts

As Administrator, you can acknowledge alerts and decide whether they should be displayed or not.

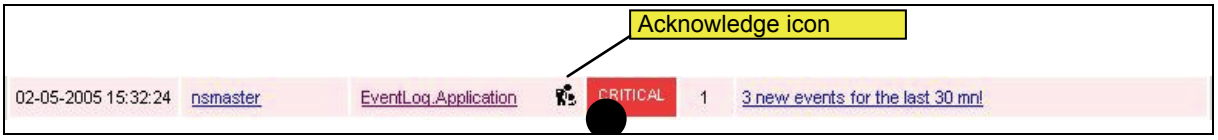


Figure 3-20 Acknowledged alerts selection

Note By default, **All** alerts is selected (acknowledged or not).

Selecting Alert Histories

By default, all the alerts concerning a particular service of a particular host with a given status level are displayed in a single line:

- The **Count** field lists the number of similar alerts over the specified Report Period.
- The **Time** field displays the time when the most recent alert was generated.
- The **Information** field details the most recent alert.

When you select this option, each alert is displayed in a different line:

- The **Time** field displays the time when the alert occurred.

Selecting Time Periods

The user can specify the period of time over which alerts are displayed:

- Last 24 Hours
- Today
- Yesterday
- This Week
- Last 7 Days
- Last Week
- This Month
- Last Month
- This Year
- Last Year
- *CUSTOM PERIOD*

When you select *CUSTOM PERIOD*, you can specify time period start and end dates. The default *CUSTOM PERIOD* setting is the beginning of the current month through to the current date.

Note By default, alerts over the **Last 7 Days** are displayed.

Selecting Max Items

This option allows you to specify the maximum number of lines displayed.

Note By default, the **Max Items** setting is 15.

3.3.3 Alert Information

Alerts give the following information:

- **Time** when the alert occurred
- **Host Name** where the alert occurred
- **Service Name** where the alert occurred
- **Status Level**
- **Count**
- **Information**

Note The **Count** field is always set to **1** if the **History** option is set to **true**. Otherwise, the **Count** field indicates the number of alerts with the same status level. **Time** and **Information** fields concern the most recent alert.

3.4 Supervision Information

3.4.1 Supervision Information Basics

The Supervision Pane displays information about monitored resources and works exactly like a WEB browser. You can click a link, retrace your steps (back, forward), reload a page, detach a page and print a page. The Supervision Pane is divided into five functional parts, as shown in the following figure:

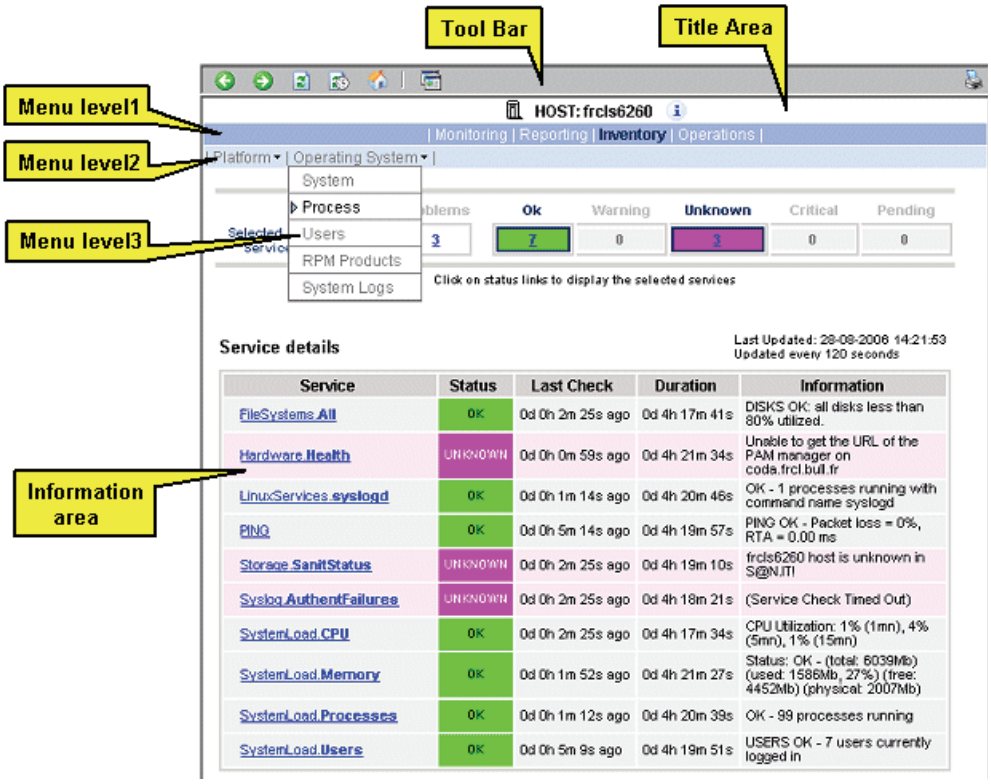


Figure 3-21 Supervision Pane

Tool Bar

- Go back one page
- Go forward one page
- Reload the current page
- Modify the information pane refresh delay
- Reload the first page
- Detach the current page to a separate frame

Title Pane

Displays the selected monitored resource icon, type and name.

Only available for hosts. Gives a short description of the selected host (name, model, OS, netname and domain).

Menu Level1 Allows you to select the type of functional domain you want to access, according to the selected resource: Monitoring, Reporting, Inventory, Operations.

Menu Level2 Allows you to select the information or operation you want to access, according to selected Level1 information.

Menu Level3 Allows you to select the information or operation you want to access, according to selected Level2 information.

Information Pane Displays selected information about the selected resource.

3.4.2 Monitoring Information

The following table lists the available information types and associated supervision scope.

Information Type	Supervision Scope
Status Overview	Root nodes of Hosts and Hostgroups Views (Tree) Hostgroup
Status GRID	Root nodes of Hosts and Hostgroups Views (Tree) Hostgroup
Status Detail	Root nodes of Hosts and Hostgroups Views (Management Tree) Hostgroup
Host Status	Host
Service Status	Service
Network Outages	Not yet supported
Config	Root nodes of Hosts and Hostgroups Views (Tree)
Log	Root nodes of Hosts and Hostgroups Views (Tree)
Control	Root nodes of Hosts and Hostgroups Views (Tree)

Table 3-14. Monitoring information

3.4.2.1 Status Overview

This screen allows you to view the current status of all monitored hosts and services.

- When you launch this screen from the hostgroup node, a status overview of all hostgroups (or a particular hostgroup) is displayed.

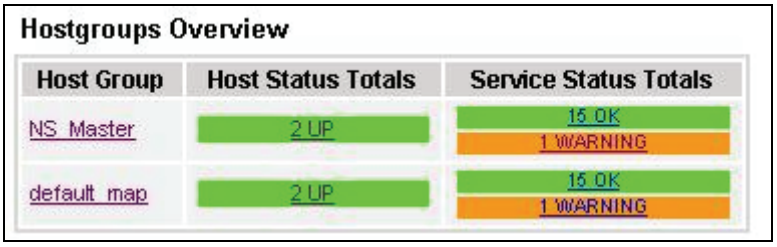


Figure 3-22 Hostgroup Status Overview

Host Group	Hostgroup name
Host Status Totals	Number of hosts classified by status level in the hostgroup
Service Status Totals	Number of services classified by status level in the hostgroup

- When you launch this screen from the host node, a status overview of all hosts is displayed.

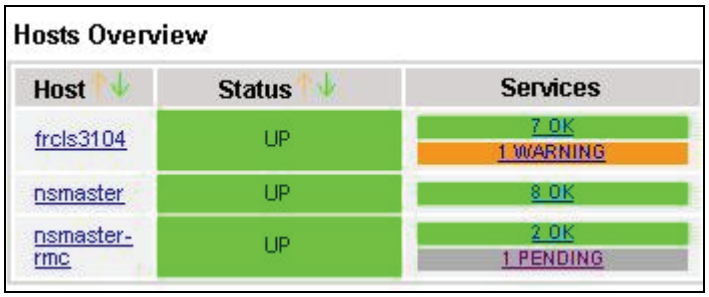


Figure 3-23 Host Status Overview

Host	Host name
Host Status	Host status level
Service Status	Number of services classified by status level

3.4.2.2 Status GRID

This screen displays the name of all the monitored services for each host.

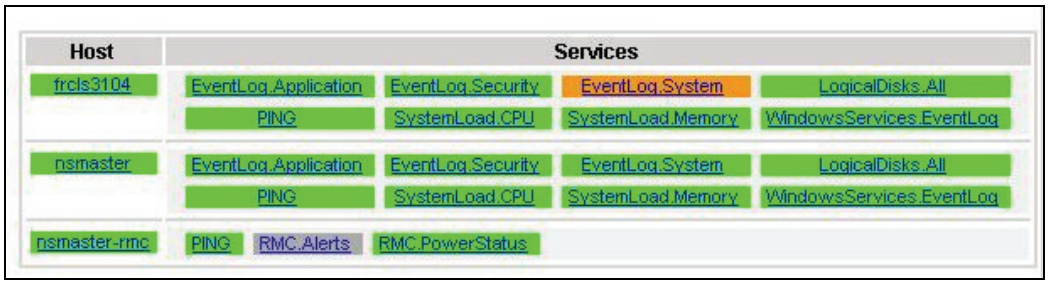


Figure 3-24 Host Status GRID

Host	Host name
Service Status	Host services animated by status level color

3.4.2.3 Status Detail

This screen gives detailed information about selected hosts and/or services.

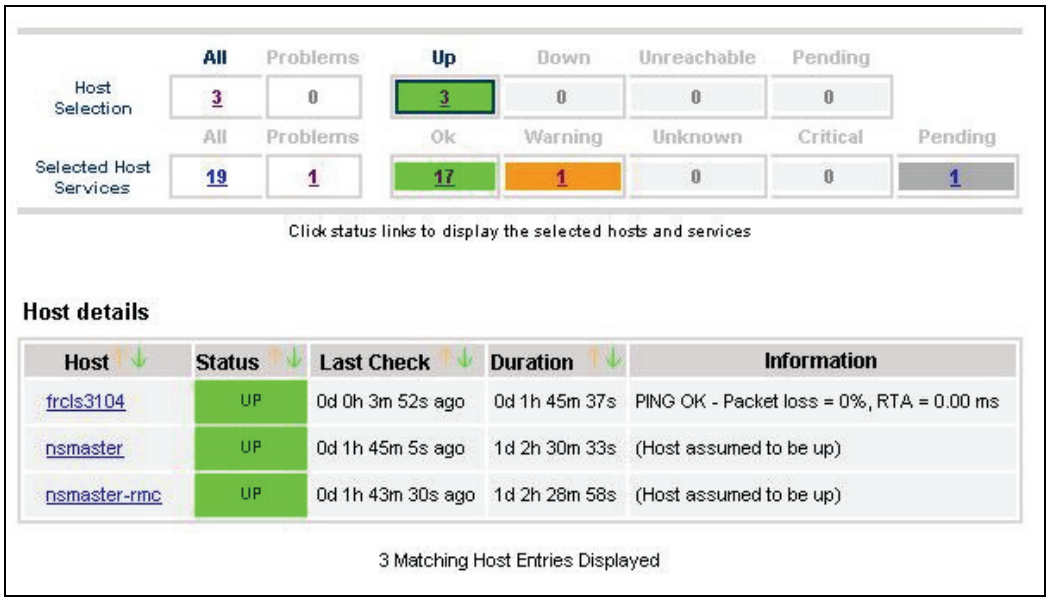


Figure 3-25 Hosts Status Detail

The Selection Pane allows you to select host and service according to status level:

Host Selection Number of hosts with Up, Down, Unreachable or Pending status. You can select hosts according to status: All hosts, Problem hosts, or Specific hosts.

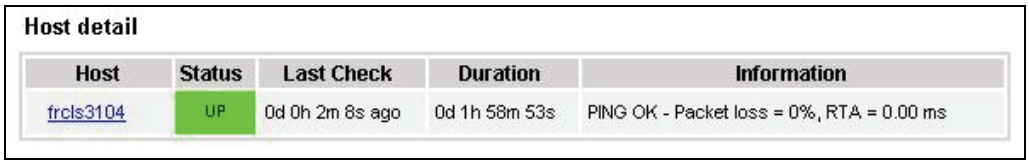
Selected Host Services Number of services with OK, Warning, Unknown, Critical or Pending status. You can select services according to status: All services, Problem services, or Specific services.

Information Gives host details if host is selected and service details if host and service are selected.

See *Host Status* and *Service Status* below for more information.

3.4.2.4 Host Status

This screen gives a detailed view of the status of the selected host.



Host detail

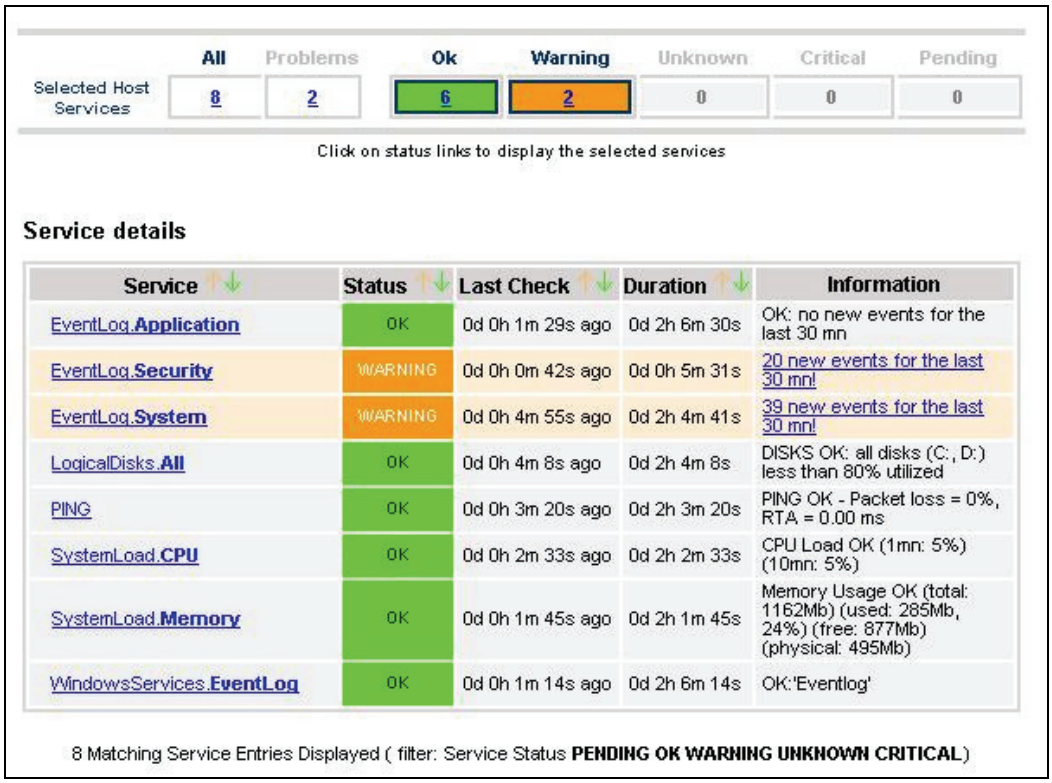
Host	Status	Last Check	Duration	Information
frcls3104	UP	0d 0h 2m 8s ago	0d 1h 58m 53s	PING OK - Packet loss = 0%, RTA = 0.00 ms

Figure 3-26 Host Status

Host	Host name
Host Status	Host status
Last Check	Time since the last check occurred
Duration	Time since the current state was set
Information	Additional information about the host state

3.4.2.5 Service Status

This screen gives a detailed view of the status of all the services associated with the selected host. Services can also be selected according to status level.



	All	Problems	Ok	Warning	Unknown	Critical	Pending
Selected Host Services	8	2	6	2	0	0	0

Click on status links to display the selected services

Service details

Service	Status	Last Check	Duration	Information
EventLog.**Application**	OK	0d 0h 1m 29s ago	0d 2h 6m 30s	OK: no new events for the last 30 mn
EventLog.**Security**	WARNING	0d 0h 0m 42s ago	0d 0h 5m 31s	20 new events for the last 30 mn!
EventLog.**System**	WARNING	0d 0h 4m 55s ago	0d 2h 4m 41s	39 new events for the last 30 mn!
LogicalDisks.**All**	OK	0d 0h 4m 8s ago	0d 2h 4m 8s	DISKS OK: all disks (C:, D:) less than 80% utilized
PING	OK	0d 0h 3m 20s ago	0d 2h 3m 20s	PING OK - Packet loss = 0%, RTA = 0.00 ms
SystemLoad.**CPU**	OK	0d 0h 2m 33s ago	0d 2h 2m 33s	CPU Load OK (1mn: 5%) (10mn: 5%)
SystemLoad.**Memory**	OK	0d 0h 1m 45s ago	0d 2h 1m 45s	Memory Usage OK (total: 1162Mb) (used: 285Mb, 24%) (free: 877Mb) (physical: 495Mb)
WindowsServices.**EventLog**	OK	0d 0h 1m 14s ago	0d 2h 6m 14s	OK:'Eventlog'

8 Matching Service Entries Displayed (filter: Service Status **PENDING OK WARNING UNKNOWN CRITICAL**)

Figure 3-27 Service Status

The Selection Pane allows you to select services according to status level:

Selected Host Services
: Number of services with OK, Warning, Unknown, Critical, or Pending status. You can select services according to status: All services, Problem services, or Specific services.

Service
: Service name

Status
: Service status

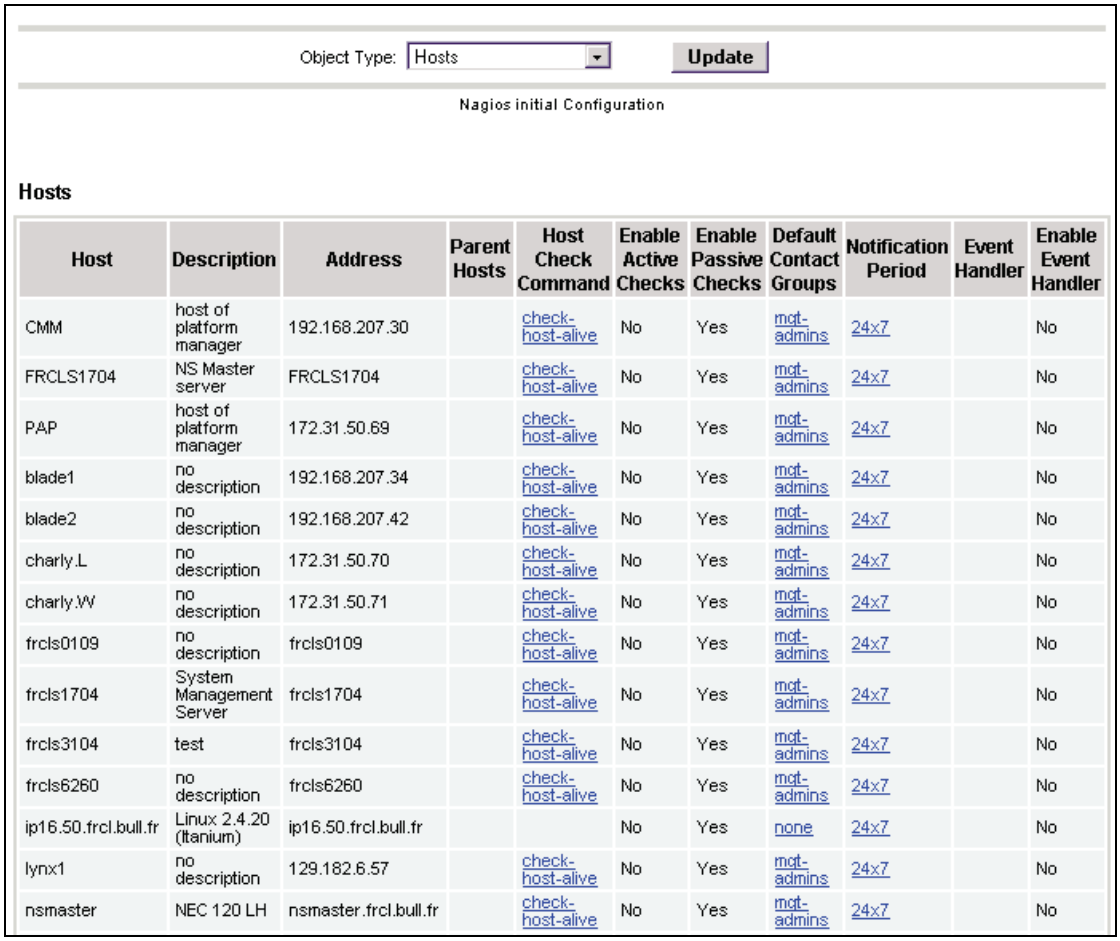
Last Check
: Time since the last check occurred

Duration
: Time since the current state was set

Information
: Gives status details for the selected services:

3.4.2.6 Config

This screen displays the Monitoring Server (nagios) configuration objects (hosts, hostgroups, services, contacts, contactgroups, timeperiods and commands) that you have defined.


Object Type: Hosts Update

Nagios initial Configuration

Hosts

Host	Description	Address	Parent Hosts	Host Check Command	Enable Active Checks	Enable Passive Checks	Default Contact Groups	Notification Period	Event Handler	Enable Event Handler
CMM	host of platform manager	192.168.207.30		check-host-alive	No	Yes	mgt-admins	24x7		No
FRCLS1704	NS Master server	FRCLS1704		check-host-alive	No	Yes	mgt-admins	24x7		No
PAP	host of platform manager	172.31.50.69		check-host-alive	No	Yes	mgt-admins	24x7		No
blade1	no description	192.168.207.34		check-host-alive	No	Yes	mgt-admins	24x7		No
blade2	no description	192.168.207.42		check-host-alive	No	Yes	mgt-admins	24x7		No
charly.L	no description	172.31.50.70		check-host-alive	No	Yes	mgt-admins	24x7		No
charly.W	no description	172.31.50.71		check-host-alive	No	Yes	mgt-admins	24x7		No
frcls0109	no description	frcls0109		check-host-alive	No	Yes	mgt-admins	24x7		No
frcls1704	System Management Server	frcls1704		check-host-alive	No	Yes	mgt-admins	24x7		No
frcls3104	test	frcls3104		check-host-alive	No	Yes	mgt-admins	24x7		No
frcls6260	no description	frcls6260		check-host-alive	No	Yes	mgt-admins	24x7		No
ip16.50.frcl.bull.fr	Linux 2.4.20 (Itanium)	ip16.50.frcl.bull.fr			No	Yes	none	24x7		No
lynx1	no description	129.182.6.57		check-host-alive	No	Yes	mgt-admins	24x7		No
nsmaster	NEC 120 LH	nsmaster.frcl.bull.fr		check-host-alive	No	Yes	mgt-admins	24x7		No

Figure 3-28 Monitoring Server Configuration

3.4.2.7 Log

This screen displays the current Monitoring Server log file. You can also browse archived events.

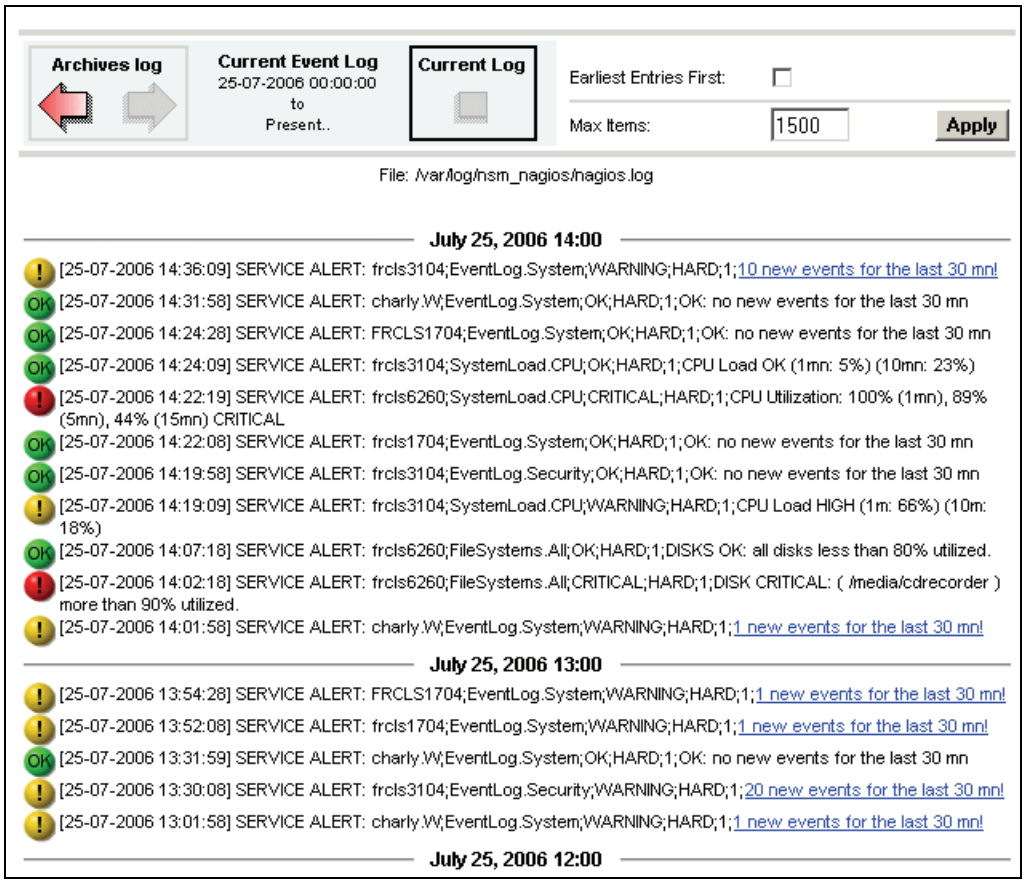


Figure 3-29 Monitoring Server Log

Bull System Manager Log shows all the events logged by the monitoring process:

The screen is divided into two parts:

- The top part of the screen allows you to modify the display according to a set of criteria:

  Event Log selection — By default, only the entries recorded in the current log are displayed. To see older entries, you can select an archived log.

  Earliest Entries First — Allows you to select the order of entries displayed. By default, the most recent entries are displayed first.

- The bottom part of the screen displays logged events:
  - Host and Service alerts
  - Alert notifications
  - Alert acknowledgements
  - New comments
  - Configuration information messages
  - Miscellaneous.

3.4.2.8 Control

When you launch the Control screen from the Hosts or Hostgroups root nodes, Monitoring Server information is displayed. You also have a launching point for sending commands to the monitoring server and links to **Detailed Information**.

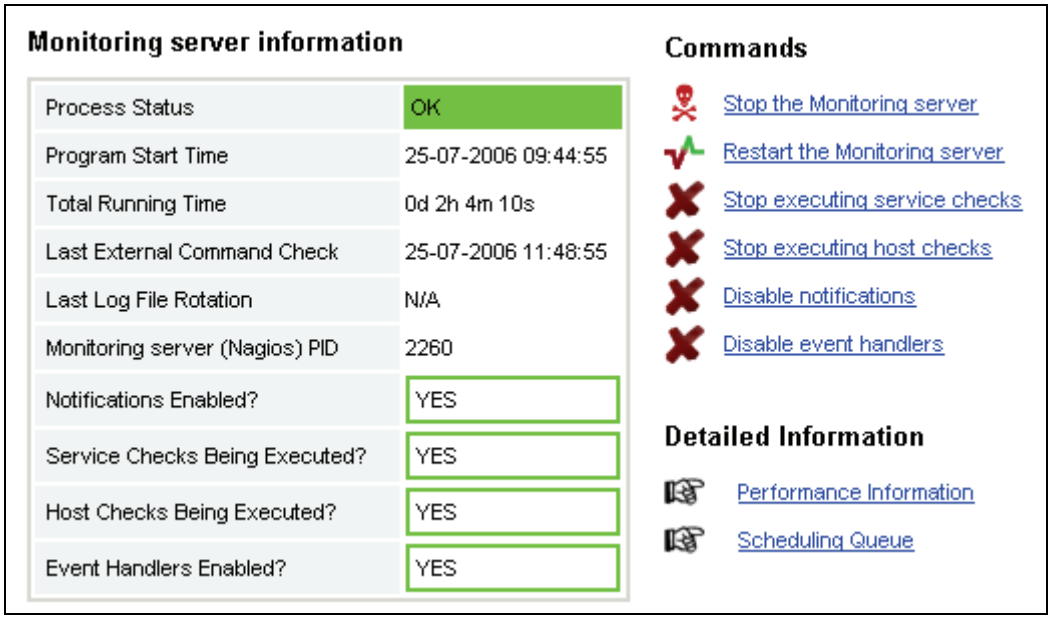


Figure 3-30 Monitoring Server commands

Monitoring Server Information

Gives general information about the Nagios monitoring process.

Commands

Allows you to perform actions on monitoring functions.
When you click a command, you are prompted to confirm by clicking **Commit** in the confirmation page. The command is posted for immediate execution by the Monitoring Server.

Note Process Commands require Administrator rights.

Detailed Information

Allows you to access detailed information about the performance and scheduling queue.

Performance Information gives statistical information about the Nagios monitoring process for each kind of check:

- the minimum, maximum and average time recorded for check execution
- the minimum, maximum and average time recorded for check latency (check delay time due to monitoring server overload)
- the current number of active service checks
- the current number of passive service checks
- the current number of active host checks.

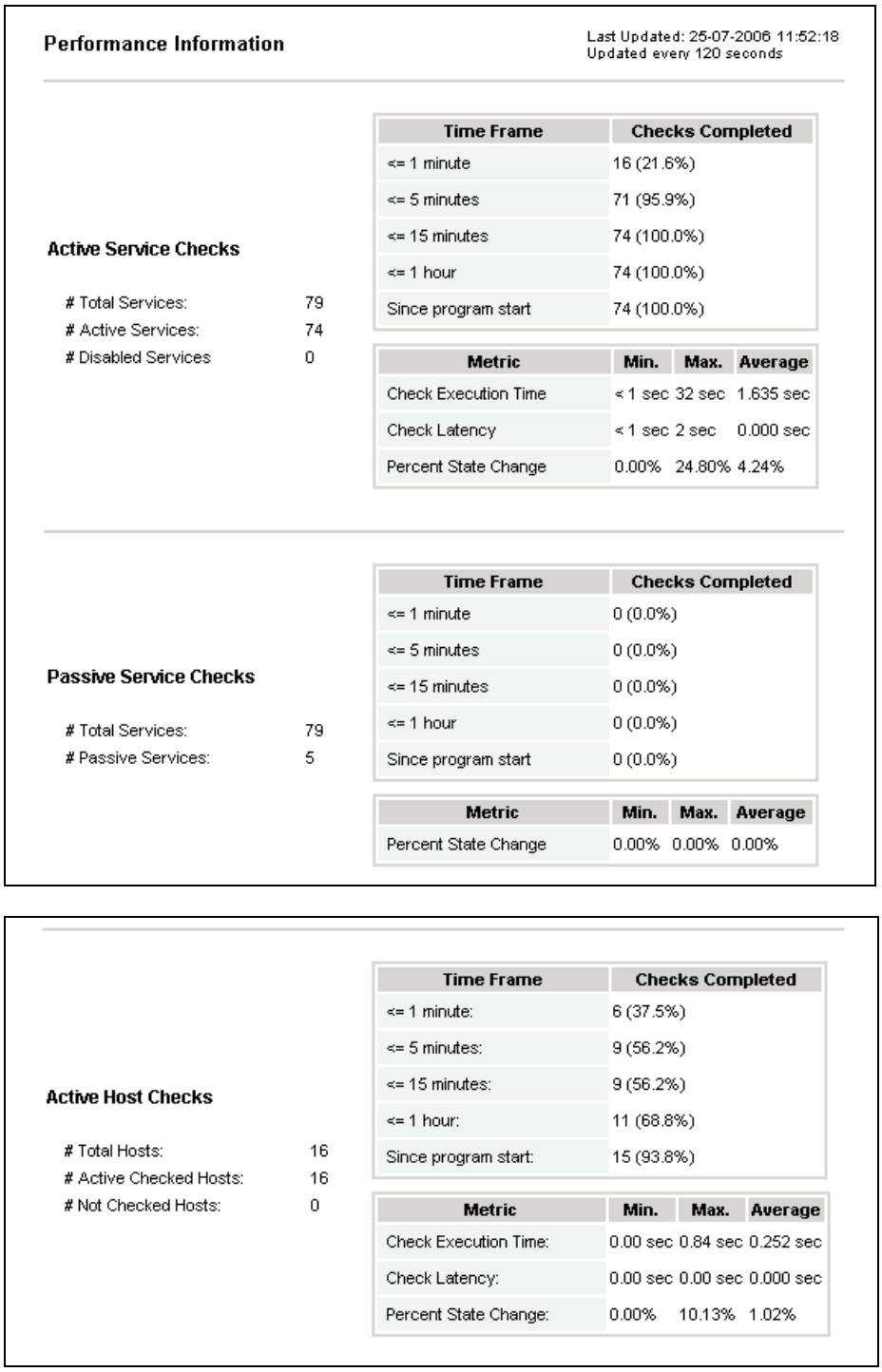


Figure 3-31 Performance statistics

Scheduling Queue displays the time of the last and next check for each monitored host or service.

Host	Service	Last Check	Next Check	Active Checks
charly.W	EventLog.System	25-07-2006 14:16:50	25-07-2006 14:21:50	ENABLED
charly.L	SystemLoad.Memory	25-07-2006 14:16:50	25-07-2006 14:21:50	ENABLED
charly.W	SystemLoad.Memory	25-07-2006 14:16:51	25-07-2006 14:21:51	ENABLED
frcls1704	SystemLoad.Memory	25-07-2006 14:16:58	25-07-2006 14:21:58	ENABLED
frcls1704	EventLog.System	25-07-2006 14:16:58	25-07-2006 14:21:58	ENABLED
frcls3104	LogicalDisks.All	25-07-2006 14:17:02	25-07-2006 14:22:02	ENABLED
lynx1	PING	25-07-2006 14:17:08	25-07-2006 14:22:08	ENABLED
frcls6260	SystemLoad.CPU	25-07-2006 14:17:08	25-07-2006 14:22:08	ENABLED
frcls6260	FileSystems.All	25-07-2006 14:17:08	25-07-2006 14:22:08	ENABLED
blade1	Hardware.Health	25-07-2006 14:21:09	25-07-2006 14:22:09	ENABLED
nsmaster	PING	25-07-2006 14:17:18	25-07-2006 14:22:18	ENABLED
nsmaster-rmc	RMC.PowerStatus	25-07-2006 14:17:19	25-07-2006 14:22:19	ENABLED
FRCLS1704	EventLog.Application	25-07-2006 14:17:19	25-07-2006 14:22:19	ENABLED
charly.W	Hardware.Health	25-07-2006 14:21:24	25-07-2006 14:22:24	ENABLED
blade2	Hardware.Health	25-07-2006 14:21:24	25-07-2006 14:22:24	ENABLED

Figure 3-32 Scheduling Information

When you launch the **Control** screen from a host or a service, host or service monitoring information and host or service comments are displayed. You can also enable/disable notifications, enable or disable service checks.

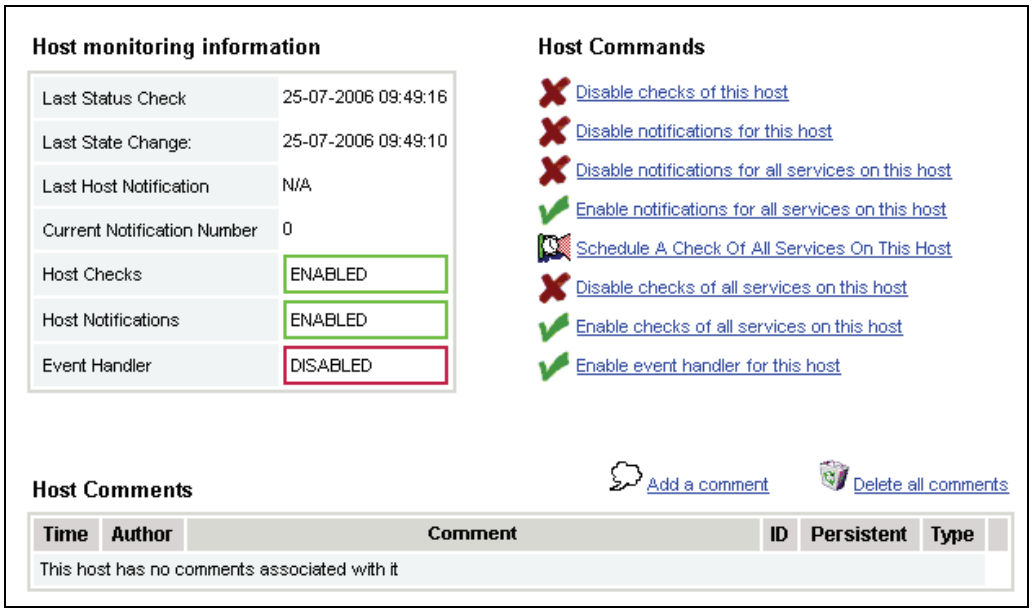


Figure 3-33 Monitoring Host commands

Host/Service Monitoring Information

Gives general information about host or service monitoring.

Host/Service Comments

Displays the comments associated to the host or service and allows you to add or delete comments.

Host/Service Commands

Enables actions on monitoring functions.

When you click a command, you are prompted to confirm by clicking Commit in the confirmation page. The command is posted for immediate execution by the Monitoring Server.

Note Commands require Administrator rights.

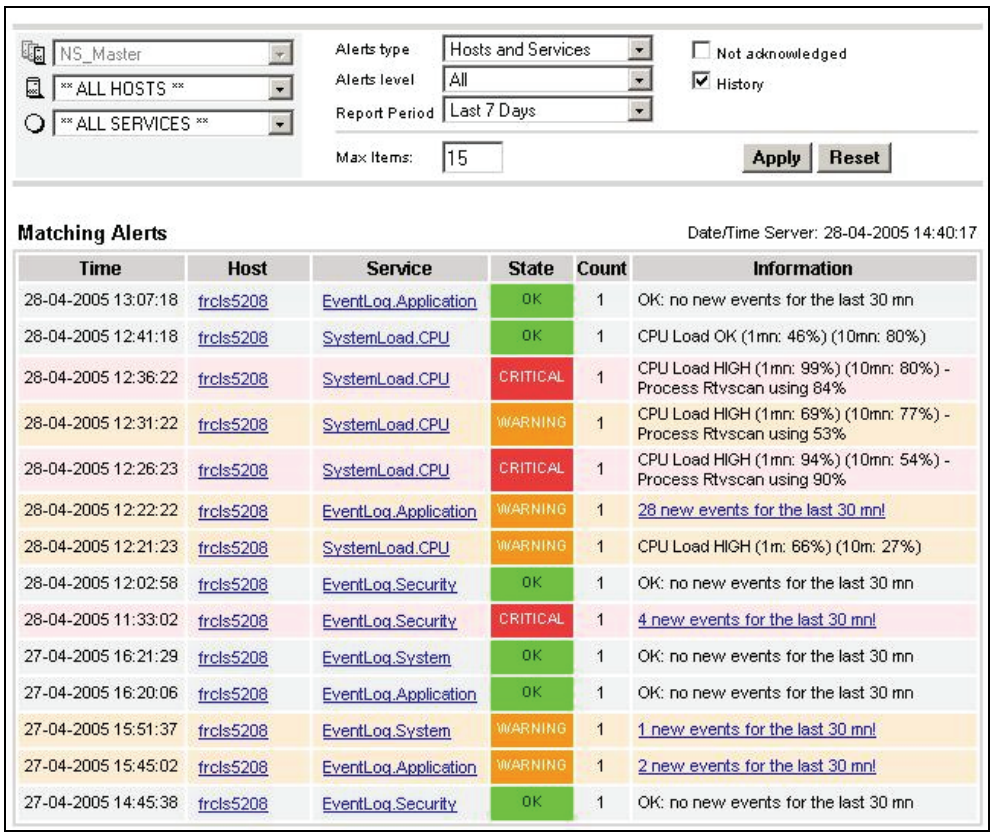
3.4.3 Reporting Information

The following table lists the available information types and associated supervision scope.

Information Type	Supervision Scope
Alert History	Root nodes of Hosts and Hostgroups views (Tree) Hostgroup, Host, Service.
Notifications	Root nodes of Hosts and Hostgroups views (Tree), Hostgroup, Host, Service.
Avaibility	Root nodes of Hosts and Hostgroups views (Tree), Hostgroup, Host, Service.
Status Trends	Root nodes of Hosts and Hostgroups views (Tree) Host, Service
Indicator Trends	Root nodes of Hosts and Hostgroups views (Tree) Hostgroup, Host, Service.

3.4.3.1 Alert History

This screen displays host and service alerts according to the selected context. For example, when this screen is called from a Hostgroup, only the Alerts related to the hosts contained in the selected Hostgroup are given, as displayed below. Information about Alert History is detailed in *Looking in the Past with Alert History*, on page 15.



Time	Host	Service	State	Count	Information
28-04-2005 13:07:18	frcls5208	EventLog.Application	OK	1	OK: no new events for the last 30 mn
28-04-2005 12:41:18	frcls5208	SystemLoad.CPU	OK	1	CPU Load OK (1mn: 46%) (10mn: 80%)
28-04-2005 12:36:22	frcls5208	SystemLoad.CPU	CRITICAL	1	CPU Load HIGH (1mn: 99%) (10mn: 80%) - Process Rtvscan using 84%
28-04-2005 12:31:22	frcls5208	SystemLoad.CPU	WARNING	1	CPU Load HIGH (1mn: 69%) (10mn: 77%) - Process Rtvscan using 53%
28-04-2005 12:26:23	frcls5208	SystemLoad.CPU	CRITICAL	1	CPU Load HIGH (1mn: 94%) (10mn: 54%) - Process Rtvscan using 90%
28-04-2005 12:22:22	frcls5208	EventLog.Application	WARNING	1	28 new events for the last 30 mn!
28-04-2005 12:21:23	frcls5208	SystemLoad.CPU	WARNING	1	CPU Load HIGH (1m: 66%) (10m: 27%)
28-04-2005 12:02:58	frcls5208	EventLog.Security	OK	1	OK: no new events for the last 30 mn
28-04-2005 11:33:02	frcls5208	EventLog.Security	CRITICAL	1	4 new events for the last 30 mn!
27-04-2005 16:21:29	frcls5208	EventLog.System	OK	1	OK: no new events for the last 30 mn
27-04-2005 16:20:06	frcls5208	EventLog.Application	OK	1	OK: no new events for the last 30 mn
27-04-2005 15:51:37	frcls5208	EventLog.System	WARNING	1	1 new events for the last 30 mn!
27-04-2005 15:45:02	frcls5208	EventLog.Application	WARNING	1	2 new events for the last 30 mn!
27-04-2005 14:45:38	frcls5208	EventLog.Security	OK	1	OK: no new events for the last 30 mn

Figure 3-34 Alert History screen - example

3.4.3.2 Notifications

This screen displays notifications that have been sent to various contacts, according to the selected context. When this screen is called from a Root node, it reports all notifications for all the resources declared in the Bull System Manager application, as displayed below.

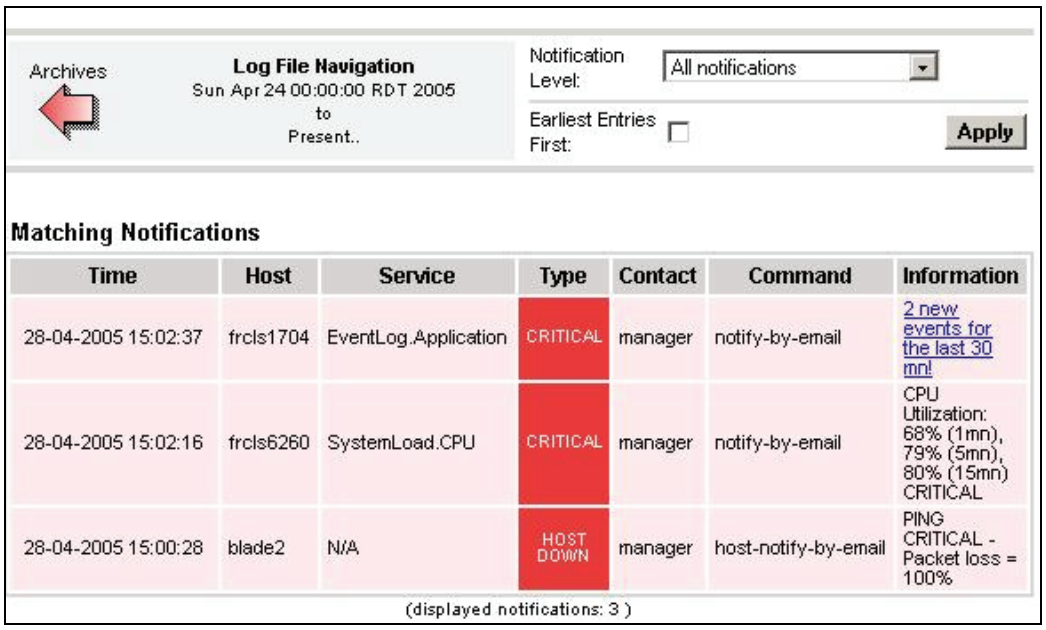


Figure 3-35 Notifications screen - example

The screen is divided into two parts:

- The top part of the screen allows you to modify the notifications reported, according to a set of criteria:

  Log File — By default, only the notifications recorded in the current log are displayed.
  To see older notifications, you can select an archived log.

  Notification Level — Allows you to select the type of Notifications displayed (Service notifications, Host notifications Host Dow, Service Critical,...).
  By default, all notifications are displayed.

  Earliest Entries First — Allows you to select the order of notifications displayed.
  By default, the most recent notifications are displayed first.

- The bottom part of the screen contains matching notification information according to the context and the criteria set in the top part of the screen.

Notifications and information about these notifications (Time, Type, Notified Contacts ...) are displayed according to the criteria previously set. Type information reflects the severity of the notification.

3.4.3.3 Availability

This screen reports on the availability of hosts and services over a user-specified period of time. When called from a root node, it reports the availability summary for each host declared in the Bull System Manager application. When called from a Host context, the report will be more detailed as displayed below.

Figure 3-36 Availability screen - example

The screen is divided into two parts:

- The top part allows you to choose the period over which the report is built (Report Period selection box). The default period is the last 24 hours.
- The bottom part displays reporting information, according to the context and the report period.

The following information is reported:

Host State Breakdowns or **Service State Breakdowns**	Represents the percent of time spent by the host or service in each of its possible states. **Note:** **Time Unknown** is reported when the monitoring server cannot obtain information about the service (because, for instance, the host is down, or the monitoring agent is not running on the target). **Time Undetermined** is reported when no information was collected, mainly because the monitoring server was not running.
Services State Breakdowns	This information is available if the report is asked for a host. Availability report for all the services of the host.
Host Log Entries or **Service Log Entries**	List of all the Nagios events logged for the host or service during the chosen period.

3.4.3.4 Status Trends

This screen displays a graph of host or service states over an arbitrary period of time, as displayed below.

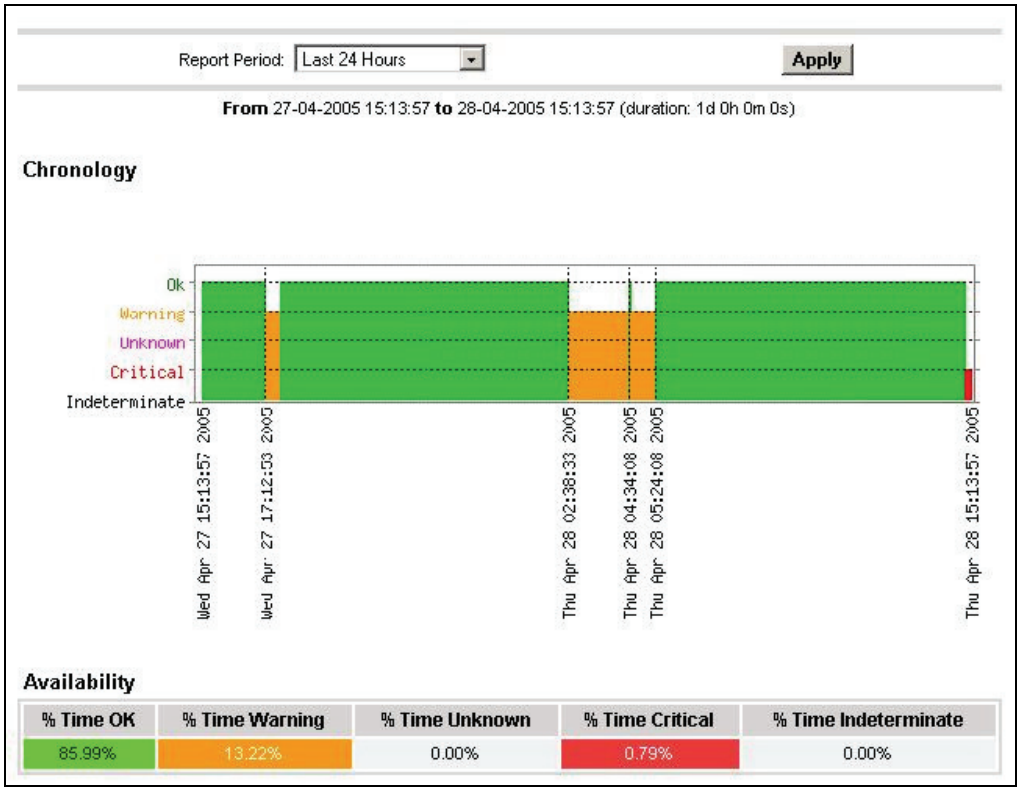


Figure 17. Status Trends on a Service

The screen is divided into two parts:

- The top part allows you to select the period for which the report is built (Report Period selection box). The default period is the last 24 hours.
- The bottom part displays information, according to the context and the selected report period.

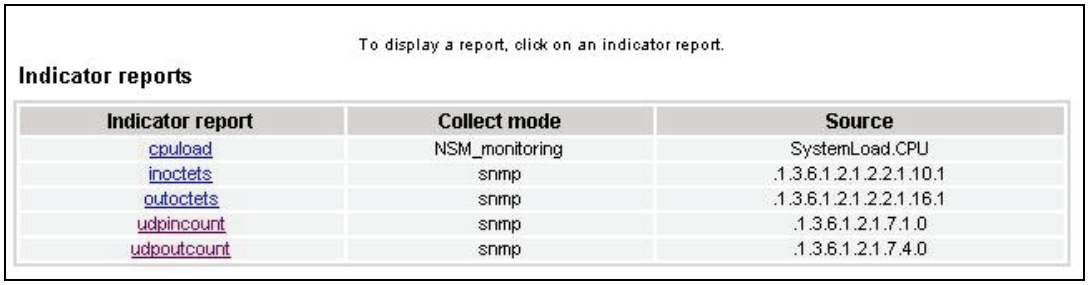
The following information is reported:

Chronology	Represents the evolution of the host or service status over the selected time period.
Availability	Represents the percent of time spent in each state for the host or service.

3.4.3.5 Indicator Trends

The **Indicator Trends** screen lists the available indicator reports defined for a given resource, as displayed below.

Information about how to visualize reports associated with these indicators is detailed in *Reports*, on page 88.


To display a report, click on an indicator report.

Indicator reports

Indicator report	Collect mode	Source
cpuload	NSM_monitoring	SystemLoad.CPU
inoctets	snmp	.1.3.6.1.2.1.2.2.1.10.1
outoctets	snmp	.1.3.6.1.2.1.2.2.1.16.1
udpincount	snmp	.1.3.6.1.2.1.7.1.0
udpoutcount	snmp	.1.3.6.1.2.1.7.4.0

Figure 3-37 Indicator Trends on a Host

3.4.4 Inventory Information

The **Inventory** menu is divided into two submenus: **Platform** and **Operating System**.

Inventory information, which is sent by BSM agent, is stored in a database on the BSM server. If the target host is down, inventory data is always available.

The Refresh Inventory button is used to force a refresh of the inventory stored in the database.

The BSM server sends a request to the BSM agent installed on the target host, asking it to send an inventory (hardware and software):

- when the target host is defined in the BSM configuration,
- when the target host reboots
- manually when the operator clicks on **Refresh Inventory**
- automatically if the periodic task **updateInventory** is enabled in BSM configuration (See *Chapter 4: Configuring Inventory*, in the *Administrator's Guide*, 86 A2 56FA,)

3.4.4.1 Platform Information

These screens are available for Host or Service supervision. Information levels vary to OS and host type.

Hardware Information

This information is only available for hosts with Windows , Linux or AIX Operating Systems.

- For Windows hosts, this screen displays the following information:
  - Processor, Memory, BIOS, SOUND, VideoCard, Input Devices, Monitor, Network, Ports, Printer, Controller and Slots Information

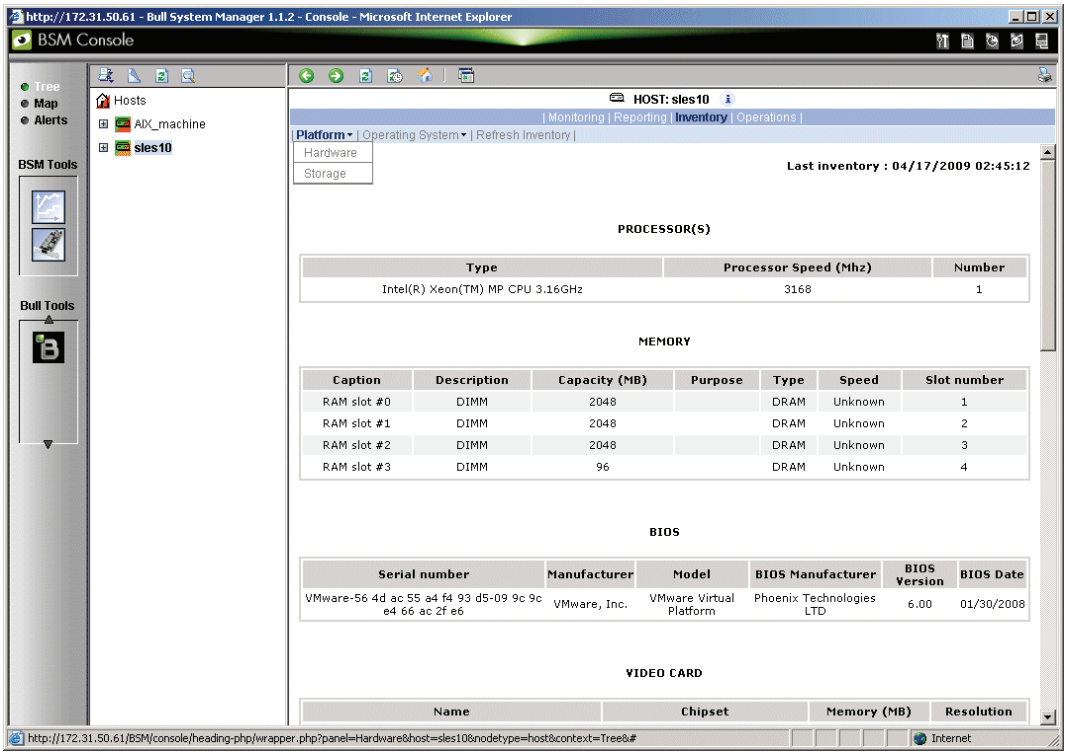


Figure 3-38 Hardware Inventory information – example

Storage Information

This information is only available for hosts with Windows or Linux Operating Systems.

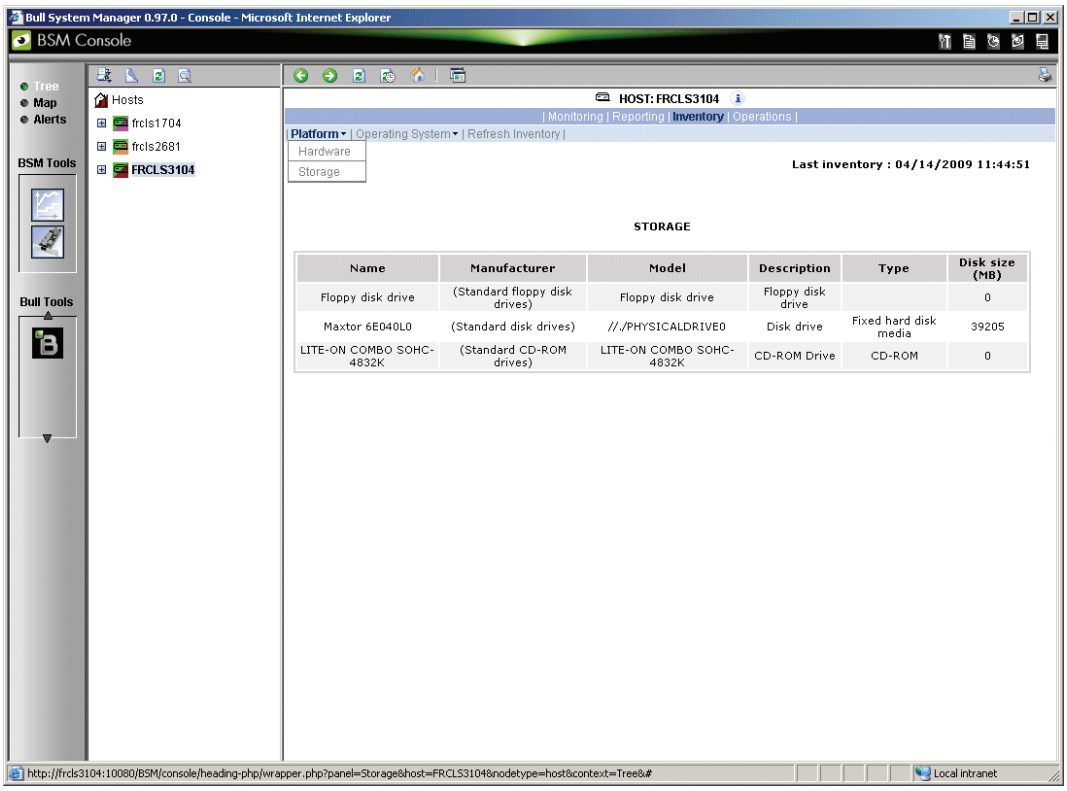


Figure 3-39 Storage information - example

FRU Information

This information is only available for Express 5800, R400, T800 NovaScale 3000, 4000, 5000, 6000 and 9006 series, Nova Scale Blade and Escala Blade hosts.
For details about the information displayed, refer to Chapter 4.

Sensor Information

This information is only available for Express 5800, R400, T800, NovaScale 3000 , 4000 and 9006 series and Nova Scale Blade hosts.
For details about the information displayed, refer to Chapter 4.

SEL Information

This information is only available for Express 5800 , R400, T800 , NovaScale 3000, 4000, 5000 , 6000 and 9006 series, Nova Scale Blade and Escala Blade hosts.
For details about the information displayed, refer to Chapter 4.

3.4.4.2 Operating System Information

These screens are available for Host or Service supervision. Information levels vary according to OS and host type.

Windows Information

The Windows System screen displays the following information:

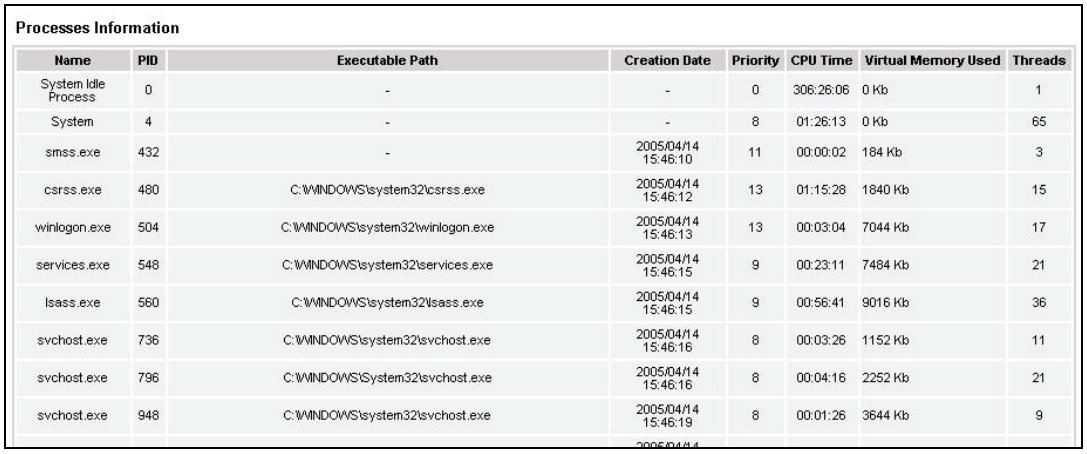
- System, Memory, Logical Disks Process, Users, Products intalled, Shared resources and Services Information

Memory Usage

	Size	Used	Free
Physical	1.5 Gbytes	53 %	725 Mbytes
Paged	744 Mbytes	13 %	654 Mbytes
Total (Virtual)	2.1 Gbytes	30 %	1.5 Gbytes

Figure 3-40 WindowsMemory screen - example

The **Windows Process** screen displays running processes:

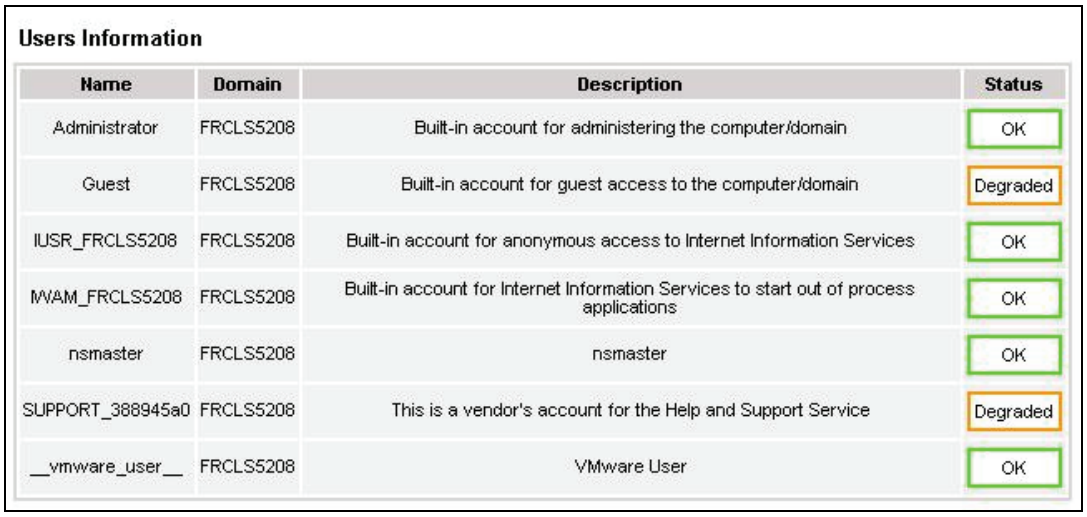


Processes Information

Name	PID	Executable Path	Creation Date	Priority	CPU Time	Virtual Memory Used	Threads
System Idle Process	0	-	-	0	306:26:06	0 Kb	1
System	4	-	-	8	01:26:13	0 Kb	65
smss.exe	432	-	2005/04/14 15:46:10	11	00:00:02	184 Kb	3
csrss.exe	480	C:\WINDOWS\system32\csrss.exe	2005/04/14 15:46:12	13	01:15:28	1840 Kb	15
winlogon.exe	504	C:\WINDOWS\system32\winlogon.exe	2005/04/14 15:46:13	13	00:03:04	7044 Kb	17
services.exe	548	C:\WINDOWS\system32\services.exe	2005/04/14 15:46:15	9	00:23:11	7484 Kb	21
lsass.exe	560	C:\WINDOWS\system32\lsass.exe	2005/04/14 15:46:15	9	00:56:41	9016 Kb	36
svchost.exe	736	C:\WINDOWS\system32\svchost.exe	2005/04/14 15:46:16	8	00:03:26	1152 Kb	11
svchost.exe	796	C:\WINDOWS\System32\svchost.exe	2005/04/14 15:46:16	8	00:04:16	2252 Kb	21
svchost.exe	948	C:\WINDOWS\system32\svchost.exe	2005/04/14 15:46:19	8	00:01:26	3644 Kb	9

Figure 3-41 Windows Process screen - example

The **Windows Users** screen displays users information:

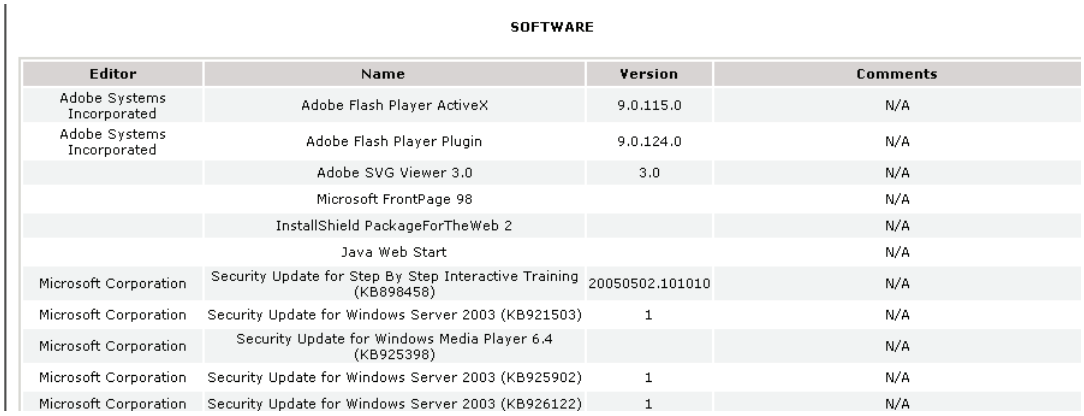


Users Information

Name	Domain	Description	Status
Administrator	FRCLS5208	Built-in account for administering the computer/domain	OK
Guest	FRCLS5208	Built-in account for guest access to the computer/domain	Degraded
IUSR_FRCLS5208	FRCLS5208	Built-in account for anonymous access to Internet Information Services	OK
IWAM_FRCLS5208	FRCLS5208	Built-in account for Internet Information Services to start out of process applications	OK
nsmaster	FRCLS5208	nsmaster	OK
SUPPORT_388945a0	FRCLS5208	This is a vendor's account for the Help and Support Service	Degraded
__vmware_user__	FRCLS5208	VMware User	OK

Figure 3-42 Windows Users screen - example

The **Windows Products** screen displays installed products:



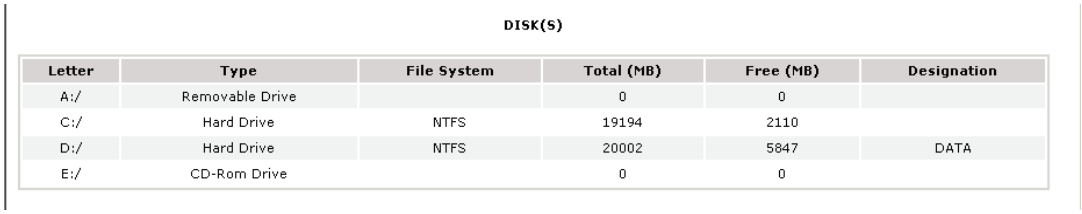
SOFTWARE

Editor	Name	Version	Comments
Adobe Systems Incorporated	Adobe Flash Player ActiveX	9.0.115.0	N/A
Adobe Systems Incorporated	Adobe Flash Player Plugin	9.0.124.0	N/A
	Adobe SVG Viewer 3.0	3.0	N/A
	Microsoft FrontPage 98		N/A
	InstallShield PackageForTheWeb 2		N/A
	Java Web Start		N/A
Microsoft Corporation	Security Update for Step By Step Interactive Training (KB898458)	20050502.101010	N/A
Microsoft Corporation	Security Update for Windows Server 2003 (KB921503)	1	N/A
Microsoft Corporation	Security Update for Windows Media Player 6.4 (KB925398)		N/A
Microsoft Corporation	Security Update for Windows Server 2003 (KB925902)	1	N/A
Microsoft Corporation	Security Update for Windows Server 2003 (KB926122)	1	N/A

Figure 3-43 Windows Products screen - example

Note On servers running Windows Operating System, only products installed using a **.MSI** file are displayed.

The **Windows Logical Disks** screen displays information about logical disks:

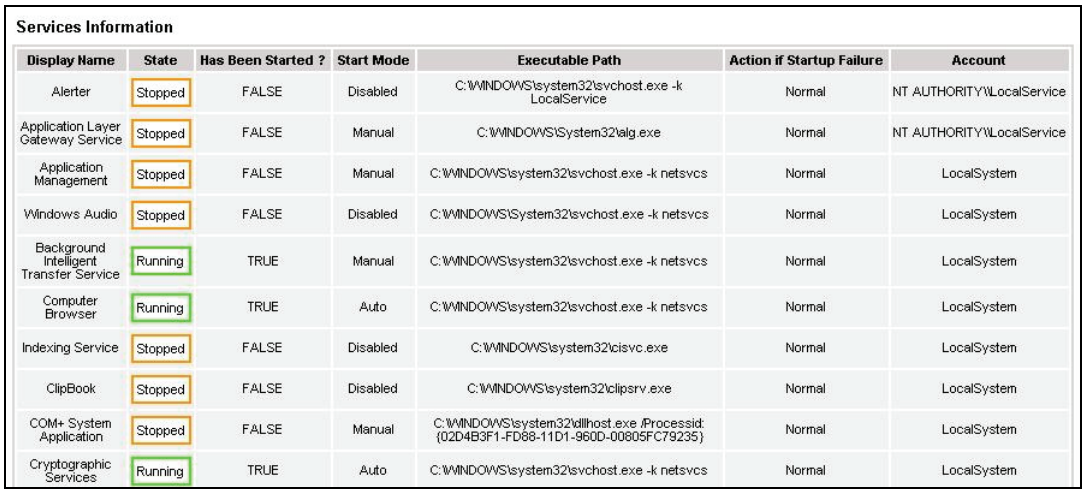


DISK(S)

Letter	Type	File System	Total (MB)	Free (MB)	Designation
A:/	Removable Drive		0	0	
C:/	Hard Drive	NTFS	19194	2110	
D:/	Hard Drive	NTFS	20002	5847	DATA
E:/	CD-Rom Drive		0	0	

Figure 3-44 Windows Logical Disks screen - example

The **Windows Services** screen displays services information:



Services Information

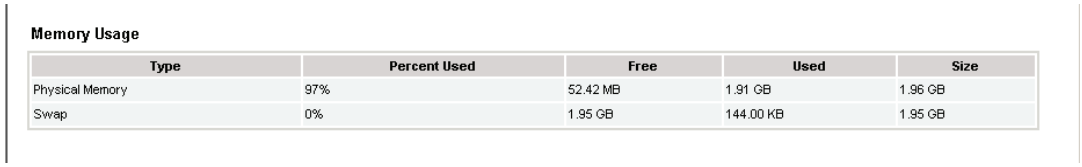
Display Name	State	Has Been Started ?	Start Mode	Executable Path	Action if Startup Failure	Account
Alerter	Stopped	FALSE	Disabled	C:\WINDOWS\system32\svchost.exe -k LocalService	Normal	NT AUTHORITY\LocalService
Application Layer Gateway Service	Stopped	FALSE	Manual	C:\WINDOWS\System32\alg.exe	Normal	NT AUTHORITY\LocalService
Application Management	Stopped	FALSE	Manual	C:\WINDOWS\system32\svchost.exe -k netsvcs	Normal	LocalSystem
Windows Audio	Stopped	FALSE	Disabled	C:\WINDOWS\System32\svchost.exe -k netsvcs	Normal	LocalSystem
Background Intelligent Transfer Service	Running	TRUE	Manual	C:\WINDOWS\system32\svchost.exe -k netsvcs	Normal	LocalSystem
Computer Browser	Running	TRUE	Auto	C:\WINDOWS\system32\svchost.exe -k netsvcs	Normal	LocalSystem
Indexing Service	Stopped	FALSE	Disabled	C:\WINDOWS\system32\cisvc.exe	Normal	LocalSystem
ClipBook	Stopped	FALSE	Disabled	C:\WINDOWS\system32\clipsrv.exe	Normal	LocalSystem
COM+ System Application	Stopped	FALSE	Manual	C:\WINDOWS\system32\dllhost.exe /Processid:{02D4B3F1-FD88-11D1-960D-00805FC79235}	Normal	LocalSystem
Cryptographic Services	Running	TRUE	Auto	C:\WINDOWS\system32\svchost.exe -k netsvcs	Normal	LocalSystem

Figure 3-45 Windows Services screen - example

Linux and AIX Information

The Linux System screen displays the following information:

– System, Memory, File Systems, Process, Users, RPM products and System Logs Information



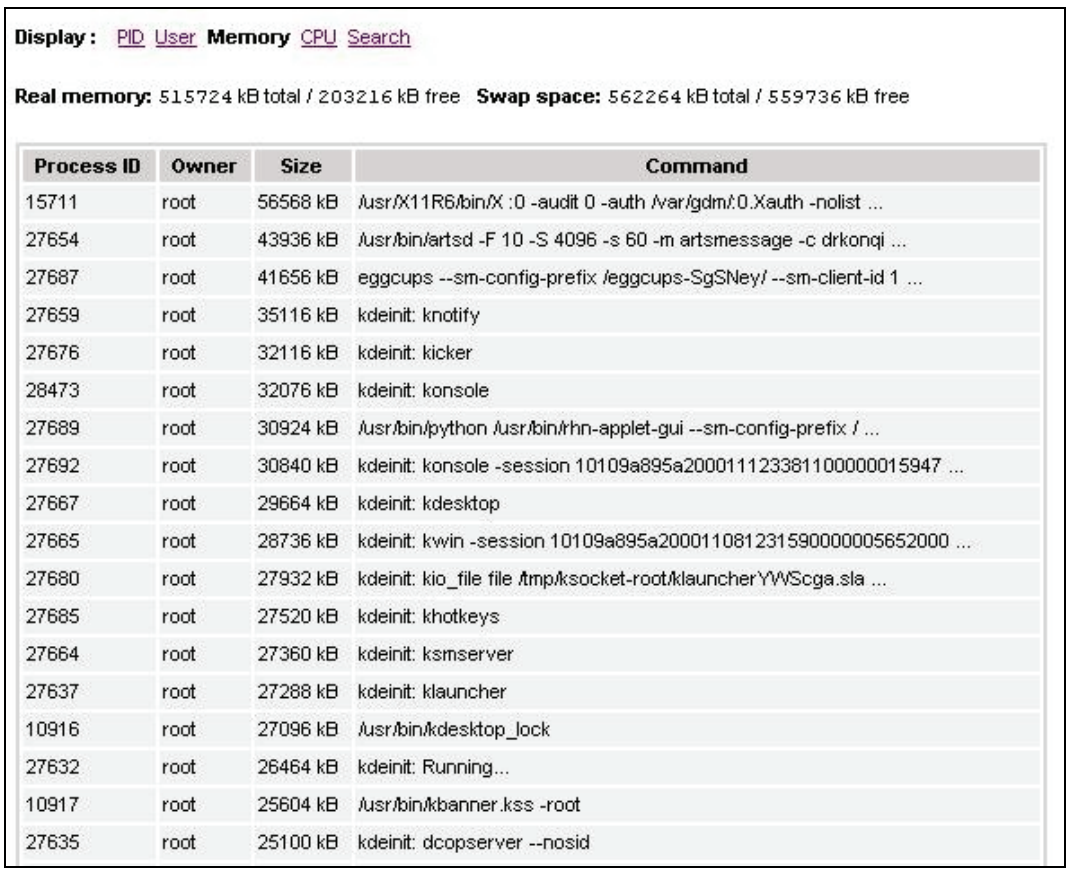
Memory Usage

Type	Percent Used	Free	Used	Size
Physical Memory	97%	52.42 MB	1.91 GB	1.96 GB
Swap	0%	1.95 GB	144.00 KB	1.95 GB

Figure 3-46 Linux Memory Usage screen - example

The **Linux Process** screen displays processes sorted by PID, User, Memory Usage or CPU Usage.

The following example shows processes sorted by Memory Usage. You can select the required sort option by clicking the corresponding link.



Display : PID User **Memory** CPU Search

Real memory: 515724 kB total / 203216 kB free **Swap space:** 562264 kB total / 559736 kB free

Process ID	Owner	Size	Command
15711	root	56568 kB	/usr/X11R6/bin/X :0 -audit 0 -auth /var/gdm/:0.Xauth -nolist ...
27654	root	43936 kB	/usr/bin/artsd -F 10 -S 4096 -s 60 -m artsmessage -c drkonqi ...
27687	root	41656 kB	eggcups --sm-config-prefix /eggcups-SgSNey/ --sm-client-id 1 ...
27659	root	35116 kB	kdeinit: knotify
27676	root	32116 kB	kdeinit: kicker
28473	root	32076 kB	kdeinit: konsole
27689	root	30924 kB	/usr/bin/python /usr/bin/rhn-applet-gui --sm-config-prefix / ...
27692	root	30840 kB	kdeinit: konsole -session 10109a895a2000111233811000000015947 ...
27667	root	29664 kB	kdeinit: kdesktop
27665	root	28736 kB	kdeinit: kwin -session 10109a895a2000110812315900000056520000 ...
27680	root	27932 kB	kdeinit: kio_file file /tmp/ksocket-root/klauncherYWScga.sla ...
27685	root	27520 kB	kdeinit: khotkeys
27664	root	27360 kB	kdeinit: ksmserver
27637	root	27288 kB	kdeinit: klauncher
10916	root	27096 kB	/usr/bin/kdesktop_lock
27632	root	26464 kB	kdeinit: Running...
10917	root	25604 kB	/usr/bin/kbanner.kss -root
27635	root	25100 kB	kdeinit: dcopserver --nosid

Figure 3-47 Linux Process screen - example

The **Linux Users** screen displays user information:

Local Users

Username	User ID	Real name	Home directory	Shell
adm	3	adm	/var/adm	/sbin/nologin
apache	48	Apache	/var/www	/sbin/nologin
bin	1	bin	/bin	/sbin/nologin
daemon	2	daemon	/sbin	/sbin/nologin
dbus	81	System message bus	/	/sbin/nologin
ftp	14	FTP User	/var/ftp	/sbin/nologin
games	12	games	/usr/games	/sbin/nologin
gdm	42		/var/gdm	/sbin/nologin
gopher	13	gopher	/var/gopher	/sbin/nologin
haldaemon	68	HAL daemon	/	/sbin/nologin
halt	7	halt	/sbin	/sbin/halt
lp	4	lp	/var/spool/lpd	/sbin/nologin
mail	8	mail	/var/spool/mail	/sbin/nologin
mailnull	47		/var/spool/mqueue	/sbin/nologin
netdump	34	Network Crash Dump user	/var/crash	/bin/bash
news	9	news	/etc/news	
nfsnobody	65534	Anonymous NFS User	/var/lib/nfs	/sbin/nologin

Figure 3-48 Linux Users screen - example

The **Linux RPM** Products screen allows you to display installed packages by using a search tool or by browsing the package tree.

SOFTWARE

Editor	Name	Version	Comments
	cyrus-sasl-lib.x86_64	2.1.22-4	Shared libraries needed by applications which use Cyrus SASL.
	dmidecode.x86_64	2.7-1.28.2.el5	Tool to analyse BIOS DMI data.
	libXaw.x86_64	1.0.2-8.1	X.Org X11 libXaw runtime library
	libXxf86dga.i386	1.0.1-3.1	X.Org X11 libXxf86dga runtime library
	rdate.x86_64	1.4-6	Tool for getting the date/time from a remote machine.
	openldap.i386	2.3.27-5	The configuration files, libraries, and documentation for OpenLDAP.
	libnotify.x86_64	0.4.2-6.el5	libnotify notification library
	libutempter.x86_64	1.1.4-3.fc6	A privileged helper for utmp/wtmp updates
	system-config-language.noarch	1.1.18-1.el5	A graphical interface for modifying the system language
	pyorbit.x86_64	2.14.1-1.1	Python bindings for ORBit2.
	gmp.i386	4.1.4-10.el5	A GNU arbitrary precision library.
	slang-devel.x86_64	2.0.6-4.el5	The static library and header files for development using S-Lang.
	postgresql-libs.x86_64	8.1.4-1.1	The shared libraries required for any PostgreSQL clients.
	system-config-kdump.noarch	1.0.9-3.el5	A graphical interface for configuring kernel crash dumping
	libXdamage-devel.x86_64	1.0.3-2.1	X.Org X11 libXdamage development package
	gnome-desktop.i386	2.16.0-1.fc6	Package containing code shared among gnome-panel, gnome-session, nautilus, etc

Figure 3-49 Linux RPM Products - example

The **Linux System** Logs screen displays available logs and allows you to view them.

Log destination	Active?	Messages selected	
File /dev/console	No	kern.*	
File /var/log/messages	Yes	*.info ; mail.none ; authpriv.none ; cron.none	View..
File /var/log/secure	Yes	authpriv.*	View..
File /var/log/maillog	Yes	mail.*	View..
File /var/log/cron	Yes	cron.*	View..
All users	Yes	*.emerg	
File /var/log/spooler	Yes	uucp,news.crit	View..
File /var/log/boot.log	Yes	local7.*	View..

Figure 3-50 Linux System Logs screen – example

3.4.5 Operations Menu

The **Operations** menu allows an Administrator to take a remote control of a platform or Operating System.

This menu is only available to Administrators and is divided into several potential submenus: **Platform**, **Operating System**, **Consolidation**, **Applications** and **Storage**.

3.4.5.1 Platform Menu

These menus are available for Hardware Manager and Host (and services) with a dedicated hardware manager.

Power Control

Allows the administrator to manage power control through the Bull System Manager Hardware Management application.

Manager GUI

Allows you to launch the appropriate hardware manager:

- PAM for NovaScale 5000 and 6000 series
- ISM for NovaScale 4000 series
- CMM for NovaScale Blade series
- RMC or ARMC, SIMSO+ for Intel based computers.
- Any other manager that can be accessed via a URL.

3.4.5.2 Operating system Menu

These menus are available for Host or Service supervision. Information levels vary according to OS and host type.

Remote Operation Menu for Windows	
... ->VNC Viewer	Starts VNC viewer to connect to this host.
... ->MMC	
... ->Remote Desktop	
Remote Operation Menu for Linux	
... ->SSH	Launches SSH to connect to this host.
	Following items Open a Webmin page:
... ->Shell	to execute a Unix shell command.
... -> FileSystem	to manage disk and network file systems.
... -> Processes	to manage running processes.
... -> Users	to manage Users and Groups.
... -> Password	to manage passwords.
... -> RPM	to manage software packages.
... -> System Logs	to manage system logs.
... -> NetConfig	to manage network configuration.

Note SSH command calls a Console local SSH client. This command runs only on Linux console machines.

3.4.5.3 Storage Menu

This menu is available for Storage Manager, Host or Service supervision.

From this menu, you can call the storage manager GUI.

3.4.5.4 Consolidation Menu

This menu is available for Host supervision.

From this menu, you can call specific management tools for virtualization and/or consolidation (generally, these items come with specific Server Add-ons).

3.4.5.5 Application Menu

This menu is available for Host supervision.

From this menu, you can call specific management tools for specific Bull applicative framework and/or applications (generally, these items come with specific Server Add-ons).

Chapter 4. Using Bull System Manager Console Applications

4.1 Bull System Manager Hardware Management Application

The **Bull System Manager Remote Hardware Management Application** provides the same look and feel for hardware operations independently of the target machine type.

This application manages **Power Control**, and displays **FRUs**, **Sensors** and **System Event Logs** for Express 5800 and NovaScale 4000, 5000, 6000 or Blade series servers.

There are two ways to start the application:

- Launch the **Hardware Management Application** from the application bar
- Activate the **Hardware > Remote Control** item in the Console Management Tree host menu.

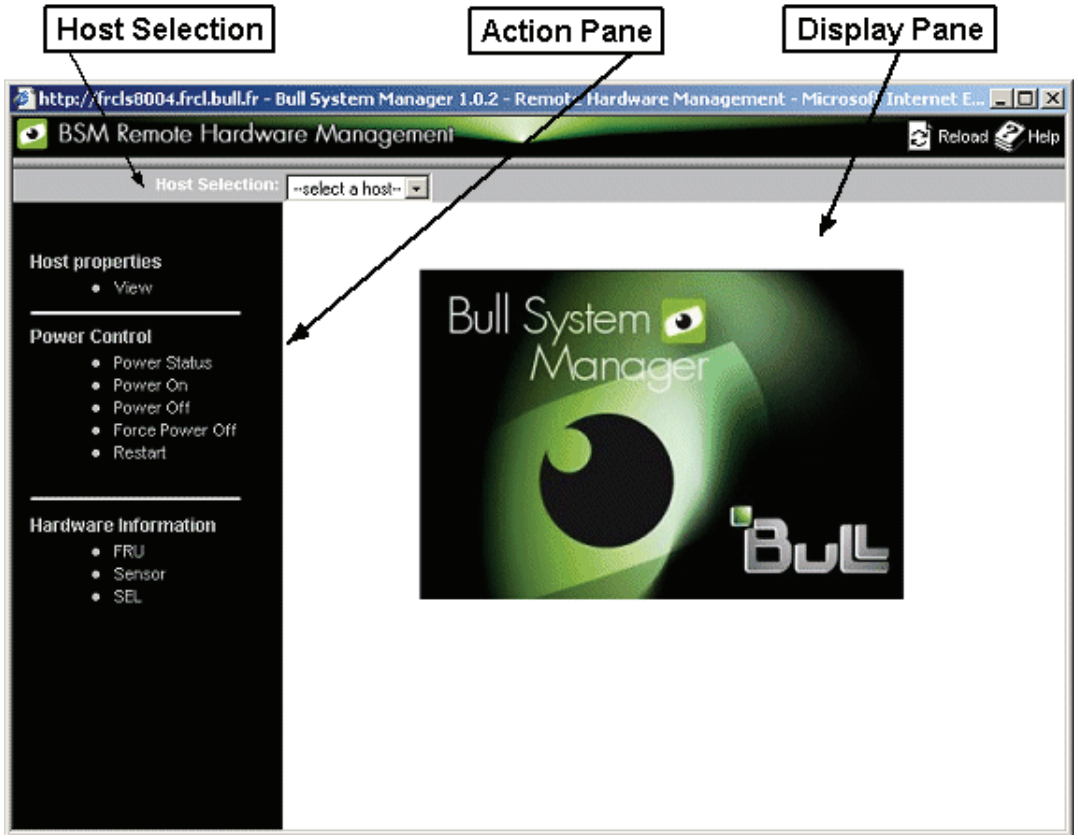


Figure 4-1 Remote Hardware Management screen

Bull System Manager Remote Hardware Management comprises three functional parts:

Host Selection Pane & Current Selected Host Pane
: Allows you to select the current host from all the Express 5800 and NovaScale 4000, 5000, 6000 or Blade servers declared in the Bull System Manager configuration and displays it.

Action Pane
: Displays the hardware operations that can be executed.

Display Pane
: Displays parameter forms, messages and command results.

4.1.1 Host Selection

Hardware commands only apply to the selected host. The selected host name is displayed in the **Current Selected Host** Pane.

The application is launched contextually from the **Current Selected Host** in the **Console Management** Tree.

You can select another host from the list of available hosts in the **Host Selection** Pane.

When a host is selected, the application reads Bull System Manager configuration files to get host properties.

4.1.1.1 Host Properties

You can display selected host properties by clicking **View**:

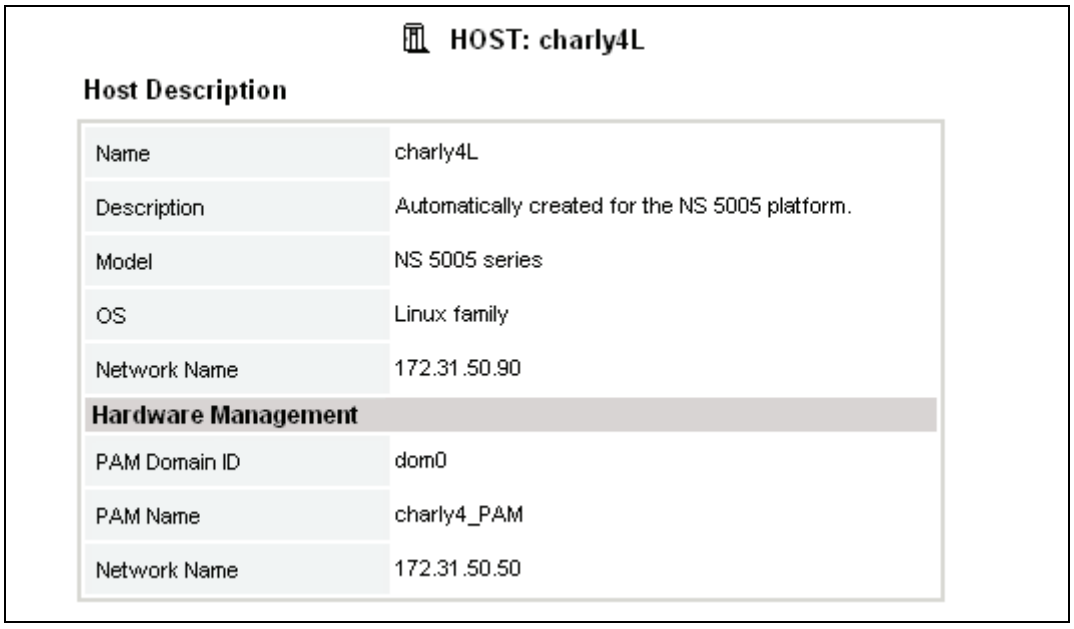


Figure 4-2 NovaScale 5000 Server host properties - example

Host properties differ according to host type, as shown in the following tables:

Name	Name of the current selected host to which commands are applied.
Model	Host model.
Network Name	Current selected host local network name or IP address.
Operating System	Operating system type (Windows, Linux or any).
Out-Of-Band information	
Network name	network name

Table 4-1. NovaScale 4000 Server host properties

Name	Name of the current selected host to which commands are applied.
Model	Host model.
Operating System	Operating system type (Windows, Linux or any)
Network name	Current selected host local network name or IP address
Hardware Management	
PAM Domain ID	Current selected host domain name
PAM Name	PAM Manager name.
Network Name	Local network name or IP address of the PAP server managing the current selected host.

Table 4-2. NovaScale 5000 or 6000 Server host properties

Name	Name of the current selected host to which commands are applied..
model	Host model
Network Name	Current selected host local network name or IP address.
Operating System	Operating system type (Windows, Linux or any).
Out-Of-Band information	
Network Name	RMC network name.

Table 4-3. Express 5800 Server host properties

Note These values always correspond with those found in the Bull System Manager Configuration.

4.1.2 Commands

Note All commands are applicable to the Current Selected Host.

4.1.2.1 Prerequisites

NovaScale 3000 Servers

The BMC (Baseboard Management Controller) on the managed host must be configured for remote-control over LAN.

NovaScale 4000 Servers

An SMU (System Maintenance Utility) user must be declared for the managed host via the ISM (Intel Server Management) software delivered with NovaScale 4000 servers. User authentication must be declared in the Bull System Manager Configuration.

NovaScale 5000 and 6000 Servers

Bull System Manager Hardware commands are sent to the PAP server for execution. The only prerequisite is that the targeted host is managed by an operational PAP unit accessible from the Bull System Manager server.

NovaScale Blade Servers

Bull System Manager server must be declared as SNMP Manager in the CMM configuration. For details, please refer to the *NovaScale Blade Chassis Management Module Installation and User's Guide*

NS R400/NS T800/Express 5800 Servers

The BMC (Baseboard Management Controller) on the managed host must be configured for remote-control over LAN. This is done using the Intel **SysConfig** tool or **DOS** configuration tool available on the NEC EXPRESSBUILDER CD-ROM delivered with Express 5800 Series servers.

4.1.2.2 Command Outputs

A message indicating command failure or acceptance is displayed.

Power Control

As Power Control operations (except Power Status) are executed asynchronously, the output only indicates if the command is accepted and started. It does not indicate whether the command has been executed or not.

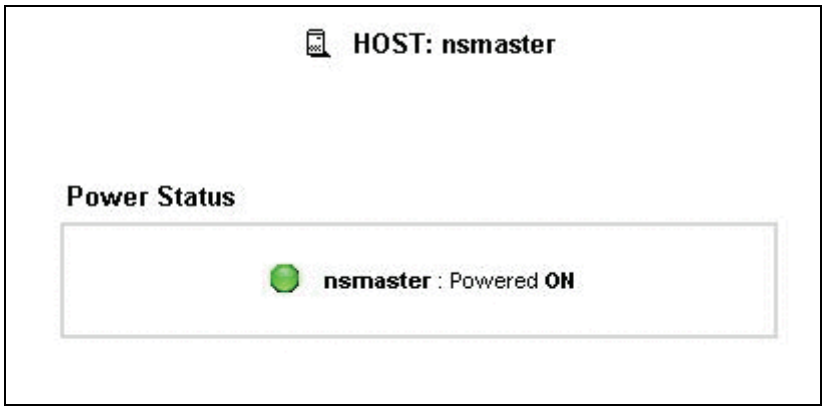


Figure 4-3 Power Status output - example

Note In order for the "power off" command to be taken into account on a remote host running Windows 2000 / 2003 server, the "Shutdown: Allow system to be shut down without having to log on" security option must be enabled on the remote host.

You can configure this security setting by opening the appropriate policy and expanding the console tree as such:

1. Click **Start**, and then click **Run**.
2. In the **Open** box, type **gpedit.msc**, and then click **OK**.
3. In the **Group Policy** window, expand **Computer Configuration\Windows Settings\Security Settings\Local Policies\Security Options**.
4. Set the shutdown security option to "enabled".

FRU

Click **FRU** to display the FRUs (Field Replacement Unit).

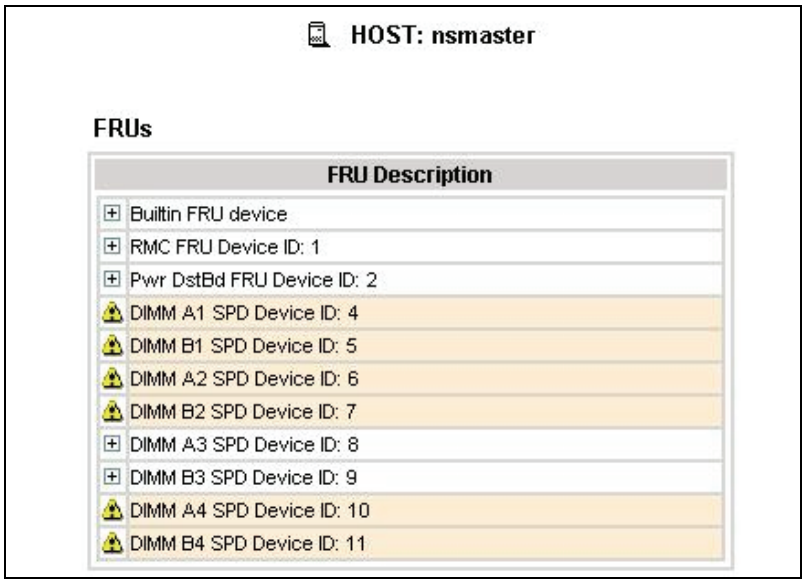


Figure 4-4 FRU output - example

SENSOR

Click **Sensor** to display sensors.

Note This option is not available for NovaScale 5000, 6000 and Blade series servers.

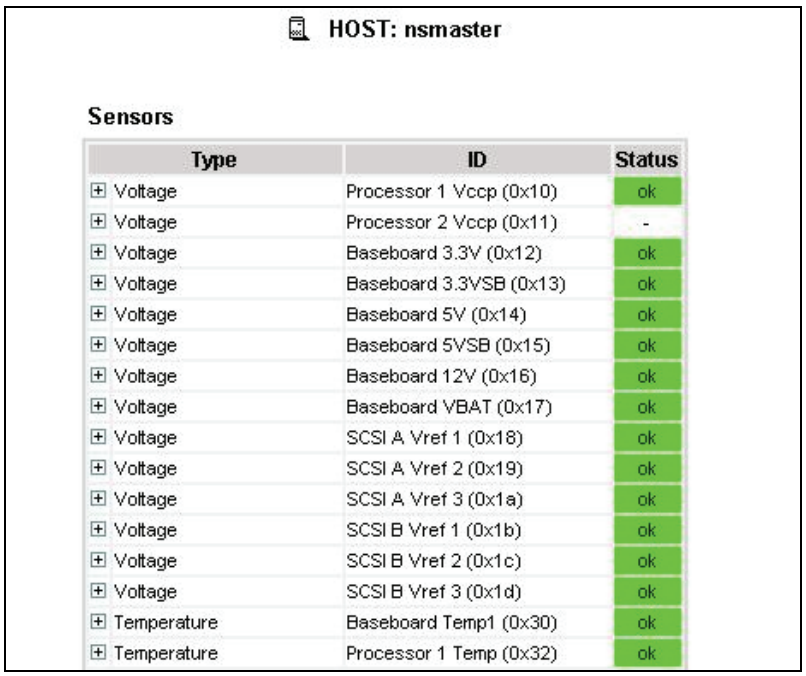


Figure 4-5 SENSOR output - example

SEL/PAM History

Click **SEL** (Express 5800 and NovaScale R400, T800, 3005, 4000 and Blade Series) or **PAM History** (Nova Scale 5000 and 6000 Series) to display the 20 most recent records of the **System Event Log**.

You can view records according to rank, to navigate to next or previous records and to view the oldest records.

The **Clear all SEL** entries is used to clear all the **System Event Log** entries. This functionality is not present in PAM history.

Note The **Refresh** button is only enabled when the most recent records are displayed.

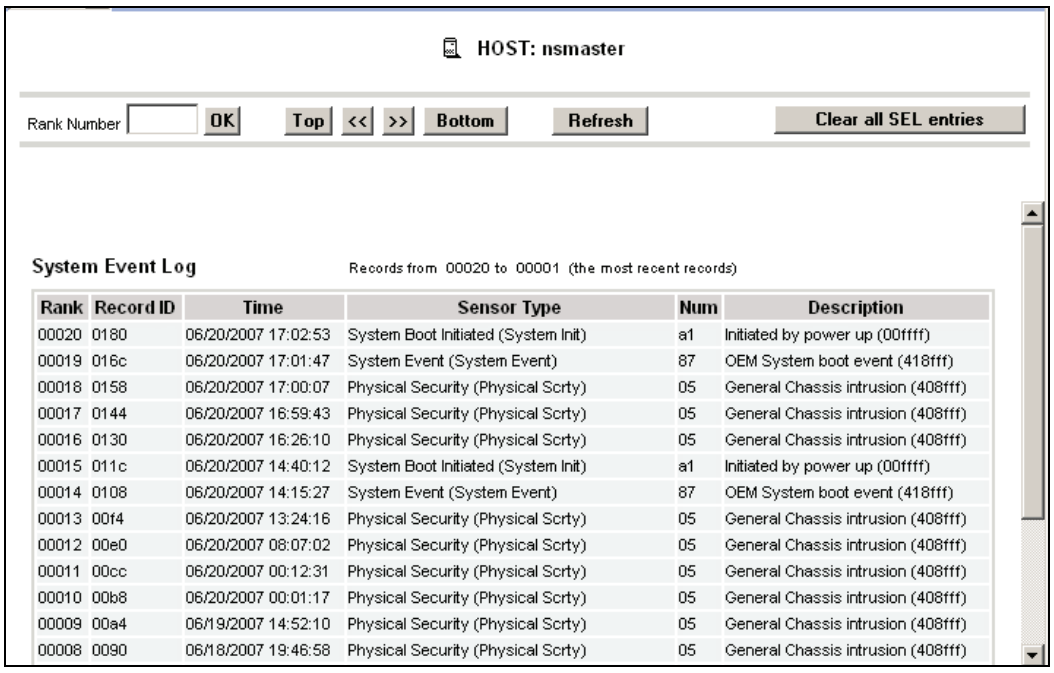


Figure 4-6 SEL output - example

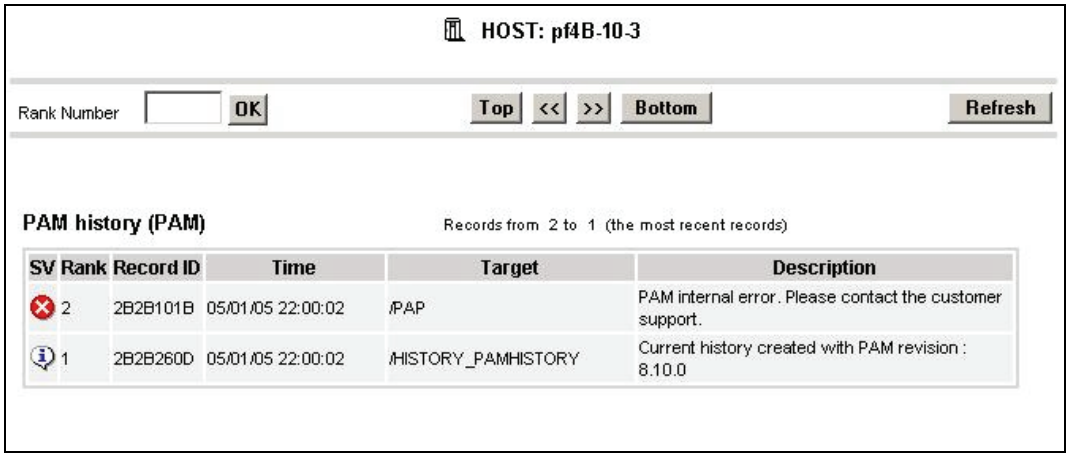


Figure 4-7 PAM History output - example

4.2 Reports

You can visualize the reports associated with these indicators, as follows:

1. Launch the Bull System Manager Console and click **Reports** button to display available reports.

2. Click the required report.

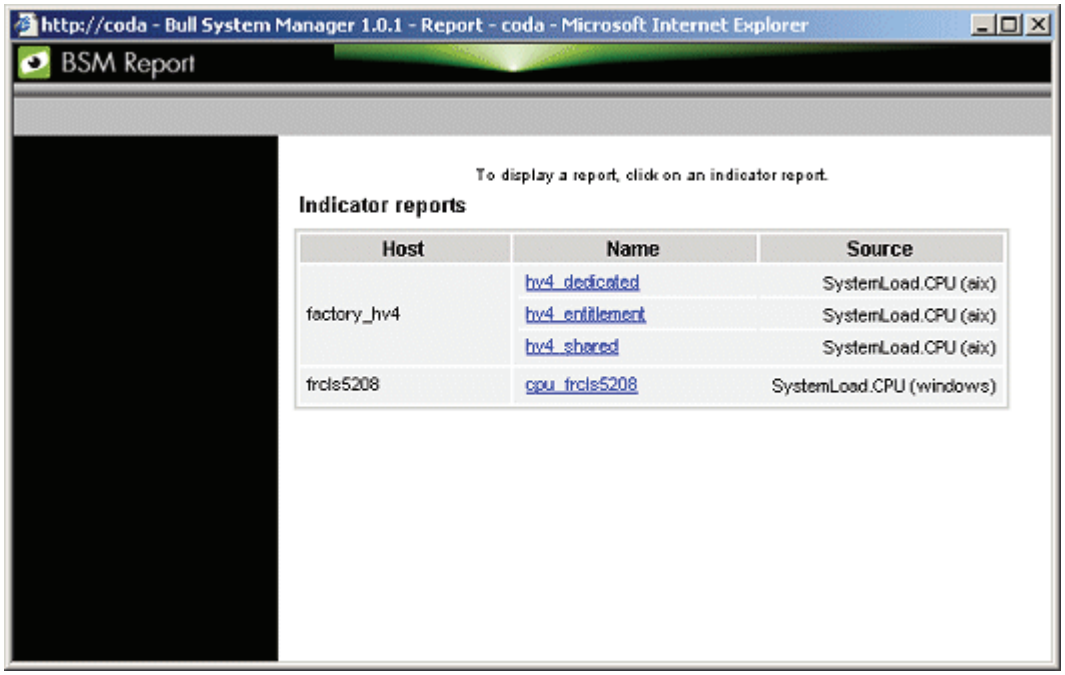


Figure 4-8 Indicator Reports

Each report comprises four graphs:

- Daily
- Weekly
- Monthly
- Yearly

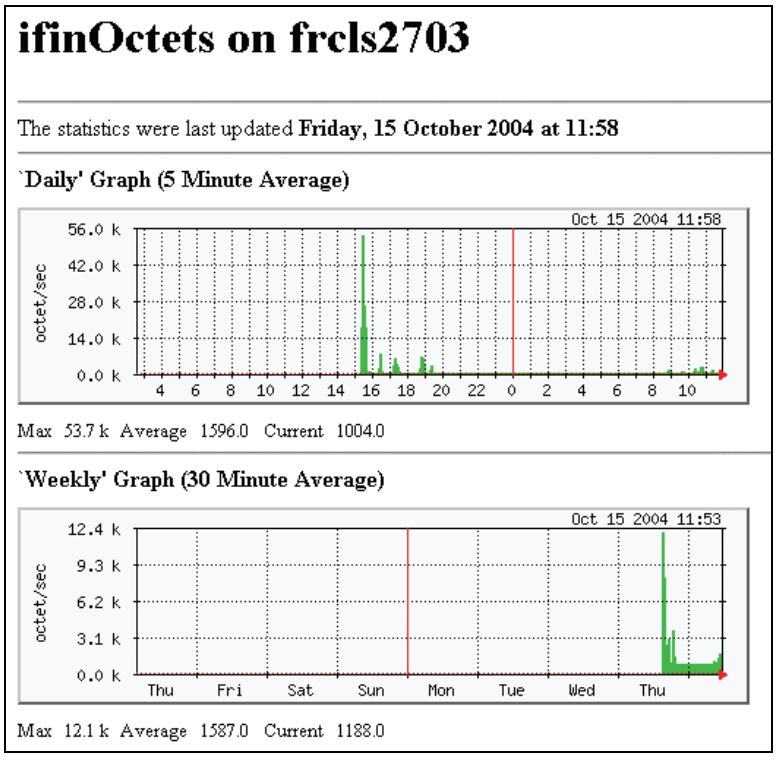


Figure 4-9 Daily and Weekly Report Graphs - example

4.3 Other Applications

You can launch external applications by clicking the required icon in the **Other Tools** Pane. Use the arrows to scroll through the list of applications. As Administrator, you can add external applications. Please refer to the *Administrator's Guide* for details.

Note The **Bull** icon gives you direct access to the Bull Support Web Site.

Figure 4-10 Other applications

Chapter 5. Categories and Services Reference List

This chapter describes the categories and default services for monitoring Linux, AIX or Windows systems.

As Administrator, you can change, remove or add categories and services to the configuration. Please refer to the *Administrator's Guide* for details.

Notes

- Other Categories and Services are provided by NovaScale Server Add-Ons. They are described in the *Bull System Manager Server Add-ons Installation and Administrator's Guide*.
- A **PING** monitoring service allows you to monitor the presence of a targeted Host. This service is not represented by a service node in the Management tree but is represented in the Applications Pane (Monitoring Status Details).

5.1 Monitoring Hosts

The following categories and services can be used to monitor items independent from OS (network access and protocols for instance). By default they appear under any declared host.

5.1.1 Internet Category

This category contains all the services for monitoring IP port (TCP, UDP, HTTP, FTP ...).

5.1.1.1 HTTP

The **Internet.HTTP** service monitors the HTTP access of the hosts on port 80 (by default) on the '/' URL (i.e. `http://host:80/`). The timeout value is 10 seconds.

- Status is set to WARNING state for HTTP errors: 400, 401, 402, 403 or 404 such as 'unauthorized access'.
- Status is set to CRITICAL state if the response time exceeds 10 seconds or for HTTP errors 500, 501, 502 or 503, or if the connection with the server is impossible.

5.1.1.2 HTTP_BSM

The **Internet.HTTP_BSM** service monitors the presence and status of the BSM URL.

5.1.1.3 FTP

The **Internet.FTP** service checks the accessibility of FTP on its standard port (21).

- Status is set to WARNING state if the connection is successful, but incorrect response messages are issued from the host.
- Status is set to CRITICAL state if the response time exceeds 10 seconds or if the connection with the server is impossible.

5.1.1.4 TCP_n

The **Internet.TCP_n** service monitors a TCP port access of the hosts.

- Status is set to CRITICAL state if the connection with the server is impossible.

5.1.1.5 UDP_n

The **Internet.UDP_n** service monitors a UDP port access of the hosts.

- Status is set to CRITICAL state if the connection with the server is impossible.

5.1.2 Reporting Category

This category contains all the services for monitoring reporting indicators associated to a threshold.

5.1.2.1 Perf_indic

The **reporting.Perf_indic** service monitors defined reporting indicators.

Please refer to the *Administrator's Guide* for details.

5.2 Monitoring Linux or AIX Systems

The following categories and services can be used to monitor Linux or AIX systems. By default they appear under any host, declared as a Linux or AIX system.

5.2.1 FileSystems Category

This category contains all the services for monitoring file systems.

5.2.1.1 All Service

The **FileSystems.All** service monitors the percentage of used space for each mounted filesystem, except CD-ROM and floppy disks.

- Status is set to WARNING if there is at least one filesystem with more than 80% used space.
- Status is set to CRITICAL if there is at least one filesystem with more than 90% used space.

Status Information

If status is set to WARNING or CRITICAL, Status Information lists the filesystems concerned.

Examples:

```
DISKS OK: all disks less than 80% utilized
DISKS WARNING: /home more than 80% utilized
DISK CRITICAL: ( / ) more than 90% utilized - DISKS WARNING: ( /usr
/var ) more than 80% utilized
```

Correcting Status

- From the **Applications** Pane, click **System** (**Detailed Information** box) to get information about host filesystem size.
- From the **Applications** Pane, click the **Operations** menu and select:
  Operating System > FileSystems.
  You now have access to the host and you can investigate and correct the problem.

5.2.2 LinuxServices Category (for Linux system)

This category contains all the services for checking the presence of a Linux daemon.

5.2.2.1 Syslogd Service

The **Syslogd** service checks that there is one and only one **syslogd** process running on the system.

Note	Syslogd is a system utility daemon that provides support for system logging.

- Status is set to WARNING if the number of syslogd processes is different from 1.
- Status is only set to CRITICAL when a processing error occurs.

Status Information

Gives the number of processes running with the syslogd name.

Example:

```
OK - 1 processes running with command name syslogd
```

Correcting Status

- From the Applications Pane, click Processes (Detailed Information box) to get the list of processes currently running on the system.
- From the Applications Pane, click the **Operations** menu and select:
  Operating System > SSH/Telnet.
  You now have access to the host and you can investigate and correct the problem.

5.2.3 AIXServices Category (for AIX system)

This category contains all the services for checking the presence of a AIX daemon.

5.2.3.1 Syslogd Service

The **Syslogd** service checks that there is one and only one **syslogd** process running on the system.

Note	Syslogd is a system utility daemon that provides support for system logging.

- Status is set to WARNING if the number of syslogd processes is different from 1.
- Status is only set to CRITICAL when a processing error occurs.

Status Information

Gives the number of processes running with the syslogd name.

Example:

```
OK - 1 processes running with command name syslogd
```

Correcting Status

- From the Applications Pane, click **Processes** (Detailed Information box) to get the list of processes currently running on the system.
- From the **Applications** Pane, click the **Operations** menu and select:
  Operating System > SSH/Telnet.
  You now have access to the host and you can investigate and correct the problem.

5.2.4 Syslog Category

This category contains all the services for monitoring the content of the syslog files.

5.2.4.1 AuthentFailures Service (for Linux system)

The **AuthentFailures** service monitors the /var/log/messages file for the detection of authentication failure messages. It searches for the lines containing:
`authentication failure` or `FAILED LOGIN` or `Permission denied`,
but not containing `login.*authentication failure` (because such a line traps the same error than a `FAILED LOGIN` line, already detected).

Note Only new lines (if any) are checked each time. If the file has been truncated or rotated since the last check, the search is started from the beginning.

- Status is set to WARNING if there is at least one new matching line since the last check.
- Status is only set to CRITICAL when a processing error occurs.

Important

WARNING status can be very fugitive in the Console.
When a new matching line appears in the log file, status is only set to WARNING during the interval between the check that detects the error and the next check (if no new error appears). You are therefore advised to activate the notification mechanism for this service, and to regularly consult service history.

Note The **notify_recovery** field is set to because it is not applicable to this service.

Status Information

If status is set to WARNING, Status Information gives the number of lines and the last line matching the searched patterns.

Examples:

```
OK - No matches found
(3): Nov 26 15:31:32 horus login[4786]: FAILED LOGIN 3 FROM isis FOR
admin, Authentication failure
```

Note "`(3):`" indicates that 3 matching lines were found; the text that follows (`Nov 26 15:31:32 horus...`) is the last matching line detected.

Correcting Status

- From the **Applications** Pane, click **System Logs** (**Detailed Information** box) to access the content of the syslog files for the system. Then click View for /var/log/messages to consult log file details.
- From the Applications Pane, click the **Operations** menu and select: **Operating System > SSH/Telnet**.
  You have now access to the host and you can investigate and correct the problem.

5.2.4.2 Errors Service (for AIX system)

The **Syslog.Errors** service monitors the number of error report generated in the error log over the last 30 minutes (based on the errpt command).

- Status is set to WARNING if there is at least one new matching line since the last check.
- Status is only set to CRITICAL when a processing error occurs.

Important

WARNING status can be very fugitive in the Console.
When a new matching line appears in the log file, status is only set to WARNING during the interval between the check that detects the error and the next check (if no new error appears). You are therefore advised to activate the notification mechanism for this service, and to consult regularly service history.

Examples:

```
No new Error Reports since Tue Jan 29 15:02:11 CST 2008
1 New error reports generated since Tue Jan 29 15:02:11 CST 2008
```

Correcting Status

- From the **Applications** Pane, click the **Operations** menu and select: **Operating System > SSH/Telnet**.
  You have now access to the host and you can investigate and correct the problem.

5.2.5 SystemLoad Category

This category contains all the services for monitoring system load.

5.2.5.1 CPU Service (for Linux system)

The CPU service monitors total CPU load over three periods of time:

- 1 min
- 5 min
- 15 min.

CPU load is computed using the load average given by the w command, or in the **/proc/loadavg** file. Load average is the average number of processes in the system run queue, that is, the number of processes able to run:
(load average / number of CPUs) * 100.

Therefore, CPU load should be equal to 100% when the average of running processes per CPU is 1 (all CPUs are busy).

- Status is set to WARNING if the average CPU load is higher than:
  - 80% over the last 1 minute
  - 70% over the last 5 minutes
  - 60% over the last 15 minutes.
- Status is set to CRITICAL if the average CPU load is higher than:
  - 90% over the last 1 minute
  - 80% over the last 5 minutes
  - 70% over the last 15 minutes.

Status Information

Displays the percentage of average CPU load for respectively the last 1 minute, the last 5 minutes and the last 15 minutes.

Examples:

```
CPU Utilization: 0% (1mn), 1% (5mn), 0% (15mn)

CPU Utilization: 86% (1mn), 51% (5mn), 33% (15mn) WARNING
```

Correcting Status

- From the **Applications** Pane, click the **Inventory** menu and select: **Operating system > Processes** to get process CPU consumption.
- From the **Applications** Pane, click the **Operations** menu and select: **Operating System > Processes**.

You have now access to the host and you can investigate and correct the problem.

5.2.5.2 CPU Service (for AIX system)

This CPU service monitors the cpu load of an AIX system or an AIX partition.

The result depends on the partition type: shared (Uncapped or Capped) or dedicated.

- Status is set to WARNING if the average CPU load is higher than 80%.
- Status is set to CRITICAL if the average CPU load is higher than 90%.

Examples:

```
CPU OK - CPU load is 0 (idle:100.0% wait:0.0%) - type=Dedicated partition
CPU OK: Phys CPU load is 0.01 1% of 1 CPU (idle:99.0% wait:0%) - max_vp=2
type=Shared Uncapped partition
```

Correcting Status

- From the **Applications** Pane, click on the **Inventory** menu and select: **Operating System > Processes** to get process CPU consumption.
- From the **Applications** Pane, click the **Operations** menu and select: **Operating System >** Processes.

You have now access to the host and you can investigate and correct the problem.

5.2.5.3 Memory Service (for Linux system)

The **Memory** service monitors the percentage of used memory (physical + swap) for the system.

- Status is set to WARNING if used memory is higher than 70%.
- Status is set to CRITICAL if used memory is higher than 90%.

Status Information

Displays the total (physical + swap) memory size in Mbytes, the total used memory in Mbytes and percent, the total free memory in Mbytes and the physical memory size in Mbytes.

Examples:

```
Status: OK - (total: 2996Mb) (used: 863Mb, 29%) (free: 2132Mb)
(physical: 1004Mb)
Status: WARNING - (total: 1097Mb) (used: 878Mb, 80%) (free: 219Mb)
(physical: 501Mb)
```

Correcting Status

- From the **Applications** Pane, click **System** (Detailed Information box) to get memory consumption details.
  Click **Processes** to get information on memory consumption for each process running on the system.
- From the **Tree** Pane, display the host pop-up menu and select:
  Remote Operation > Actions, or **Remote Operations > Telnet**

You have now access to the host and you can investigate and correct the problem.

5.2.5.4 Processes Service (for Linux system)

The Processes service monitors the number of processes running on the system.

- Status is set to WARNING if the number of processes is higher than 150.
- Status is set to CRITICAL if the number of processes is higher than 200.

Status Information

Displays the number of processes running on the system.

Examples:

```
OK - 101 processes running
WARNING - 162 processes running
```

Correcting Status

- From the **Applications** Pane, click **Processes** (Detailed Information box) to get the list of the processes.
- From the **Applications** Pane, click the **Operations** menu and select:
  Operating System > Processes
  You have now access to the host and you can investigate and correct the problem.

5.2.5.5 Users Service (for Linux system)

The Users service monitors the number of users currently logged in the system.

- Status is set to WARNING if the number of connected users is higher than 15.
- Status is set to CRITICAL if the number of connected users is higher than 20.

Status Information

Displays the number of users logged to the system.

Examples:

```
USERS OK - 2 users currently logged in
USERS WARNING - 16 users currently logged in
```

Correcting Status

- From the **Applications** Pane, click **Processes** (Detailed Information box) to get information on users running processes.
- From the **Tree** Pane, display the host pop-up menu and select:
  Remote Operation > Actions or **Remote Operation > Telnet**
  You have now access to the host and you can investigate and correct the problem.

5.2.5.6 PagingSpace Service (for AIX system)

The **PagingSpace** service monitors the current system paging space in relation with paging space in and paging space out parameters.

- Status is set to WARNING if the paging space used is higher than 80%.
- Status is set to CRITICAL if the paging space used is higher than 90%.

Example:

```
OK - Used paging space 0.72 % : paging-ins 0.00 pg/s paging-outs : 0.00 pg/s
```

Correcting Status

- From the **Applications** Pane, click the **Operations** menu and select:
  Operating System > SSH/Telnet.

You have now access to the host and you can investigate and correct the problem.

5.2.5.7 Swap Service (for AIX system)

The **Swap** service monitors the current system swap space .

- Status is set to WARNING if the swap space used is higher than 50%.
- Status is set to CRITICAL if the swap space used is higher than 80%.

Examples:

```
Swap ok - Swap used: 0% (5 out of 512)
```

Correcting Status

- From the **Applications** Pane, click the **Operations** menu and select: **Operating System > SSH/Telnet**.

You have now access to the host and you can investigate and correct the problem.

5.3 Monitoring Windows Systems

The following categories and services can be used to monitor Windows systems. By default they appear under any host, declared as a Windows system.

Notes

The Windows monitoring agent part is based on two Windows services:

- Bull System Manager Management agent
  Its main function is giving OS and HW information, but it provides the **LogicalDisk.All** monitoring service too.
- Bull System Manager Monitoring agent
  It provides all Windows monitored services, except **LogicalDisk.All**.

5.3.1 EventLog Category

This category contains all the services for monitoring the Windows Event Log.

5.3.1.1 Application Service

The **EventLog.Application** service monitors the number of Error, Warning and Information events generated in the Application Event log for the last 300 minutes.

- Status is set to WARNING if there are more than 10 Information events or at least 1 Warning event.
- Status is set to CRITICAL if there is at least 1 Error event.

Status Information

If status is set to WARNING or CRITICAL, gives the number of events responsible. This message is also a link to an html file containing the following detailed information:

Event Type	Error or Warning or Information.
Last Time	Last time an event with the same type, source and id occured.
Count	Number of events with the same type, source and id.
Source	Event source.
Id	Event id.
Description	Event message.

Examples:

```
OK: no new events for the last 30 mn
WARNING: 1 new events for the last 30 mn!
```

The text "`1 new events for the last 30 mn!`" is a link that displays detailed information:

Correcting Status

- From the **Applications** Pane, click **Events** (Detailed Information box) for more information.
- From the **Applications** Pane, click the **Operations** menu and select: **Operating System > VNC Viewer** or **Remote Desktop**.
  You have now access to the host and you can correct the problem.

5.3.1.2 Security Service

The **EventLog.Security** service monitors the number of Audit Success, Audit Failures, Error and Warning events generated in the Security event log over the last 30 minutes.

- Status is set to WARNING if there are more than 10 Audit Success events or at least 1 Warning event.
- Status is set to CRITICAL if there is at least 1 Audit Failure or Error event.

Status Information

If status is set to WARNING or CRITICAL, gives the total number of events responsible. This message is also a link to an html file containing the following detailed information:

Event Type	Error, Warning, Information, Audit Success or Audit Failure.
Last Time	Last time an event with the same type, source and id occurred.
Count	Number of events with the same type, source and id.
Source	Event source.
Id	Event id.
Description	Event message.

Examples:

```
OK: no new events for the last 30 mn
WARNING: 4 new events for the last 30 mn!
```

Correcting Status

- From the **Applications** Pane, click **Events** (Detailed Information box) for more information.
- From the **Applications** Pane, click the **Operations** menu and select: **Operating System > VNC Viewer** or **Remote Desktop**.
  You have now access to the host and you can correct the problem.

5.3.1.3 System Service

The **EventLog.System** service monitors the number of Error, Warning and Information events generated in the System event log over the last 300 minutes.

- Status is set to WARNING if there are more than 10 Information events or at least 1 Warning event.
- Status is set to CRITICAL if there is at least 1 Error event.

Status Information

If status is set to WARNING or CRITICAL, gives the total number of events responsible. This message is also a link to an html file containing the following detailed information:

Event Type	Error, Warning or Information.
Last Time	Last time an event with the same type, source and id occurs.
Count	Number of events with the same type, source and id.
Source	Event source.
Id	Event id.
Description	Event message.

Examples:

```
OK: no new events for the last 30 mn
CRITICAL: 8 new events for the last 30 mn!
```

Correcting Status

- From the **Applications** Pane, click **Events** (Detailed Information box) for more information.
- From the **Applications** Pane, click the **Operations** menu and select: **Operating System > VNC Viewer** or **Remote Desktop**.
  You have now access to the host and you can investigate and correct the problem.

5.3.2 LogicalDisks Category

This category contains all the services for monitoring the logical disks.

5.3.2.1 All Service

The **All** service monitors the percent of used space for each local disk. The local disks list is dynamically established at each check.

- Status is set to WARNING if one of the disks has more than 80% used space.
- Status is set to CRITICAL if one of the disks has more than 90% used space.

Status Information

Gives the list of the local disks checked.

Examples:

```
DISKS OK: all disks (C:, E:, F:) less than 80% utilized
DISK WARNING: (G:) more than 90% utilized - DISKS CRITICAL: (C:) more
than 80% utilized
```

Correcting Status

- From the **Applications** Pane, click **Logical Disks** (Detailed Information box) to get all information about the size of the host disks. Then click **Storage** to get information on the physical storage devices for the host.
- From the **Applications** Pane, click the **Operations** menu and select:
  Operating System > VNC Viewer or **Remote Desktop**.
  You have now access to the host and you can investigate and correct the problem.

5.3.3 SystemLoad Category

This category contains all the services for monitoring the load of the system.

5.3.3.1 CPU Service

The CPU service monitors the total CPU load over two periods of time: 1min and 10 min

- Status is set to WARNING if the average CPU load is higher than:
  - 80% over the last 1 minute
  - 60% over the last 10 minutes.
- Status is set to CRITICAL if the average CPU load is higher than:
  - 90% over the last 1 minute
  - 80% over the last 10 minutes.

Status Information

Displays the percentage of average CPU load for respectively the last minute and the last 10 minutes. If status is WARNING or CRITICAL, it displays the most consuming process, and its percentage of CPU consumption, at check time.

Examples:

```
CPU Load OK (1mn: 8%) (10mn: 5%)
CPU Load HIGH (1mn: 92%) (10mn: 56%) - Process cputest.exe using 100%
```

Correcting Status

- From the **Applications** Pane, click **CPU** (Detailed Information box) to get CPU consumption per processor. Then click **Processes** to get CPU time spent per process.
- From the **Tree** Pane, display the host pop-up menu and select:
  Remote Operation > VNC Viewer or **Remote Operation > Telnet**.
  You have now access to the host and you can investigate and correct the problem.

5.3.3.2 MemoryUsage Service

The **MemoryUsage** service monitors the total memory (physical + paged) used by the system. It is equivalent to the Commit Charge displayed in the Windows Task Manager.

- Status is set to WARNING if the memory used is higher than 70%.
- Status is set to CRITICAL if the memory used is higher than 90%.

Status Information

Displays the total (physical + paged) memory size in Mbytes, the total memory used in Mbytes and percent, the total memory free in Mbytes and the physical memory size in Mbytes.

Examples:

```
Memory Usage OK - (total: 1480Mb) (used: 193Mb, 13%) (free: 1287Mb)
(physical: 511Mb)
Memory Usage WARNING - (total: 2462Mb) (used: 1773Mb, 72%) (free:
689Mb) (physical: 1023Mb)
```

Correcting Status

- From the **Applications** Pane, click **Memory** (Detailed Information box) to get detailed memory consumption.
  Then click **Processes** to get memory consumption spent per process.
  Then click **General** (Host Information box) to get information about the physical memory configuration and layout.
- From the **Applications** Pane, click the **Operations** menu and select:
  Operating System > VNC Viewer or **Remote Desktop**.
  You have now access to the host and you can investigate and correct the problem.

5.3.4 WindowsServices Category

5.3.4.1 EventLog Service

The **WindowsServices.EventLog** service monitors the state of the services involved in event logging functions:

Service Key	Display Name	Description
Eventlog	Event Log	Log event messages issued by programs and Windows. Event Log Reports contain information that can be useful in diagnosing problems. Reports are viewed in Event Viewer

- Status is set to WARNING at least one of these services is paused and the others are running.
- Status is set to CRITICAL if at least one of these services does not exist or is not running.

Status Information

Displays service name and status.

Examples:

```
OK: 'EventLog'
NotActive: 'EventLog'
```

Correcting Status

- From the **Applications** Pane, click **Memory** (Detailed Information box) to get detailed information about services.
- From the **Applications** Pane, click the Operations menu and select:
  Operating System > VNC Viewer or **Remote Desktop**.
  You have now access to the host and you can investigate and correct the problem.

5.4 Hardware Monitoring

5.4.1 Hardware Category for Express 5800

5.4.1.1 PowerStatus Service

The PowerStatus service reflects the power status of an Express 5800 server, as returned by the RMC management card.

- Status is set to CRITICAL if RMC has assigned a power status off.
- Status is set to UNKNOWN if RMC is not accessible or if RMC has not been able to compute power status.

Correcting Status

- From the Tree Pane, display the host pop-up menu and select RMC to launch the CMM tool and investigate and correct the problem.

Note For more information about RMC, please refer to the documentation delivered with your server.

5.4.1.2 Alerts Service

The **Alerts** Service is used to collect the hardware SNMP traps emitted by the manager.

This service uses the **bmclanpet** mib, integrated in the Bull System Manager application. SNMP trap reception must be enabled.

The Hardware Management card must be correctly configured to send traps to the Bull System Manager_SERVER host.

The status of this service depends on trap severity:

- Status is set to OK if trap severity is NORMAL.
- Status is set to WARNING if trap severity is INFORMATION or WARNING.
- Status is set to CRITICAL if trap severity is MAJOR or CRITICAL.

As Administrator, you can display and edit trap severity through the Configuration application. Please refer to the *Administrator's Guide* for details.

5.4.2 Hardware Category for NovaScale 3000 Series

5.4.2.1 PowerStatus Service

The **PowerStatus** service reflects the power status of a NovaScale server, as returned by the management card.

- Status is set to CRITICAL if the cardName has assigned a power status off.
- Status is set to UNKNOWN if the cardName is not accessible or if the cardName has not been able to compute power status.

5.4.2.2 Alerts Service

The **Alerts** Service is used to collect the hardware SNMP traps emitted by the manager.

This service uses the **bmclanpet** and **SMSmp** mibs integrated in the Bull System Manager application. SNMP trap reception must be enabled.

The Hardware Management BMC must be correctly configured to send traps to the Bull System Manager_SERVER host.

The status of this service depends on trap severity:

- Status is set to OK if trap severity is NORMAL.
- Status is set to WARNING if trap severity is INFORMATION or WARNING.
- Status is set to CRITICAL if trap severity is MAJOR or CRITICAL.

As Administrator, you can display and edit trap severity through the Configuration application. Please refer to the *Administrator's Guide* for details.

5.4.3 Hardware Category for NovaScale T800 & R400 Series

5.4.3.1 PowerStatus Service

The **PowerStatus** service reflects the power status of a NovaScale server, as returned by the management card.

- Status is set to CRITICAL if the cardName has assigned a power status off.
- Status is set to UNKNOWN if the cardName is not accessible or if the cardName has not been able to compute power status.

5.4.3.2 Alerts Service

The **Alerts** Service is used to collect the hardware SNMP traps emitted by the manager.

To enable this service, the **bmclanpet** mib must be integrated in the Bull System Manager application. SNMP trap reception must be enabled.

At installation time, the mib is integrated and SNMP trap reception is enabled.

The Hardware Management BMC must be correctly configured to send traps to the Bull System Manager_SERVER host.

The status of this service depends on trap severity:

- Status is set to OK if trap severity is NORMAL.
- Status is set to WARNING if trap severity is INFORMATION or WARNING.
- Status is set to CRITICAL if trap severity is MAJOR or CRITICAL.

As Administrator, you can display and edit trap severity through the Configuration application. Please refer to the *Administrator's Guide* for details.

5.4.4 Hardware Category for NovaScale 4000 Series

5.4.4.1 Alerts Service

The **Alerts** Service is used to collect the hardware SNMP traps emitted by the host.
To enable this service, the **basebrd5** mib must be integrated in the Bull System Manager application and SNMP trap reception must be enabled.
At installation time, the mib is integrated and SNMP trap reception is enabled.
Traps are previously filtered and only the traps emitted by the Hardware Management card are used to animate this service. The Hardware Management card must be properly configured with the Intel SMU tool to send traps to the Bull System Manager_server host.

The status of this service depends on trap severity:

- Status is set to OK if trap severity is NORMAL.
- Status is set to WARNING if trap severity is INFORMATION or WARNING.
- Status is set to CRITICAL if trap severity is MAJOR or CRITICAL.

As Administrator, you can display and edit trap severity through the Configuration application. Please refer to the *Administrator's Guide* for details.

Status Information

Trap description, as found in the trap mib, is used as status information

Example:

```
Trap systemHealthCriticalEvent - Server Health Critical: The overall
health of the server is critical
```

Correcting Status

From the Tree Pane, display the host pop-up menu and select HW Manager GUI to launch the ISM tool and investigate and correct the problem.

Note For more information about ISM, please refer to the documentation delivered your server.

5.4.4.2 PowerStatus

The **PowerStatus** service reflects the power status of a NovaScale server, as returned by the management card.

- Status is set to CRITICAL if the cardName has assigned a power status off.
- Status is set to UNKNOWN if the cardName is not accessible or if the cardName has not been able to compute power status.

5.4.4.3 Health Service

The **Health** service monitors hardware status, as returned by the Intel System Management (ISM) software tool.
To enable this service, a manager must be declared for the host (see the *Administrator's Guide* for details about how, as Administrator, you can declare a manager) and ISM must be installed and running on that manager.

Health is an ISM indicator that reflects the global state of hardware. The hardware components taken into account in Health can be configured in ISM.

- Status is set to WARNING if the status of one of the hardware components described as a contributor to Health is WARNING.
- Status is set to CRITICAL if the status of one of the hardware components described as a contributor to Health is CRITICAL.

Correcting Status

From the **Tree** Pane, display the host pop-up menu and select:
HW Manager GUI to launch the ISM tool and investigate and correct the problem.

5.4.5 Hardware Category for NovaScale 5000 & 6000 Series

5.4.5.1 Health Service

The **Health** service monitors hardware status, as returned by the PAM software tool, for the host (or PAM domain).

To enable this service, a manager must be declared for the host (see the *Administrator's Guide* for details about how, as Administrator, you can declare a manager) and a PAP server must be installed and running on that manager.

- Status is set to WARNING if PAM has assigned a WARNING status to the domain.
- Status is set to CRITICAL if PAM has assigned a CRITICAL status to the domain.
- Status is set to UNKNOWN if PAM is not accessible or if PAM has not successfully computed domain status.

Status Information

Status information is set by PAM and represents host hardware status.

Example:

```
For the Domain FAME000_0ID0 of the CentralSubSystem FAME000, the functional
status is NORMAL (The domain state is "BIOS READY - STARTING EFI)
```

Correcting Status

From the **Tree** Pane, display the host pop-up menu and select:
PAM to launch the PAM tool and investigate and correct the problem.

Note For more information about PAM, see the documentation delivered with your server.

5.4.6 Hardware Category for NovaScale 9006 Series

5.4.6.1 Alerts Service

5.4.6.2 PowerStatus Service

The **PowerStatus** service reflects the power status of a NovaScale server, as returned by the management card.

- Status is set to CRITICAL if the cardName has assigned a power status off.
- Status is set to UNKNOWN if the cardName is not accessible or if the cardName has not been able to compute power status.

5.4.6.3 PowerConsumption Service

5.4.7 Hardware Category for Blade Series

5.4.7.1 Health Service

The **Health** service monitors hardware status, as returned by the CMM software tool.

To enable this service, a CMM manager must be declared for the host and the hardware identifier (used to identify the host in the NovaScale Blade Chassis) must be provided during Bull System Manager configuration. Please refer to the *Administrator's Guide* for details.

- Status is set to WARNING if CMM has assigned a WARNING status to the host.
- Status is set to CRITICAL if CMM has assigned a CRITICAL status to the host.
- Status is set to UNKNOWN if CMM is not accessible or if the host has not been successfully mapped in the chassis (due for example to an incorrect hardware identifier).

Status Information

Status information is set by CMM and represents the host hardware status.

Examples:

```
Current status:       OK
Status Information    No critical or warning events
```

The hardware state of the host is OK.

```
Current status:       CRITICAL
Status information:   DASD Removed.
```

The hardware state of the host is CRITICAL.

```
Current status:       unknown
Status information:   Unable to get SNMP response [No response from
remote host '192.168.207.46'
```

The hardware state cannot be retrieved from the CMM manager due to connection timeout. This issue can result from a bad declaration of the SNMP Manager in the CMM configuration.

Correcting Status

From the Tree Pane, display the host pop-up menu and select HW Manager GUI to launch the CMM tool and investigate and correct the problem.

Note For more information about CMM, please refer to the documentation delivered your server.

5.4.8 Hardware Categories for Escala Servers

5.4.8.1 CECStatus Service

The **CECStatus** service monitors the CEC status, as returned by the HMC system.
To enable this service, the Escala server must be declared as managed element of an HMC (see the *Administrator's Guide* for details about how, as Administrator, you can declare an HMC and its managed systems).

- Status is set to OK if the CEC status given by HMC has one of the following states: "Running" , "Operating"
- Status is set to WARNING if if the CEC status given by HMC has one of the following states: "Not Activated", "Starting", "Shutting Down", "Initializing "Standby", "On Demand Recovery ", "Recovery" , "Version Mismatch", "Open Firmware", "Pending authentication", "Failed authentication", "Power Off" , "Power Off In Progress", "Service Processor Failover In Progress".
- Status is set to CRITICAL if if the CEC status given by HMC has one of the following states: "No Connection", "Incomplete", "Error", "Error - Dump in Progress", "Error - Terminated", "Not Available".

5.4.8.2 Events

The **Events** service monitoring is based on hardware events reported by the HMC for the server.

The status of this service depends on trap severity:

- Status is set to OK if no hardware event is reported for the server
- Status is set to WARNING if at least one hardware event is reported for the server.

5.5 Other Monitoring

5.5.1 PAM Category

5.5.1.1 GlobalStatus Service

The **GlobalStatus** service reflects global functional status, as returned by the PAM manager. This comprises the hardware status of the whole configuration managed by this instance of PAM, as well as the status of the PAM manager itself.

This service only exists on a host declared as a NovaScale 5000 / 6000 manager (see the *Administrator's Guide* for details about how, as Administrator, you can declare a manager).

- Status is set to WARNING if PAM has assigned a WARNING status to the configuration.
- Status is set to CRITICAL if PAM has assigned a CRITICAL status to the configuration.
- Status is set to UNKNOWN if PAM is not accessible or if PAM has not successfully computed global status.

Status Information

Status information is set by PAM and represents the global functional state for the managed hosts and for the PAM manager tool.

Examples:

```
The PAM manager global status is WARNING
```

Correcting Status

From the **Tree** Pane, display the host pop-up menu and select PAM to launch the PAM tool and investigate and correct the problem.

Note For more information about PAM, see to the documentation delivered with your server.

5.5.1.2 Alerts Service

The **Alerts** Service is used to collect hardware SNMP traps emitted by the manager.

To enable this service, the **PAMEventtrap** mib must be integrated in the Bull System Manager application and SNMP trap reception must be enabled.
At installation time, the mib is integrated and SNMP trap reception is enabled.
The **Hardware Management** card must have been correctly configured to send traps to the **Bull System Manager_SERVER** host.

The status of this service depends on trap severity:

- Status is set to OK if trap severity is NORMAL.

- Status is set to WARNING if trap severity is INFORMATION or WARNING.
- Status is set to CRITICAL if trap severity is MAJOR or CRITICAL.

As Administrator, you can display and edit trap severity through the Configuration application. Please refer to the *Administrator's Guide* for details.

5.5.2 CMM Category

5.5.2.1 ChassisStatus Service

The **ChassisStatus** service reflects the functional status of the NovaScale Blade Chassis, as returned by the CMM manager. This state comprises the hardware status of the whole configuration managed by this CMM, as well as the status of the CMM manager itself.

This service exists only on a host that is declared as a CMM manager (see the *Administrator's Guide* for details about how, as Administrator, you can declare a manager).

- Status is set to WARNING if CMM has assigned a WARNING status to the host.
- Status is set to CRITICAL if CMM has assigned a CRITICAL status to the host.
- Status is set to UNKNOWN if CMM is not accessible or if CMM has not been able to compute global status.

Correcting Status

From the **Tree** Pane, display the host pop-up menu and select **CMM** to launch the CMM tool and investigate and correct the problem.

Note For more information about CMM, see to the documentation delivered with your server.

5.5.2.2 Alerts Service

The **Alerts** Service is used to collect the hardware SNMP traps emitted by the manager. To enable this service, the **mmalert** mib must be integrated in the Bull System Manager application and SNMP trap reception must be enabled.
At installation time, the mib is integrated and SNMP trap reception is enabled.
The Hardware Management card must be correctly configured to send traps to the Bull System Manager_SERVER host.

The status of this service depends on trap severity:

- Status is set to OK if trap severity is NORMAL.
- Status is set to WARNING if trap severity is INFORMATION or WARNING.
- Status is set to CRITICAL if trap severity is MAJOR or CRITICAL.

As Administrator, you can display and edit trap severity through the Configuration application. Please refer to the *Administrator's Guide* for details.

5.5.3 RMC Category

5.5.3.1 PowerStatus Service

The **PowerStatus** service reflects the power status of an Express 5800, as returned by the RMC management card.

This service exists only on a host that is declared as a RMC manager (see the *Administrator's Guide* for details about how, as Administrator, you can declare a manager).

- Status is set to CRITICAL if RMC has assigned a power status off.
- Status is set to UNKNOWN if RMC is not accessible or if RMC has not been able to compute power status.

Correcting Status

From the **Tree** Pane, display the host pop-up menu and select **RMC** to launch the CMM tool and investigate and correct the problem.

Note For more information about RMC, see to the documentation delivered your server.

5.5.3.2 Alerts Service

The **Alerts** Service is used to collect the hardware SNMP traps emitted by the manager.

To enable this service, the **bmclanpet** mib must be integrated in the Bull System Manager application and SNMP trap reception must be enabled.

At installation time, the mib is integrated and SNMP trap reception is enabled.

The **Hardware Management** card must be correctly configured to send traps to the **Bull System Manager_SERVER** host.

The status of this service depends on trap severity:

- Status is set to OK if trap severity is NORMAL.
- Status is set to WARNING if trap severity is INFORMATION or WARNING.
- Status is set to CRITICAL if trap severity is MAJOR or CRITICAL.

As Administrator, you can display and edit trap severity through the Configuration application. Please refer to the *Administrator's Guide* for details.

5.6 Storage Monitoring

5.6.1 Storage Category

5.6.1.1 SanitStatus Service

The **SanitStatus** service monitors the state of the storage, returned by the S@N.IT! application, for any host managed in the SAN.

- To enable this service, a SANIT manager must be declared for the host.
- Status is set to OK if S@N.IT! has assigned a NORMAL status to the host.
- Status is set to CRITICAL if S@N.IT! has assigned a FAULTY status to the host.
- Status is set to UNKNOWN if S@N.IT! has assigned an UNKNOWN or NOT MONITORED status to the host OR if the storage identifier provided during the Bull System Manager configuration is not valid. Please refer to the *Administrator's Guide* for details.

Correcting Status

From the **Tree** Pane, display the host pop-up menu and select **S@N.IT!** to launch the client part of the application (Web or local mode) and investigate and correct the problem.

5.6.2 SANIT Category

5.6.2.1 Alerts Service

The **Alerts** Service is used to collect the SNMP traps emitted by the S@N.IT! application.

To enable this service, the **fcmgmt3** mib must be integrated in the Bull System Manager application and SNMP trap reception must be enabled.

At installation time, the mib is integrated and SNMP trap reception is enabled.

The S@N.IT! application must be correctly configured to send traps to the **Bull System Manager_SERVER** host.

The status of this service depends on trap severity:

- Status is set to OK if trap severity is NORMAL.
- Status is set to WARNING if trap severity is INFORMATION or WARNING.
- Status is set to CRITICAL if trap severity is MAJOR or CRITICAL.

As Administrator, you can display and edit trap severity through the Configuration application. Please refer to the *Administrator's Guide* for details.

5.6.3 MegaRAID Category

5.6.3.1 Status Service

The **Status** service monitors the state of the storage, returned by the **MegaRAID** SNMP agent.

- To enable this service, **MegaRAID** category and **Status** service must be configured for the host.
- Status is set to OK if agent has assigned a NORMAL status to the host.
- Status is set to CRITICAL if agent has assigned a FAULTY status to the host.
- Status is set to UNKNOWN if agent has assigned an UNKNOWN or NOT MONITORED status to the host. Please refer to the *Administrator's Guide* for details.

5.6.3.2 Alerts Service

The **Alerts** Service is used to collect the SNMP traps emitted by the MegaRAID SNMP agent.

To enable this service, the **megaraid** mib must be integrated in the Bull System Manager application and SNMP trap reception must be enabled.

At installation time, the mib is integrated and SNMP trap reception is enabled.

The **MegaRAID SNMP** agent must be correctly configured to send traps to the **Bull System Manager_SERVER** host.

The status of this service depends on trap severity:

- Status is set to OK if trap severity is NORMAL.
- Status is set to WARNING if trap severity is INFORMATION or WARNING.
- Status is set to CRITICAL if trap severity is MAJOR or CRITICAL.

As Administrator, you can display and edit trap severity through the Configuration application. Please refer to the *Administrator's Guide* for details.

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