# NovaScale Master 5.2-x Server Add-ons

Installation and Administrator's Guide NOVASCALE



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# NOVASCALE

# NovaScale Master 5.2-x Server Add-ons Installation and Administrator's Guide

Software

February 2008

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## Preface

## Scope and Audience of this Manual

NovaScale Master Server Add-ons are Bull products, which provide extension to NovaScale Master for managing Bull Intel platforms specific devices or tools. Administration environments can include different platforms from the NovaScale Universal or Intensive Series, Express 5800 Series or EvolutiveLine Blade Series servers.

In order to monitor a specific item, NovaScale Master Server Add-ons configuration must be customized. This manual explains also how, as an Administrator you can perform configuration tasks for these Add-ons.

#### **I**Note:

Configuration tasks may only be performed by Administrators.

## Using this Manual

For a conceptual approach to NovaScale Master Server Add-ons, read Chapter 1.

Chapter 2 describes how to install and configure NovaScale Master Server Add-ons.

**Chapter 3** describes for each Server Add-on how to configure its elements on the Management server. It provides detailed information about all resource properties as well as concrete examples to help customization of the configuration (Modifying Service Parameters, ...).

This chapter also contains reference information about categories and services of the monitoring server provided by these NovaScale Master Server Add-ons.

**Appendix A** contains reference information about the check Nagios commands used by NovaScale Master Server Add-ons monitoring services.

## **Related Information**

- NovaScale Master Installation Guide (Ref. 86 A2 48EG).
- NovaScale Master User's Guide (Ref. 86 A2 49EG). The NovaScale Master GUI (Graphical User Interface) and the way to use are described in this guide.
- NovaScale Master Administrator's Guide (Ref. 86 A2 50EG).
- Restrictions and well-known problems are described in the associated *Release Notes* document.
- Dynamic Domains for Applications User's Guide (Ref 86 A2 63ER).

# Highlighting

The following highlighting conventions are used in this book:

Bold	Identifies commands, keywords, files, structures, directories and other items whose names are predefined by the system. Also identifies graphical objects 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 details.
Monospace	Identifies examples of specific data values, examples of text similar to displayed messages from the system, or information you should actually type.

#### **I**Note:

Important information.

## Chapter 1. NovaScale Master Server Add-ons Concepts

## 1.1 NovaScale Master

## 1.1.1 Overview

NovaScale Master monitoring ensures the following tasks:

- Monitoring NovaScale machines: NovaScale Master checks if these hosts are
  accessible, using the **ping** command from the System Manager. The machines to be
  monitored are either explicitly specified by the administrator or selected by a discovery
  mechanism.
- Monitoring specific elements of the hardware, operating system, services and Internet such as Power Status, CPU load, memory usage, disk usage, number of users, processes and service execution, http and ftp services.

The administrator can define status thresholds (OK, WARNING, CRITICAL, UNKNOWN) for each monitoring element. When an anomaly occurs or when normal status is recovered, **alerts** (in a log file) and **notifications** (by e-mail, by Bull autocall and/or by SNMP trap) are generated.

#### 7 Note:

Hardware and OS monitoring for Bull Intel-Based platforms are provided by the NovaScale Master Server package, not by the Add-ons packages.

NovaScale Master Server Add-ons extend the NovaScale Master monitoring with more specific links to third-party management tools for specific devices or/and specific system functionalities.

#### 🕼 Note:

These Server Add-ons packages extend generally the management server independently of the platform or/and OS type (storage, network, virtualization, framework, ...).

NovaScale Master, a tool for monitoring and managing Bull NovaScale and Express 5800 systems, consists of three main components that can be deployed on Windows and Linux systems:

- Management Server and Server Add-ons
- Management Console
- Management Agent.

#### Management Server and Server Add-ons

Provides the infrastructure and services in charge of collecting and operating management data. Management Server must be installed on the server dedicated to management.

1

#### Management Console

Provides third-party management tools for the end-user station running the NovaScale Master console WEB GUI.

#### Management Agent

Provides instrumentation and administration tools for monitored servers. Management Agent must be installed on each server to monitor.



Figure 1-1. NovaScale Master Architecture

#### **I**Note:

NovaScale Master for Windows and Linux are distributed on the same CD-ROM.

## 1.1.2 Monitoring

A **Service** (or monitoring service) defines how specific host elements are monitored. A service can be defined for all hosts or for a list of hosts, depending on the OS (Windows, Linux or both) and/or on the model. Notification properties are defined for each service.

Services are organized into monitoring **categories**. For instance, the **SystemLoad** category includes the **CPU** and **Memory** services for a Windows host.

## 1.1.3 Event Reception

NovaScale Master can receive **SNMP traps** from any SNMP agent. SNMP traps enable an agent to notify the NovaScale Master Server of significant events via an unsolicited SNMP message. SNMP Traps must be defined in a **MIB** (Management Information Base).

## 1.1.4 Hardware Manager

A Hardware Manager manages hardware for one or a set of servers.

## 1.1.5 Storage Manager

A Storage Manager manages storage for one or a set of servers or/and bays.

## 1.1.6 Virtualization Manager

A **Virtualization Manager** manages a set of virtual machines, viewed as Virtualization Platform.

## 1.2 NovaScale Master Server Add-ons

**NovaScale Master Server Add-ons** deliver optional management packages to extend NovaScale Master Server.

A NovaScale Master Server Add-on provides functional links (monitoring, GUI call, reporting ...) between a NovaScale Master Server and a third-party management tool.

Some free Server Add-ons are distributed on the NovaScale Master Add-ons CD-ROM.

#### **I**Note:

There is a difference between the Server Add-on and the third-party management tool. Even if the third-party management tool may be dedicated to an OS or/and a platform type, its NovaScale Master Server Add-on will be able to be installed on a NovaScale Master Server machine. (Thus, on Linux and on Windows, on IA32 and on IA64 ...).

This release provides several NovaScale Master Server Add-ons. Some of them are free and delivered on the NovaScale Master CD-ROM. The others must be purchased.

System Domains	Server Add-ons	
Internal Storage (free)	LSI GAMTT Mgt Package	
	LSI CIM Mgt Package	
	LSI MegaRaid SAS Mgt Package	
External Storage (not free)	StoreWay FDA Mgt Package	
Bull Tools Management (not free)	Dynamic Domains Mgt Package	
	Bull Video Service Mgt Package	
	JOnAS framework Mgt Package	
Virtualization Management (not free)	Vmware ESX Mgt Package	
	Xen HyperNova Master Mgt Package	
	(IVM) VIOS LPAR Mgt Package	

Each Server Add-on is described in the following chapters.

# Chapter 2. NovaScale Master Server Add-ons Installation and Configuration

## 2.1 General Installation Requirements

Before installing NovaScale Master, check that the environment meets the software and hardware requirements described below.

## 2.1.1 Supported Operating Systems

NovaScale Master Server Add-ons operate on Linux and Windows operating systems.

The principal Requirements are the NovaScale Master Server pre-installation and its own requirements. See *NovaScale Master Installation Guide* for details.

## 2.1.2 Required Disk Space

In general, each Server Add-on needs between 1 and 2 MB.

## 2.1.3 Required Memory

The following table indicates the required memory for the Management Server.

NovaScale Master	Memory
Management Server	512MB

Table 2-1. NovaScale Master - Required Memory

## 2.1.4 Installation Requirements

Server Add-ons	Component	
*	NSMasterServer5.2-x	

Table 2-2. Management Server Add-ons Installation Requirements

## 2.1.5 Operational Requirements

Server Add-ons	Target Tools		
NSMasterGAMTT	Linux GAM version 6.02.31 or higher. Windows GAM version 6.02-32 or higher.		
	Important: Contact <www.lsilogic.com> web site to download the above versions. If not on-line, contact the Bull support team.</www.lsilogic.com>		
	<b>Note:</b> For <b>IA32</b> machines the following previous versions are supported:		
	Linux GAM version 6.02-21 or higher Windows GAM version 6.02-22 or higher.		
NSMasterLSICIM	LSI CIM provider version 3.06 or higher.		
	<b>Important:</b> Contact <www.lsilogic.com> web site to download the above versions. If not on-line, contact the Bull support team.</www.lsilogic.com>		
	Note: Not supported on Linux IA64 system.		
NSMasterMegaRaidSAS	LSI MegaRaid SAS (IR) SNMP agent version 3.09 or higher. Contact <www.lsilogic.com> web site to download the above versions. If not on-line, contact the Bull support team.</www.lsilogic.com>		
NSMasterStoreWayFDA	StoreWay FDA embedded SNMP Agent.		
NSMasterDD4A	DDFA version 2.6.3 and higher		
NSMasterBVS	BVS version 4.0 and higher		
NSMasterJOnAS	JOnAS version 4.8 and higher		
NSMasterVMwareESX	VMware ESX 3.0 and higher		
NSMaster	IVM VIOS for Power5 and Power6		

Table 2-3. Management Server Add-ons Operational Requirements

## 2.1.6 Restrictions

Windows

N/A

Linux

N/A

## 2.2 Installing NovaScale Master Server Add-ons for Windows

#### 2.2.1 Prerequisites

To install NovaScale Master Server Add-ons on Windows:

- The user must be a member of an Administrators group. The default administrator login is Administrator.
- The installation program requires the Internet Explorer WEB browser. Other browsers, such as Netscape or Mozilla, cannot be used to install NovaScale Master on Windows.
- Management Server Add-ons are to be installed on the server dedicated to management.
- Acrobat Reader is required to view PDF versions of the NovaScale Master documentation.
- The free Server Add-ons are present on the NovaScale Master CD-ROM, the others must be supplied by your Bull contact.

## 2.2.2 Installing Free Management Server Add-ons from the CD-ROM

Management Server Add-ons, to be installed on the server dedicated to management, require the components indicated in 2.1.4 *Installation Requirements*, and must be installed from the CD-ROM.

#### To install Management Server:

- 1. From the dedicated server, launch the installation program.
- 2. Log on as Administrator.
- 3. Insert the NovaScale Master or NovaScale Master Add-ons CD-ROM in the drive. The installation program is launched automatically and opens the **Welcome** page.

#### **IF** Note:

If the installation does not start automatically, double-click <CD-ROM drive> / setup.exe.



Figure 2-1. Windows Installation - NovaScale Master Welcome Page

4. Click **Install Now** to open the **Install** page, which allows the selection of the required NovaScale Master component:

Management Server Add-ons

and provides the following information:

- What to install?
- What to do now?



Figure 2-2. Windows Installation - NovaScale Master Install Page

- 5. Select Management Server Add-ons, then Windows 32 bits or Windows 64 bits operating system according to server type.
- 6. Click the selected Add-ons **Install Now** link to install the **Server Add-ons** package. The wizard prompts for a destination folder.

The default value can be changed if required. At the end of the installation process, Management Server Add-ons components are automatically operational.

#### 2.2.3 Installing Payable Management Server Add-ons Packages

These are auto-extractible packages. To install a package, just launch it from any logical device:

NSMaster<tierceTool>-5.2-x.exe

## 2.2.4 Uninstalling NovaScale Master Server Add-ons Components

Uninstallation operations must be launched locally. Launching the uninstallation program removes all files and folders.

To uninstall NovaScale Master Add-ons components:

- 1. From the Control Panel, launch Add/Remove Programs.
- 2. Select the required NovaScale Master Server Add-ons components and click Remove.

## Note:

After uninstallation operations, customized categories in previous version can remain in configuration. These elements must be removed using the NSMaster Configuration GUI.

## 2.2.5 Upgrading to a New NovaScale Master Server Add-ons Version

When upgrading to a new NovaScale Master Server Add-ons version, the existing NovaScale Master Server Add-ons environment that may have been customized is maintained.

NovaScale MasterServer Add-ons are upgraded via the standard installation program.

#### 7 Note:

When you upgrade the NovaScale Master Management Server, you MUST upgrade previous release installed server add-ons to benefit from new improvements.

See the Release Notes for more details about specific add-on migration, where applicable.

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## 2.3 Installing NovaScale Master Server Add-ons for Linux

### 2.3.1 Prerequisites

To install NovaScale Master Server Add-ons on Linux:

- The user must be logged as root.
- The installation program requires the Mozilla WEB browser (Version >1.4.3 or Firefox):

If Mozilla is not installed, launch another WEB browser and open file: 

CD-ROM Mount point>/product /index.html

It is advised to uninstall the previous version of Mozilla before installing a new version. This operation will not delete bookmarks, histories, cookies and other information stored in the profile directory.

The Mozilla directory must be set in the root PATH environment variable. If a previous version of Mozilla has not been uninstalled, the Mozilla directory must be set at the beginning of the PATH variable.

- Management Server Add-ons are to be installed on the server dedicated to management.
- Acrobat Reader is required to view PDF versions of the NovaScale Master documentation.
- The free Server Add-ons are present on the NovaScale Master CD-ROM, the others must be supplied by your Bull contact.

## 2.3.2 Installing Free Management Server Add-ons from the CD-ROM

Management Server Add-ons, to be installed on the server dedicated to management, require the components indicated in 2.1.4 *Installation Requirements*, and must be installed from the CD-ROM.

To install Management Server Add-ons from the CD-ROM:

- 1. From the dedicated server, launch the installation program.
- 2. Log on as root.
- Insert the NovaScale Master CD-ROM in the drive. The CD-ROM filesystem is automatically mounted to one of the following directories: /mnt/cdrom or /mnt/dvd (Red Hat and Advanced Server distributions) /media/cdrom or /media/dvd (SuSE distribution).
- Launch the following commands: cd <CD-ROM mount point> ./install.sh

The **install.sh** script automatically launches the Mozilla or Mozilla Firefox browser and opens the **Welcome** page.



Figure 2-3. Linux Installation - NovaScale Master Welcome Page

- 5. Click **Install Now** to open the **Install** page, which allows the selection of the required NovaScale Master component:
  - Management Server Add-ons

and provides the following information:

- What to install?
- What to do now?

	-	
Bull	INSTALL	NovaScale
		Master
	NovaScale Master:	and the second second
► <u>Home Page</u>	Management Server	
► Install Now	Management Server Add-Ons	
	Management Console	
Documentation	Management Agent	
	Additional tool:	
	<u>Remote Hardware Management CLI</u>	
	What to metall 2	
	NovaScale Master	
	NS Master comprises three components:	
	Management Server, providing the infrastructure and services in charge of c	ollecting and operating management data, to be
	installed on the dedicated system management server.	of linking other menogement third teals with the
	<ul> <li>Management server, to be installed on the dedicated system management server.</li> </ul>	server.
	Management Console, providing Web GUI third-party management tools, to	be installed on each end-user station.
	<ul> <li>Management Agent, providing instrumentation and administration tools for t</li> </ul>	he monitored hosts, to be installed on each target
	Additional Tools	
	Linux Remote Hardware Management CLI package provides an easy Commenter of the second se	mand Line Interface for remote hardware
	management automation scripts. This package can be used to manage Nov	/aScale 4000 / 5000 / 6000 series and Express5800
	servers.	
	Olick Management Conjects install management tools on the system management	ant course
	Click Management Server to install management tools on the system management Click Management Server Add-ons to install third tools management backages	on the system management server
	Click Management Console to install Web GUI tools on an end-user station.	
	Click Management Agent to install management tools on a host within the mana	aged system.
	Click Remote Haroware management CLI to Install the remote hardware management CLI	gement commands on a Linux host.
	what to do next ?	a bis a second basis a basis of the state
	Unce the management Server is installed, you can start the Console from the de monitoring	eskiup menu, and nave a luok at the default

Figure 2-4. Linux Installation - Selecting NovaScale Master Components

6. Select Install Management Server Add-ons.

- 7. Select the Linux 32 bits or Linux 64 bits operating system according to server type.
- 8. Install the selected NovaScale Master Server Add-ons packages as described below. cd <CD-ROM mount point>/product/mgtpack/NSMaster<toolname>/linux rpm -Uhv NSMaster<toolname>-5.1-x.noarch.rpm

## 2.3.3 Installing Payable Management Server Add-ons Packages

These are RPM packages. To install a package just launch it from any logical device:

rpm -Uhv NSMaster<tiercetool>-5.2-x.noarch.rpm

## 2.3.4 Uninstalling NovaScale Master Server Add-on Components

- 1. Log on as root.
- Launch the command: rpm -e NSMaster<tiercetool>-5.2-x.noarch.rpm

## 2.3.5 Upgrading to a new NovaScale Master Server Add-ons Version

When upgrading to a new NovaScale Master Server Add-ons version, the existing NovaScale Master Add-ons environment that may have been customized is maintained.

NovaScale Master Add-ons are upgraded via the standard rpm installation command:

rpm -Uhv NSMaster<toolname>-5.2-x.noarch.rpm

#### **IT** Note:

When you upgrade the NovaScale Master Management Server, you MUST upgrade previous release installed server add-ons to benefit from new improvements.

See the Release Notes for more details about specific add-on migration, where applicable.

## 2.4 Monitoring Configuration

Configuring NovaScale Master Monitoring consists mainly in specifying the parameters required for monitoring tasks. Most configuration tasks are performed via the NovaScale Master Configuration GUI (Graphical User Interface).

NovaScale Master Server Add-ons extend the Monitoring configuration default rules the Administrator can customize. New monitoring categories and services are provided.

## 2.4.1 Configuration GUI

NovaScale Master provides a GUI to perform the main configuration tasks.

#### Starting the Configuration GUI

To start the Configuration GUI, either:

- From the NovaScale Master Console, click the **11** icon representing the Configuration GUI in the Administration zone (top right)
- Or click the Configuration link on the NovaScale Master Home Page, URL: http://<NovaScale Master server name>/NSMaster
- Or, from a WEB browser, go to the following URL: http://<NovaScale Master server name>/NSMaster/config/

## 2.4.2 Categories and Services

NovaScale Master Server Add-ons delivers more default monitoring categories and services. These categories and services depend on the Operating System running on the host:

- services for Windows hosts will be applied to all hosts with a Windows operating system,
- services for Linux hosts will be applied to all hosts with a Linux operating system,
- services for hosts, independently of the Operating System, will be applied to all hosts.

The administrator can change the default-monitoring configuration by:

 customizing services, to define specific thresholds and monitoring properties or to modify the list of monitored hosts. A service can be customized to create one or more occurrences of this service with the same name. Each occurrence can have a different host list and different monitoring properties. For instance, if you do not want to monitor file systems in the same way on all Linux hosts, customize the All service in the FileSystems category.

#### 🕝 Note:

The Administrator CANNOT modify the OS and/or model type of these monitoring services and categories, as internal tool semantic checks may reject such modifications.

- **cloning services**, to define new monitored elements. One or more services are created, with different names from the original names. All properties can be edited except the check command. For instance, to monitor a specific logical drive on a Windows system, clone the C service and modify the check command parameters,
- customizing categories, to restrict monitoring a whole category to a list of hosts,
- creating a category, to assign a set of cloned services to this category.

See the NovaScale Master Administrator's Guide for more details about configuration.

## Chapter 3. NovaScale Master Server Add-ons Description

NovaScale Master Server Add-ons provides different functional items for each Management Package.

## 3.1 Internal Storage (Free)

## 3.1.1 NSMasterGAMTT for LSI MegaRAID 320-2x Management

**GAMTT** (or **GAM**) is the LSI tool used to survey, configure and control RAID provided by LSI MegaRAID Ultra320 SCSI cards.

See <u>http://www.lsilogic.com/products/megaraid/index.html</u> for more information or to download the GAMTT install package.

#### **I**Note:

This tool runs on NovaScale machines under Linux or Windows.

The corresponding NovaScale Master Add-on creates monitoring links between NovaScale Master and the **GAM** SNMP agent.

The following figure shows the different monitoring components:

NSMaster Server machine

Console machine



Figure 3-1. GAM Monitoring Components

## 3.1.1.1 Default Categories & Services (independent of OS type)

Targeted OS	Model	Category	Service	Check command
Any	any	GAMTTraid	Status	Check_gamttRAID
			Alerts	No check (SNMP trap receiver)

Table 3-1. GAMTT monitoring services



- This category is based on the GAMTT management product from LSI. This tool and especially its SNMP interface is a requirement for the following GAMTTraid monitoring services. Check that this tool works on the targeted OS, if you want to monitor with it in NOVASCALE Master.
- The previous "MegaRAID" category (NOVASCALE Master release 4.0) is based on PowerConsolePlus management product from LSI. These two management products are functionally redundant but not compatible. So you need to replace the "MegaRAID" category and its services by "GAMTTraid" category and services, if you replace PowerConsolePlus by GAMTT.

## 3.1.1.2 GAMTTraid Category

Status	For NovaScale and Express5800 hosts with an LSI (or Mylex) SCSI RAID card managed by GAMTT (or GAM) management tool. This service checks the Host RAID status reported by the associated GAMTT SNMP agent.
Alerts	For NovaScale and Express5800 hosts. When an alert is sent from the GAMTT SNMP agent, it is processed by the NovaScale Master server. <b>Note:</b> The <b>mlxraid.mib</b> mib is integrated in the NovaScale Master application.

#### 🕝 Note:

Do not forget to configure the agent to send SNMP traps to the NovaScale Master server by adding the NovaScale Master server host address to the SNMP managers list of this agent.

#### 3.1.1.3 check\_gamttRAID (any OS) Nagios command

The configurable NovaScale Master service check command syntax is:

```
check_gamttRAID!<community>!<port>!<timeout>!{ [-A {ALL|<Ct>}] |
[-P {ALL|<Ct>.<Ch>.<Tg>}] | [-L {ALL|<Ct>.<Ldn>}] }
```

#### Input

<community></community>	SNMP community string (defaults to "public")			
<port></port>	SNMP port (defaults to 161)			
<timeout></timeout>	Seconds before tir	ming out (defaults to Nagios timeout value)		
-A, –adapter ALL   <ct></ct>		Controller board		
-P, -physical ALL   <ct>.<ch>.<tg></tg></ch></ct>		Physical device addr		
-L, -logical ALL   <ct>.<ldn></ldn></ct>		Logical drive addr		

#### Output

See the output of the **check\_gamttRAID** command in Appendix A.

**Default syntax for "GAMTTraid.Status"** check\_gamttRAID!public!161!60!-A ALL

## 3.1.2 NSMasterLSICIM for LSI 22320 Chip Management

LSI CIM is the LSI tool used to survey, configure and control RAID provided by LSI MegaRAID 22320 SCSI cards.

See <u>http://www.lsilogic.com/products/megaraid/index.html</u> for more information or to download the LSI CIM install package.

#### **I** Note:

This tool runs on NovaScale machines under Linux or Windows.

The corresponding NovaScale Master Add-on creates monitoring links between NovaScale Master and the LSI CIM provider.

The following figure shows the different monitoring components:



Figure 3-2. LSI CIM Monitoring Components

#### 3.1.2.1 Default Categories & Services (independent of OS type)

Targeted OS	Model	Category	Service	Check command
Any	Any	LsiCIM	RAIDStatus	check_LSICIM
			CTRLstatus	check_LSICIM_ctrl

Table 3-2. LSI CIM monitoring services

#### **I**Note:

This category is based on the LSI CIM management product. This tool is a requirement for the following LsiCIM monitoring services. Check that this tool works on the targeted OS, if you want to monitor with it in NovaScale Master.

#### LsiCIM Category

RAIDstatus	For NovaScale and Express5800 hosts with an LSI SCSI RAID card
	managed by the LSI CIM management tool. This service checks the Host
	RAID status reported by the associated LSI CIM provider.

**CTRLstatus** For NovaScale and Express5800 hosts with an LSI SCSI RAID card managed by the LSI CIM management tool. This service checks the status of a specific RAID SCSI controller reported by the associated LSI CIM provider.

#### 3.1.2.2 check\_LSICIM (any OS) Nagios command

The configurable NovaScale Master service check command syntax is:

check\_LSICIM

#### Input N/A

#### Output

See the output of the check\_LSICIM shell command in Appendix A.

Default syntax for "LsiCIM.CTRLstatus"

check\_LSICIM

#### 3.1.2.3 check\_LSICIM\_ctrl (any OS) Nagios command

The configurable NovaScale Master service check command syntax is:

check\_LSICIM\_ctrl![<ctrlname>]

#### Input

<ctrlname> Name of the controller to check

## **I**Note:

The name of the controller must be protected with a quote if the name contains blank characters.

#### Output

See the output of the check\_LSICIM shell command in Appendix A.

#### Default syntax for "LsiCIM.CTRLstatus" is inactive:

check\_LSICIM!'ctrlname'

## 3.1.3 NSMasterMegaRaidSAS (LSI MegaRAID SAS (IR) Management)

The corresponding NovaScale Master Add-on creates monitoring links between NovaScale Master and the LSI MegaRAID SAS(IR) SNMP agent.

It supports the adapters from MegaRAID SAS/SATA Value and Feature Line and the LSI SAS ICs 1064, 1068 and 1078.

NSM Server machine



Figure 3-3. MegaRAID SAS Monitoring Components

#### 3.1.3.1 Default Categories & Services (independent of OS type)

Targeted OS	Model	Category	Service	Check command
Any	Any	MegaRaidSAS	Status	check_MegaRAIDSAS
			Alerts	No check (SNMP trap receiver)
Any	Any	MegaRaidSAS_IR	Status	check_MegaRAIDSAS_IR
			Alerts	No check (SNMP trap receiver)

Table 3-3. MegaRaid SAS (IR) monitoring services

#### **IT** Note:

This category is based on the MegaRAID SAS (IR) SNMP agent. This SNMP interface is a requirement for the following MegaRaidSAS(-IR) monitoring services.

#### 3.1.3.2 MegaRaidSAS(\_IR) Category

Status For NovaScale hosts with a MegaRAID SAS card or an integrated LSI SAS chip managed by MegaRAID Storage Management tool. This service checks the MegaRAID SAS (IR) status reported by the MegaRAID SAS (IR) SNMP agent.

Alerts For NovaScale hosts with a MegaRAID SAS card or an integrated LSI SAS chip. When an alert is sent from the MegaRAID SAS (IR) SNMP agent, it is processed by the NovaScale Master Server.

#### **I**Note:

The lsi-adaptersas(ir).mib mib is integrated in the NovaScale Master application.

#### **I**Note:

Do not forget to configure the MegaRAID SAS (IR) SNMP agent to send SNMP traps to the NovaScale Master Server by adding the NovaScale Master Server host address to the agent's SNMP managers list.

#### 3.1.3.3 check\_MegaRaidSAS(\_IR) (any OS) Nagios command

The configurable NovaScale Master service check command syntax is:

check\_MegaRaidSAS(\_IR)!<community>!<port>!<timeout>

See the **check\_** MegaRaidSAS(\_IR) command in Appendix A for parameters details.

#### Default syntax for "MegaRaidSAS(\_IR).Status" is:

check\_ MegaRaidSAS(\_IR)!public!161!60

#### External Storage Server Add-ons 3.2

#### NSMasterStoreWayFDA (StoreWay FDA Management) 3.2.1

The corresponding NovaScale Master Add-on creates monitoring links between NovaScale Master and the StoreWay FDA SNMP agent and WEB GUI.

#### NSMaster Server machine

#### iSM Clien(Winadbine)

NS Master Server	NEC iSM client
Store Vice SNMP FDA trap roor add-on	software hardware
SNMP agent StoreWay FDA	iSM Server NEC

Target StoreWay FDA subsystem

iSM Server machine

Figure 3-4. StoreWay FDA Monitoring Components

#### Default Categories & Services (independent of OS type) 3.2.1.1

Targeted OS	Model	Category	Service	Check command
Any	BayStoreWay FDA	StoreWayFDA	Status	check_NECFDA
			Alerts	No check (SNMP trap receiver)

Table 3-4. StoreWay FDA monitoring services

#### 🕝 Note:

This category is based on the StoreWay FDA SNMP agent. This SNMP interface is a requirement for the following StoreWayFDA monitoring services.

#### 3.2.1.2 StoreWayFDA Category

- Status For StoreWay FDA hosts managed via its SNMP agent. This service checks the StoreWay FDA status reported by the SNMP agent.
- Alerts For StoreWay FDA hosts. When an alert is sent from the StoreWay FDA SNMP agent, it is processed by the NovaScale Master Server.

#### **I**Note:

The Armg2\_4.mib mib is integrated in the NovaScale Master application.

#### **I**Note:

Do not forget to configure the StoreWay FDA agent to send SNMP traps to the NovaScale Master Server by adding the NovaScale Master Server host address to the agent's SNMP managers list.

#### 3.2.1.3 check\_NECFDA (any OS) Nagios command

The configurable NovaScale Master service check command syntax is:

check\_storewayfda!<community>!<port>!<timeout>

See the check\_NECFDA command in Appendix A for parameters details.

Default syntax for "StoreWayFDA.Status" is:

check\_necfda!public!161!60

#### 3.2.1.4 NovaScale Master Configuration

StoreWayFDA configuration for NovaScale Master is available from the configuration GUI by selecting Topology  $\rightarrow$  StoreWay  $\rightarrow$  StoreWayFDAs.

To edit a StoreWay FDA, select Edit.

To define a new StoreWay FDA in the NovaScale Master configuration database, click the **New StoreWay FDA** button and initialize the following attributes:

**StoreWay FDA name** name of the StoreWay FDA

descriptiondescriptionnetwork namebay netnamesnmp port numberSNMP port numbersnmp communitySNMP community

## 3.3 Virtualization Server Add-ons

### 3.3.1 Overview

The NovaScale Master Server Virtualization Add-ons deliver an optional management package to manage virtual machines. A virtualization Add-on can provide:

- Supervision features to detect abnormalities and notify them to defined entities,
- Administration features to perform actions on elements.

#### 3.3.1.1 Definitions

Virtualization Add-ons use specific topology elements:

- Native Operating System (Native OS): the virtualization layer installed on a physical machine that hosts virtual machines. It is represented by a NovaScale Master host with a specific OS (specified by the Add-on).
- Virtual Machine (VM): a machine that is hosted by a native OS It is represented by a NovaScale Master host with a specific model (specified by the Add-on).
- Virtual Platform: the set of virtual machines and native OS deployed on a physical machine.
- Virtual Manager: the interface used to manage the virtual elements.

#### 3.3.1.2 Topology Representation

The elements of a virtual platform are displayed in the NovaScale Master Console views.

To load a specific view, select File  $\rightarrow$  Load  $\rightarrow$  SystemMgt  $\rightarrow$  view name

Or, if already loaded, switch from one view to another by selecting Views  $\rightarrow$  view name

- From the **Hosts** view, only the native OS and VM hosts are displayed. VM hosts are represented with the specific icon .
- From the **Virtual Managers** view, the virtual platform is displayed as shown in the following figure:



Figure 3-5. Virtual Managers view

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. When you select a node, information about the elements are displayed in the Application pane.



Figure 3-6. Virtual Manager information pane

## 3.3.2 NSMasterVMwareESX for "VMware ESX" Management

#### 3.3.2.1 Overview

The VMware ESX server is a virtualization layer that abstracts processor, memory, storage and networking resources into multiple virtual machines.

The VMwareESX Add-on provides functional links to manage the virtual machines hosted by the ESX server.

**IP** Note: The link is functional only with the version 3 of the ESX server.
The VMwareESX Add-on retrieves VM and native OS monitoring information via the VMware Service Console SNMP interface and allows the Web Virtual Interface to be launched from the NovaScale Master Console.

The following figure shows the link between each component:



#### ESX machine

Figure 3-7. VMwareESX Add-on components

## 🕼 Note:

The SNMP agent of the ESX server must be configured to receive SNMP requests from and to send traps to the NovaScale Master Server. Web access requires specific configuration of the Web client. For detailed information about these procedures, see the VMware Infrastructure documentations available at http://www.vmware.com/support/pubs/vi\_pubs.html.

# 3.3.2.2 NovaScale Master Configuration

To configure the monitoring elements for the VMwareESX Add-on, you have to define an ESX Virtual Platform from the NovaScale Master Configuration GUI. Native OS, VMs, related monitoring services and reporting indicators are defined in one easy step. The native OS is represented by a NSMaster host with the OS: **ESX**. VMs are represented by a NSMaster host with the model: **VMware**.

# 3.3.2.2.1 ESX Virtual Platform

To configure an ESX Virtual Platform, click the **VMware ESX** link in the Virtualization part of the Topology domain. The list of all configured platforms appears, as in the following example:

ESX Virtualization Platforms					
New					
	name	description	netName	virtual machines	
Edit persey ESV server EA		FSX server F4/SS	172 31 50 55	nsmRH5	
Luit	Instruction and the second sec		<u>nsmvm1</u>		

Figure 3-8. ESX Virtual Platforms page

It is possible:

- To create a new ESX Virtual Platform using the **New** button
- To edit or delete a resource using the Edit link
- To edit a virtual machine using the **<hostname>** link.

When you click the **New** button, the following display appears with all resource properties:

Properties				
name				
description	description			
ESX Server Host				
name	Select			
model	other 💌			
network name				
SNMP Configuration	n			
SNMP port	161			
SNMP community	public			
Virtualization Platform				
Virtual Machines				
Discover To get the list of virtual machine hosted, click the Discover button				

Figure 3-9. ESX Platform Properties

Besides the characteristics (name and description) of the main object, the properties of an ESX virtual platform are divided into three-parts:

• ESX Server Host: used to define the physical machine and the native OS.

- SNMP Configuration: used to configure SNMP interface data.
- Virtualization Platform: used to describe the Vmware ESX platform virtual machine.

#### **ESX Server Host Properties**

name	ESX host short name. This name is displayed in the NovaScale Master Console views. Click <b>Select</b> to choose a defined host from the NSMaster host list.
model	Host model (see the <i>NovaScale Master Administrator's Guide</i> for values).
network name	ESX host network name (hostname or IP address).

#### **SNMP** Configuration Properties

SNMP port	SNMP agent port.
SNMP configuration	SNMP agent community.

#### **Virtualization Platform Properties**

Virtual Machines	List of the VMs established by selecting the VMs obtained by
	requests to the ESX server SNMP agent. The request is performed
	by clicking the <b>Discover</b> button (or- <b>Re-discover</b> if in edition mode).
	See below the complete description of the procedure.

#### Virtual Machines Discovery

The result of the discovery is displayed as a table composed of three parts:

- the left column allows you to select the VMs to be associated to the platform
- the center part displays Virtual Machine Configuration as defined on the VMware ESX server
- the right part allows you to edit the main properties (name, network name and OS) of the corresponding NSMaster host. The host can be edited only if the corresponding VM is selected. You can select an already defined host by clicking the Select button or you can create a host by completing the corresponding fields.

# 🕼 Note:

When you select an already defined host, you cannot change its network name and OS. But the Select contains a Default Option corresponding to the VM name, that can be edited. If the VM name contains space(s), they are replaced by underscore(s) in the host label.

Virtual Machines						
Select virtual hosts to associate them to the ESX platform by clicking the correponding checkbox. Then, map each virtual hosts to a defined NS Master host or choose to create a new.						
	ESX Virtual Machines NS Master Configuration					
	Name	Name		netName	OS	
	nsmvm5	nsmvm5	Select	nsmvm5	other	•
☑	nsmvm2	nsmvm2	Select	nsmvm2	other	•
◄	White windows	White_windows	Select	White_windows	other	•
	nsmRH5	nsmRH5	Select	nsmRH5	other	•
	nsmvm1	nsmvm1	Select	172.31.50.60	other	-
	nsmvm4	nsmvm4	Select	nsmvm4	other	•
Re-discover To update the list of virtual machines, click the Re-discover button						

Figure 3-10. ESX Virtual Machines pane

## Virtual Machines Re-Discovery

Re-Discovery is required to check that the current NSMaster configuration still matches the VMware ESX configuration in order to:

- Add virtual machine not yet registered in the VMware ESX Virtualization Platform
- Remove virtual machine no more defined in the VMware ESX configuration.

During the Re-discovery step, if the current configuration is not compatible with VMware ESX configuration, the invalid VMs are displayed in red and the VMs not referenced in the current NSMaster configuration are displayed in green.

VMs no longer defined in Vmware ESX are automatically unchecked and will be removed from the platform on form validation. New VMs must be explicitly checked for being added in the platform to be linked to the platform on form validation.

## **I**Note:

How to Add, Delete or Modify Virtual Machine is detailed in 3.3.2.2.2 Virtual Machine *Edition*, on page 31.

After edition:

- Click the **OK** button to validate your edition
- Or click Cancel to return to Virtual Platforms pages without changes
- Or click **Delete** to remove the Virtual Platform and maintain the hosts corresponding to the VMs and the VMware ESX server
- Or click **DeleteAll** to remove the Virtual Platform and the hosts corresponding to the VMs and the VMwareESX server.

## 🔽 Note:

Edition with a **Topology modification** requires confirmation: a page listing all modifications to be applied to the Topology configuration is displayed, as shown in the following figure.

# ESX Virtualization Platform



Figure 3-11. Host Topology modification confirmation

If you do not agree, click the **NO** button to return to the platform edition page, otherwise click the **YES** button to create the virtual platform.

#### **Related ESX Virtualization platform Objects**

When an ESX Virtualization platform is defined, related objects are automatically generated to configure the specific Supervision linked to this type of NovaScale server. The following table describes the objects generated during the creation of the platform.

Туре	Description
host VMware	As defined in the Virtual Machine configuration part of the edition page.
host ESX	Host corresponding to the virtualization layer, as defined in the ESX server Host configuration part.
hostgroup	hostgroup representing the physical platform, named <platformname>.</platformname>
manager	Virtualization manager representing the management interface, named < platformName>_mgr.
categories and services	The VMwareESX category and related services are instantiated for the ESX host. The VirtualMachine category and related services are instantiated for each VMware host.

# 3.3.2.2.2 Virtual Machine Edition

A virtual machine is represented by a host linked to the VMware ESX Virtualization platform. It has properties linked to the platform and properties of a host object.

Add, remove or modification of properties linked to the platform must be done from the VMware Virtualization platform edition page.

Modification of host properties must be done from the Host edition page.

#### Add a virtual machine to a platform

Adding a virtual machine is performed by checking the corresponding line in Virtual Machines part of the platform edition form and setting the host characteristics in NSMaster Configuration table zone (by filling in the corresponding fields or by selecting an already defined host).

### 🔽 Note:

When you edit a Virtualization platform, only the Virtual Machines defined as part of the NovaScale Master platform are displayed. To add a virtual machine, you must perform a Re-discovery to get the list of all machines defined on the Virtualization Server.

#### Remove a virtual machine from a platform

Removing a virtual machine is performed by unchecking the corresponding line in the Virtual Machines part of the platform.

## **I**Note:

The corresponding host remains in the NovaScale Master definition with model set to 'other'. To delete it, click the **Other Hosts** link to get the list of all Other Hosts configured, edit the corresponding host and click the **Delete** button.

#### Modify a virtual machine defined in a platform

To modify the name of the NSMaster host corresponding to a virtual machine, enter the new name in the corresponding field or choose it in the list of already defined hosts in NovaScale Master by clicking the **Select** button.

To modify other characteristics as netName or OS, the Host edition form must be used.

### Image: Note:

To get the Host edition form corresponding to the virtual machine, click the **Hostname** link displayed in the global platforms page.

#### Delete all virtual machines and corresponding hosts.

To delete all virtual machines and corresponding hosts, use the **DeleteAll** button of the Virtualization Platform Edition form. Beware: the virtualization server and the platform will be also deleted from the NovaScale Master configuration.

## 3.3.2.2.3 Virtualization Supervision

As specified above, services are instantiated for each host defined in the Virtualization Platform. You can disable virtualization supervision by editing the hostgroup or manager properties or by editing each service (refer to the *NovaScale Administration Guide* for details).

## **Monitoring Services**

Monitoring services defined for the native OS are associated with the **VMwareESX** category.

#### Services Applied to the Native OS

Service	Description	Check_command
Status	Checks ESX server status	check_esx_server
SNMP	Checks the ESX SNMP interface	check_esx_snmp
Memory	Checks ESX memory avaibility	check_esx_mem
Alerts	Processes alerts received from the ESX SNMP agent	none (SNMP Trap receiver)

Monitoring services defined for VM hosts are associated with the VirtualMachine category.

#### Services Applied to the VM Host

Service	Description	Check_command
Status	Checks VM status	check_esx_vm
CPU	Checks VM CPU usage	check_esx_vm_cpu
Memory	Checks VM memory avaibility	check_esx_vm_mem

Monitoring services related to Virtual Platform elements are automatically created during the edition of the ESX Virtual Platform. Theses services can be displayed and edited from the Services page in the Supervision domain, but only attributes related to monitoring or notification can be edited.

Properties			
category	VMware		
name	esxStatus		
description	checks the ESX server status (automatically generated)		
model	any		
OS family	ESX		
host list expression	nsmesx		
Monitoring attributes			
status	• active         C inactive		
Monitoring command attrib	butes (for this service)		
check command	check_esx_server		
check command parameters	public!50%!0%		
monitoring period	24×7 💌		
polling interval	5 mn (5 mn by default if empty)		
Notification attributes (for t	his service)		
e-mail contact groups	Selected Objects All Objects  mgt-admins  < Add  Remove =>		
enable Bull autocall	C Yes 💿 No		
enable SNMP trap	⊙ Yes C No		
notification period	24x7 💌		
re-notification interval	240 mn (240 mn by default if empty)		
notify if warning	⊙ Yes C No		
notify if critical	⊙ <sub>Yes</sub> C <sub>No</sub>		
notify if recovery	⊙ <sub>Yes</sub> C <sub>No</sub>		

Figure 3-12. VMware category properties pane

## **I**Note:

During ESX Platform definition, all services are defined and activated for the ESX server and for each VM. To deactivate the monitoring of one service, set **status** (Monitoring attributes part) to inactive.

# 3.3.2.3 Nagios Check Commands

## check\_esx\_server

The configurable NovaScale Master service check command syntax is:

check\_esx\_server!<snmp\_community>!<wThres>%!<cThres>%

See the **check\_esx3** command in Appendix A for parameters details.

#### check\_esx\_snmp

The configurable NovaScale Master service check command syntax is: check\_esx\_snmp!<snmp\_community>

See the check\_esx3 command in Appendix A for parameters details.

#### check\_esx\_mem

The configurable NovaScale Master service check command syntax is: check\_esx\_mem!<snmp\_community>!<wThres>!<cThres> See the check\_esx3 command in Appendix A for parameters details.

#### check\_esx\_vm

The configurable NovaScale Master service check command syntax is: check\_esx\_vm!<esx\_server>!<snmp\_community>!<vmname> See the check\_esx3 command in Appendix A for parameters details.

#### check\_esx\_vm\_memory

The configurable NovaScale Master service check command syntax is:

check\_esx\_vm!<esx\_server>!<snmp\_community>!<vmname><wThres>!<cThres>

See the check\_esx3 command in Appendix A for parameters details.

#### check\_esx\_vm\_cpu

The configurable NovaScale Master service check command syntax is:

check\_esx\_cpu!<esx\_server>!<snmp\_community>!<vmname><wThres>!<cThres>

See the check\_esx3 command in Appendix A for parameters details.

## 3.3.2.4 Reporting Indicators

Reporting indicators are defined for VM hosts and for native OS. They get values from the corresponding monitoring services.

#### Indicators Applied to the Native OS

Indicator	Corresponding Service
<esx_server>_esxMemory</esx_server>	esxMemory

#### Indicators Applied to the VM Host

Indicator	Corresponding Service
<vm_host>_vmCPU</vm_host>	vmCPU
<vm_host>_vmMemory</vm_host>	vmMemory

## **I** Note:

During ESX Platform definition, all indicators are defined and activated for the ESX server and for each VM. To deactivate the reporting of one indicator, set to inactive. Beware, **if you deactivate the corresponding service, the indicator will no longer be collected**.

## 3.3.2.5 NovaScale Master Console

#### VMwareESX Operation

From the Virtual Manager or from any element of the Virtual Platform, you can launch the **Virtual Infrastructure Web Interface** by selecting the following cascading menu:

 $Operation \rightarrow Application \rightarrow VMware VI Web$ 

#### VMwareESX Monitoring

From the platform or host elements, you can access monitoring information. From the hosts element, you can display information related to associated services by selecting **Monitoring** menus.

From the platform element, you can display monitoring information related to all elements by selecting **Monitoring** menus. For instance, you can view all services of the hosts in the platform, as show in the following figure:

HISTORY   NUTING	ations ( /	Availability   Indicators	Trends				
	All	Problems	Up	Down	Unreachable	Pending	
Host Selection	3	0	<u>3</u>	0	0	0	
	All	Problems	Ok	Warning	Unknown	Critical	Pending
elected Host Services	<u>13</u>	3	<u>9</u>	1	<u>2</u>	0	1
ice details						Last Updated: 10 Updated every 1	0-05-2007 09:16 20 seconds
Host↑↓		Service 🔨	Status 🐴	Last Check 1	Duration $\uparrow \downarrow$	Inform	nation
mRH5	<u>PING</u>		ок	0d 0h 2m 50s ago	0d 0h 2m 50s	PING OK - Packe = 0.00 ms	t loss = 0%, RT/
	VirtualMachine.CPU		UNKNOWN	0d 0h 1m 59s ago	0d 0h 1m 59s	No saved state for nsmRH5 CF time yet - wait for next poll.	
	Virtua	Machine.Memory	ок	0d 0h 1m 9s ago	0d 0h 1m 9s	Memory free: 22 [Total available 2 nsmRH5	5.28Mb (88%) 56Mb] on vhost
	Virtus	Machine Status	ОК	0d 0h 7m 49s ago	0d 0h 9m 30s	Virtual host is up	(ID: 192)
smesx	PING		ОК	0d 0h 4m 30s ago	0d 0h 6m 59s	PING OK - Packe = 0.00 ms	t loss = 0%, RTA
	<u>VMvv</u>	areESX.Alerts 🏻 🎬	PENDING	Od Oh 5m 55s+ ago	) Od Oh 5m 55s+	Service is not so checked	heduled to be
	<u>VMvv</u>	areESX.Memory	ок	Od Oh 3m 39s ago	0d 0h 6m 9s	Memory free: 16 [Total available 1	111.6Mb (98%) 6383.6Mb]
	<u>VMvv</u>	areESX.SNMP	ок	0d 0h 2m 48s ago	0d 0h 2m 48s	SNMP manageme available	ent interface
	<u>VMwa</u>	areESX. <b>Status</b>	WARNING	Od Oh 1m 56s ago	0d 0h 1m 56s	VHosts: 2/7 up: 1 nsmvm2(OFF), V windows(OFF), nsmvm1(ON), ns nsmvm4(OFF)	nsmvm5(OFF), White nsmRH5(ON), mvm3(OFF),
smvm1	PING		ок	0d 0h 1m 6s ago	0d 0h 6m 57s	PING OK - Packe = 0.00 ms	t loss = 0%, RT/
	Virtua	Machine.CPU	UNKNOWN	Od Oh 6m 54s ago	0d 0h 6m 54s	No saved state f time yet - wait fo	or nsmvm1 CPU ir next poll.
			and the second se			hd 4 47	

Figure 3-13. VMwareESX monitoring information

## VMwareESX Reporting

From the platform or host elements, you can access reporting information by selecting **Indicators Trends** from the **Reporting** menu.

From the host element, you can display indicators related to this host as shown in the following figure:

📓 HOST: nsmvm1 👔						
Monitoring   <b>Reporting</b>   Inventory   Operations						
Alert History   Notifications   Availability   Status Tren	Alert History   Notifications   Availability   Status Trends   Indicators Trends					
To display a report, click on an indicator report. Indicator reports						
Name Source						
nsmvm1_cpu VirtualMachine.CPU						
nsmvm1_memory	VirtualMachine.Memory					

Figure 3-14. VMwareESX reporting information

From the platform element, you can display indicators related to all platform elements.

# 3.3.3 NSMasterHyperNova for "HyperNova" Management

## 3.3.3.1 Overview

The HyperNova server is a virtualization layer that abstracts processor, memory, storage and networking resources into multiple virtual machines.

The HyperNova Add-on provides functional links to manage the virtual machines hosted by the HyperNova server, by requesting the administration tool, HyperNova Master (HN Master).

The following figure shows the link between each component:



Virtualization Server machine

Figure 3-15. HyperNova Add-on components

## 3.3.3.2 NovaScale Master Configuration

To configure the monitoring elements for the HyperNova Add-on, you have to define an HyperNova Virtualization Platform from the NovaScale Master Configuration GUI. Native OS, VMs and related monitoring services are defined in one easy step.

The native OS is represented by a NSMaster host with the OS: Xen.

VMs are represented by a NSMaster host with the model: HyperNova.

# 3.3.3.2.1 HyperNova Virtualization Platform

To configure a HyperNova Virtualization Platform, click the **HyperNova** link in the Virtualization part of the Topology domain. The list of all configured platforms appears, as in the following example:

Help	HyperNova Virtualization Platforms						
	New						
	platform name	server	description	host name	virtual name	network name	OS
Edit	test160	bp160	nistform HunerNova	testHNXX03	testHNXX03	10.10.10.10	other
	lestion	111100	ралонниуренчоча	testHNXXA02	testHNXXA02	10.10.10.10	other

Figure 3-16. HyperNova Virtualization Platforms page

It is possible:

- To create a new HyperNova Virtualization Platform using the New button
- To edit or delete a resource using the Edit link
- To edit a virtual host using the <hostname> link.

When you click the **New** button, the following display appears with all resource properties:

	Properties
name	
description	Hypernova Virtualization platform
Virtualization Server	
name	Select
model	other 💌
network name	
HTTP Configuration	
SSL mode	C Yes 💿 No
Virtual Machines	
Discover	o get the list of hosted virtual machines, click the Discover button

Figure 3-17. HyperNova Platform Properties

Besides the characteristics (name and description) of the main object, the properties of an HyperNova virtual platform are divided into two-parts:

- Virtualization Server: used to define the physical machine and the native OS.
- HTTP Configuration: used to set the HTTP mode access.
- Virtual Machines: used to describe the HyperNova platform virtual machine.

#### **Virtualization Server Properties**

name	Server host short name. This name is displayed in the NovaScale Master Console views. Click <b>Select</b> to choose a defined host from the NSMaster host list.
model	Host model (see the <i>NovaScale Master Administrator's Guide</i> for values).
network name	Server network name (hostname or IP address).

## **HTTP** Configuration

SSL mode	To enable or disable SSL mode for HTTP
	Default value: no

### Note:

SSL option in not available on Windows platform. If the HNMaster access is securized, contact the HNMaster administrator to authorized non secure access for the NovaScale Master server.

#### **Virtual Machines Properties**

Virtual Machines	List of the VMs established by selecting the VMs obtained by
	XML/HTTP requests to HN Master.
	The request is performed by clicking the <b>Discover</b> button (or- <b>Re-</b> <b>discover</b> if in edition mode).
	See below the complete description of the procedure.

#### Virtual Machines Discovery

The result of the discovery is displayed as a table composed of three parts:

- the left column allows you to select the VMs to be associated to the platform
- the center part displays Virtual Machine Configuration as defined on the virtualization server
- the right part allows you to edit the main properties (name, network name and OS) of the corresponding NSMaster host. The host can be edited only if the corresponding VM is selected. You can select an already defined host by clicking the select button or you can create a host by completing the corresponding fields.

	HyperNova Virtual Machines		NS Master Configuration				
<b>I</b>	Name	Туре	Name		netName	OS	
◄	Rhel5Para	Para	Rhel5Para	Select	Rhel5Para	other	-
	Rhel5∨T	Full	Rhel5VT	Select	Rhel5VT	other	•
	win2003	Full	win2003	Select	win2003	other	•
◄	Win2003s	Full	Win2003s	Select	Win2003s	other	•
-							

Re-discover To update the list of virtual machines, click the Re-discover button

Figure 3-18. Virtual Machines display after Discover step

### **IF** Notes:

- When you select an already defined host, you cannot change its network name and OS. But, The Select contains a Default Option that correspond to the VM name, that can be edited.
- If the VM name contains space(s), they are replaced by underscore(s) in the host label.

#### Virtual Machines Re-Discovery

Re-Discovery is required to check that the current NSMaster configuration still matches the HyperNova configuration in order to:

- Add virtual machine not yet registered in the HyperNova Virtualization Platform
- Remove virtual machine no more defined in the HyperNova configuration.

During the Re-discovery step, if the current configuration is not compatible with HyperNova configuration the invalid VMs are displayed in red and the VMs not referenced in the current NSMaster configuration are displayed in green, as shown in the following figure:

	HyperNova Virtu Machines	Jal		NS Maste	r Configuration	
	Name	Туре	Name		netName	OS
◄	testHNXXA02	Para	testHNXXA02	Select	10.10.10.10	other 🗾 💌
◄	testHNXXA04	Full	testHNXXA04	Select	10.10.10.10	other 📃 💌
◄	testHNXXA05	Full	testHNXXA05	Select	10.10.10.10	other 📃 💌
Γ	test∀Mrm	Full	test∀Mrm	Select	10.10.10.10	other 📃 💌
◄	VM1	Para	VM1	Select	172.31.35.170	other 📃 💌
◄	VM2	Para	VM2	Select	172.31.35.171	other 📃 💌
◄	VM3	Para	∨мз	Select	172.31.35.172	other 🗾 💌
◄	VM4	Para	VM4	Select	172.31.35.173	other 🗾 💌
◄	VMA	Para	VMA	Select	172.31.35.174	other 📃 💌
	shared_para_RHEL5	Para	shared_para_RHEL5	Select	10.10.10.10	other 📃 💌
	testHNXX03	Full	testHNXX03	Select	10.10.10.10	other 🗾 💌
	test∀Mfullvide	Full	test∀Mfullvide	Select	10.10.10.10	other 🗾 💌
	test∀MparasansOS	Para	testVMparasansOS	Select	10.10.10.10	other 🗾 💌
	VMA_BIS	Para	VMA_BIS	Select	VMA_BIS	other 🗾 💌
	VMA_CR17	Para	VMA_CR17	Select	VMA_CR17	other 🗾 💌

Figure 3-19. Virtual Machines display after Re-iscover step

VMs no longer defined in HNmaster are automatically unchecked and will be removed from the platform on form validation. New VMs must be explicitly checked for being added in the platform to be linked to the platform on form validation.

## **IT** Note:

How to Add, Delete or Modify Virtual Machine is detailed in 3.3.3.2.2 *Virtual Machine Edition*, on page 43.

After edition:

- Click the **OK** button to validate your edition
- Or click Cancel to return to Virtual Platforms pages without changes
- Or click **Delete** to remove the Virtual Platform and maintain the hosts corresponding to the VMs and the Virtualization server
- Or click DeleteAll to remove the Virtual Platform and the hosts corresponding to the VMs and the Virtualization server.

## **I**Note:

Edition with a **Topology modification** requires confirmation: a page listing all modifications to be applied to the Topology configuration is displayed, as shown in the following figure.

# HyperNova Virtualization Platform



Figure 3-20. Host Topology modification confirmation

If you do not agree, click the **NO** button to return to the platform edition page, otherwise click the **YES** button to create the virtual platform.

#### Related HyperNova Virtualization platform Objects

When an HyperNova Virtualization platform is defined, related objects are automatically generated to configure the specific Supervision linked to this type of NovaScale server. The following table describes the objects generated during the creation the platform.

Туре	Description
host HyperNova	As defined in the Virtual Machine configuration part of the edition page.

host HNMaster	Host corresponding to the virtualization layer and hosting the HNMaster application, as defined in the Virtualization Server configuration part.
hostgroup	hostgroup representing the physical platform, named <platformname>.</platformname>
manager	Virtualization manager representing the management interface, named < platformName>_HNMaster
categories and services	The HyperNova category and related services are instantiated for the HNMaster host. The VirtualMachine category and related services are instantiated for each HyperNova host.

## Image: Note:

A hostgroup representing the virtual platform, a virtualization manager and instances of services for the virtualization server (HyperNova category) and for the hosts representing the virtual machine (VirtualMachine category) are also created

# 3.3.3.2.2 Virtual Machine Edition

A virtual machine is represented by a host linked to the HyperNova Virtualization platform. It has properties linked to the platform and properties of a host object.

Add, remove or modification of properties linked to the platform must be done from the HyperNova Virtualization platform edition page.

Modification of host properties must be done from the Host edition page.

#### Add a virtual machine to a platform

Adding a virtual machine is performed by checking the corresponding line in Virtual Machines part of the platform edition form and setting the host characteristics in NSMaster Configuration table zone (by filling in the corresponding fields or by selecting an already defined host).

### **I**Note:

When you edit a Virtualization platform, only the Virtual Machines defined as part of the NovaScale Master platform are displayed. To add virtual machine, you must performs a Re-discovery to get the list of all machines defined on the Virtualization Server.

#### Remove a virtual machine from a platform

Removing a virtual machine is performed by unchecking the corresponding line in the Virtual Machines part of the platform.

## **I**Note:

The corresponding host remains in the NovaScale Master definition with model set to other. To delete it, click the 'Other Hosts' link to get the list of all Other Hosts configured, edit the corresponding host and click on Delete button.

### Modify a virtual machine defined in a platform

To modify the name of the NSMaster host corresponding to a virtual machine, enter the new name in the corresponding field or choose it in the list of already defined hosts in NovaScale Master by clicking the Select button.

To modify other characteristics as netName or OS, Host edition form must be used.

## 🆅 Note:

To get the Host edition form corresponding to the virtual machine, click the Hostname link displayed in the global platforms page.

#### Delete all virtual machines and corresponding hosts.

To delete all virtual machines and corresponding hosts, use the **DeleteAll** button of the Virtualization Platform Edition form. Beware: the virtualization server and the platform will be also deleted from the NovaScale Master configuration.

## 3.3.3.2.3 Virtualization Supervision

As specified above, services are instantiated for each host defined in the Virtualization Platform. You can disable virtualization supervision by editing the hostgroup or manager properties or by editing each service (refer to the *NovaScale Administration Guide* for details).

#### **Monitoring Services**

Monitoring services defined for the native OS are associated with the **HyperNova** category.

#### Services Applied to the Native OS

Service	Description	Check_command
Status	Checks global status	check_hn_server_status

Monitoring services defined for VM hosts are associated with the VirtualMachine category.

#### Services Applied to the VM Host

Service	Description	Check_command
Status	Checks VM status	check_hn_vm_status

Monitoring services related to Virtual Platform elements are automatically created during the edition of the HyperNova Virtualization Platform. Theses services can be displayed and edited from the Services page in the Supervision domain, but only the attributes related to monitoring or notification can be edited.

Properties					
category	VirtualMachine				
name	Status				
description	checks the virtual machine status (automatically generated)				
model	HyperNova				
OS family	any				
host list expression	testHNXXA02				
Monitoring attributes					
status					
Monitoring command attri	ibutes (for this service)				
check command	check_hn_vm_status				
check command parameters	172.31.35.160ttestHNXXA02				
monitoring period	24×7				
polling interval	5 mn (5 mn by default if empty)				
Notification attributes (for	this service)				
e-mail contact groups	Selected Objects All Objects  mgt-admins  Remove =>				
enable Bull autocall	C yes ⊙ No				
enable SNMP trap	⊙ Yes C No				
notification period	24x7 💌				
re-notification interval	0 mn (0 mn by default if empty)				
notify if warning	⊙ <sub>Yes</sub> O <sub>No</sub>				
notify if critical	⊙ <sub>Yes</sub> O <sub>No</sub>				
notify if recovery	⊙ Yes O No				

Figure 3-21. Virtual Machine Properties pane

## **IF** Note:

During HyperNova Platform definition, all services are defined and activated for the server and for each VM. To deactivate the monitoring of one service, set **status** (Monitoring attributes part) to inactive.

# 3.3.3.2.4 DomainO Supervision

The monitoring functions to control the resources of the **domain0** are not automatically setup at the platform definition. To enable them, you have to activate the corresponding categories and services.

HyperNova Add-on delivers the following monitoring definitions:

Category	Service
Dom0SystemLoad	CPU <sup>(*)</sup>
	Memory <sup>(*)</sup>
	Processes <sup>(*)</sup>
	Users
	Swap <sup>(*)</sup>
	Zombies
DomOFileSystems	All(*)
	/usr
Dom0LinuxServices	syslogd <sup>(*)</sup>
Dom0Syslog	AuthentFailures
	RootAccess <sup>(*)</sup>

<sup>(\*)</sup> indicates services that are automatically activated when the corresponding category is instantiated.

### **Examples**

To activate the de DomOSystemLoad related services, do as follows:

- 1. Click the Categories/Services link in the Supervision tab.
- 2. Apply a filter (by HOST(s) or by OS) to select only the hosts corresponding to **domainO** of an HyperNova system, as in the following example:

lp on Categories a	nd Services		-				
No Filter Filter by OS Filter by MODEL <b>Filter by HOST(S</b> )	$\bigtriangleup \bigtriangleup \bigtriangleup$	Host Lis rhel52 (other - othe vm1_ap (other - oth 172.31.50.55 (nati	st: n) her) Xen - othe ▼	>>	Selected 172.31.50.55	I Hosts :	Reset Apply
⊞ <u>Expar</u> ⊡ Collar	<u>nd all</u> ose all						<u>s</u>
<mark>⊕</mark> <u>Expar</u> ⊡ <u>Collar</u> <u>Categ</u> c	nd all ose all ories and	Services found fo	or host(s) : 1	72.31.50.55			<u>s</u>
€ Expar € <u>Collar</u> Catego	nd all ose all ories and Name	Services found fo & Description	or host(s) : 1 OS	72.31.50.55 Model	HostList	Actions	2

Figure 3-22. Categories filter for domain0 Host

3. Click the manage categories link and choose the Add from an unused category template (user or predefined) option to display the categories available for the corresponding hosts.

# Manage Categories

C Create a new category									
• Add from an unused category template (user or predefined template)									
check	Name	Description	Os	Model	hostList				
0	Cluster	cluster	any	any	*				
0	Dom0FileSystems	FileSystem services	natifXen	any	none				
0	DomOLinuxServices	Linux processes status	natifXen	any	none				
0	Dom0Syslog	Linux Syslog events	natifXen	any	none				
$\odot$	Dom0SystemLoad	Load monitoring of this System	natifXen	any	none				
0	Internet	Internet services	any	any	none				
0	MegaRAID	MegaRAID monitoring	any	any	none				
0	reporting	Indicators collected by MRTG	any	any	none				
	Add from the selected category Cancel								

for hosts : 172.31.50.55

Figure 3-23. Available categories for domain0 Host

- 4. Select the DomOSystemLoad category and click Add from the selected category.
- 5. The edition form for the corresponding category is displayed with all fields filled in. Click the **Ok** button.
- The Categories and Services page now displays DomOSystemLoad category in the list of used categories for the selected hosts. Expand the category to display the list of the used services.

#### Expand all

E Collapse all

## Pranage categories

	Name & Description	OS	Model	HostList	Actions
	🧹 Dom0SystemLoad	Xen	any	172.31.50.55	edit] manage services
	🖌 CPU	Xen	any	*	<u>edit</u>
	🖌 Memory	Xen	any	*	<u>edit</u>
	Processes	Xen	any	*	<u>edit</u>
	🧹 Swap	Xen	any	*	<u>edit</u>
÷	🐝 HyperNova	Xen	any	172.31.50.55	<u>edit</u>

Categories and Services found for host(s) : 172.31.50.55

Figure 3-24. Used services for domainO Host

# Note:

The Zombies and Users services are not present. To activate them, you have to explicitly associate them to the hosts (see below).

To activate the Users service, do as follows:

 Click the manage services link of the DomOSystemLoad category and choose the option Add from a service template (user or predefined) to display the available services.

### Manage Services

Create a new service									
Add from a service template (user or predefined template)									
check	Name	Category	Description	Os	Model	hostList			
0	Ausr	DomOFileSystems	monitors the percent of free space for the filesystem Ausr	natifXen	апу	none			
0	Alerts	MegaRAID	checks the alerts received from the MegaRAID SNMP agent	any	any	*			
0	All	Dom0FileSystems	monitors the percent of used space for all the mounted filesystems	natifXen	any	*			
0	AuthentFailures	Dom0Syslog	monitors the authentication failures messages in the messages log	natifXen	апу	none			
0	CPU	Dom0SystemLoad	monitors the CPU load average over three periods of time (1mn, 5mn and 15 mn)	natifXen	any	*			
0	FTP	Internet	FTP service	any	any	none			
0	HTTP	Internet	HTTP service	any	any	*			
0	HTTP_NSMaster	Internet	checks the NSMaster URL	any	any	none			
0	Memory	Dom0SystemLoad	monitors the percent of used memory (physical and swap) for the domain0	natifXen	апу	*			
0	Processes	Dom0SystemLoad	monitors the number of processes running on the domain0	natifXen	any	*			
0	RootAccess	Dom0Syslog	monitors the session opened for user root messages in the messages log	natifXen	any	*			
0	Status	MegaRAID	checks the RAID status	any	any	*			
0	Swap	Dom0SystemLoad	monitors the percent of swap used by the domain0	natifXen	any	*			
D D	TCP_7	Internet	checks the echo TCP port	any	any	none			
0	UDP_7	Internet	checks the echo UDP port	any	any	none			
•	Users	Dom0SystemLoad	monitors the number of users currently logged in	natifXen	any	none			
0	Zombies	Dom0SystemLoad	monitors the number of zombie processes running on the domain0	natifXen	апу	none			
0	perf_indic	reporting	monitors one indicator collected by MRTG	any	any	none			
0	syslogd	Dom0LinuxServices	monitors the presence of a syslogd process running on the system	natifXen	any	*			
			Add from the selected service Cancel						

for category : Dom0SystemLoad[natifXen,any]

Figure 3-25. Available services for DomOSystemLoad category

- 2. Select the Users service and click **Add from the selected services**. The edition form for the corresponding service is displayed with all fields filled in. Click the **Ok** button.
- 3. The Categories and Services page now displays the **Users** service in the list of the used **DomOSystemLoad** services.

#### Expand all

E Collapse all



#### Categories and Services found for host(s) : 172.31.50.55

	Name & Description	OS	Model	HostList	Actions
Ξ	🧹 Dom0SystemLoad	Xen	any	172.31.50.55	edit] manage services
	🧹 Users	Xen	any	172.31.50.55	<u>edit</u>
	🖌 CPU	Xen	any	*	<u>edit</u>
	🖌 Memory	Xen	any	*	<u>edit</u>
	Processes	Xen	any	*	<u>edit</u>
	🧹 Swap	Xen	any	*	<u>edit</u>
+	🐝 HyperNova	Xen	any	172.31.50.55	<u>edit</u>

Figure 3-26. Users service for domainO Host

To get detailed information about the Categories and Services configuration, refer to the *NovaScale Master Administrator's Guide*.

# 3.3.3.3 Nagios Check Commands

#### check\_hn\_server\_status

The configurable NovaScale Master service check command syntax is:

check\_hn\_server\_status

See the check\_NSM\_hypernova\_xen command in Appendix A for parameters details.

#### check\_hn\_vm\_status

The configurable NovaScale Master service check command syntax is:

check\_hn\_vm\_status!<hypernova\_server>!<vmname>

See the check\_NSM\_hypernova\_xen command in Appendix A for parameters details.

#### domainO supervision related commands

The commands used for **domainO** supervision services are those used for Linux supervision. To get detailed information about them, refer to the *NovaScale Master Administrator's Guide*. The following table lists the commands used by the services.

Category.Service	Command	
Dom0SystemLoad.CPU	check_cpuload	
Dom0SystemLoad.Memory	check_memory	
DomOSystemLoad.Processes	check_procs	
Dom0SystemLoad.Users		
Dom0SystemLoad.Zombies	check_procs	
Dom0SystemLoad.Swap	check_swap	
Dom0FileSystems.All	-hhdishsl	
Dom0FileSystems./usr	cneck_aisks.pi	
Dom0LinuxServices.syslogd	check_procs	
Dom0Syslog.AuthentFailures		
Dom0Syslog.RootAccess	check_log2.pl	

# 3.3.3.4 NovaScale Master Console

### Operation

From the Virtual Manager or from any element of the Virtual Platform, you can launch the **HN Master Web Interface** by selecting the following cascading menu:

 $Operation \rightarrow Application \rightarrow HN \; Master$ 

# 3.3.3.5 HyperNova Monitoring

From the platform or host elements, you can access monitoring information. From the hosts element, you can display information related to associated services by selecting **Monitoring** menus.

From the platform element, you can display monitoring information related to all elements by selecting **Monitoring** menus. For instance, you can view all services of the hosts in the platform, as shown in the following figure:

ig VIRTUAL PLATFORM: test160								
		Mor	nitoring   R					
Status Overview	Status Overview   Status Grid   Status Detail   Problems							
	All	Problems	Up	Down	Unreachable	Pending		
Host Selection	<u>3</u>	0	<u>3</u>	0	0	0		
	All	Problems	Ok	Warning	Unknown	Critical	Pending	
Selected Host Services	<u>6</u>	0	<u>6</u>	0	0	0	0	

Click status links to display the selected hosts and services

Service details			Last Updated: 23-07-2007-14:56:41 Updated every 120 seconds			
Host $\uparrow \downarrow$	Service $\uparrow \downarrow$	Status $\uparrow \downarrow$	Last Check $\uparrow \downarrow$	Duration $\uparrow \downarrow$	Information	
<u>hn160</u>	HyperNova.GlobalStatus	ОК	0d 0h 0m 51 sago	3d 3h 22m 42s	Nothing to report	
	PING	ОК	0d 0h 3m 49s ago	3d 3h 21m 26s	PING OK - Packet loss = 0%, RTA = 0.00 ms	
testHNXX03	PING	ок	0d 0h 2m 15s ago	0d 2h 36m 58s	PING OK - Packet loss = 0%, RTA = 0.00 ms	
	VirtualMachine.Status	ок	Od Oh Om 54s ago	3d 3h 23m 7s	VM inactive	
testHNXXA02	PING	ОК	Od Oh 4m 49s ago	1d 19h 45m 2s	PING OK - Packet loss = 20%, RTA = 0.00 ms	
	VirtualMachine.Status	ок	0d 0h 2m 11s ago	3d 3h 20m 37s	VM inactive	

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

Figure 3-27. Virtual Platform monitoring

# 3.3.4 NSMasterViosLPAR "ViosLPAR" Management

# 3.3.4.1 Overview

Dynamic logical partitioning (LPAR) is a system architecture delivered on IBM systems that allows the division of a single server into several completely independent virtual servers or logical partitions. The Virtual I/O Server is a special purpose partition that provides virtual I/O resources to other partitions and offers the Integrated Virtualization Manager (IVM) to manage virtual devices and partitions

The **ViosLPAR** Add-on provides functional links to supervise the logical partitions by requesting the IVM component.

The following figure shows the link between each component:



NS Master server machine

Virtualization Server machine

Figure 3-28. ViosLPAR Add-on components

# 3.3.4.2 NovaScale Master Configuration

To configure the monitoring elements for the ViosLPAR Add-on, you have to define an IBM VIOS Virtualization Platform from the NovaScale Master Configuration GUI. Native OS, LPARs and related monitoring services are defined in one easy step.

The native OS is represented by a NSMaster host with the OS: Vios.

LPARs are represented by a NSMaster host with the model: IBM Lpar.

# 3.3.4.2.1 VIOS Virtualization Platform

To configure a VIOS Virtualization Platform, click the **IBM VIOS** link in the Virtualization part of the Topology domain. The list of all configured platforms appears, as in the following example:

	IBM VIOS Virtualization Platforms									
Hel	p on Vios									
	New									
	platform name	server	description	host name	virtual name	network name	OS			
Edit	vios1	ivm1	4 IBM MOS Mitualization platform		part1	part1	other			
	1031	14111		<u>part2</u>	part2	part2	other			

Figure 3-29. IBM VIOS Virtualization Platforms page

It is possible:

- To create a new VIOS Virtualization Platform using the New button
- To edit or delete a resource using the Edit link
- To edit a virtual host using the **<hostname>** link.

When you click the New button, the following display appears with all resource properties:

	IBM VIOS Virtualization Platform	
Help on Vios		
	ок	Cancel
	Properties	
name		
description	IBM VIOS Virtualization platform	
Virtual I/0 Server		
name	Select	
model	other 🔽	
network name		
SSH authentication		
user	padmin	
identity file	id_dsa_nsm	
Logical Partitions		
Discover	To get the list of hosted virtual machines, click the Discover button	

Figure 3-30. IBM VIOS Virtualization platform Properties

Besides the characteristics (name and description) of the main object, the properties of a VIOS virtual platform are divided into three parts:

- Virtual I/O Server: used to define the physical machine and the native OS.
- SSH authentication: used to define properties related to SSH authentication.
- Logical partitions: used to describe the VIOS Virtualization platform logical partitions.

#### Virtual I/O Server Properties

name	Server host short name.
	This name is displayed in the NovaScale Master Console views.
	Click <b>Select</b> to choose a defined host from the NSMaster host list.
model	Host model. Allowed values are EL Blade and other.
	Default value: other
network name	Server network name (hostname or IP address).

#### **SSH** authentication Properties

user	Remote user to login
	Default value: padmin
identity file	identifier of the file from which the identity (private key) for RSA or DSA authentication is read, used to perform non-prompted remote connection via ssh
	The filename used is built with this identifier, suffixed according to the user performing the ssh. For Nagios, the file will be <b>id_dsa.nsm</b> (used in service definition, for instance).
	All the files must be localized into the directory <nsmaster directory="" installation="">/engine/etc/ssh</nsmaster>
	🕼 Note:
	This value cannot be changed. Identity files are generated at

I his value cannot be changed. Identity files are generated at NSMaster installation, with specific rights. Refer to NovaScale Administrator's Guide to get detailed information.

To use it as authentication file for VIOS platform, you have to install the corresponding public key (id\_dsa.pub) on the VIO server. Refer to the IBM documentation to know how to install the DSA key.

#### Logical Partitions Properties

List of the partitions established by selecting the partitions obtained by remote command on VIO server.

The request is performed by clicking the **Discover** button (or-**Rediscover** if you are in edition mode).

See below the complete description of the procedure.

#### Logical Partitions Discovery

The result of the discovery is displayed as a table composed of three parts:

• the left column allows you to select the partitions to be associated to the platform

- the center part displays Partitions properties as defined on the VIO server.
- the right part allows you to edit the main properties (name, network name and OS) of the corresponding NSMaster host. The host can be edited only if the corresponding partition is selected. You can select an already defined host by clicking the select button or you can create a host by completing the corresponding fields.

Logi	ical	l Partitions						
		Select LPAR to as Then, map	socia each	ate them to the VIOS platform LPAR to a defined NS Maste	i by clicking er host or cl	the corresponding checkbo hoose to create a new.	ox.	
	7	VIOS Logical Partiti	on		NS Master	Configuration		
		Name	ld	Name		netName	OS	
V	7	part1	2	part1	Select	part1	other	-
V	7	part2	3	part2	Select	part2	other	-
F	Re-discover To update the list of LPAR, click the Re-discover button							

Figure 3-31. Logical Partitions display after Discover step

### **IF** Notes:

- When you select an already defined host, you cannot change its network name and OS. But, the Select option contains a Default option corresponding to the partition name, which can be edited.
- Only Linux and Aix OS are supported by logical partitions.
- If the partition name contains space(s), they are replaced by underscore(s) in the host label.
- If the remote access is not available, you can edit manually the VIOS Logical Partition as shown in the following figure. Beware, if the remote access is not available, the supervision process will be failed.
- In case of discovery failure, pay attention to the following messages:
  - Permission denied (publickey, password, keyboard-interactive) This message indicates an authentication problem. Verify that the public key is installed on the Vio Server or that the rights on the private key are correctly set.
  - ssh: connect to host 192.168.207.50 port 22: Connection refused
  - This message means that ssh is not installed on the Vio Server.
  - ssh:<host>: no address associated with name
  - This message indicates that the netName of the Vio Server is unknown.
  - Discovery failed: Warning: Identity file .. not accessible This message means that the identity file is not found. Check the content of the <NSMaster Installation Directory>/engine/etc/ssh directory.

		Discovery faile	d: ssh: test: no address	associated with nam	e	
You can define NSMaster Hosts for pseudo LPAR. Select LPAR to associate them to the VIOS platform by clicking the corresponding checkbox. Then, map each LPAR to a defined NS Master host or choose to create a new.						
	VIOS L	ogical Partition		NS Master	Configuration	
	Name	ld	N	lame	netName	OS
•	lpar1	1	lpar1	Select	lpar1	other
2	lpar2	2	lpar2	Select	lpar2	other
	lpar3	3	lpar3	Select	lpar3	other
	lpar4	4	lpar4	Select	lpar4	other
-	lpar5	5	lpar5	Select	lpar5	other



## Logical Partitions Re-Discovery

Re-Discovery is required to check that the current NSMaster configuration still matches the Vios configuration in order to:

- add logical partition not yet registered in the VIOS Virtualization platform
- remove logical partitions no more defined in the Vios configuration.r

During the Re-discovery step, if the current configuration is not compatible with Vios configuration the invalid partitions are displayed in red and the partitions not referenced in the current NSMaster configuration are displayed in green, as shown in the following figure:

-	Select LPAR to associate them to the VIOS platform by clicking the corresponding checkbox. Then, map each LPAR to a defined NS Master host or choose to create a new.					
	VIOS Logical Partition			NS Master	r Configuration	
	Name	ld	Name		netName	OS
	part1	2	part1	Select	192.168.207.61	other 🔽 💌
Γ	part3	3	part3	Select	192.168.207.62	other 🗾 💌
	part2	3	part2	Select	part2	other 🗾 💌
Re-	Re-discover To update the list of LPAR, click the Re-discover button					

Figure 3-33. Logical partition display after Re-discover step

Partitions no longer defined in Vios (in the example above, part3) are automatically unchecked and will be removed from the platform on form validation.

New partitions (in the example above, part2) must be explicitly checked for being added in the platform to be linked to the platform on form validation.

## 🔽 Note:

How to Add, Delete or Modify Logical partitions is detailed in 3.3.4.2.2 *Logical Partition Edition*, on page 58.

After edition:

- Click the OK button to validate your edition
- Or click Cancel to return to Virtual Platforms pages without changes
- Or click **Delete** to remove the Virtual Platform and maintain the hosts corresponding to the VMs and the Virtualization server
- Or click **DeleteAll** to remove the Virtual Platform and the hosts corresponding to the VMs and the Virtualization server.

## **I**Note:

Edition with a **Topology modification** requires confirmation: a page listing all modifications to be applied to the Topology configuration is displayed, as shown in the following figure.

# IBM VIOS Virtualization Platform

Configuration of the Vios Platform will lead to the following modification in Host Topology: - ivm1 host will be created as Virtualization server (OS VIOS). - creation of part1 host (model IBM LPAR): add to platform vios1 with vmld part1. - creation of part2 host (model IBM LPAR): add to platform vios1 with vmld part2. <b>Do you agree ?</b>	Host Topolog	y Modification
Configuration of the Vios Platform will lead to the following modification in Host Topology: - ivm1 host will be created as Virtualization server (OS VIOS). - creation of part1 host (model IBM LPAR): add to platform vios1 with vmld part1. - creation of part2 host (model IBM LPAR): add to platform vios1 with vmld part2. Do you agree ?		
Topology: - ivm1 host will be created as Virtualization server (OS VIOS). - creation of part1 host (model IBM LPAR): add to platform vios1 with vmld part1. - creation of part2 host (model IBM LPAR): add to platform vios1 with vmld part2. <b>Do you agree ?</b>	Configuration of the Vios Platform will lead	d to the following modification in Host
<ul> <li>iwn1 host will be created as Virtualization server (OS VIOS).</li> <li>creation of part1 host (model IBM LPAR): add to platform vios1 with vmld part1.</li> <li>creation of part2 host (model IBM LPAR): add to platform vios1 with vmld part2.</li> </ul> <b>Do you agree ?</b> VES NO	Topology:	
- creation of part1 host (model IBM LPAR): add to platform vios1 with vmld part1. - creation of part2 host (model IBM LPAR): add to platform vios1 with vmld part2. <b>Do you agree ?</b>	- ivm1 host will be created as Virtualization se	rver (OS VIOS).
- creation of part2 host (model IBM LPAR): add to platform vios1 with vmld part2.  Do you agree ?  NO	- creation of part1 host (model IBM LPAR); add to platform vios1 with vmld part1.	
Do you agree ?	- creation of part2 host (model IBM LPAR): add	to platform vios1 with vmld part2.
Do you agree ?		
YES NO	Do you	agree ?
YES NO		
	YES	NO

Figure 3-34. Host Topology modification confirmation for VIOS Virtualization platform

If you do not agree, click the **NO** button to return to the platform edition page, otherwise click the **YES** button to create the virtual platform.

## Related VIOS Virtualization platform Objects

When a VIOS Virtualization platform is defined, related objects are automatically generated to configure the specific Supervision linked to this type of NovaScale server. The following table describes the objects generated during the creation of the platform.

Туре	Description
host LPAR	As defined in the Logical Partition configuration part of the edition page.
host Vios	Host corresponding to the Virtual I/O Server as defined in the Virtual I/O Server configuration part.
hostgroup	hostgroup representing the physical platform, named <platformname>.</platformname>
manager	Virtualization manager representing the management interface, named < platformName>_IVM

categories and services	The VIOS category and related services are instantiated for the Vios host. The <b>VirtualMachine</b> category and related services are instantiated for each LPAR host.
performance indicators	An indicator representing the percentage of processing pool utilization is defined for the Vios host. An indicator representing the percentage of CPU usage is defined for each LPAR host.

# 3.3.4.2.2 Logical Partition Edition

A logical partition is represented by a host linked to the VIOS Virtualization platform. It has properties linked to the platform and properties of a host object.

Add, remove or modification of properties linked to the platform must be done from the VIOS Virtualization platform edition page.

Modification of host properties must be done from the Host edition page.

### Add a logical partition to a platform

Adding a logical partition is performed by checking the corresponding line in the Logical Partitions part of the platform edition form and setting the host characteristics in the NSMaster Configuration table zone (by filling in the corresponding fields or by selecting an already defined host).

## 🔽 Note:

When you edit a VIOS Virtualization platform, only the Logical Partitions defined as part of the NovaScale Master platform are displayed. To add partitions, you must performs a Rediscovery to get the list of all machines defined on the VIO server.

## Remove a logical partition from a platform

Removing a logical partition is performed by unchecking the corresponding line in the Logical Partitions part of the platform.

# **I**Note:

The corresponding host remains in the NovaScale Master definition with model set to 'other'. To delete it, click the 'Other Hosts' link to get the list of all Other Hosts configured, edit the corresponding host and click the **Delete** button.

## Modify a logical partition defined in a platform

To modify the name of the NSMaster host corresponding to a logical partition, enter the new name in the corresponding field or choose it in the list of already defined hosts in NovaScale Master by clicking the **Select** button.

To modify other characteristics as netName or OS, you must use the Host edition form.

## **I**Note:

To get the Host edition form corresponding to the logical partition, click the **Hostname** link displayed in the global platforms page.

#### Delete all logical partitions and corresponding hosts.

To delete all logical partitions and corresponding hosts, use the **DeleteAll** button of the VIOS Virtualization platform Edition form. Beware: the Vios server and the platform will be also deleted from the NovaScale Master configuration.

# 3.3.4.2.3 Virtualization Supervision

As specified above, services are instantiated for each host defined in the VIOS Virtualization platform. You can disable virtualization supervision by editing the hostgroup or manager properties or by editing each service (refer to the *NovaScale Administration Guide* for details).

#### **Monitoring Services**

Monitoring services defined for the native OS are associated with the VIOS category.

#### Services Applied to the Native OS

Service	Description	Check_command
Status	Checks the status of the Virtual I/O server	check_vios_status
UsedPool	Checks the utilization of the processing pool on the Virtual I/O server	check_vios_pool

Monitoring services defined for LPAR hosts are associated with the VirtualMachine category.

#### Services Applied to the LPAR Host

Service	Description	Check_command
Status	Checks LPAR status	check_vios_lpar _status
UsedCPU	Checks the utilization of the entitled CPU by the partition	check_vios_lpar_used_cpu

Monitoring services related to Virtual Platform elements are automatically created during the edition of the VIOS Virtualization Platform. Theses services can be displayed and edited from the **Services** page in the Supervision domain, but only the attributes related to monitoring or notification can be edited.

Properties		
category	VIOS	
name	UsedPool	
description	checks the utilization of the processing pool on Virtual I/O Server ( $\epsilon$	
model	any	
OS family	VIOS	
host list expression	ivm1	
Monitoring attributes		
status	• active         C inactive	
Monitoring command attr	ibutes (for this service)	
check command	check_vios_pool	
check command parameters	padminlid_dsa_nsm!5!70%!80%!	
monitoring period	24x7	
polling interval	5 mn (5 mn by default if empty)	
Notification attributes (for	this service)	
e-mail contact groups	Selected Objects All Objects  mgt-admins  Remove =>	
enable Bull autocall	C Yes ⊙ No	
enable SNMP trap	⊙ Yes C No	
notification period	24x7	
re-notification interval	0 mn (0 mn by default if empty)	
notify if warning	⊙ Yes C No	
notify if critical	⊙ Yes C No	
notify if recovery	⊙ <sub>Yes</sub> O <sub>No</sub>	

Figure 3-35. VIOS.UsedPool Service Properties pane

## **I**Note:

During VIOS Platform definition, all services are defined and activated for the server and for each LPAR. To deactivate the monitoring of one service, edit it and set its **status** (Monitoring attributes part) to **inactive**.

#### **Reporting indicators**

A performance indicator is defined for the Vios host to describe the utilization of the processing pool. This indicator is identified as **<vios\_host>\_UsedPool**.

A reporting indicator is defined for each LPAR to describe the utilization of the entitled CPU of a given LPAR. This indicator is identified as **<|par\_host>\_UsedCPU**.

# Indicators

#### Indicators

New					
	host	name	collect mode	source	status
Edit	ivm1	ivm1_UsedPool	NSM_monitoring	VIOS.UsedPool	active
<u>Edit</u>	part1	part1_UsedCPU	NSM_monitoring	VirtualMachine.UsedCPU	active
<u>Edit</u>	part2	part2_UsedCPU	NSM_monitoring	VirtualMachine.UsedCPU	active

Figure 3-36. VIOS indicators

### **IF** Note:

The collections of all these indicators is activated during the VIOS Platform definition. To deactivate some of them, edit the indicator and set its **status** to **inactive**.

## 3.3.4.3 Nagios Check Commands

#### check\_vios \_status

The configurable NovaScale Master service check command syntax is:

check\_vios\_status!<ssh\_user>!<identity\_file>

See the check\_NSM\_vios\_ivm command in Appendix A for parameters details.

#### check\_vios \_pool

The configurable NovaScale Master service check command syntax is:

check\_vios\_pool!<ssh\_user>!<identity\_file>!<sample\_time>!
<warning\_threshold>!<critical\_threshold>

See the check\_NSM\_vios\_ivm command in Appendix A for parameters details.

#### check\_vios\_lpar\_status

The configurable NovaScale Master service check command syntax is:

check\_vios\_lpar\_status!<vios\_netName>!<ssh\_user>!<identity\_file>!
<lpar\_name><vios\_name>

See the check\_NSM\_ vios\_ivm command in Appendix A for parameters details.

#### check\_vios\_lpar\_used\_cpu

The configurable NovaScale Master service check command syntax is:

check\_vios\_lpar\_used\_cpu!<vios\_netName>!<ssh\_user>!
<identity\_file>!<lpar\_name>!<vios\_name>>!<sample\_time>!
<warning\_threshold>!<critical\_threshold>

See the check\_NSM\_ vios\_ivm command in Appendix A for parameters details.

3.3.4.4 NovaScale Master Console

## 3.3.4.4.1 Operation

From the Virtual Manager or from any element of the Virtual Platform, you can launch the **IVM Web Interface** by selecting the following cascading menu:

http://frcls1704 - NovaScale Master 0.52.1 - Console - Mozill NovaScale Maste 1 🖹 🗿 frcis1704 Bull File Views Tools • Map Intual PLATFORM: vios1 🕜 Virtual Managers · Alerts vios1\_IVM 🖻 🦉 vios1 IBM 🖲 🚾 ivm 1 🖻 🌉 parti Welcome, please enter your information NS Master Tools 🗉 🔣 part2 User ID Selected Host Services Passw Log in 1 This product includes Eclipse technology (http://www.eclipse.org) Host details Required field Host èm1 part1 Ъ part2 S S & O @ 🛄 🖃 🕑 🗋 🚱 http://firds1704/NSMa terfconsole, heading php.lwrapper.php?ho

Operation  $\rightarrow$  Virtualization  $\rightarrow$  IVM

Figure 3-37. IVM activation from NovaScale Master Console

## 3.3.4.4.2 VIOS Monitoring

From the platform or host elements, you can access monitoring information.

From the hosts element, you can display information related to associated services by selecting **Monitoring** menus.
From the platform element, you can display monitoring information related to all elements by selecting **Monitoring** menus. For instance, you can view all services of the hosts in the platform, as shown in the following figure:

			C VIP	TUAL PLATFORM	viosptf			
			Monitorin	g   Reporting   Ope	erations			
tus Overview Stat	tus Grid   S	Status Detail   Probl	ems					
	All	Problems	Up	Down	Unreach	able	Pending	
Host Selection	<u>3</u>	0	<u>3</u>	0	0		0	
	All	Problems	Ok	Warning	Unkno	wn	Critical	Pending
Selected Host Services	<u>10</u>	0	<u>10</u>	0	0		0	0
		Cli	ick status links to	display the selected f	iosts and services			
rvice details							Last Updated Updated eve	l: 10-01-2008 11:37 ry 120 seconds
Host↑↓		Service 🔨	Status 🔨	$^\prime$ Last Check $\uparrow \downarrow$	Duration $\uparrow \downarrow$		Informati	on
blade js21	Hardw	Hardware.Health		Od Oh Om 25s ago	0d 17h 57m 51s	No critica SN#YK1	al or warning events 0306A712P	for the blade
	PING		ОК	0d 0h 1m 40s ago	0d 17h 56m 42s	PING OK	- Packet loss = 0%,	RTA = 0.00 ms
	VIOS.	<u>Status</u>	ОК	0d 0h 1m 38s ago	0d 0h 21m 38s	Virtual I/	0 Server state: Oper	rating
	VIOS.	JsedPool	ок	Od Oh Om 29s ago	0d 0h 20m 29s	Processi on 5 mn	ing pool (1.4 / 2 units OK: 2.16 %	s entitled) - utilizatio
part1	PING		ок	0d 0h 2m 33s ago	0d 17h 57m 39s	PING OK	- Packet loss = 0%,	RTA = 0.00 ms
	Virtual	Machine. <b>Status</b>	ок	0d 0h 1m 32s ago	0d 0h 21m 32s	Logical p	artition part1 on blac	de_js21: Running
	<u>Virtual</u>	Machine. <b>UsedCPU</b>	ок	Od Oh Om 23s ago	0d 0h 20m 23s	Logical p entitled) %	artition part1 on blac - processing utilizati	de_js21 (0.4 units on on 5 mn OK: 2.3
part2	PING		ок	0d 0h 1m 15s ago	0d 17h 56m 19s	PING OK	- Packet loss = 0%,	RTA = 0.00 ms
	Virtual	Machine.Status	ОК	0d 0h 4m 14s ago	0d 0h 19m 14s	Logical p	artition part2 on blac	de_js21: Running
	Virtual	Machine. <b>UsedCPU</b>	ок	0d 0h 0m 9s ago	0d 0h 18m 6s	Logical p entitled)	artition part2 on blac - processing utilizati	de_js21 (0.8 units on on 5 mn OK: 1.3

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

Figure 3-38. VIOS monitoring

### 3.3.4.4.3 VIOS Reporting

From the Vios host , you can display reporting indicators to get evolution of the processing pool utilization.

From any LPAR host, you can display reporting indicators to get evolution of the utilization of the CPU entitled to the partition.

# ivm1 virtual I/O server platform reporting

Graph period : day (5 minutes average)

### ivml+ivml\_UsedPool



#### part1+part1\_UsedCPU



#### part2+part2\_UsedCPU



Figure 3-39. VIOS reporting

### 3.4 Bull Products Server Add-ons

### 3.4.1 NSMasterDD4A for Bull "Dynamic Domains For Applications" Management

The **Dynamic Domains For Applications** (DDFA) software is a tool that can be used on the Linux operating system for simulating the partitioning of a multi-CPU machine at application level. Dynamic Domains for Applications can be used with standard Linux distributions and can be managed using the Webmin standard administration tool.

See the Dynamic Domains for Applications User's Guide (ref 86 A2 63ER) for more information.

You can install DDFA from the Bull Extension Pack for RedHat CD.

### 🕼 Note:

DDFA runs only on Linux machines and uses a Webmin module for its management. You can download the prerequisite Webmin package from the web site: http://www.webmin.com

This Add-on creates monitoring links between NovaScale Master and the **DDFA** management webmin module.

The following figure shows the different components used for monitoring:



Figure 3-40. DDFA Monitoring Components

NovaScale Master Server Add-ons provides the default Bull product categories by Management Package described below.

### 3.4.1.1 Default Categories & Services Proposed for Linux Hosts

Targeted OS	Model	Category	Service	Check command
Linux	Any	DynamicDomains	All	check_dd4a
			Default	

Table 3-5. DDF4 categories and services

### 3.4.1.2 DynamicDomains Category

#### **All Service**

For NovaScale and Express5800 Linux hosts with the Dynamic Domains management tool. This service dynamically checks global status reported by the associated webmin module for all defined Dynamic Domains.

#### **I**Note:

There is no need to reconfigure the tool to survey new defined Dynamic Domains.

#### default Service

For NovaScale and Express5800 Linux hosts with the Dynamic Domains management tool. This service checks the status of the default Dynamic Domain.

#### **IT** Note:

When creating a new Dynamic Domain, statically clone the default monitoring service to survey the new dynamic domain.

### 3.4.1.3 check\_DynamicDomains (Linux OS) Nagios Command

The configurable NovaScale Master service check command syntax is:

check\_DynamicDomains!<{ALL|<DomainName>}

Default syntax for DynamicDomains.All:

check\_DynamicDomains!ALL

#### Default syntax for DynamicDomains.default:

check\_DynamicDomains!default

### 3.4.2 NSMasterBVS for Bull Video Services Management

**Bull Video Services** (BVS) software is a tool that can be used with standard Linux distributions and Windows and can be managed using Web server.

See the Bull Video Services User's Guide for more information.

You can install BVS from the Bull Video Services CD (ref 36673900-xxx).

### **I**Note:

BVS 4.1 runs on Linux and Windows machines and uses an integrated Web server for management.

This Add-on creates monitoring links between NovaScale Master and the **BVS** management Web server module.

The following figure shows the different monitoring components:



Figure 3-41. BVS Web Server Monitoring Components

Targeted OS	Model	Category	Services	Check command
Linux			Streaming	
	any	BullVideoServices	Recording	check_BullVideoServices
Windows			Datagrams	

Table 3-6. Bull Video Services categories and services

### 3.4.2.1 BullVideoServices Category

Streaming	For NovaScale hosts acting as Bull video server. This service checks the status of the video streaming service.
Recording	For NovaScale hosts acting as Bull video server. This service checks the status of the video recording service.
Datagrams	For NovaScale hosts acting as Bull video server. This service checks the status of the video datagram errors.

### 3.4.2.2 check\_BVS Nagios Command

The configurable NovaScale Master service check command syntax is:

check\_BVS!<serviceName>

See the **check\_BVS** command, in Appendix A for parameters details.

For instance, Default syntax for  $\ensuremath{\textbf{BullVideoService.Streaming}}$  is:

check\_BVS!Streaming

### 3.4.3 NSMasterJOnAS for JOnAS Management

### 3.4.3.1 JOnAS Overview

JOnAS is a pure Java, open source, application server. Its high modularity allows to it to be used as:

- A J2EE server, for deploying and running EAR applications (i.e. applications composed of both web and ejb components)
- An EJB container, for deploying and running EJB components (e.g. for applications without web interfaces or when using JSP/Servlet engines that are not integrated as a JOnAS container)
- A WEB container, for deploying and running JSPs and Servlets (e.g. for applications without EJB components).

The JOnAS architecture is illustrated in the following figure, showing WEB and EJB containers relying on JOnAS services.



Figure 3-42. JOnAS Architecture

See http://jonas.objectweb.org/doc/index.html for more information.

### 3.4.3.2 JOnAS Domain Topology

A JOnAS management domain is composed of a set of JOnAS servers that are running under the same management authority. All the servers in the domain must have a distinct **server name** and a common **domain name**.

The servers in a domain can be administered by a management application running on a server playing the role of **administrator** or **master**. The managed servers play the role of **slaves**.

A default domain configuration is provided in \$JONAS\_ROOT/conf/domain.xml. This configuration corresponds to a domain named **jonas** managed by a server also named **jonas**.

JOnAS administrators are responsible for the configuration and administration of JOnAS servers running within a management domain.

### 3.4.3.3 JOnAS Monitoring Information

NovaScale Master retrieves domain and server monitoring information from JOnAS (administrator or master) server via the WEB services.

#### **IT** Note:

WEB services are operational only if the "**conf/server.xml**" file on JOnAS (administrator or master) server is correctly configured as:

The localhost value must be replaced by the DNS host name.

### 3.4.3.4 NovaScale Master Configuration

JOnAS configuration for NovaScale Master is available from the configuration GUI by selecting Third-Party Application  $\rightarrow$  JOnAS.

Bul	NovaScale Master 5.1.0 - Configuration	💾 Save & Reload	Help
Topology   Third-Party	Application   Supervision   Console   GlobalSettings		read/write access 🕕
Third-Party Application	Welcome		
Miscellaneous • <u>JOnAS</u>			

Figure 3-43. JOnAS configuration

#### JOnAS Domain Definition

To display the JOnAS domains already defined, click Third-Party Application ---- JOnAS.

New Domain Domain name Description Host name Admin server Other servers <u>Edit</u> N/A jonas charly4L jonas none Edit jonas N/A frcls6260 instance1 instance2,instance3 N/A Edit nsmaster jonas jonas none

Figure 3-44. JOnAS domains

To edit a domain, click Edit.

To define a new JOnAS domain in the NovaScale Master configuration database, click the **New Domain** button and initialize the following attributes:

### JOnAS Domain Attributes

Help on JOnAS Dom	<u>ain attributes</u>	
	OK Cancel	
	Properties	
domain name		_
description		_
Domain informatio	on access	
host name		
port number	9000	
Authentication		
user name		
password	confirm	1
Domain monitore	1 Servers	
admin server name		_
master server	C Yes 🕫 No	

Figure 3-45. JOnAS properties

domain name	name of JOnAS domain		
description	description of the domain		

#### Domain information access

host name	name of the host
port number	port number
user name	name of the user
password	password

#### **Domain monitored Servers**

admin server name of JOnAS administator or master server

master server master server flag

If the master server flag is set to Yes, the Get Servers button is displayed:

master server	⊙ Yes C No
other servers	Get servers Click on "Get servers" to get the servers managed in the domain

Click the Get Servers button to list all the servers belonging to the specified domain:

Domain monitored	Servers						
admin server name	admin server name instance1						
master server	⊙ Yes C No						
other servers	Selected Servers instance2 instance3 Remove	All Servers instance2 instance3					

other servers the selected servers will be monitored by NovaScale Master.

### 3.4.3.5 JOnAS Category and Service

The definition of a domain creates or updates a **JOnAS** category and creates one service by JOnAS server identified by the JOnAS server name.

Ξ	<u>JOnAS</u> : JOnAS monitoring (automatically generated)	65	any	charly4L, nsmaster, frcls6260	
				clone   modify   withdraw 🛛 🔲	
	instance2	ØS	any	frcls6260	
	instance3	05	any	frcls6260	
	instance1	ØS	any	frcls6260	
	j <u>onas</u>	05	any	nsmaster	
	jonas	05	any	charly4L	

Figure 3-46. JOnAS category and services

The check\_NSM\_JOnAS command defined for the service, returns the state of the server (RUNNING, STOPPED, FAILED, UNREACHABLE). If the server is running, the following attributes are returned:

- Threads count
- Memory allocated and used
- HTTP requests count
- Committed transactions count

### 3.4.3.6 JOnAS Reporting Indicators

Threads and MemoryUsed indicators are created for each JOnAS service.

- The **Threads** indicator returns the current threads count.
- The MemoryUsed indicator returns the current memory used.

Silli	host	name	collect mode	source	status
<u>Edit</u>	charly4L	JOnASjonas.MemoryUsed	NSM_monitoring	JOnAS.jonas	active
<u>Edit</u>	charly4L	JOnASjonas.Threads	NSM_monitoring	JOnAS.jonas	active



### 3.4.3.7 NovaScale Master Console

#### JOnAS Monitoring Representation

The JOnAS category groups services monitoring for all the servers in the domain.

Bull	NovaScale Master		fr	cls6260.frcl.bull.f	'n	1 🖬 🕑 🛛	
Troo	File Views Tools	0 0 1 10	<u>^   </u>				8
Map	Hosts	X		🔗 CATE	GORY: JOnAS o	n frcls6260	
Alerts					Monitoring		
		Service Status					
NS Master Tools	<ul> <li>⊕ Incls3104</li> <li>⊕ Incls6260</li> <li>⊕ Incls6260</li> <li>⊕ Incls9stems</li> <li>⊕ Incls9stems</li> <li>⊕ Incls9stems</li> <li>⊕ Incls9stems</li> </ul>	Service details	Status	Last Chack	Duration	Last Updated: 01-02-2007 14:38:0 Updated every 120 seconds	7
		JOnAS instance1	OK	Od Oh 2m 9s ago	6d 23h 31m 27s	The instance1 (master)server in jonas domain is RUINING on frcis5250 Memory allocated = 66650 used = 38506 Threade = 94 HTTP requests count = 1409729345 Committed transactions count = 0	
	instance2	JOnAS instance2	CRITICAL	0d 0h 1m 27s ago	Od Oh 1m 27s	The instance2 server in jonas domain is FAILED on frcls6260	
	E - 2 LinuxServices	JOnAS instance3	UNKNOWN	Od Oh Om 56s ago	23d Oh 32m 3s	The instance3 server in jonas domain is UNREACHABLE	
Other	⊞- 🔗 Syslog	×		3 Matching	Service Entries Di	splayed	

Figure 3-48. JOnAS category view

#### Launching the jonasAdmin Application

The JOnAS administration tool, **jonasAdmin**, can be contextually launched from a host node on the NovaScale Master console by clicking: **Operations** → **Application** → **jonasAdmin** 

Bull	NovaScale Master			frcls6260.frc	ci.buli.fr	M 🖹 🖉	
	File Views Tools	002	🔂 🔥 I	<b></b>			8
Map	Hosts	X			HOST: frcls626	i0 🔳	
• Alerts				Monitori	ng   Reporting   Invent	ory   Operations	
	T- The freis1704	Operating System	n -   <mark>Applica</mark>	ation			
	⊕ III frcls3104	Host detail	jonas	Admin		Last Updated: 01-02-2007 14: Updated every 120 seconds	35:37
NS Master		Host	Status	Last Check	Duration	Information	
Tools	FileSystems	frcls6260	UP	0d 0h 3m 22s ago	113d 22h 32m 53s	PING OK - Packet loss = 0%, RTA = 0.03 ms	
1/20	JonAs						
12	Instance2						
	instance3						
	E 🔗 LinuxServices						
Other	E - 2 Syslog	×					

Figure 3-49. jonasAdmin launching

# Appendix A. Check Commands for Customizable Services of Add\_ons

This chapter describes the usage of the check commands by customizable services. These commands are Linux commands. They run only under CYGWIN on Windows.

### Internal Storage Management

### **NSMasterGAMTT**

#### check\_gamttRAID

check\_gamttRAID uses the following shell (PERL) command:

#### Usage

```
check_gamttraid -H <host> [-C <community>] [-p <port>] [-t <timeout>]
{ [-A {ALL|<Ct>}] | [-P {ALL|<Ct>.<Ch>.<Tg>}] | [-L {ALL|<Ct>.<Ldn>}] }
[-v <vl>] [-f <f>]
```

-H, –hostname <host></host>	Hostname or IP address of target to check
-C,community <community></community>	SNMP community string (defaults to "public")
-p, -port <port></port>	SNMP port (defaults to 161)
-t, -timeout <timeout></timeout>	Seconds before timing out (defaults to Nagios timeout value)
-A, -adapter ALL   <ct></ct>	Controller board
-P, -physical ALL   <ct>.<ch>.&lt;</ch></ct>	<tg></tg>
	Physical device addr
-L, –logical ALL   <ct>.<ldn></ldn></ct>	Logical drive addr
-v, —verbosity <vl></vl>	Verbosity level: "O" None "1" Adds the <ctrlmodel> and the status of all controller boards filtered</ctrlmodel>
-f, -format <f></f>	"0" Carriage Return in ASCII mode (\n) "1" Carriage Return in HTML mode ( )

#### Return code

OK (0), WARNING (1), CRITICAL (2), UNKNOWN (3)

• OK: All "logical drives" and all "physical devices" run normally.

- WARNING: At least one "logical drive" or one "physical device" is in a WARNING state.
- CRITICAL: At least one "logical drive" or one "physical device" is in a CRITICAL state.
- UNKNOWN All other types of processing errors (bad parameter, no response, and so on...).

### **I**Note:

In the case of multiple errors, the global state will be the worst one; CRITICAL > WARNING > OK.

#### Output

A string composed with a global state descriptor followed, if they exist, by error states of concerned component (controller, Logical Device, Physical Device).

#### global state descriptor:

The first line shows the global state. The syntax is:

GAMTT RAID [CT |PD |LD ]<GlobalStatus> "CT " if "-A". "PD " if "-P". "LD " if "-L".

#### state descriptor by controller

They may be present after the global state descriptor if an error exists.

```
The syntax is:
    [ CT(Ct<Ct>) <CtrlModel> <CtrlStatus>
    [{LD(Ct<Ct> Nu<Ldn>) <LDType> <LDStatus>[, ] ...}]
    [{PD(Ct<Ct> Ch<Ch> Tg<Tg>) <PDType> <PDStatus>[, ] ...}]
    ....]
<GlobalStatus>
                 worst detected status
<CtrlModel>
                 controller model
<CtrlStatus>
                 worst state detected for an element of this controller (LD and PD)
<Ct>
                 controller number
<ldn>
                 "logical drive" number
                 "logical drive" type: "RAIDx" or "JBOD"
<LDType>
<LDStatus>
                 "logical drive" status
<Ct>
                  controller number
<Ch>
                  "channel" number
<Tg>
                 target number
                  "physical device" type: "Disk", "Processor", "Ctrl Channel",
<PDType>
<PDStatus>
                  "physical device" status
```

#### **Examples:**

•

```
If global state is OK:
> check_gamttraid -H <host>
GAMTT RAID OK
> check_gamttraid -H <host> -P 0.0.1
GAMTT RAID PD OK
>
> check_gamttraid -H <host> -L 0.0
GAMTT RAID LD OK
>
> check_gamttraid -H <host> -v 1
GAMTT RAID OK
CT(Ct0) MegaRAID Ultra320-2x OK
CT(Ct1) DAC960FFX2 OK
CT(Ct2) MegaRAID Ultra320-2x OK
>
> check_gamttraid -H <host> -A 1 -v 1
GAMTT RAID CT OK
CT(Ct1) DAC960FFX2 OK
>
If global state is CRITICAL or WARNING, only concerned elements are displayed:
> check_gamttraid -H <host>
GAMTT RAID CRITICAL
CT(Ct0) MegaRAID Ultra320-2x CRITICAL
```

```
CT(Ct0) MegaRAID Ultra320-2x CRITICAL
PD(Ct0 Ch0 Tg1) Disk Dead
>
    check_gamttraid -H <host> -L 0.1
GAMTT RAID LD CRITICAL
CT(Ct0) MegaRAID Ultra320-2x CRITICAL
LD(Ct0 Nu1) RAID5 Critical
>
```

```
If return code is UNKNOWN:
> check_gamttraid -H <host>
GAMTT RAID UNKNOWN - snmp query timed out
>
```

### **NSMasterLSICIM**

### check\_LSICIM

check\_LSICIM uses the following shell (PERL) command:

#### Usage

check\_LSICIM -H <host> [-C <ctrlname>]

-H, -hostname <host> Hostname or IP address of target to check

-C, -ctrlname <ctrlname> Name of the controller to check

#### **I**Note:

The name of the controller must be protected with a quote if the name contains blank characters.

#### Return code

OK (0), WARNING (1), CRITICAL (2), UNKNOWN (3)

- OK: All "Controllers" run normally.
- WARNING: At least one "Controllers" is in a WARNING state.
- CRITICAL: At least one "Controllers" is in a CRITICAL state.
- UNKNOWN All other types of processing errors (bad parameter, no response, etc...).

#### 🕝 Note:

In the case of multiple errors, the global state will be the worst one; CRITICAL > WARNING > OK.

#### Output

A string indicates the state of mirroring followed, where applicable, by concerned component error states (controller, Logical Device, Physical Device).

If the GlobalStatus determined by the worst status of components is not OK, the state of the component is reported with the following format:

```
[CT(Ct<Ct>) <CtrlName> <CtrlStatus>
[{> LD(Ct<Ct> Nu<Ldn>) <LDType> <LDStatus>[, ] ...}]
[{ - PD(Ct<Ct> Ch<Ch> Tg<Tg>) <PDManufacturer> <PDModel> <PDStatus>[, [<> PD(Ct<Ct> Ch<Ch> Tg<Tg>) <PDManufacturer> <PDModel> <PDStatus>[, ] ...}]

<Ct> controller number

<CtrlModel> controller model
```

<ctrlstatus></ctrlstatus>	worst state detected for an element of this controller (LD and PD)
<ldn></ldn>	"logical drive" number
<ldtype></ldtype>	"logical drive" type: IM
<ldstatus></ldstatus>	"logical drive" status as reported by the LSI CIM provider
<ch></ch>	"channel" number
<tg></tg>	target number
<pdmanufacturer></pdmanufacturer>	"physical device" manufacturer
<pdmodel></pdmodel>	"physical device" model
<pdstatus></pdstatus>	"physical device" status as reported by the LSI CIM provider

#### **Examples:**

```
$ ./check_LSICIM -H 172.31.50.71
: LSI SCSI storage - Integrated Mirroring not available -
CT(0) LSI 53C1030 CRITICAL
> LD(Ct0 Ch2 Tg0) IMVolume: Degraded Redundancy
    - PD(Ct0 Ch3 Tg0) SEAGATE ST373454LC: Error
$ ./check_LSICIM -H 172.31.50.71 -C 'LSI SCSI1030 - 0'
> CT(0) LSI 53C1030 OK
$ ./check_LSICIM -H 172.31.50.71 -C 'LSI SCSI1030 - 0'
> CT(0) LSI 53C1030 CRITICAL
```

- PD(Ct0 Ch0 Tg0) MAXTOR ATLAS10K4\_36SCA CRITICAL

### NSMasterMegaRaidSAS

### check\_MegaRaidSAS(\_IR)

check\_MegaRaidSAS(\_IR) uses the following shell (PERL) command:

#### Usage

```
check_MegaRaidSAS(_IR) -H <host> [-C <community>] [-p <port>]
[-t <timeout>] { [-A {ALL|<Ct>}] | [-P {ALL|<Ct.Pdn>}] |
[-L {ALL|<Ct.Ldn>}] } [-f <f>]
```

-H, -hostname <host></host>	Hostname or IP address of target to check
-C, -community <community></community>	SNMP community string (defaults to "public")
-p, -port <port></port>	SNMP port (defaults to 161)
-t, -timeout <timeout></timeout>	Seconds before timing out (defaults to Nagios timeout value)
-A, -adapter ALL   <ct></ct>	Controller board
-P, –physical ALL   <ct.pdn></ct.pdn>	Physical device identifier
-L, -logical ALL   <ct.ldn></ct.ldn>	Virtual drive identifier
-f, -format <f></f>	"0" Carriage Return in HTML mode ( ) "1" Carriage Return in ASCII mode (\n)

#### Return code

OK (0), WARNING (1), CRITICAL (2), UNKNOWN (3)

- OK: All "logical drives" and all "physical devices" run normally.
- WARNING: At least one "logical drive" or one "physical device" is in a WARNING state.
- CRITICAL: At least one "logical drive" or one "physical device" is in a CRITICAL state.
- UNKNOWN All other types of processing errors (bad parameter, no response, and so on...).

#### 🕝 Note:

In the case of multiple errors, the global state will be the worst one; CRITICAL > WARNING > OK.

#### Output

A string composed with a global state descriptor followed, if they exist, by error states of concerned component (controller, Logical Device, Physical Device).

#### global state descriptor

The first line shows the global state. The syntax is:

```
MegaRAID SAS [CT |PD |LD ]<GlobalStatus>
"CT " if "-A".
"PD " if "-P".
"VD " if "-L".
```

#### state descriptor by controller

They may be present after the global state descriptor if an error exists.

#### The syntax is:

```
[ CT(Ct<Ct>) <CtrlModel> <CtrlStatus>
[PD(CT<id> DEV<id> ENC<id> SLOT<id> SN<number>) <PDType>
<PDStatus> ...]
[VD(CT<id> DEV<id>) <RAIDLevel> <VDStatus> ...]
...]
```

<ctrlmodel></ctrlmodel>	controller model
<ctrlstatus></ctrlstatus>	worst state detected for an element of this controller
<id></id>	controller or Drive or Logical drive index
<raidlevel></raidlevel>	RAID level (0,1,5,10,50,60)
<vdstatus></vdstatus>	"logical drive" status
<pdtype></pdtype>	"physical device" type: "Disk", "Processor", "Ctrl Channel",
<pdstatus></pdstatus>	"physical device" status
<sn></sn>	serial number of physical drive

#### **Examples**:

If global state is OK:

```
> check_MegaRaidSAS -H <hostname>
MegaRAID SAS CT OK
CTO MegaRAID SAS 8408E OK
PD: 4
VD: 2 ( RAID0, 1 RAID1)
>
> check_MegaRaidSAS -H < hostname > -A ALL
MegaRAID SAS CT OK
CT0 MegaRAID SAS 8408E OK
PD: 4
VD: 2 ( RAID0, 1 RAID1)
>
> check_MegaRaidSAS-H < hostname > -L ALL
MegaRAID SAS VD OK
>
> check_MegaRaidSAS-H < hostname > -P ALL
MegaRAID SAS PD OK
>
```

```
> check_MegaRaidSAS-H < hostname > -P 0.2
MegaRAID SAS PD OK
>
> check_MegaRaidSAS-H < hostname > -L 0.1
MegaRAID SAS VD OK
```

• If global state is CRITICAL or WARNING, only concerned elements are displayed:

```
> check_MegaRaidSAS -H <hostname> -L ALL
MegaRAID SAS VD WARNING
VD(CT0 DEV0) RAID1 degraded
VD(CT0 DEV2) RAID1 degraded>
>
> check_MegaRaidSAS -H <hostname>
MegaRAID SAS CT CRITICAL
CT0 MegaRAID SAS 8408E CRITICAL
PD: 4
VD: 2 ( RAID0, 1 RAID1)
PD(CT0 DEV0 ENC1 SLOT0 SN50010b90000972e2) DISK offline>
VD(CT0 DEV0) RAID1 degraded
VD(CT0 DEV1) RAID0 offline>
>
```

• If return code is UNKNOWN:

```
> check_MegaRaidSAS-H <hostname>
MegaRAID SAS UNKNOWN - no MegaRAID SAS Adapter present
>
```

### External Storage Management

### **NSMasterStoreWayFDA**

### check\_NECFDA

check\_NECFDA uses the following shell (PERL) command:

#### Usage

```
check_necfda -H <host> [-C <community>] [-p <port>] [-t <timeout>]
[-f <f>]
```

-H, -hostname <host></host>	Hostname or IP address of the target to check
-C, -community <community></community>	SNMP community string (defaults to "public")
-p, -port <port></port>	SNMP port (defaults to 161)
-t, -timeout <timeout></timeout>	Seconds before timing out (defaults to Nagios timeout value)
-f, -format <f></f>	"0" Carriage Return in ASCII mode (\n) "1" Carriage Return in HTML mode ( )

check\_necfda -help

-h,help	Display help

check\_necfda -version

-V, -version Display version

#### Return code

OK (0), WARNING (1), CRITICAL (2), UNKNOWN (3)

#### Output

The first line shows the global state with the following format:

necfda <GlobalStatus>

<GlobalStatus> Most severe state detected on a controller.

#### **Examples:**

```
    If the global state is « OK »
    > check_necfda -H <host>
necfda OK
```

- If the global state is CRITICAL or WARNING, only errors are displayed :
- When the return code is UNKNOWN:

```
> check_necfda -H <host>
necfda CRITICAL
>
> check_necfda -H <host>
necfda WARNING
>
> check_necfda -H <host>
necfda UNKNOWN - snmp query timed out
>
> check_necfda -H <host>
necfda UNKNOWN - no data received
>
```

# Virtualization Management

### **NSMasterVMwareESX**

### check\_esx3

The Nagios check commands used by NMasterVMwareESX Add-on uses the shell (PERL) command **check\_esx3**.

#### Usage

check_esx3 -H esxname [ [-1 thing [-	-N -M -B] [-C community] [-v virtualhost] -w warn -c crit]] [-t timeout]			
-H <esxname></esxname>	Hostname or IP address of the ESX server to check			
-N,-M,-B	set context for check execution -N for Nagios mode, -M for MRTG mode, -B for NSMaster mode.			
-C <community></community>	SNMP community string (defaults to "public")			
-v <virtualhost></virtualhost>	name of the virtual host to check			
-l <thing></thing>	what to check Available thing are: CPU, MEM, SNMP, STATE, LIST, LISTNET.			
-w <warnthreshold></warnthreshold>	warning threshold			
-c <criticalthreshold></criticalthreshold>	critical threshold.			
-h, -help	Display help			

#### Return code

OK(0), WARNING(1), CRITICAL(2), UNKNOWN(3).

#### Output

The output depend on the calling Nagios command. See detailed cases below.

#### check\_esx\_server case

The check\_esx3 shell is called with the following syntax:

check\_esx3 -B -H <esxname> -C <community> -l LIST -w <warn>% -c <crit>%

#### Output:

VHosts: <nb-up>/<nb-all> up: <VMname> (<status>),

#### Example:

```
check_esx3 -H esx -C public -w 50% -c 0%
```

VHosts: 2/4 up: nsmvm5(OFF), nsmvm1(ON), nsmvm3(ON), nsmvm4(OFF)

Status is set to **WARNING** if more than 50% of VMs are down. Status is set to **CRITICAL** if all VMs are down.

#### **IT** Note:

The list of VMs used to establish ESX server status corresponds to all the VMs declared on the ESX server and not only to those declared on the NovaScale Master ESX platform. The VMname is that declared on the VMware ESX server (this name can be different from the NSMaster hostname).

#### check\_esx\_snmp case

The check\_esx3 shell is called with the following syntax:

check\_esx3 -B -H <esxname> -C <community> -l SNMP

Output:

OK	SNMP management interface available
CRITICAL	SNMP management interface not available

#### check\_esx\_mem case

The check\_esx3 shell is called with the following syntax:

check\_esx3 -B -H <esxname> -C <community> -l MEM -w <warn>% -c <crit>%

#### Output:

Memory free: <free>Mb (<percent\_free>) [Total available <total>Mb]

#### Example:

check\_esx3 -H esx -C public -l MEM -w 20% -c 10%

Memory free: 16111.6Mb (98%) [Total available 16383.6Mb]

Status is set to **WARNING** if less than 20% of memory is available. Status is set to **CRITICAL** if less than 10% of memory is available.

#### check\_esx\_vm

The check\_esx3 shell is called with the following syntax:

```
check_esx3 -B -H <esxname> -C <community> -v <virtualHost>
-1 STATE
```

#### Output:

OKVHost <VMname>is up (ID: <id>)CRITICALVHost <VMname>is down (ID: <id>)

#### Example:

```
check_esx_vm -H esx -C public -v nsmvm1 -l STATE
VHost nsmvm1 is up (ID: 48)
```

Status is set to OK if the VM is up.

Status is set to CRITICAL if the VMs are down.

### 🕼 Note:

The VMname is that declared on the ESX server (this name can be different from the NSMaster hostname).

#### check\_esx\_vm\_memory

The check\_esx3 shell is called with the following syntax:

check\_esx3 -B -H <esxname> -C <community> -v <virtualHost> -1 MEM -w <warn>% -c <crit>%

#### Output:

```
Memory free: <free>Mb (<percent_free>) [Total available <total>Mb] on
vhost <VMname>
```

#### Example:

```
check_esx_vm_mem -B -H esx -C public -v nsmvm1 -w 20% -c 10%
```

Memory free: 460.8Mb (90%) [Total available 512Mb] on vhost smvm1

Status is set to **WARNING** if less than 20% of memory is available. Status is set to **CRITICAL** if if less than 10% of memory is available.

### 🔽 Note:

The VMname is that declared on the ESX server (this name can be different from the NSMaster hostname).

#### check\_esx\_vm\_cpu

The check\_esx3 shell is called with the following syntax:

```
check_esx3 -B -H <esxname> -C <community> -v <virtualHost>
    -1 CPU -w <warn>% -c <crit>%
```

#### Output:

```
CPU usage is <percent_used> on <VMname> nsmvml (<time>average)
```

#### Example:

```
check_esx_vm_cpu -B -H esx -C public -v nsmvml -w 80% -c 90%
```

```
CPU usage is 3% on nsmvml (301s average)
```

Status is set to WARNING if more than 80% of CPU is used. Status is set to CRITICAL if if more than 90% of CPU is used.

#### Note:

The VMname is those declared on the ESX server (this name can be different from the NSMaster hostname).

### **NSMasterHyperNova**

### check\_NSM\_hypernova\_xen

The Nagios check commands used by NMasterHyperNova Add-ons uses the shell (PERL) command check\_NSM\_hypernova\_xen.

#### Usage

check_NSM_hypernova_xen	-H <hnname> [-m <virtualhost>][-t timeout]</virtualhost></hnname>
-H <hnname></hnname>	Hostname or IP address of the HyperNova server to check
-v <virtualhost></virtualhost>	name of the virtual host to check
-h, -help	Display help

#### Return code

OK(0), WARNING(1), CRITICAL(2), UNKNOWN(3).

#### Output

The output is the StatusText as setting by HNMaster. For the list of values, refer to the HyperNova documentation

#### **Examples:**

#### Check\_hn\_server\_status

The check\_NSN\_hypernova\_xen shell is called with the following syntax:

check\_NSN\_hypernova\_xen -H <hnserver>

Output:

StatusText as returned by HNMaster

#### Example:

check\_NSN\_hypernova\_xen -H hnserver

Nothing to report

Status is set to OK.

#### Check\_hn\_vm\_status

The check\_NSN\_hypernova\_xen shell is called with the following syntax:

check\_NSN\_hypernova\_xen -H <hnserver> -m <virtualhost>

#### Output:

<virtualHost>: StatusText as returned by HNMaster

#### Example:

check\_NSN\_hypernova\_xen -H hnserver -m VM1

VM1: VM inactive

Status is set to WARNING.

#### Note:

The VMname is those declared on the HyperNova Server (this name can be different from the NSMaster hostname).

### **NSMasterViosLpar**

### check\_NSM\_vios\_ivm

The Nagios check commands used by NMasterViosLPAR Add-on uses the shell (PERL) command check\_NSM\_vios\_ivm.

#### Usage

```
check_NSM_vios_ivm -H <vios_netname> -U <remote_user>
-I <identity_file> [-l <lpar_name>] [-i <STATUS|CPU|POOL>]
[-e sample_time] [-w <warn>%] [-c <crit>%] [-N <vios_name>]
[-t timeout]
```

-H <vios_name></vios_name>	Hostname or IP address of the Vios server to check
-U <remote_user></remote_user>	User for remote connection
-l <identity_file></identity_file>	Name of the file from which the identity (private key) for RSA or DSA authentication is read. The file must be localized into the directory <nsmaster installation<br="">Directory&gt;/engine/etc/ssh. To use it as authentication file for Vios platform, you have to install the corresponding public key on the VIO server.</nsmaster>
N <vios_name></vios_name>	Name of the Vios host (used in output of the plugin related to a given logical partition ).
-l <lpar_name></lpar_name>	Name of the logical partition to check
i <check information=""></check>	Available values are: STATUS (to check the status of the VIO server or of a logical partition), POOL (to check the utilization of the processing pool), or CPU (to check the utilization of the CPU entitled to a partition). Default value is STATUS

e <sample time=""></sample>	Sample time in minutes used to perform calculation on utilization. Default value is 5.
w <warnthreshold></warnthreshold>	Warning threshold
c <criticalthreshold></criticalthreshold>	Critical threshold.
h, –help	Display help

#### Return code

OK(0), WARNING(1), CRITICAL(2), UNKNOWN(3).

#### Output

The output depends on the type of check performed. See below to get detailed information.

#### check\_vios \_status case

The check\_NSM\_vios\_ivm shell is called with the following syntax:

```
check_NSM_vios_ivm -H <vios_netName> -U <user> -I <identity_file>
```

#### Output:

Only two states are possible for Vios status: OK or UNKNOWN:

- for OK state, the output is "Virtual I/O Server state: Operating"
- for UNKNOWN state, the output is "Unable to determine Virtual I/O Server state", following the reason.

# Note:

The check\_vios\_status command is based on the state given by the **lssyscfg IVM** command to obtain the state of the Vios system.

#### Example:

```
check_NSM_vios_ivm -H ivm1 -U padmin -I id_dsa_nsm
```

Output: Virtual I/O Server state: Operating Return code: OK.

#### check\_vios\_lpar\_status case

The check\_NSM\_vios\_ivm shell is called with the following syntax:

```
check_NSM_vios_ivm -H <vios_netName> -U <user> -I <identity_file>
-l <lpar_name> -N <vios_name>
```

#### Output:

Logical partition <lpar\_name> on <vios\_name>: <lpar\_status>

# Note:

The check\_vios\_lpar\_status command is based on Lpar state obtained by the **lssyscfg IVM** command.

#### Examples:

- 1. check\_NSM\_vios\_ivm -H 192.168.207.60 -U padmin -I id\_dsa\_nsm
   -N ivm1 l part1
   Output: Logical partition part1 on ivm1: Running
   Return code: OK.
- 2. check\_NSM\_vios\_ivm -H 192.168.207.60 -U padmin -I id\_dsa\_nsm -N ivm1 l part2 Output: Logical partition part2 on ivm1: Not Available Return code: CRITICAL.

#### check\_vios\_used\_pool case

The check\_NSM\_vios\_ivm shell is called with the following syntax:

```
check_NSM_vios_ivm -H <vios_netName> -U <user> -I <identity_file>
-i POOL -e <sample_time> -w <warn>% -c <crit>%
```

#### Output:

```
Processing pool (nbCPU / CPUTotal units entitled) - utilization on
<sampleTime> mn <check_status>: <utilization percent>%
```

# Note:

The check\_vios\_used\_pool command is based on pool\_cycle metrics (total\_pool\_cycle, utilized\_pool\_cycle) obtained by the **Islparutil IVM** command.

#### Example:

```
check_NSM_vios_ivm -H 192.168.207.60 -U padmin -I id_dsa_nsm
-i POOL -e 5 -w 70% -c 80%
```

```
Output:

Processing pool (1.4 / 2 units entitled) - utilization on 5 mn OK:

2.16 %
```

Return code: OK

check\_vios\_lpar\_used\_cpu case

The check\_NSM\_vios\_ivm shell is called with the following syntax:

```
check_NSM_vios_ivm -H <vios_netName> -U <user> -I <identity_file>
-N <vios_name> -l <lpar_name> -i CPU -e <sample_time> -w <warn>% -
c <crit>%
```

#### Output:

```
Logical partition <lpar_name> on <vios_name> (<nbCPU> units
entitled) - processing utilization on <sample_time>mn
<check_status>: <utilization percent>%
```

# Note:

The check\_vios\_lpar\_used\_CPU command is based on cycles metrics (entitled\_cycles,capped\_cycles,uncapped\_cycles ) obtained by the **lslparutil IVM** command.

#### Examples:

check\_NSM\_vios\_ivm -H 192.168.207.60 -U padmin -I id\_dsa\_nsm -N ivml -l part1 -I CPU-e 5 -w 10% -c 20%

Output :

```
Logical partition part1 on blade_js21 (0.4 units entitled) - processing utilization on 5 mn WARNING: 17.77 \%
```

Return code: WARNING

## **Bull Products Management**

### NSMasterDD4A

### check\_DynamicDomains

check\_DynamicDomains uses the check\_DD4A shell (PERL) command:

#### Usage

check\_DD4A -H <host> [-w ] [-D <domainName>]

-H, –-hostname <host></host>	Hostname or IP address of target to check
-D,domain ALL   <domainname></domainname>	ALL domains or a specific one: <domainname></domainname>
-w,web	WEB HTML output format

#### Return code

OK (0), WARNING (1), CRITICAL (2), UNKNOWN (3)

- OK: All "Dynamic Domains" run normally.
- WARNING: At least one "Dynamic Domain" is in a WARNING state.
- CRITICAL:
   At least one " Dynamic Domain " is in a CRITICAL state.
- UNKNOWN All other types of processing errors (bad parameter, no response, etc...).

### **I**Note:

In the case of multiple errors, the global state will be the worst one; CRITICAL > WARNING > OK.

#### Output

A string with a global state descriptor followed, if they exist, by error states of the concerned component (controller, Logical Device, Physical Device).

If -D ALL or without -D parameter is used, the first line displays the defined Dynamic Domains number. Then, only Dynamic Domains with issues are displayed with their status, their number of used CPUs, their CPU load (and the associated threshold) and their number of tasks.

#### **I**Note:

The global state is not displayed textually, only the command return code contains this status information.

If -D <domainName> is used, the command output displays the defined Dynamic Domain name with its number of used CPUs, its CPU load (and the associated threshold) and its number of tasks.

#### **Examples:**

• check\_DD4A -H <host>

```
check_DD4A -H <host> -D ALL
4 Dyn.Domains.
domain2 : WARNING
CPUs: 4 / 4, tasks: 70
load: 80% ( > 75% )
domain3 : CRITICAL
CPUs: 4 / 4, tasks: 110
load: 100% ( > 75% )
check_DD4A -H <host> -D default
default : OK
```

default : OK
 CPUs: 7 / 8, tasks: 37
 load: 0.56% ( < 75% )</pre>

### **NSMasterBVS**

### check\_BVS

check\_BullVideoServices uses the check\_BVS shell (PERL) command:

#### Usage

```
check_BVS -H <host> -S {Streaming|Recording|Datagrams}
[{-p <period>} | { -1 <begin> -t <end> }] [-w]
-H, -hostname <host> Hostname or IP address of target to check
-S, -service Streaming|Recording|Datagrams
-p, -period <period> | -l <begin> -t <end>
indicates to the Bull Video Server the period in seconds to calculate
the average values
-w, -web WEB HTML output format
```

#### Return code

OK (0), WARNING (1), CRITICAL (2), UNKNOWN (3)

- OK: "Bull Video Server" runs normally.
- WARNING: "Bull Video Server" is in WARNING state.
- CRITICAL: "Bull Video Server" is in CRITICAL state.
- UNKNOWN All other type of processing errors (bad parameter, and so on...).

The BVS state "UNREACHABLE" (*Bull Video Server* is in "UNREACHABLE" state (daemon not started, communication timeout, ...)).will be transformed to Nagios "UNKNOWN" status.

The status values (OK, WARNING, CRITICAL) are fixed by the video server itself according to criteria's indicated by a Bull Video Server administrator.

#### Output

The following information is displayed. Average values are calculated using the value specified by the 'polling interval' textbox from the service configuration screen. The default value is 1 min. A modification of this value will be automatically taken into account by the check\_BVS plugin.

#### 'Streaming' service

Status	global status of 'Streaming' service
Channels	number of channels used for streaming (average)
Rate	average rate in MB/s
Load	percentage of disk rate in relation to a value declared on BVS server

#### Example:

```
check_BVS -H <host> -S Streaming
   Status: OK
   channels: 17.00,
   rate (MB/s): 38.84,
   load: 12.69 %
```

#### 'Recording' service

Status	global status of 'Recording' service
Channels	number of channels used for recording (average)
Rate	average rate in MB/s
Load	percentage of disk rate in relation to a value declared on BVS server.

#### Example:

```
check_BVS -H <host> -S Recording
  Status: OK
  channels: 7.00,
  rate (MB/s): 3.84,
  load: 7.69 %
```

#### 'Datagrams' service

Status	global status of 'Datagram' service
Nb of late dg	number of UDP datagram's sent late per second (average)
Avg late value	average delay value in ms. A delay value between 0 and 10 ms is considered as a normal value.
Nb of deleted dg	number of deleted UDP datagrams per second (average).

#### Example:

```
check_BVS -H <host> -S Datagrams
   Status: OK
   nb of late dg: 128.67,
   avg late value: 1.03 ms,
   nb of deleted dg: 3.08
```

#### Service Inaccessible

In case of inaccessible service only the RC will be displayed.

### Example:

```
check_BVS -H <host> -S <service>
Status: UNREACHABLE
```
#### **NSMasterJOnAS**

#### Check\_JOnAS

Check\_JOnAS uses the following shell (PERL) command:

#### Usage

```
check_JOnAS -H <host> -N <network name> -a <jonas master>
-d <domain> -s <server> -p <port number> [-u <user> -p <password> ]
[ -m] -w
```

-H host	host name	
-N network name	network name	
-a <jonas master=""></jonas>	JOnAS server name Administrator or master	
-d <domain></domain>	domain name	
-s <server></server>	target server name	
-p <port number=""></port>	port number	
-u <user name=""></user>	user name(mandatory if called outside NSMaster)	
-p <password></password>	password (mandatory if called outside NSMaster)	
-m	set if JOnAS server is master	
-W	command output in HTML	

#### **Return Code**

OK (0), WARNING (1), CRITICAL (2), UNKNOWN (3)

- OK: JOnAS server runs normally.
- WARNING: JonAS server is in "STOPPED" state.
- CRITICAL: JOnAS server is in "FAILED" state.

UNKNOWN: JOnAS server is in "UNREACHABLE" state.

#### Example:

check\_JOnAS -H nasmaster -N nsmaster.frcl.bull.fr -a jonas -d jonas -s jonas -p 9000

```
The jonas server in jonas domain is RUNNING on
nsmaster.frcl.bull.fr
Memory allocated = 57700 used = 39949
Threads = 95
HTTP requests count = 0
Committed transactions count = 0
check_JONAS -H frcls6260 -N frcls6260.frcl.bull.fr -a
instance1 -d jonas -s instance1 -p 9000 -m
The instance1 (master)server in jonas domain is RUNNING on
frcls6260
Memory allocated = 64315 used = 36359
Threads = 98
HTTP requests count = 478157905
Committed transactions count = 0
```

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