

PATROL[®] for Veritas File System[™] by OTL Software



User Guide

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- log a support call online
- check OTL Software contact information, including e-mail addresses, fax numbers, and telephone numbers

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Before Contacting OTL Software

Before you contact OTL Software, please have the following information available so that a technical support analyst can begin working on your problem immediately:

- KM product information:
 - product name
 - product version
 - license serial number
- monitored application information:
 - Veritas File System version
- operating system information:
 - machine type
 - operating system type, version, and service pack or patch details
 - system hardware configuration
- PATROL information:
 - PATROL Agent version
 - PATROL Console version and platform details
 - BMC ProactiveNet Performance Management Portal version and platform details
- sequence of events leading to the problem
- commands and options needed to reproduce the problem
- messages received:
 - product error messages
 - messages from monitored application
 - messages in PATROL Console system output window (SOW)

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About this Guide

PATROL for Veritas File System (VFS KM) User Guide contains detailed information about the applications, commands, and parameters that the VFS KM provides. The guide also contains instructions for loading and configuring the Knowledge Module (KM). For more detailed information, refer to the VFS KM online help.

This guide should be used with the appropriate PATROL user guide for your Console, which describes how to use PATROL to perform typical tasks.

This chapter discusses the following topics:

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Who Should Read This Guide

This guide is intended for backup administrators, system administrators, and anyone who monitors backup systems. This guide assumes that you are familiar with your host operating system and File System. You should know how to perform a basic set of actions in a window environment, including

- choosing menu commands
- moving and resizing windows
- opening icon windows
- dragging and dropping icons
- using mouse controls for your system

How This Guide Is Organised

This manual is organized as follows:

Chapter	Title	Purpose
1	“Introduction”	provides an overview of the features and components of the KM.
2	“Getting Started”	provides information on setting up and accessing the KM and provides basic information about the KM.
3	“Menu Summary”	discusses the menus that the KM offers.
4	“Parameter Summary”	discusses the parameters that the KM offers.
5	“Monitoring Veritas File System”	provides tasks that ypu perform using the KM.
Index	“Index”	lists index entries.

Related Publications

PATROL product documentation consists of both hardcopy and online publications. PATROL hardcopy documentation is divided into the following categories based on function:

Category	Document	Purpose
PATROL Base Documents	PATROL for UNIX Getting Started	provides procedures and examples to introduce PATROL Console for Unix.
	PATROL for Agent Reference Manual	describes the PATROL Agent and explains how it interacts with other PATROL components. It also describes configuration utilities and Management Information Base (MIB) tables used with the Agent.
	PATROL for Unix User Guide	contains task-oriented information on how to fill out appropriate dialog boxes to manage the computers, applications, and parameters that PATROL is capable of managing using the PATROL Console for UNIX.
	PATROL for Windows User Guide (Volume 1)	introduces you to PATROL components, object hierarchy, and the GUI using the PATROL Console for Windows. It also contains task-oriented information about how to start PATROL components, load KMs, and discover applications.
	PATROL for Windows User Guide (Volume 2)	contains the task-oriented information about how to monitor and manage computers, applications, and parameters using the PATROL Console for Windows.
	PATROL for Windows User Guide (Volume 3)	describes how to customise your PATROL monitoring environment using the PATROL Console for Windows.
	PATROL Command Line Interfaces Reference Manual	describes the PATROL command line interfaces for the PATROL Agent and the PATROL Console.
	PATROL Console Charting Server for Unix Reference Manual	describes how you can collect and plot system and application data in a real-time chart or graph.
PATROL Installation Documents	PATROL Installation Guides	describe how to run the installation program to load the platform-specific PATROL Agents, PATROL Consoles, and PATROL KMs.

Category	Document	Purpose
PATROL Integration Documents	PATROLVIEW user guides	describe the PATROLVIEW products. PATROLVIEW allows you to fully integrate PATROL with leading enterprise management products.
	PATROLINK for CA-Unicenter Reference Manual	provides information about installing and configuring the PATROLINK product for your particular site. PATROLINK allows you to connect to PATROL from the CA-Unicenter console.
PATROL Event Manager (PEM) Documents	PATROL Event Manager Console for Unix User Guide	describes the stand-alone Event Manager Console for Unix provided with the PATROL product. The PEM Console is a graphical user interface that allows you to manage the events generated by PATROL as it monitors your applications.
	PATROLWATCH for Web Browsers User Guide	provides the ability to view PATROL monitored hosts and applications using the Internet and platform-specific browsing technology.
	PATROLWATCH for Windows User Guide	describes the standalone event manager for Windows.
PATROL Knowledge Module (KM) Documents	Specific PATROL Knowledge Module user guides	contain task-oriented information for loading and modifying individual PATROL KMs used in monitoring and managing operating systems, databases, Knowledge Modules, and applications.

Category	Document	Purpose
PATROL Software Development Kit (SDK) Documents	PATROL Script Language Reference Manual	describes the PATROL Script Language (PSL) data types, syntax, operators, statements, and built-in functions.
	PATROL Script Language Debugger for Unix Reference Manual	discusses the PSL debugger available through the PATROL Developer Console for Unix. The PSL debugger provides an interactive GUI environment for debugging PSL processes and scripts in the PATROL Agent.
	PATROL Online Help Developers Guide	provides guidelines and procedures for implementing a BMC Software Help File. The PATROL <i>Online Help Developers Guide</i> includes elements of style, design, and presentation.
	PATROL Knowledge Module Developers Style Guide	presents the objectives, methods and requirements of PATROL Knowledge Module development and includes these topics: <ul style="list-style-type: none"> • KM Style • setup application • packaging and structure • efficiency and usage
	PATROL API Reference Manual	describes the PATROL API, a series of functions defined in a C header file that allow a user-written non-PATROL program to connect to PATROL or read a PATROL event log circular file.
Utility Document	PATROL KM Migrator User Guide	describes how you can incorporate your KM customisations into the current version.
Supplemental Documents	Release Notes and Technical Bulletins	explain the latest updates to PATROL products.

These hardcopy publications can be requested from BMC Software, Inc., or can be viewed on BMC Software's Internet World Wide Web site (<http://www.bmc.com/>) when you have registered for Customer Support. Each PATROL Console and each KM come with an extensive online help facility that is available through the PATROL Console **Help** menu option. The online documentation contains reference information about PATROL Console features and options and about KM parameters.

Documentation Sequence

The following tables provide the suggested sequence for using PATROL documentation. An asterisk denotes additional documentation that may be applicable to your job function.

When Used with the PATROL Console for Unix

If you work as a...	then read these documents in the order shown:											
	PATROL Installation Guide - Specific	PATROL for Unix Getting Started	PATROL Agent Reference Manual	PATROL for Unix User Guide	PATROL Command Line Reference Manual	PATROL Charting Server Reference Manual	PATROL KM User Guide(s) - Specific	PATROL API Reference Manual	PATROL PSL Reference Manual	PATROL KM Developer's Style Guide	PATROLVIEW™ Guide(s) - Specific	PATROLWATCH™ Guides
Project Engineer - responsible for implementing PATROL and rollout	1	2	3	4							5	6
Systems Administrator/Network Manager - responsible for administering Unix or other operating systems and networks	1	2	3	4	5	6	7				8	9
Database Administrator - responsible for monitoring and administering databases		1		2			3				4	5
Operator - responsible for monitoring environments	1	2	3	4			5				6	7
Help Desk Personnel - responsible for troubleshooting user problems		1		2			3				4	5
Applications Programmer/Developer - responsible for developing KMs		1		2	3	4	5	6	7	8	9	10

When Used with the PATROL Console for Windows

If you work as a...	then read these documents in the order shown:											
	PATROL Installation Guide - Specific	PATROL for Unix Getting Started	PATROL Agent Reference Manual	PATROL for Unix User Guide	PATROL Command Line Reference Manual	PATROL Charting Server Reference Manual	PATROL KM User Guide(s) - Specific	PATROL API Reference Manual	PATROL PSL Reference Manual	PATROL KM Developer's Style Guide	PATROLVIEW™ Guide(s) - Specific	PATROLWATCH™ Guides
Project Engineer - responsible for implementing PATROL and rollout	1	2	3	4							5	6
Systems Administrator/Network Manager - responsible for administering Unix or other operating systems and networks	1	2	3	4	5	6	7				8	9
Database Administrator - responsible for monitoring and administering databases		1		2			3				4	5
Operator - responsible for monitoring environments	1	2	3	4			5				6	7
Help Desk Personnel - responsible for troubleshooting user problems		1		2			3				4	5
Applications Programmer/Developer - responsible for developing KMs		1		2	3	4	5	6	7	8	9	10

Where to Look for Information

The following table summarizes where to look for more information on using PATROL, Knowledge Modules, and PATROL integration products to perform typical tasks.

If you want information about...	See the...
adding computers to Patrol	<i>PATROL for Unix Getting Started or the PATROL for Windows User Guide (Volume 1)</i>
changing the behavior of the PATROL console or the PATROL Agent by using a script or operating system command line	<i>PATROL Command Line Interfaces Reference Manual</i>
changing the PATROL Agent configuration	<i>PATROL Agent Reference Manual</i>
changing various parameters in a real-time environment	<i>PATROL Console Charting Server Reference Manual or the PATROL for Windows User Guide (Volume 2)</i>
connecting to PATROL from a network manager	<i>PATROLVIEW user guides and the PATROLINK for CA-Unicenter Reference Manual</i>
defining your monitoring environment	<i>PATROL for Unix User Guide or the PATROL for Windows User Guide (Volume 1)</i>
KMs in general	<i>PATROL for Unix User Guide or the PATROL for Windows User Guide (Volume 1)</i>
KM versioning and customizations	<i>PATROL for Unix User Guide or the PATROL for Windows User Guide (Volume 3)</i>
managing monitored objects	<i>PATROL for Unix User Guide or the PATROL for Windows User Guide (Volume 2)</i>
specific applications	<i>appropriate Knowledge Module's user guide and online help</i>
specific menu commands	<i>appropriate Knowledge Module's user guide and online help</i>
specific parameters	<i>appropriate Knowledge Module's user guide and online help</i>
starting and stopping the PATROL Console	<i>PATROL installation guides, PATROL for Unix Getting Started, and the PATROL Windows User Guide (Volume 1)</i>
starting and stopping the PATROL Agent	<i>PATROL installation guides, PATROL for Unix Getting Started, and the PATROL Windows User Guide (Volume 1)</i>

If you want information about...	See the...
managing events	<i>PATROL for Unix User Guide, the PATROL Event Manager Console for Unix User Guide, or the PATROL for Windows User Guide (Volume 2)</i>
the PATROL interface	<i>PATROL for Unix User Guide or the PATROL for Windows User Guide (Volume 1)</i>
the PATROL Script Language (PSL)	<i>PATROL Script Language Reference Manual</i>
working with menu commands	<i>PATROL for Unix Getting Started or the PATROL for Windows User Guide (Volume 2)</i>
working with parameters	<i>PATROL for Unix User Guide or the PATROL for Windows User Guide (Volume 2)</i>
working with tasks	<i>PATROL for Unix Getting Started or the PATROL for Windows User Guide (Volume 2)</i>
unloading the KM	<i>PATROL for Unix User Guide or the PATROL for Windows User Guide (Volume 1)</i>
customizing commands (PATROL Developer Console required)	<i>PATROL for Unix User Guide or the PATROL for Windows User Guide (Volume 3)</i>
customizing a computer class (PATROL Developer Console required)	<i>PATROL for Unix User Guide or the PATROL for Windows User Guide (Volume 3)</i>
customizing an InfoBox (PATROL Developer Console required)	<i>PATROL for Unix Getting Started or the PATROL for Windows User Guide (Volume 3)</i>
defining an application (PATROL Developer Console required)	<i>PATROL for Unix User Guide or the PATROL for Windows User Guide (Volume 3)</i>
defining a parameter (PATROL Developer Console required)	<i>PATROL for Unix User Guide or the PATROL for Windows User Guide (Volume 3)</i>
PSL commands and writing PSL scripts (PATROL Developer Console required)	<i>PATROL Script Language Reference Manual</i>
debugging your PSL scripts (PATROL Developer Console required)	<i>PATROL Script Language Debugger for Unix Reference Manual or the PATROL for Windows User Guide (Volume 2)</i>

Conventions

This guide contains detailed procedures about using the PATROL for Veritas File System with the PATROL Console for Unix and the PATROL Console for Windows. When instructions for the two Consoles differ, you'll see a heading such as “**With the PATROL Console for Unix**” or “**With the PATROL Console for Windows**”.

The following special elements have been used in this guide to make it easier for you to use:

Note

Notes provide additional information about the current subject.

Warning

Warnings alert you to situations that can cause problems, such as the loss of data, if you do not follow the instructions carefully.

All syntax, operating system terms, and literal examples are presented in this font.

Italics in a command string signify variables.

Text enclosed in angle brackets (< >) denotes variable information. Replace the variable information with the information it represents.

The word *choose* is used in instruction text in the context of carrying out a series of menu choices to invoke some function. For example, “Choose **File => Save.**”

In hardcopy documents, the symbol >> denotes one-step instructions.

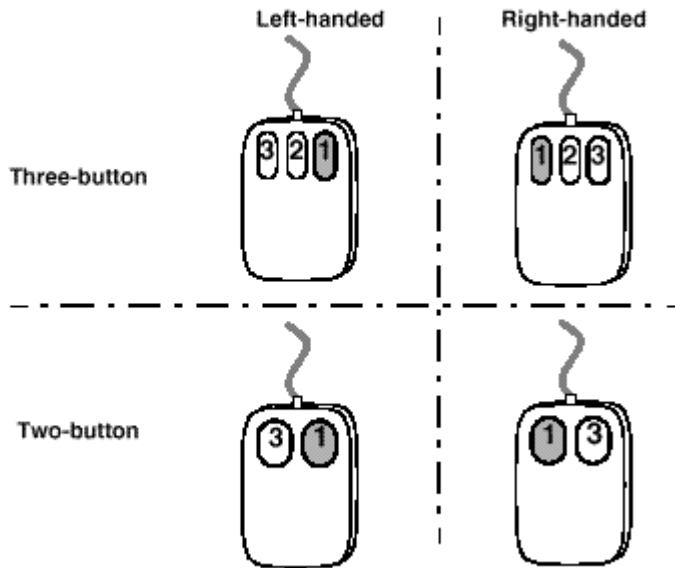
Mouse Controls

Please note the function of the mouse buttons in all PATROL windows using:

Unix		Windows		Function
Button	Action	Button	Action	
MB1	Click ... Double-Click ...	Left mouse button	Click ... Double-click ...	Selects an icon, menu command, or button; opens an icon's container.
MB2	Using MB2, click ...	-	-	Displays an icon's InfoBox.
MB3	Using MB3, click ...	Right mouse button	Right-click the ...	Displays an icon's pop-up menu.

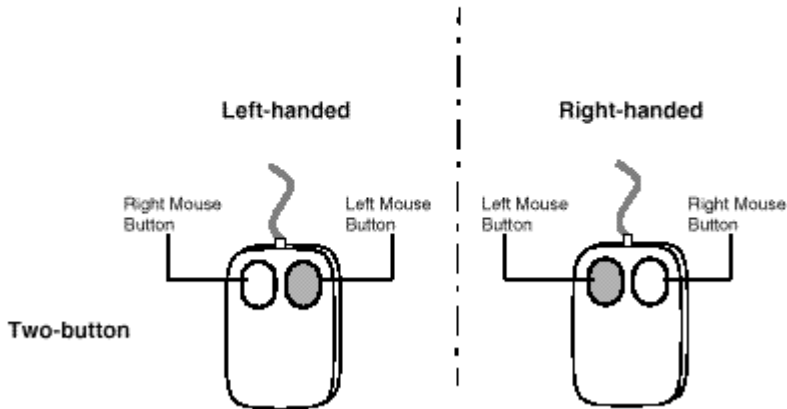
With the PATROL Console for Unix

The following figure shows the names and positions of the buttons on right- and left-handed three- and two-button mouse devices when used with the PATROL Console for Unix. MB2 is simulated on a two-button mouse by simultaneously pressing the two buttons (MB1 and MB3).



With the PATROL Console for Windows

The following figure shows the names and positions of the buttons on right- and left-handed two-button mouse devices when used with the PATROL Console for Windows.



With any PATROL Console

One-button mouse devices such as those used by Apple Macintosh assign MB1 (or left mouse button) to the single mouse button and use a user-selectable combination of option and arrow keys to simulate MB2 and MB3 (or right mouse button). Refer to the documentation for the Macintosh X Window emulation software for details.

Introduction

This chapter provides you with a brief overview of the PATROL for Veritas File System (also referred to as the VFS KM). The following topics are discussed:

PATROL for Veritas File System	1-2
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PATROL for Veritas File System

A Knowledge Module is a set of files that contain knowledge in the form of command descriptions, application, parameters, and recovery actions that PATROL can use to monitor Veritas File System events.

The PATROL for Veritas File System (also referred to as the VFS KM) allows you to analyse Veritas File System information quickly and easily because they can provide a detailed statement of activity over time. You can clearly identify peaks, troughs, and trends in the performance of resources.

By enabling you to detect problems, optimise systems, analyse trends, plan capacity, and manage multiple hosts simultaneously, VFS KM helps you ensure that your Veritas File System installation runs efficiently 24 hours a day.

Features

Key features of the VFS KM include:

- Monitor the availability of a VERITAS File System™.
- Monitor the performance of a VERITAS File System™
- Monitor the kernel messages file for kernel events.
- Monitor the capacity and growth of a VERITAS File System™
- Monitor Snapshot™ status of a VERITAS File System™
- Monitor and identify user File System storage quotas

System Requirements

Supported Operating Systems

The PATROL for Veritas File System can be run on the following operating systems:

- Solaris
- HP-UX
- AIX
- Linux

PATROL for Veritas File System may run on other platforms but has not been tested.

Supported Software Versions

The following table contains a list of required software and their versions supported by PATROL for Veritas File System.

Table 1-1 Required Software for VFS KM

Software	Version
Veritas File System™	4.1 and above
BMC Software PATROL Agent	3.4.20 and above
BMC Software PATROL Console	3.4 and above
BMC ProactiveNet Performance Management Portal	2.3.00 and above

Security Requirements

VFS KM requires the PATROL Agent user to have executable access to several of the Veritas File System Executables.

By default Veritas File System is installed and runs as the *root* user. As part of the setup for the Knowledge Module, a user account must be specified. If the root account is not desirable, or if the 'sudo' utility is configured on the server, then the following commands must be enabled for the identified 'agent-user' account.

If 'sudo' is being used for security, the following commands need to be added to the 'sudoers' configuration file for sudo to allow their execution by the identified 'non-root' user account. An example of the '/usr/local/etc/sudoers' file showing the required entries is included in "Sudo' Configuration Requirements" on page 2-15

The programs that VFS KM need to run are as follows:

- vxprint
- vxstat
- vxrepquota
- fsadm
- fstyp
- df
- iostat
- mkfs
- mount
- pkginfo/swlist/lspp/rpm
- prtvtoc (Solaris only)
- vgdisplay (HP-UX and Linux)
- lsfs (AIX only)

If the Knowledge Module is not going to run under the root account then the nonroot user account must have access to run the above commands.

Disk and Memory Usage

When monitoring a standard installation of VFS using the VFS KM the PATROL Agent will consume approximately 380K of additional system memory.

When monitoring a standard installation of VFS using the VFS KM the PATROL Agent will generate approximately 200K of history data per day. A large number of VFSs will generate more history data as per other KMs used by the PATROL Agent.

Components

The VFS KM consists of the application classes described in Table 1-1:

Table 1-2 VFS KM Components

Application Class	Description	Parent/Child Relationship
VFS_CONTAINER	Main Container for the KM	Child of the Computer Instances
VFS_FS_CONTAINER	File Systems Container	Child of VFS_CONTAINER
VFS_FILESYSTEMS	File System Instances	Child of VFS_FS_CONTAINER
VFS_SNAPSHOT	Snapshot File System instances	Child of VFS_FILESYSTEMS
VFS_QUOTA	File Systems Quotas Container	Child of VFS_FILESYSTEMS
VFS_QUOTA_USER	Quota User Instances	Child of VFS_QUOTA
VFS_KERNEL	Kernel event monitoring parameters	Child of VFS_CONTAINER

Applications and Icons

Table 1-3 contains information on each application in the PATROL KM. For information on parameter icons, refer to the *PATROL for Unix User Guide* or the *PATROL for Windows User Guide (Volume 2)*.

Table 1-3 PATROL for Veritas File System Icons and their Descriptions









Icon and Name	Application Class	Description
 VxFS	VFS_CONTAINER	VFS KM main icon under the Computer instance. This application class holds all collectors for the rest of the Knowledge Module.
 VFS_SETUP	VFS_CONTAINER	VFS KM main icon under the Computer instance, in the un-configured state.
 File Systems	VFS_FS_CONTAINER	The File Systems instances are created under this container to simplify viewing
 rootdg:vol01	VFS_FILESYSTEMS	File System instances. Contains parameters for availability, performance and configuration.

Table 1-3 PATROL for Veritas File System Icons and their Descriptions

Icon and Name	Application Class	Description
 rootdg:vol01 Quotas	VFS_QUOTA	Displays parameters relating to user quotas. If quotas are not enabled on the file system instance, this icon will not appear.
 patrol	VFS_QUOTA_USERS	Displays parameters for each quota user instance.
 /vol01SnapVol Snapshot of /vol01	VFS_SNAPSHOT	Displays Snapshot file system instances and mountpoint parameters
 Kernel Events	VFS_KERNEL	Contains kernel message monitoring parameters.

Hierarcical Structure

The PATROL KM is organised as groups of application classes. Figure 1-1 shows each icon from Table 1-2 in a graphical representation of the PATROL KM's hierarchical structure.

Note

The top level icon for VFS KM is a single instance of the application class, labeled **Veritas File System**. Only one installed version of VxFS will be monitored. Automatic discovery will initially detect the currently active version of VxFS.

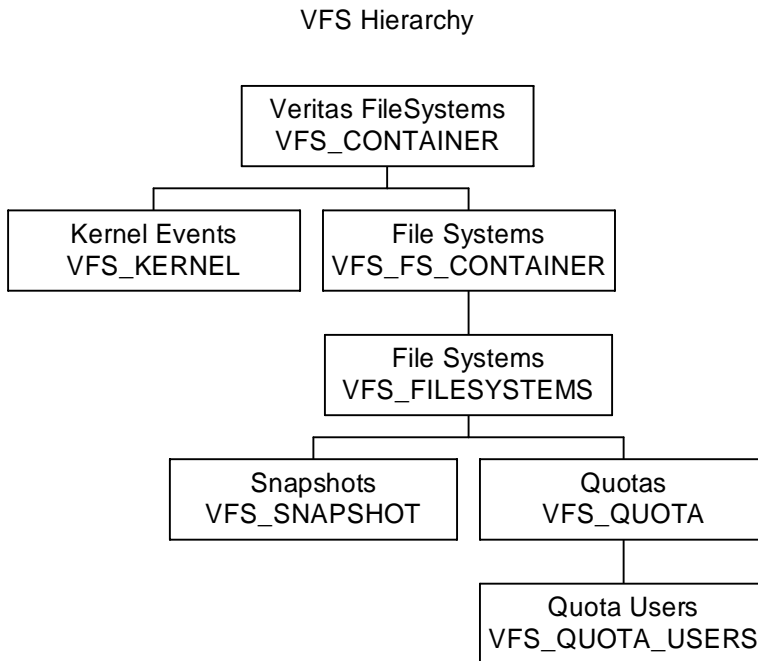


Figure 1-1 PATROL KM Hierarchical Flowchart

Instance Naming

Each application in the KM uses a naming convention to differentiate the particular instance.

VFS_CONTAINER Application Instance Naming

The VFS_CONTAINER only has 1 instance. This instance holds the containers for other functions in the KM. The instance name of VFS_CONTAINER changes depending on the configuration state of the KM. When un-configured, the label of the VFS_CONTAINER instance is **VFS_SETUP**. Once a valid configuration has been entered, the instance name changes to **Veritas File System**.

VFS_KERNEL Application Class Instance Naming

The VFS_KERNEL Application class has only 1 instance. This instance is created under the VFS_CONTAINER application class and is labelled **Kernel Events**.

VFS_FS_CONTAINER Application Class Instance

The VFS_FS_CONTAINER application class has only 1 instance. This instance is created under the VFS_CONTAINER application class and is a placeholder for the File System instances created under the following class. The name of this instance is **File Systems**.

VFS_FILESYSTEMS Application Class Instance

The VFS_FILESYSTEMS application class contains all discovered VFS instances. The naming of the instances depends on the type of disk device the file system has been created on. For standard partitions, the instance name begins with a **dsk:** prefix and ends with the device name including the partition. The format of this name is **cxt_{id}d_{id}s_{id}** where **c** is the controller, **t** is the target id number (SCSI ID), **d** is the disk number and **s** is the partition number (sometimes known as a slice). This name represents the equivalent path to the device. e.g. **dsk:c1t2d0s4** represents the device **/dev/dsk/c1t2d0s4** which is a partition (number 4) on controller 1, target ID 2, disk 0, slice 4.

For VERITAS Volume Managed Disks, the naming is slightly different. The prefix of the name represents the **Disk Group** that the device belongs to. The suffix represents the **Volume Name** assigned to the device. In a typical setup the instance **rootdg:vol01** would represent a device **/dev/vx/dsk/rootdg/vol01**. There may be a number of physical disks associated with this device, so the KM does not attempt to collect too much information about the device. Where further information is required, OTL Software's VERITAS Volume Manager Knowledge Module for PATROL would provide this extra detail.

VFS_SNAPSHOT Application Class Instance

When a Snapshot of a VFS is created, an instance is placed under the VFS_FILESYSTEM instance matching the Snapshot settings. The instance naming is prefixed by the **Disk Group** or device followed by the **Volume Name** or partition device. The label represents the mountpoint and the file system that the Snapshot is taken from.

VFS_QUOTA Application Class Instance

For each File System instances created under VFS_FILESYSTEMS, an instance is created in VFS_QUOTAS. The instance name is the same as the VFS_FILESYSTEM instance name. The label of the instance is also the same with the suffix **Quotas**.

VFS_QUOTA_USER Application Class Instance

When Quotas have been enabled, and there are **user names** configured in the quota policy file, instances for these users are created under the VFS_QUOTA application class. The instance name is the same as the **username**.

InfoBoxes

InfoBoxes display summary information about an instance or application.

VFS_CONTAINER Application InfoBox

Listed below are the InfoBox items currently available for the VFS_CONTAINER Application InfoBox:

Table 1-4 VFS_CONTAINER Application InfoBox Items

Info Item	Meaning
KM Name	Displays the name of the Knowledge Module.
KM Version	Displays the version of the Knowledge Module.
KM Release date	Displays the release date of the VFS KM
VxFS Version	Displays the version of the VFS
Username/Password Configured?	Displays whether the Username and password are set.
Valid License Entered?	Displays whether the KM license is valid.

VFS_FILESYSTEMS Application InfoBox

Listed below are the InfoBox items currently available for the VFS_FILESYSTEMS Application InfoBox:

Table 1-5 VFS_FILESYSTEMS Application InfoBox Items

Info Item	Meaning
FS Block Size	Displays the number of bytes that make up 1file system block.
FS Device	Displays the fully qualified device name on which the File System has been created
FS Options	Displays the options used to create the File System

Table 1-5 VFS_FILESYSTEMS Application InfoBox Items

Info Item	Meaning
FS Type	If the filesystem is either a VERITAS Volume Manager™ or HP-UX VXFS Logical Volume with a VXFS filesystem the value for this variable is (VxVM / LVM), alternatively (for non-VERITAS Volume Manager™ or non HP-UX LVM with a VXFS filesystem) the value displayed is (Non-(VxVM/LVM))
SID	SID name of instance (for debugging purposes)

VFS_QUOTA_USERS Application InfoBox

Listed below are the InfoBox items currently available for the VFS_QUOTA_USERS Application InfoBox:

Table 1-6 VFS_QUOTA_USERS Application InfoBox Items

Info Item	Meaning
Quota Soft File Limit	Displays the Soft File Limit for the User. This is the maximum number of files that a user can create without limit. A user can temporarily create more files for a limited time (defaults to 7 days), at which time the user is unable to create more files, even though the hard file limit has not been reached.
Quota Hard File Limit	Displays the Hard File Limit for the user. This is the maximum number of files a user can create on the file system.
Quota Soft Block Limit	Displays the Soft Block Limit for the User. This is the maximum number of Blocks (1024 bytes) that a user can create without limit. A user can temporarily create more blocks for a limited time (defaults to 7 days), at which time the user is unable to create more blocks, even though the hard block limit has not been reached.
Quota Hard Block Limit	Displays the Hard Block Limit for the user. This is the maximum number of blocks (1K) a user can create on the file system.

VFS_QUOTA Application InfoBox

Listed below are the InfoBox items currently available for the VFS_QUOTA Application InfoBox:

Table 1-7 VFS_QUOTA Application InfoBox Items

Info Item	Meaning
Parent Instance	Displays the Parent Container Instance Name (Debugging)

Where to Go from Here

The following table suggests topics that you should read next:

If you want information on...	Refer to...
How to use online help	Help => Using Help from the PATROL Console menu bar.
How to load and configure the PATROL KM	Chapter 2, "Getting Started," and the Help
What a certain menu command does	Chapter 3, "Menu Summary," and the Help
What a certain parameter does	Chapter 4, "Parameter Summary," and the Help
How to perform a task using this KM	Chapter 5, "Monitoring Veritas File System," and the Help

Getting Started

This chapter provides you with information that you will need to get started with the PATROL for Veritas File System (also referred to as the VFS KM). The following topics are discussed:

KM Requirements	2-2
Licensing Requirements for the KM	2-2
Software Requirements for the KM	2-2
Installing the KM	2-3
Installing the KM (Using BMC Installation Utility)	2-3
Preparing to Install or Upgrade (Using All in One Exe/Zip File)	2-4
Installing the KM on a Unix Platform	2-5
Installing the KM on a Microsoft Windows Platform	2-6
Installing or Upgrading the PAR file on BPPM Portal	2-7
Loading the KM	2-8
Preparing to Load the KM	2-8
Loading the KM on PATROL Console	2-8
Loading the KM on PATROL Central	2-9
Loading the KM on BPPM Portal	2-10
Configuring the KM	2-11
Licensing the KM	2-12
Configuring Login Details	2-13
Configuring Kernel Log	2-14
Preload KM	2-14
Discovery Cycle	2-14
'Sudo' Configuration Requirements	2-15
Help	2-16
Accessing Help	2-16
Where to Go from Here	2-17

Preparing to Use VFS KM

After installing VFS KM, you must perform certain tasks before you can use the KM. If the PATROL Agent has not been installed, refer to the *PATROL Installation Guide* for installation procedures.

Before performing the task “Installing the KM” , refer to “KM Requirements” and “System Requirements” on page 1-3.

KM Requirements

This section describes the software and information requirements for setting up this KM.

Licensing Requirements for the KM

A valid license is required before you can use the KM. For more information on licensing, see the “Licensing the KM” section below.

Software Requirements for the KM

You must meet the general operating system platform and software requirements described under “System Requirements” on page 1-3.

Installing the KM

This section describes steps required to install or upgrade the VFS KM.

Installing the KM (Using BMC Installation Utility)

1. Check all prerequisites have been met.
2. Download the latest *Installation Utility* from BMC EPD site and extract the contents to create **bmc_products** directory under a temporary directory.
3. Extract the contents of the VFS KM distribution file (**vfs_km_v12xx.zip** on Microsoft Windows platforms or **vfs_km_v12xx.tar** on Unix platforms) to the same temporary directory, created in Step 2.
4. Start the *Installation Utility* (**setup.exe** on Microsoft Windows platforms or **setup.sh** on Unix platforms), follow the instructions and install the required components of the KM. Table 2-1 describes the contents of the VFS KM distribution file.

Table 2-1 Contents of the Distribution File for Installation Utility

File	Description
vfsagt12xxu	Unix PATROL Agent installation utility files
vfscn12xxu	PATROL Console for Unix installation utility files
vfscn12xxw	PATROL Console for MS Windows installation utility files
vfscs12xxu	PATROL Central Console Server for Unix installation utility files
vfscs12xxw	PATROL Central Console Server for MS Windows installation utility files
vfsws12xx	PATROL Central Web Server for Unix and PATROL Central Web Server for MS Windows installation utility files
otl-vfs-solution-1.2.xx.par	BMC ProactiveNet Performance Management Portal PAR file

Preparing to Install or Upgrade (Using All in One Exe/Zip File)

1. Check all prerequisites have been met.
2. Extract the contents of the distribution file to a temporary folder. This distribution file can be obtained as a Microsoft Windows self-extracting file (**vfs.exe**), zip file (**vfs.zip**) or a compressed tar file (**vfs.tar.z**). Zip files can be extracted using WinZip application or PKUNZIP command (Microsoft Windows platforms) or uncompress and tar command (Unix platforms). Table 2-2 describes the contents of the VFS KM distribution file.

Table 2-2 Contents of the Distribution File

File	Description
vfs_ug12.pdf	User Guide
vfs_rn<release_date>.pdf	Release Notes
vfs_r12_agent.tar	Unix PATROL Agent installation file
vfs_r12_console.tar	PATROL Console for Unix installation file
vfscn12.exe	PATROL Console for MS Windows installation file
vfscnserver12.tar	PATROL Central Console Server for Unix installation file
vfscs12.exe	PATROL Central Console Server for MS Windows installation file
vfswbserver12.tar	PATROL Central Web Server for Unix installation file
vfsws12.exe	PATROL Central Web Server for MS Windows installation file
otl-vfs-solution-1.2.xx.par	BMC ProactiveNet Performance Management Portal PAR file

3. Read the Release Notes, and confirm all requirement for this release have been met.
4. If you are upgrading the VFS KM, please follow the steps described under “Uninstalling the KM” on page 5-12 to uninstall the old version of the KM before attempting to install the new version.

Installing the KM on a Unix Platform

1. Copy or ftp appropriate installation files under the paths for the relevant systems as shown in Table 2-3.

Table 2-3 Unix Platform Installation Files and Extraction Paths

File	Path
vfs_r12_agent.tar	\$PATROL_HOME/ on monitored Unix servers <i>Example:</i> /opt/bmc/Patrol3/ or /opt/bmc/Patrol3/Solaris29-sun4/
vfs_r12_console.tar	\$PATROL_HOME/ on PATROL Console for Unix <i>Example:</i> /opt/bmc/Patrol3/ or /opt/bmc/Patrol3/Solaris29-sun4/
vfserver12.tar	\$PATROL_ROOT/ on PATROL Central Console Server for Unix <i>Example:</i> /opt/bmc/Patrol7/
vfserver12.tar	\$BMC_ROOT/webcentral/ on PATROL Central Web Server for Unix <i>Example:</i> /opt/bmc/webcentral/

2. Extract the contents of the installation **.tar** file as PATROL user, using:

```
tar xvf <file name>
```
3. Remove the installation **.tar** file copied in Step 1.

Installing the KM on a Microsoft Windows Platform

1. Copy or ftp appropriate installation files to a temporary folder (such as **C:\temp**) on the relevant system.
2. Double-click the file and extract the contents of the self-extracting files to relevant paths as shown in Table 2-4

Table 2-4 MS Windows Platform Installation Files and Extraction Paths

File	Path
vfscn12.exe	%PATROL_HOME%\ on PATROL Console for MS Windows Example: C:\Program Files\BMC Software\Patrol3\
vfscs12.exe	%PATROL_ROOT%\ on PATROL Central Console Server for MS Windows Example: C:\Program Files\BMC Software\Patrol7\
vfsws12.exe	%BMC_ROOT%\WebCentral\ on PATROL Central Web Server for MS Windows Example: C:\Program Files\BMC Software\WebCentral\

3. Remove the self-extracting installation file copied in Step 1.

Installing or Upgrading the PAR file on BPPM Portal

The PAR file enables BMC ProactiveNet Performance Management Portal to retrieve the KM data from the PATROL Agent.

1. Log on to the BMC ProactiveNet Performance Management Portal with portal credentials, and select the **Portal** tab.
2. Under **Tasks** in the navigation pane, select **Performance Managers**.
3. Click **Upload**
4. Click **Browse** and then select the PAR file extracted under the temporary folder on the local system. (**otl-vfs-solution-1.0.xx.par**) extracted under the temporary folder on the local system.
5. Click **Upload**.

Note

If you are upgrading the PAR file on BMC ProactiveNet Performance Management Portal, the initial Status of the newly uploaded PAR solution on Portal is “**Unpublished**”.

To push-out the new version to effect the upgrade process, select the checkbox next to the new version PAR solution on Portal, and click **Publish**.

Loading the KM

This section provides instructions to load VFS KM on Microsoft Windows and Unix platforms.

Before you load the VFS KM, you must install the KM on PATROL Console and PATROL Agent systems, following the instructions in “Installing the KM” on page 2-3.

Preparing to Load the KM

1. Start the PATROL Console and update the connection to all PATROL Agent systems where the VFS KM is installed.
2. Check the value of the PATROL Agent tuning variable, “/AgentSetup/AgentTuning/psInstructionMax”, and if necessary, increase it.

Loading the KM on PATROL Console

1. From the PATROL Console menu bar, choose **File => Load KM...**
2. Select the **VFS_LOAD.kml** file, and click **Open** or **OK**. The VFS KM will be loaded to the PATROL Console, and all connected PATROL Agents will start discovering the Veritas File System environment. If the automatic discovery successfully finds the Veritas File System installation, **VFS_SETUP** instance will be instantiated, as shown in Figure 2-1.

Note

This automatic discovery may take up to 5 minutes to instantiate the **VFS_SETUP** instance. Look for any error messages on the PATROL Console System Output Window (SOW) during the initial discovery..



Figure 2-1 VFS_SETUP Icon

3. Select **File => Save Configuration** to save the new list of loaded KMs as the PATROL Console user preference.
4. Repeat the above steps on each PATROL Console.

Loading the KM on PATROL Central

1. Right click on the **PATROL Main Map**, and choose **Load Knowledge Modules...** A wizard box will display a list of all managed systems.
2. Select the managed systems where the VFS KM is to be loaded, and click **Next>**. The wizard will display a list of all available **.kml** files for the managed systems you selected.
3. Select the **VFS_LOAD.kml** file for each managed system, click **Next>** and **Finish**.

Note

If you cannot find the **VFS_LOAD.kml** file in the wizard list for any system you selected, then the KM has not been installed on that system. Check that you have followed the instructions in “Installing the KM” on page 2-3.

The VFS KM will be loaded to the PATROL Central Console Server, and all connected selected managed systems will start discovering the Veritas File System environment. If the automatic discovery successfully finds the Veritas File System installation, the **VFS_SETUP** instance will be instantiated, as shown in Figure 2-1.

Note

This automatic discovery may take up to 5 minutes to instantiate **VFS_SETUP** instance.

4. Repeat the above steps for each PATROL Central Management Profile where VFS KM is to be unloaded.

Loading the KM on BPPM Portal

1. Logon to BMC ProactiveNet Performance Management Portal with appropriate credentials to add infrastructure elements.
2. Click on **Configure** tab.
3. Under **Tasks**, select **Elements** to open the Elements page.
4. Click in **Add**.
5. Select **Infrastructure Element**, and click **Next**.
6. Select appropriate RSM, and click **Next**.
7. Enter the label for the element, select **PATROL Integration**, and click **Next**.
8. Select/create a group name, and click **Next**.
9. Select appropriate method to discover the PATROL Agent hosts, and click **Next**.
10. Fill the required details for discovering the PATROL Agents, and click **Commit**.

Configuring the KM

Note

This version of the VFS KM cannot be configured from BMC ProactiveNet Performance Management Portal. Use PATROL Console or PATROL Central Console to access the KM configuration menus (KM commands) described below.

Once the VFS KM has been loaded the Knowledge Module for PATROL®_SETUP icon will appear. This allows the user to define the VFS specific configuration information, and to enter KM license information.



Figure 2-2 VFS KM Setup Icon

At this point the KM needs to be licensed and configured before the KM is able to start operation.

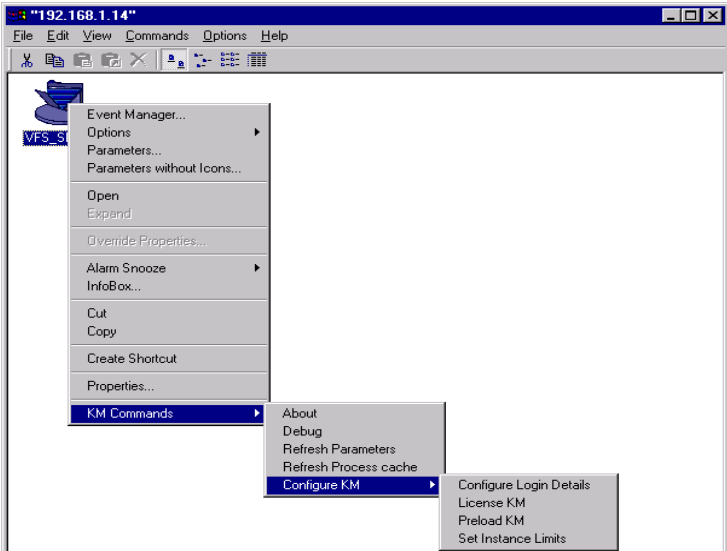


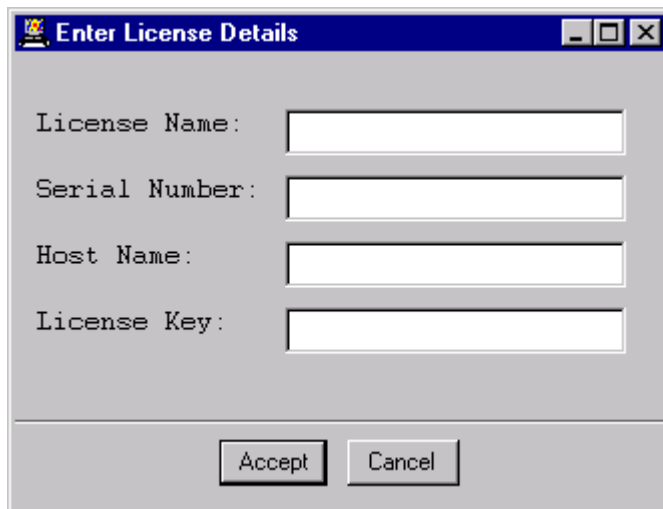
Figure 2-3 VFS KM Configuration Menu

PATROL for Veritas File System is shipped with a free 30 day trial license. As soon as KM is installed and loaded to the PATROL Agent on a new managed node, the trial license will be automatically activated. The trial license gives full monitoring capability for the KM, and works only once on a managed node.

If you want to purchase a permanent license key, contact your local reseller or OTL Software Limited. To generate the license key, you will need to provide your system architectre details.

Licensing the KM

Licensing the KM is performed by selecting a menu item available the from Knowledge Module for PATROL® **_SETUP** icon on the PATROL Console, **Configure KM => License KM**.



The image shows a Windows-style dialog box titled "Enter License Details". It has a blue title bar with a small icon on the left and standard window control buttons (minimize, maximize, close) on the right. The main area is light gray and contains four text input fields, each with a label to its left: "License Name:", "Serial Number:", "Host Name:", and "License Key:". At the bottom of the dialog, there are two buttons: "Accept" and "Cancel".

Figure 2-4 License VFS KM Menu

This window allows the user to license VFS KM. The KM is licensed on a per-server basis.

License keys can be obtained from OTL Software's website, <http://www.otl.co.nz>

Configuring Login Details

VFS KM needs to be configured for correct operation. All of VxFS's utilities require **root** level access privileges to operate correctly. If the root account is not suitable for the environment then it is possible to use the 'sudo' user account on the system, if this is intended, it is necessary to tick the "use 'sudo' Access" button on the Configure Login Information screen. Alternatively, an account can be created and configured to administer VxFS (See VxFS Administration Guide for more details).

The secure commands needed to be configured for 'sudo' access are detailed with an example 'sudoers' file under "Sudo' Configuration Requirements". This user account should be able to execute certain commands, which are listed in the section "Security Requirements" on page 1-4.

To access the configuration menu select **Configure KM => Configure Login Details** menu from the **VFS_SETUP** icon or **Veritas File System** icon.

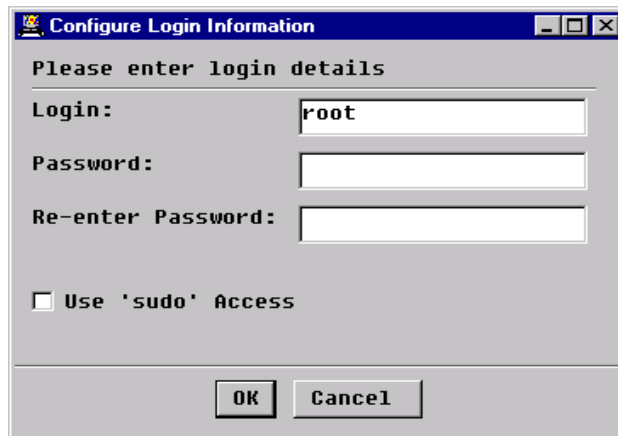


Figure 2-5 Configure Login Details Menu

Enter the username and password details and click on **OK**. The password entered into the dialog box is stored encrypted only on the agent. Should this password be changed, the stored agent password must also be updated using the same menu. This is not an automatic process.

Once the licensing details and login details were successfully entered, the main **VFS_SETUP** icon will be replaced with **Veritas File System**

Configuring Kernel Log

Using the menu **KM Commands => Configure Kernel Messages** from the **Kernel Events** instance check the Kernel Log file path. If required edit path or error filters to suit your environment.

Preload KM

The menu **KM Commands => Configure KM => Preload KM** will preload the KM on to the agent namespace, which enables the KM to operate all the time without a PATROL Console connection. The KM is not pre-loaded by default. It is recommended that VFS KM is pre-loaded on the agent. If the preload is successful the following message will be displayed.

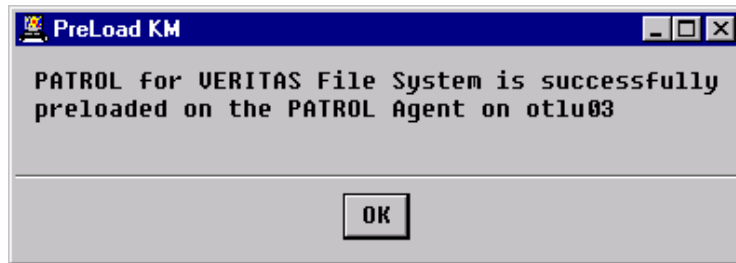


Figure 2-6 Preload KM Acknowledgement

Discovery Cycle

It may take up to 5 minutes for the discovery cycle to automatically find all of the file systems, quotas, snapshots and kernel events present in the system. Discovery can be forced by choosing **KM Commands => Refresh Process Cache** from the **Veritas File System** application instance menu and **Utilities => Patrol => Force Discovery** from the computer instance menu.

'Sudo' Configuration Requirements

If the monitored system uses 'sudo' for restricted access commands, the 'sudoers' file needs to be configured to enable the identified 'agent-user' account access to the restricted commands. Shown below is an example '/usr/local/etc/sudoers' file showing allocation of access for required VxFS commands to the 'patrol' user account on a Solaris system named 'hoth'.

Note

The example shown is from a Solaris server, alternate operating systems may locate the identified commands in different locations. It is important to confirm the executable files exist in the path specified in the sudoers file.

```
# sudoers file.
#
# This file MUST be edited with the 'visudo' command as
  root.
# See the sudoers man page for the details on how to
  write a sudoers file.

# Host alias specification
Host_Alias      VFSKMHOSTS = hoth

# User alias specification
User_Alias      VFSKMUSERS = patrol

# Cmnd alias specification
Cmnd_Alias      VFSKMCMDS = /usr/sbin/fstyp,
                        /usr/sbin/prtvtoc, /usr/bin/iostat,
                        /usr/sbin/vxprint, /usr/sbin/mkfs,
                        /opt/VRTS/bin/fsadm, /opt/VRTS/bin/vxrepquota,
                        /usr/sbin/vxstat

# Defaults specification

# User privilege specification
root    ALL=(ALL) ALL
VFSKMUSERS    VFSKMHOSTS = VFSKMCMDS
```

Help

Help describes the function of the currently displayed window or dialog box and the use of its elements. The tasks in this section describe how to access help.

Accessing Help

Summary: You can access help from the PATROL Console through the List of Applications Classes window, the parameter window, and the parameter pop-up menu.


To Access Help from the List of Applications Classes Window with the PATROL Console for Unix

- » Select the application class and choose **Help => This Application** from the List of Applications Classes window.

To Access Help from Context-Sensitive Parameter Help with the PATROL Console for Unix

- » Select the parameter from the parameter pop-up window and choose **Help**
Or
- » Right-click any parameter pop-up window and choose **Help On**.
Or
- » Choose **Help => This Window** from any parameter window.

To Access Help from Context-Sensitive Parameter Help with the PATROL Console for Windows NT

» Click on  from any parameter window.

Or

» Right-click any parameter pop-up window and choose **Help On**.

Where to Go from Here

The following table suggests topics that you should read next:

If you want information on...	See...
How to use help	Help => Help Topics from the PATROL Console on Windows platforms and Help => On Knowledge Modules from the PATROL Console on Unix platforms
What a certain menu command does	Chapter 3, "Menu Summary," and VFS KM help.
What a certain parameter does	Chapter 4, "Parameter Summary," and VFS KM for PATROL help.
How to perform a task using this KM	Chapter 5, "Monitoring Veritas File System."

Menu Summary

This chapter summarises the application menus and menu commands for the PATROL for Veritas File System (also referred to as VFS KM). The application menu architecture is provided in a table for each of the application classes.

When a Knowledge Module (KM) is loaded, its associated menu commands are added to the KM area of a menu. The menu is opened by right-clicking the object.

On the Unix Console, the KM area of a menu is below the menu's horizontal line. Menu commands above the line belong to the Console. On a Windows Console the menu items appear under the **KM Commands** submenu when the right-mouse button is selected over an object.

This chapter describes KM menu commands only. The KM help system provides further details about these menu commands. For descriptions of Console menu commands, refer to the appropriate PATROL user guide for your Console.

The following topics are discussed in this chapter:

Accessing Application Menus	3-3
Menu Summary.....	3-4
VFS_CONTAINER Application Menu	3-4
VFS_FS_CONTAINER Application Class Menu	3-11
VFS_FILESYSTEMS Application Class Menu	3-13
VFS_QUOTA Application Class Menu.....	3-15
VFS_QUOTA_USERS Application Class Menu.....	3-17
VFS_KERNEL Application Class Menu.....	3-19
Where to Go from Here	3-24

Accessing Application Menus

To access application menu items, perform the following steps:

Note

A summary of each menu item is provided later in this section.

Step 1 To access the application menu, perform one of the following actions:

- **With the PATROL Console for Unix**, click and hold MB3 on the **Veritas File System** or **VFS_SETUP** icon.
- **With the PATROL Console for Windows**, right-click the **Veritas File System** or **VFS_SETUP** icon and select **KM Commands**.

The menu is displayed as shown in the Figure 3-1 below.

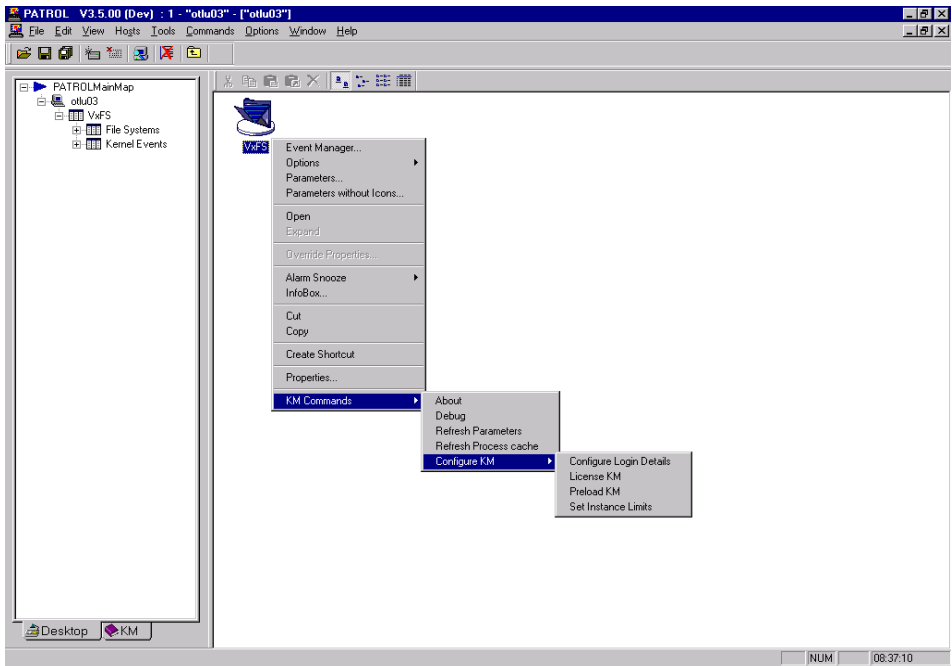


Figure 3-1 Application Menus

Step 2 Select the appropriate menu item to perform the required task.

Menu Summary

This section describes VFS KM application menus for the following application classes.

VFS_CONTAINER Application Menu

The VFS_CONTAINER Application Menu is available from the VFS_SETUP or VxFS icon as shown in Figure 3-2.

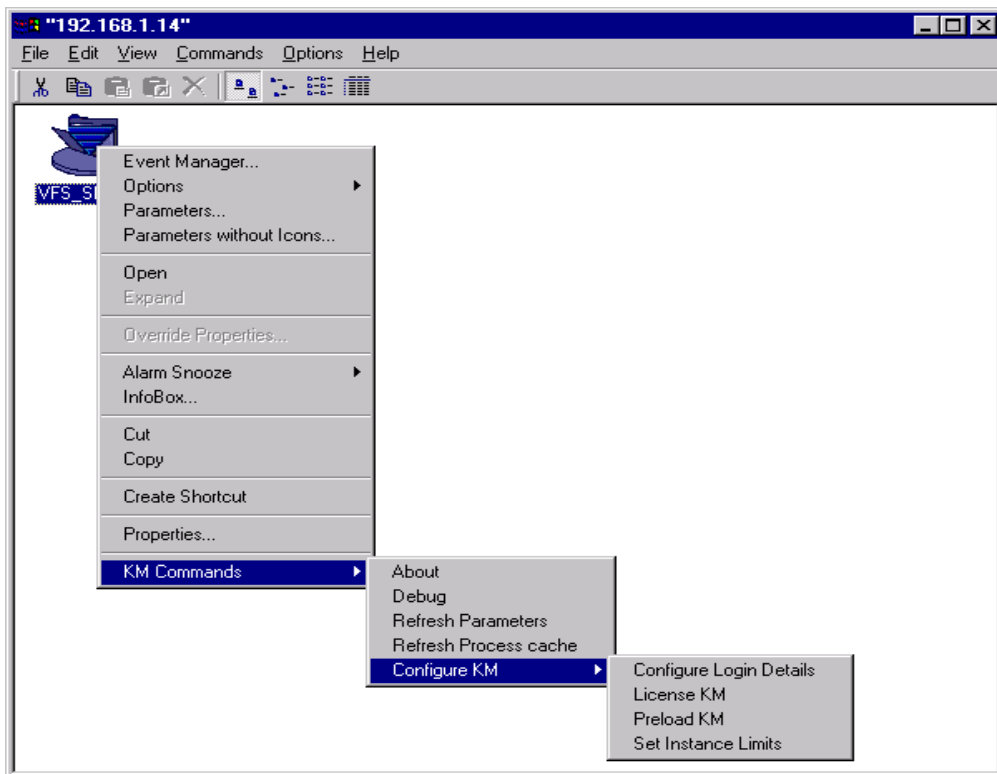


Figure 3-2 VFS_CONTAINER Application Menu

The VFS_CONTAINER Application Menu has the following menu items:

Table 3-1 VFS_CONTAINER Application Menu

Menu	Action
About	Displays Information about KM Manufacturer and Version.
Debug	Opens Debug Dialog box to set debugging on/off. It is intended to provide limited additional information onto the system output window.
Refresh Parameters	Forces a refresh of all VFS_CONTAINER Parameters (Collectors)
Refresh Process Cache	Forces a refresh of the PATROL Agent Process cache.
Configure KM	Accesses the Configuration Sub-Menus.
Configure Login Details	This option allows the configuration of the user logon required for VFS. See Chapter 2, "Configuring Login Details". The VFS_CONTAINER icon name will remain as VFS_SETUP until a password is entered.
License KM	This Option provides access to the License Dialog box for entering License details. The VFS_CONTAINER Icon will display VFS_SETUP and be OFFLINE until this process is performed. See Chapter 2, "Licensing the KM".
Preload KM	This menu will preload the KM on to the agent. This will allow the KM to operate without PATROL Console connection.
Set Instance Limits	This option allows the configuration of the maximum number of Patrol instances the KM will create.

Debug

The following Menu appears when “Debug” is selected.



Figure 3-3 Debug Menu Window

- Step 1** Select **Debug** from the **Veritas File System** or **VFS_SETUP** icon. The dialog box in Figure 3-3 appears.
- Step 2** Turn on the Debug for Collector Parameter(s) you want to monitor. Or, turn off the Debug for Collector Parameter(s) you don't want to monitor.

Step 3 Select Accept to start/stop debugging, or Cancel to Abort.

Note

All Debug output is written to the **VFS Debug Output** Task window on all PATROL consoles connected to this agent with PATROL Agent. It may be necessary to increase the value of the **Text Window Buffer Size** in the **Options => Preferences => Configuration Tab** menu on the PATROL Console to view all of the debug data.

Configure Login Details

To configure the Login Details, Select **Configure KM => Configure Login Details** from the **Veritas File System** or **VFS_SETUP** icon. The dialog box in Figure 3-4 appears.



Configure Login Information

Please enter login details

Login: root

Password:

Re-enter Password:

Use 'sudo' Access

OK Cancel

Figure 3-4 Configure Login Details Menu

Step 1 Enter the **username** and **password** of the privileged user to run the Veritas File System commands.

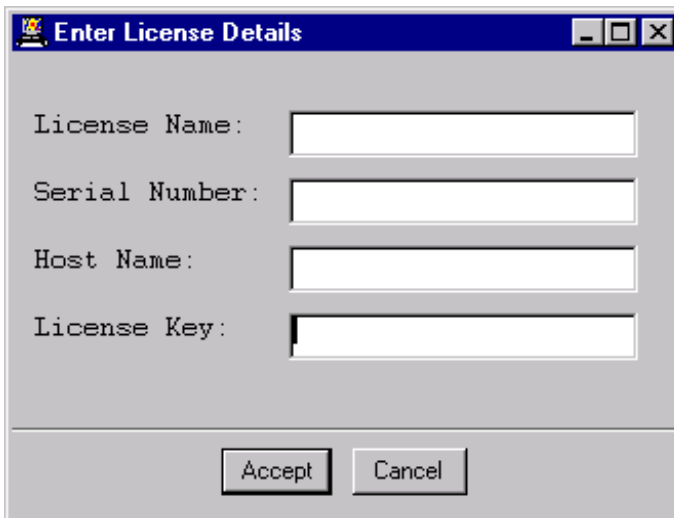
Note

This user is normally **root** user.

Step 2 Select **OK** to confirm or **Cancel** to exit.

License KM

Before VFS KM can be used, it must be correctly licensed. The **Configure KM => License KM** menu from the **Veritas File System** or **VFS_SETUP** icon provides access to the licensing dialog box in Figure 3-5.



The image shows a Windows-style dialog box titled "Enter License Details". It has a blue title bar with a small icon on the left and standard window controls (minimize, maximize, close) on the right. The main area is light gray and contains four text input fields, each with a label to its left: "License Name:", "Serial Number:", "Host Name:", and "License Key:". At the bottom of the dialog, there are two buttons: "Accept" and "Cancel".

Figure 3-5 License KM Menu

Step 1 Enter the license details as provided by OTL Software into the appropriate fields and select **Accept** to confirm or **Cancel** to abort.

Step 2 A confirmation of the license acceptance will be returned.

Step 3 Once the license has been correctly entered, it may take up to 5 minutes for the discovery cycle to automatically find all of the file systems, quotas, snapshots and kernel events present in the system. Discovery can be forced by choosing **KM Commands => Refresh Process Cache** from the main application instance menu and **Utilities => Patrol => Force Discovery** from the computer instance menu.

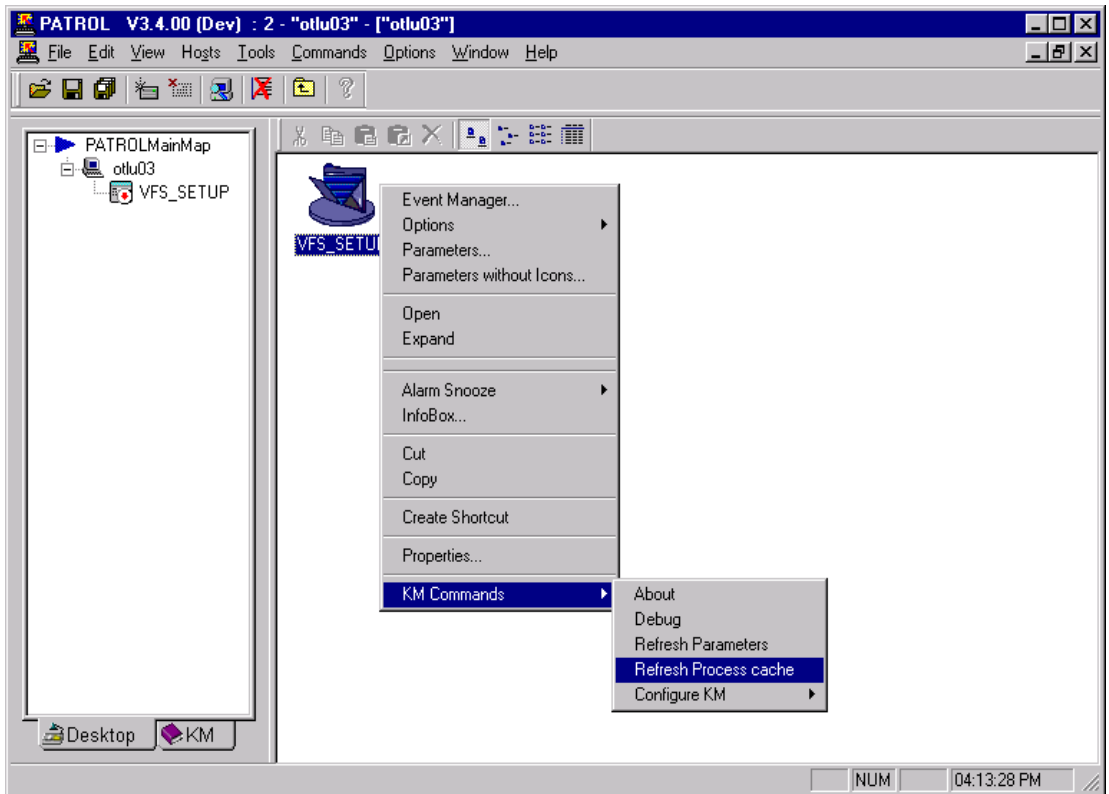


Figure 3-6 VFS_SETUP Application Class Menu

Preload KM

This menu item will preload the KM on to the agent namespace, which enables the KM to operate all the time without a PATROL console connection. It is recommended that the VFS KM is preloaded on the agent. If the preload is successful following message will be displayed.

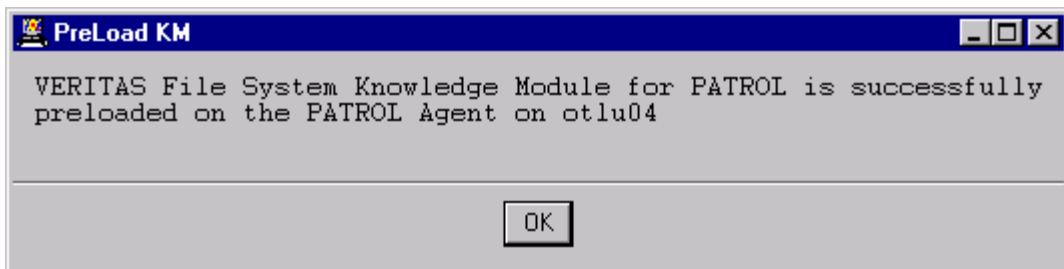


Figure 3-7 Preload KM Menu

Set Instance Limits

The following menu item appears when the “Set Instance Limits” menu item is selected:

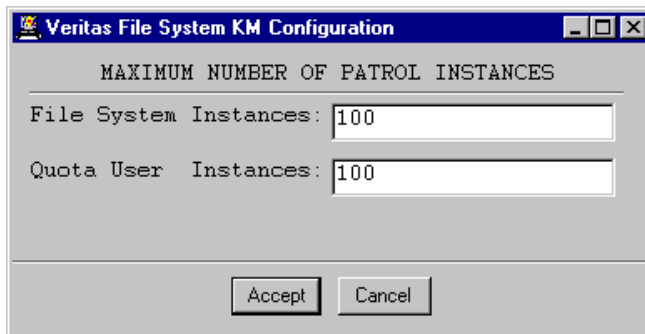


Figure 3-8 Set Instance Limit Menu

This option allows some control over the number of application class instances that can be discovered. By default a maximum of 100 File Systems and Quota-Users will be discovered. This allows for some control over the amount of resource that Patrol can use in large installations. If the number of instances in the installation exceeds the number that the KM is configured to discover, then a message will be displayed in the system output window for the host.

VFS_FS_CONTAINER Application Class Menu

The VFS_FS_CONTAINER Application Class Menu is available from the **File Systems** icon under the **Veritas File System** application container as in Figure 3-9.

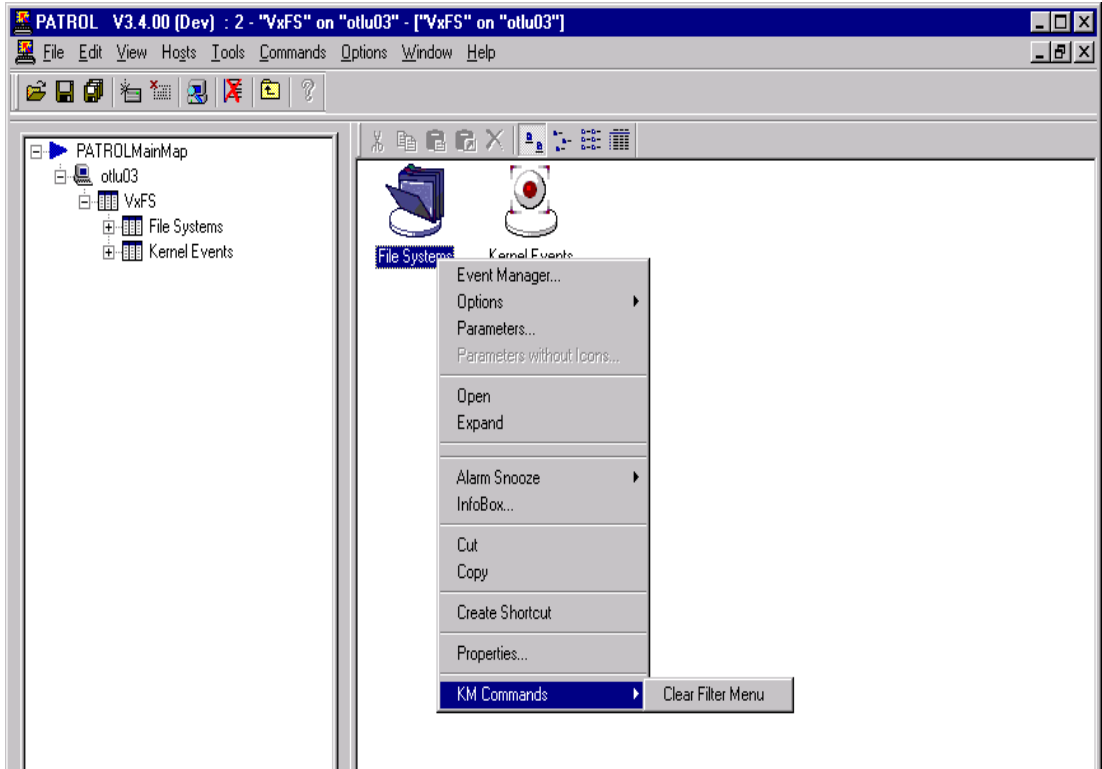


Figure 3-9 VFS_FS_CONTAINER Application Class Menu

The VFS_FS_CONTAINER Application Class Menu has the following menu items:

Table 3-2 VFS_FS_CONTAINER Application Class Menu

Menu	Action
Clear Filter Menu	Opens a list of the current file system device names that appear in the Filter List so they can be removed.

Clear Filter Menu

This menu item clears entries in the filtered file system devices list. To access this menu select the menus of the **File Systems** icon (VFS_FS_CONTAINER) as in Figure 3-9. A selection window will appear as in

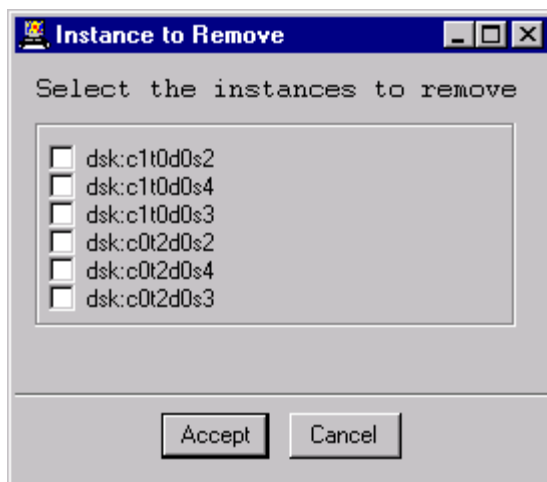


Figure 3-10 Clear Filter Menu

- Step 1** Select the File System device(s) that you want to remove from the filter list.
- Step 2** Click **Accept** to confirm or **Cancel** to abort.

VFS_FILESYSTEMS Application Class Menu

The VFS_FILESYSTEMS Application Class Menu is available from the **File System** instances under the **File Systems** container icon under the **VxFS** Application container as in Figure 3-9.

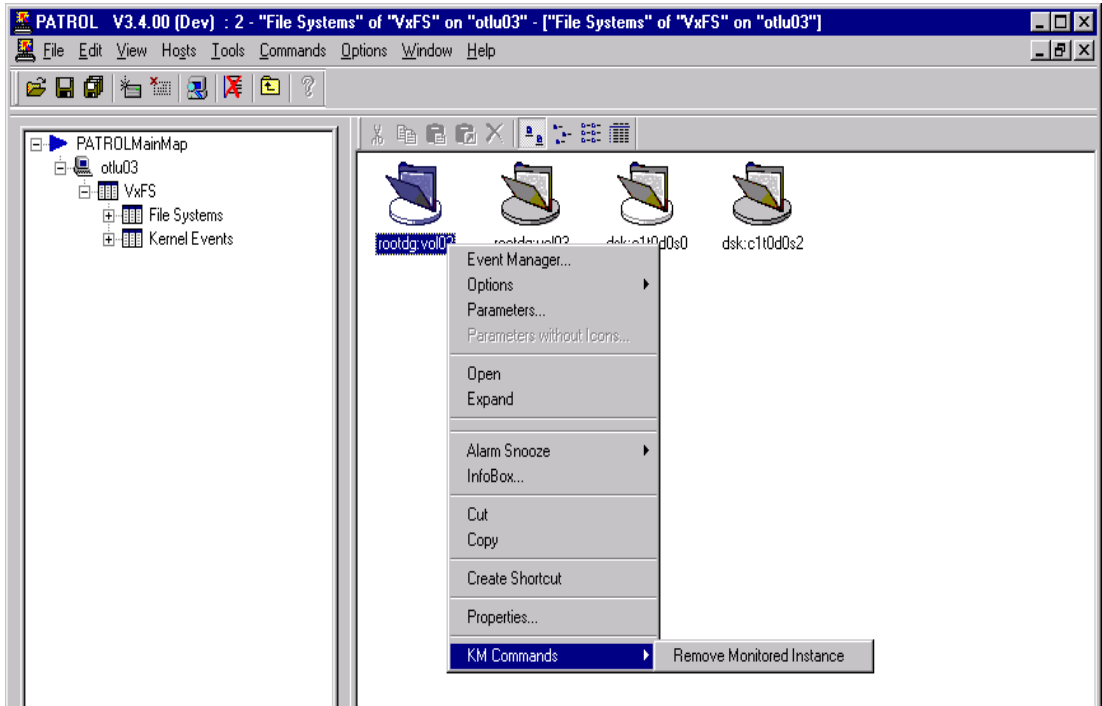


Figure 3-11 VFS_FILESYSTEMS Application Class Menu

The VFS_FILESYSTEMS Application Class Menu has the following menu items:

Table 3-3 VFS_FILESYSTEMS Application Class Menu

Menu	Action
Remove Monitored Instance	Removes the monitoring of the selected instance and adds the instance name to the File Systems Filter.

Remove Monitored Instance

To remove a monitored File System Instance;

Step 1 Select the instance in the File Systems Container.

Step 2 Select **Remove Monitored Instance** from the menu.

The instance will be removed immediately and the File System filter list updated.

To restore a remove instance, see “Clear Filter Menu” on page 3-12.

VFS_QUOTA Application Class Menu

The VFS_QUOTA Application Class Menu is available from the <Mount Point Instance> Quotas instance under the **File System** instances under the **File Systems** container icon under the **Veritas File System** application container as in Figure 3-12.

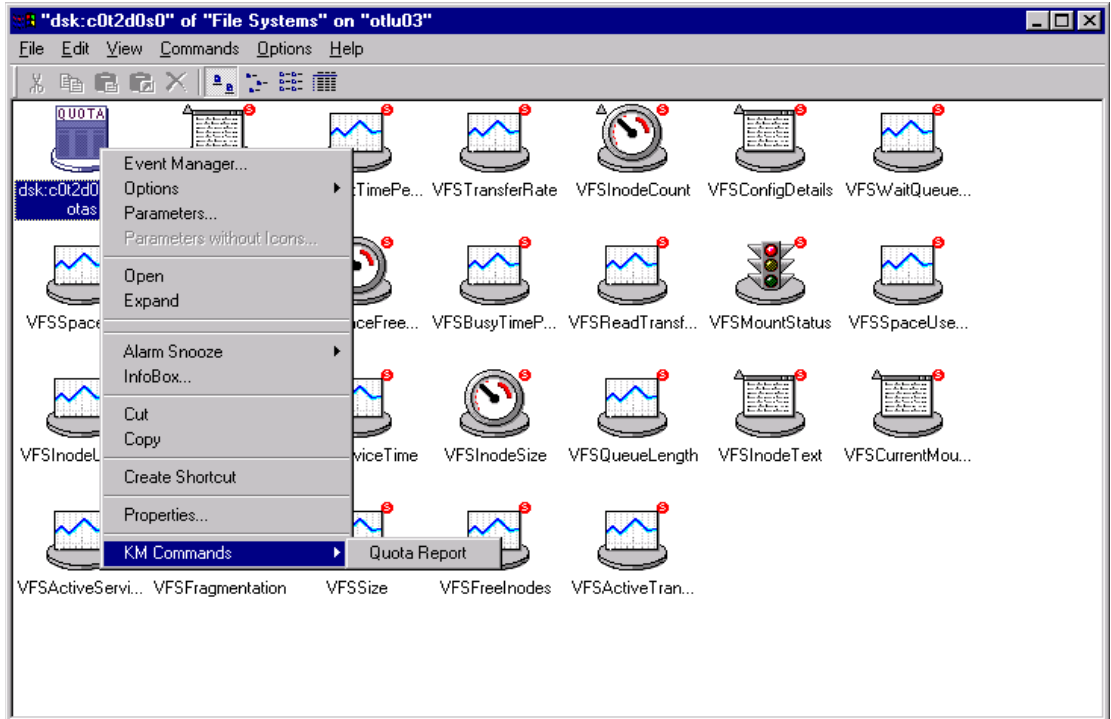


Figure 3-12 VFS_QUOTA Application Class Menu

The VFS_QUOTA Application Class Menu has the following menu items:

Table 3-4 VFS_QUOTA Application Class Menu

Menu	Action
Quota Report	Generates a response window report of the File System Quotas for this File System Instance

Quota Report

To generate a report select Quota Report from the instance menu. A report will be generated to the console screen similar to Figure 3-13.

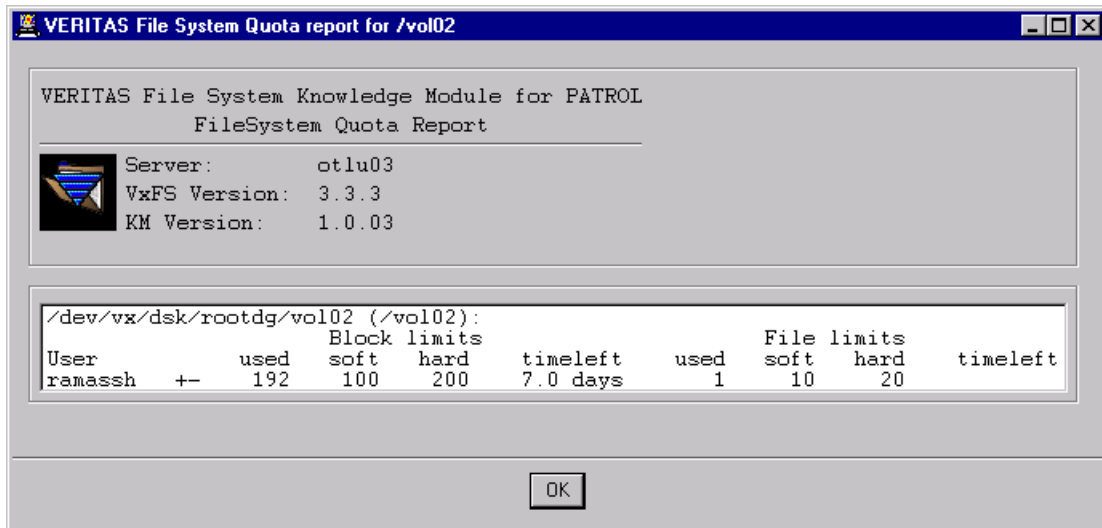


Figure 3-13 Quota Report

VFS_QUOTA_USERS Application Class Menu

The VFS_QUOTA_USERS Application Class Menu is available from the <Mount Point> Quotas Instance under the **File System** instances under the **File Systems** container icon under the **Veritas File System** application container as in Figure 3-14

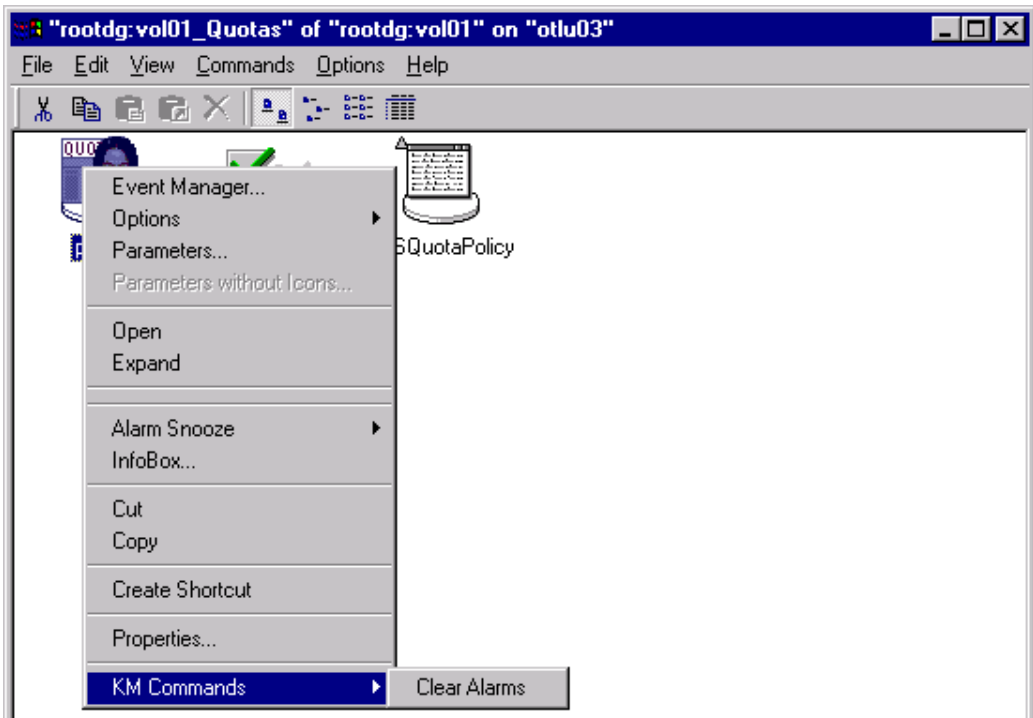


Figure 3-14 VFS_QUOTA_USERS Application Class Menu

The VFS_QUOTA_USERS Application Class Menu has the following menu items:

Table 3-5 VFS_QUOTA_USERS Application Class Menu

Menu	Action
Clear Alarms	Clears parameters in ALARM or WARN state

Clear Alarms

To clear ALARMS or WARNings, select Clear Alarms Menu of the User instance. A dialog box similar to Figure 3-15 will appear.

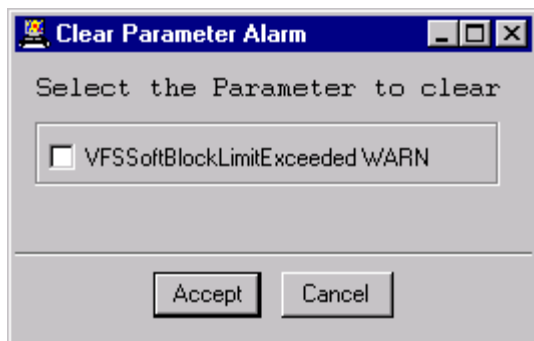


Figure 3-15 Clear Alarms

- Step 1** Select the Parameter(s) you want to clear.
- Step 2** Click **Accept** to confirm or **Cancel** to abort.
- Step 3** The Parameter state will immediately change to **OK**.

VFS_KERNEL Application Class Menu

The VFS_KERNEL Application Class Menu is available from the **Kernel Events** icon in the **VxFS** Application container as in Figure 3-16

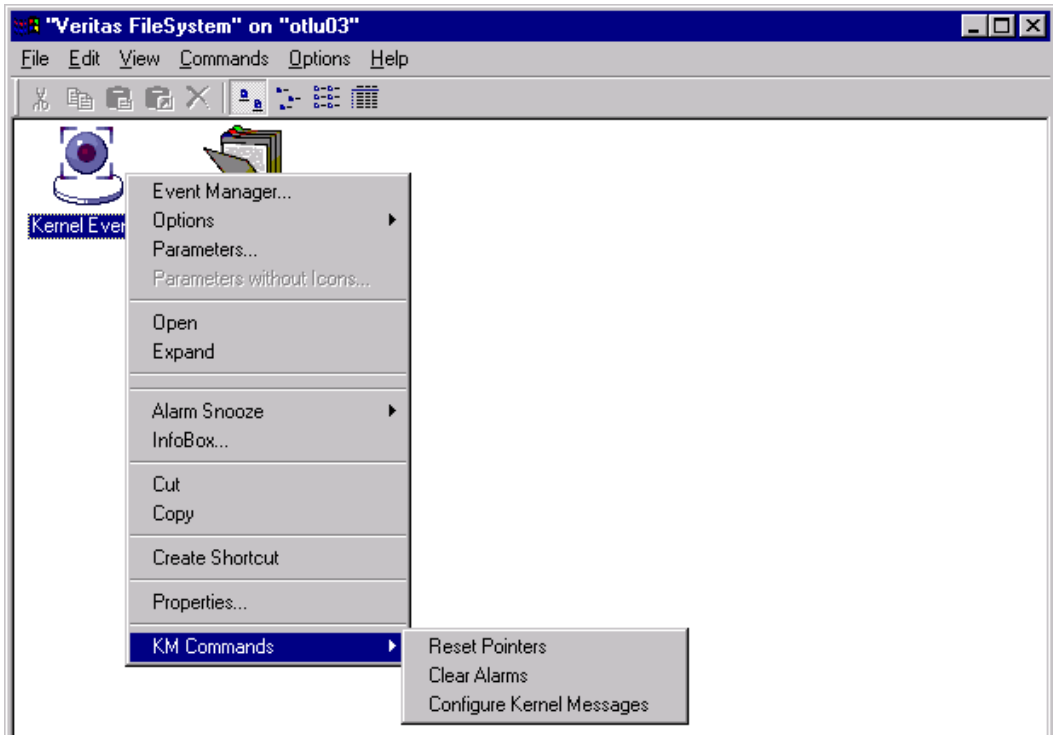


Figure 3-16 VFS_KERNEL Application Class Menu

The VFS_KERNEL Application Class Menu has the following menu items:

Table 3-6 VFS_KERNEL Application Class Menu

Menu	Action
Reset Pointers	Clears the file position pointers so that the next scan of the messages file will start from the beginning.

Menu	Action
Clear Alarms	Displays a list of parameters in ALARM or WARN state to clear until next poll interval.
Configure Kernel Messages	Menu to specify : the kernel messages file (e.g. "/var/adm/messages" or "/var/adm/syslog"); the "master" filter for VFS system messages (e.g. "vxfs"); and the messages filter for determining whether a message is Informational, Error, Warning or Ignore

Reset Pointers

This menu immediately sets the kernel message file pointers to zero. A confirmational dialogue box similar to Figure 3-18 will appear.

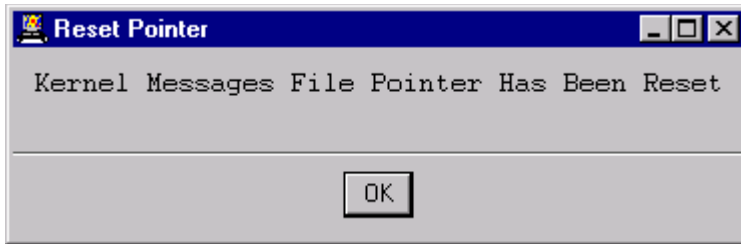


Figure 3-17 Reset Pointer Confirmation Dialogue

Note

The most notable change will be at the next collection interval where the whole contents of the current kernel messages file will be rescanned. Any disabled alarms from the "Clear Alarms" menu below will reappear.

Clear Alarms

To clear ALARMS or WARNings, select Clear Alarms Menu of the User instance. A dialog box similar to Figure 3-18 will appear.

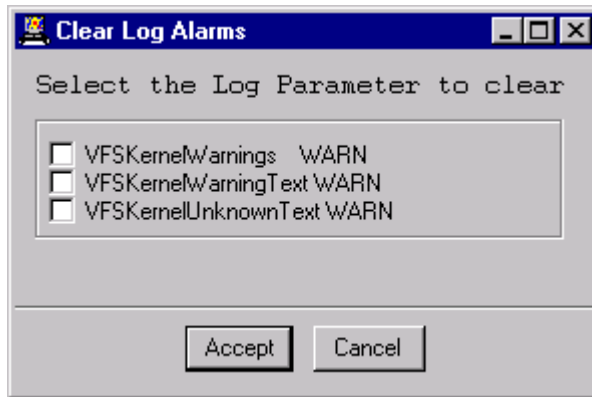
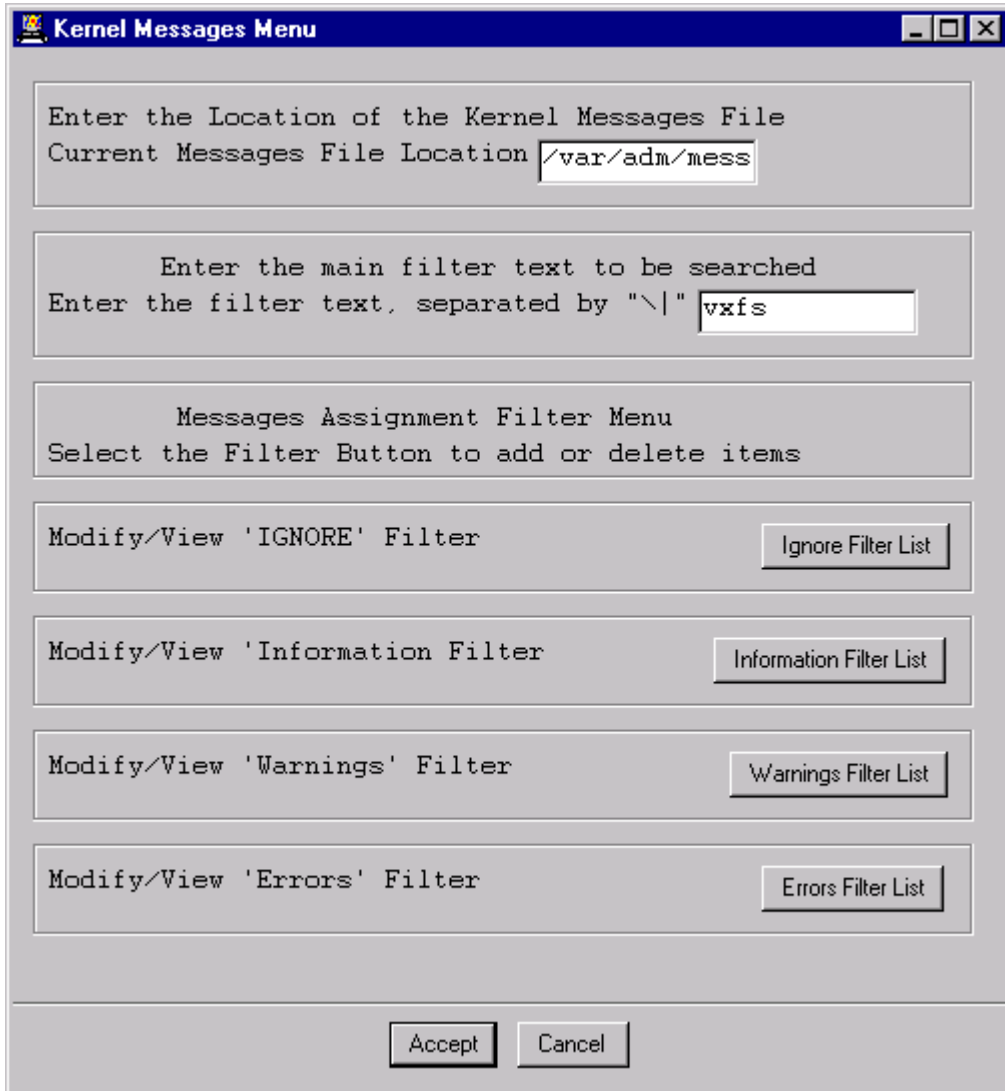


Figure 3-18 Clear Alarms Menu

- Step 1** Select the Parameter(s) you want to clear.
- Step 2** Click **Accept** to confirm or **Cancel** to abort.
- Step 3** The selected Parameter state will immediately change to **OK**.

Configure Kernel Messages

This menu provides the method to configure the message file settings to determine which file to use; which messages should be returned; and which messages are Informational, Error, Warning or to be ignored.



The screenshot shows a dialog box titled "Kernel Messages Menu" with a standard Windows-style title bar (minimize, maximize, close buttons). The dialog is divided into several sections:

- Location Section:** A text box labeled "Enter the Location of the Kernel Messages File" with the text "Current Messages File Location" and a text input field containing "/var/adm/mess".
- Filter Section:** A text box labeled "Enter the main filter text to be searched" with the text "Enter the filter text, separated by \"\\|\"" and a text input field containing "vxfs".
- Assignment Section:** A section titled "Messages Assignment Filter Menu" with the instruction "Select the Filter Button to add or delete items".
- Filter Buttons:** Four rows, each with a label and a button:
 - "Modify/View 'IGNORE' Filter" with "Ignore Filter List" button
 - "Modify/View 'Information Filter" with "Information Filter List" button
 - "Modify/View 'Warnings' Filter" with "Warnings Filter List" button
 - "Modify/View 'Errors' Filter" with "Errors Filter List" button
- Footer:** Two buttons: "Accept" and "Cancel".

Figure 3-19 Configure Kernel Messages Menu

Message File Location

The menu enables you to enter the location of the kernel messages file.

Enter the location of the file and click **Accept** to confirm or **Cancel** to abort.

Main Message File Filter

The menu enables you to enter the main filter of messages in the kernel messages file. The default is “**vxfs**”.

Enter the filter text and click **Accept** to confirm or **Cancel** to abort.

Note

Multiple strings can be entered in this menu, but some performance impact should be expected, particularly where **regular expressions** are used.

Ignore Filter List

This menu provides access to the Ignore Filter List as in Figure 3-20.

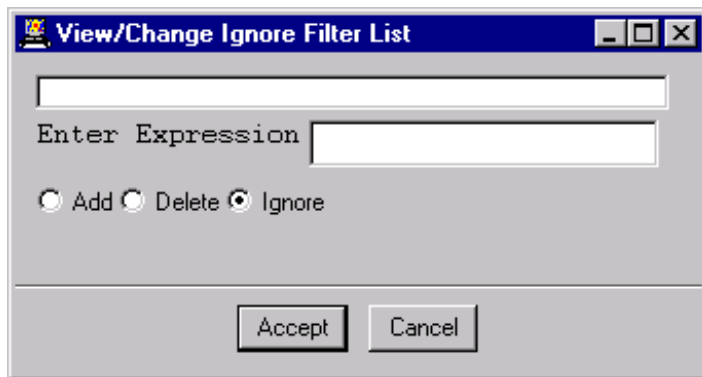


Figure 3-20 Ignore Filter List

To Add expressions:

- Step 1** Enter the expression in the “Enter Expression” text field.
- Step 2** Select the **Add** radio button.
- Step 3** Click **Accept** to confirm or **Cancel** to abort.

To remove entries from the list;

- Step 1** Select the entry to remove from the Top list.
- Step 2** Select the **Delete** radio button
- Step 3** Click **Accept** to confirm or **Cancel** to abort.

Information Filter List

Follow the same steps above for entering expressions to Information Filter List, Warnings Filter List or Errors Filter List.

Once the filters have been defined, select **Accept** to confirm or **Cancel** to abort.

Where to Go from Here

The following table suggests topics that you should read next:

If you want information on...	See...
How to load VFS KM	Chapter 2, “Getting Started.”
What a certain parameter does	Chapter 4, “Parameter Summary,” and VFS KM help.
How to perform a task using this KM	Chapter 5, “Monitoring Veritas File System.”

Parameter Summary

This chapter provides a summary of parameters for the PATROL for Veritas File System (also referred to as the VFS KM). Refer to the *PATROL for Unix User Guide* and the *PATROL for Windows User Guide (Volume 3)* for additional information about the different types of parameters and their functions. Refer to the KM help system for details about KM-specific parameters. The following topics are discussed:

Functional Parameter Summary	4-2
Parameter Default Values	4-10
Where to Go from Here	4-14

Functional Parameter Summary

VFS KM has various parameters that provide statistical information about resources, operating status, and performance. Table 4-1 provides information that you can use when selecting or reviewing the appropriate parameters that are used in monitoring the KM.

Table 4-1 VFS KM Parameter Summary

Parameter	Description	See Also Page
VFS_CONTAINER Application Class		
ExtraFilesList	This standard parameter is inactive and contains a list of the additional files to be sent to the agent during a Commit operation.	4-11
VFSCapacityCollector	This collector sets capacity specific consumer parameters in the VFS_FILESYSTEMS application classes.	4-11
VFSConfigCollector	This collector sets configuration specific consumer parameters in the VFS_FILESYSTEMS application classes.	4-11
VFSFragmentationCollector	This collector sets fragmentation specific consumer parameters in the VFS_FILESYSTEMS application classes.	4-11
VFSKernelCollector	This collector sets kernel specific consumer parameters in the VFS_KERNEL application class.	4-11
VFSPasswordState	This consumer parameter is set by the main discovery process and appears when the password is not set or incorrect for correct operation of the KM. The parameter disappears when the password is OK and works correctly.	4-11
VFSPerformanceCollector	This collector sets performance specific consumer parameters in the VFS_FILESYSTEMS application classes.	4-11
VFSQuotaCollector	This collector sets disk quota specific consumer parameters in the VFS_QUOTA application class.	4-11
VFSSnapShotCollector	This collector sets fragmentation specific consumer parameters in the VFS_SNAPSHOT application classes.	4-11

Table 4-1 VFS KM Parameter Summary

Parameter	Description	See Also Page
VFS_FILESYSTEMS Application Class		
VFSActiveServiceTime	This consumer parameter, set by the VFSPerformanceCollector collector, shows the Active Service time for a file system device in the last interval. Note: This parameter is only available for non-VERITAS Volume Manager File Systems.	4-11
VFSActiveTransactions	This consumer parameter, set by the VFSPerformanceCollector collector, shows the number of Active Transactions during the last interval. Note: This parameter is only available for non-VERITAS Volume Manager File Systems	4-11
VFSBlockTransfers	This consumer parameter, set by the VFSPerformanceCollector collector, shows the number of data blocks transferred in the last interval.	4-11
VFSBusyTimePercent	This consumer parameter, set by the VFSPerformanceCollector collector, shows the percentage time busy for the file system's device in the last interval. "busy" time is the duration that disk I/O transactions are in progress. Note: This parameter is only available for non-VERITAS Volume Manager File Systems.	4-11
VFSConfigDetails	This consumer parameter, set by the VFSConfigCollector collector, shows the file system configuration details from the 'mkfs' command used to create the file system.	4-11
VFSCurrentMountPoint	This consumer parameter, set by the VFSConfigCollector collector, shows the current mount point for the file system. Also see the VFSMountStatus and VFSMountStatusText parameters.	4-11
VFSFragmentation	This consumer parameter, set by the VFSFragmentationCollector collector, shows amount of fragmentation on this File System. If the figure is greater than 1, defragmentation may be required. This parameter does not ALARM for figure greater than 1, it only indicates that there may be some fragmentation. Note: This parameter is only available for VERITAS Volume Manager File Systems.	4-11

Table 4-1 VFS KM Parameter Summary

Parameter	Description	See Also Page
VFSFreeInodes	This consumer parameter, set by the VFSCapacityCollector collector, shows number of inodes available on the File System.	4-11
VFSInodeAttributes	This consumer parameter is currently disabled awaiting future enhancement to VFS KM.	4-11
VFSInodeCount	This consumer parameter, set by the VFSCapacityCollector collector, shows the number of Inodes in use on the File System. If this parameter is displayed, the inodes for the file system have been manually limited, other wise this parameter is disabled and the VFSInodeText is enabled showing the text of the inode setting.	4-11
VFSInodeSize	This consumer parameter, set by the VFSPerformanceCollector collector, shows the size of the Inode table.	4-11
VFSInodeText	This consumer parameter, set by the VFSPerformanceCollector collector, shows the text of the number of inodes for the file system.	4-11
VFSInodeUsedPercent	This consumer parameter, set by the VFSCapacityCollector collector, shows the number of inodes used on the file system as a percentage.	4-12
VFSIntentLogStatus	This consumer parameter is currently disabled awaiting future enhancement to VFS KM. Note: This parameter will only be available for VERITAS Volume Manager File Systems.	4-12
VFSIOOperations	This consumer parameter, set by the VFSPerformanceCollector collector, shows the total number of Read and Write IO operations in the last interval. Note: This parameter is only available for VERITAS Volume Manager File Systems.	4-12
VFSIORate	This consumer parameter, set by the VFSPerformanceCollector collector, shows the total number of Read and Write IO operations per second in the last poll interval.	4-12

Table 4-1 VFS KM Parameter Summary

Parameter	Description	See Also Page
VFSJournalStatus	This consumer parameter is currently disabled awaiting future enhancement to VFS KM. Note: This parameter will only be available for VERITAS Volume Manager File Systems.	4-12
VFSMountStatus	This consumer parameter, set by the VFSSConfigCollector collector, shows the mount status of the File System. OK means the File System is currently mounted. WARN means the file system is unmounted, but not in the file system mount table. ALARM means the file system is unmounted and exists in the file system table. WARN may also display when a file system is in the file system table, but mounted in a different mountpoint from that specified.	4-12
VFSMountStatusText	This consumer parameter, set by the VFSSConfigCollector collector, shows the text of the VFSMountStatus parameter describing the status.	4-12
VFSQueueLength	This consumer parameter, set by the VFSPerformanceCollector collector, shows the Disk IO queue length as measured over the last interval. The Queue Length is the number of transactions waiting for IO to the File System. Note: This parameter is only available for non-VERITAS Volume Manager File Systems.	4-12
VFSReadBlocks	This consumer parameter, set by the VFSPerformanceCollector collector, shows number of Blocks read in the last interval. Note: This parameter is only available for VERITAS Volume Manager File Systems.	4-12
VFSReadIORate	This consumer parameter, set by the VFSPerformanceCollector collector, shows the number of Read IO operations per second in the last interval.	4-12
VFSReadOperations	This consumer parameter, set by the VFSPerformanceCollector collector, shows the number of Read operations in the last interval. Note: This parameter is only available for VERITAS Volume Manager File Systems.	4-12

Table 4-1 VFS KM Parameter Summary

Parameter	Description	See Also Page
VFSSReadTime	This consumer parameter, set by the VFSPerformanceCollector collector, shows time spent on Read operations in the last interval.	4-12
VFSSReadTransferRate	This consumer parameter, set by the VFSPerformanceCollector collector, shows the amount of data read per second in the last interval.	4-12
VFSSServiceTime	This consumer parameter, set by the VFSPerformanceCollector collector, shows the total service time for both Read and Write operations.	4-12
VFSSSize	This consumer parameter, set by the VFSSConfigCollector collector, shows the size of the File System.	4-12
VFSSSpaceFree	This consumer parameter, set by the VFSSCapacityCollector collector, shows the amount of free space on the file system.	4-12
VFSSSpaceUsed	This consumer parameter, set by the VFSSCapacityCollector collector, shows the amount of space used on the file system.	4-12
VFSSSpaceUsedPercent	This consumer parameter, set by the VFSSCapacityCollector collector, shows the percentage of space used on the file system.	4-12
VFSSTransferRate	This consumer parameter, set by the VFSPerformanceCollector collector, shows the total transfer rate for both Read and Write operations in the last interval.	4-12
VFSSVnodeAttributes	This consumer parameter is currently disabled awaiting future enhancement to the VFS KM.	4-12
VFSSVolumeName	This consumer parameter, set by the VFSSConfigCollector collector, shows the volume name where applicable for the file system. Note: This parameter is only available for VERITAS Volume Manager File Systems.	4-13

Table 4-1 VFS KM Parameter Summary

Parameter	Description	See Also Page
VFSWaitQueueServiceTime	This consumer parameter, set by the VFSPerformanceCollector collector, shows the amount of time disk IO spent in the wait queue. Note: This parameter is only available for non-VERITAS Volume Manager File Systems.	4-13
VFSWaitTimePercent	This consumer parameter, set by the VFSPerformanceCollector collector, shows the percentage of time spent in the wait queue. Note: This parameter is only available for non-VERITAS Volume Manager File Systems.	4-13
VFSWriteBlocks	This consumer parameter, set by the VFSPerformanceCollector collector, shows the number of blocks written in the last interval. Note: This parameter is only available for VERITAS Volume Manager File Systems.	4-13
VFSWriteIORate	This consumer parameter, set by the VFSPerformanceCollector collector, shows the number of Write IO operations per second in the last interval.	4-13
VFSWriteOperations	This consumer parameter, set by the VFSPerformanceCollector collector, shows number of write operations in the last interval. Note: This parameter is only available for VERITAS Volume Manager File Systems.	4-13
VFSWriteTime	This consumer parameter, set by the VFSPerformanceCollector collector, shows the amount of time spent on write operations in the last interval. Note: This parameter is only available for VERITAS Volume Manager File Systems.	4-13
VFSWriteTransferRate	This consumer parameter, set by the VFSPerformanceCollector collector, shows the amount of data written per second in the last interval.	4-13

Table 4-1 VFS KM Parameter Summary

Parameter	Description	See Also Page
VFS_KERNEL Application Class		
VFSKernelErrors	This consumer parameter, set by the VFSKernelCollector collector, shows the number of error screened by the Error Filter.	4-13
VFSKernelErrorsText	This consumer parameter, set by the VFSKernelCollector collector, shows the text of the errors screened by the Error Filter	4-13
VFSKernelInfoText	This consumer parameter, set by the VFSKernelCollector collector, shows the text of Informational messages screened by the Information Filter.	4-13
VFSKernelReadStatus	This consumer parameter, set by the VFSKernelCollector collector, shows the status of the Read command for accessing the kernel messages file. If the log file 'read' command succeeded, this parameter is set to 0 or OK, if the read command fails, the parameter is set to 1 or ALARM.	4-13
VFSKernelTextLines	This consumer parameter, set by the VFSKernelCollector collector, shows the number of lines scanned in the last collection interval.	4-13
VFSKernelTextScanned	This consumer parameter, set by the VFSKernelCollector collector, shows the raw text of the lines scanned in the last collection interval.	4-13
VFSKernelUnknownText	This consumer parameter, set by the VFSKernelCollector collector, shows text that has "dropped" through all the other filters and has not been categorised.	4-13
VFSKernelWarningText	This consumer parameter, set by the VFSKernelCollector collector, shows the text of Warning messages that have been screened by the Warning Filter.	4-13
VFSKernelWarnings	This consumer parameter, set by the VFSKernelCollector collector, shows the number of lines of text that have been screened by the Warning Filter.	4-13

Table 4-1 VFS KM Parameter Summary

Parameter	Description	See Also Page
VFS_QUOTA Application Class		
VFSQuotaEnabled	This consumer parameter, set by the VFSQuotaCollector collector, shows whether Quotas have been enabled for this file system.	4-13
VFSQuotaPolicy	This consumer parameter, set by the VFSQuotaCollector collector, shows the quota policy or rules for this file system.	4-13
VFS_QUOTA_USERS Application Class		
VFSBlockPercentUsed	This consumer parameter, set by the VFSQuotaCollector collector, shows the percentage of blocks used by the user against the maximum allowable limit.	4-14
VFSBlockTimeLeft	This consumer parameter, set by the VFSQuotaCollector collector, shows the amount of time left before blocks exceeding the soft limit will be removed by the quotas manager. This parameter appears only if there is the block time left is set.	4-14
VFSFilePercentUsed	This consumer parameter, set by the VFSQuotaCollector collector, shows the percentage of files used by the user against the maximum allowable limit.	4-14
VFSFileTimeLeft	This consumer parameter, set by the VFSQuotaCollector collector, shows the amount of time left before files exceeding the soft limit will be removed by the quotas manager. This parameter appears only if there is a file time left is set.	4-14
VFSSoftBlockLimitExceeded	This consumer parameter, set by the VFSQuotaCollector collector, shows that a user has exceeded the soft block limit.	4-14
VFSSoftFileLimitExceeded	This consumer parameter, set by the VFSQuotaCollector collector, shows that a user has exceeded the soft file limit.	4-14
VFS_SNAPSHOT Application Class		
VFSSnapShotMountPoint	This consumer parameter, set by the VFSSnapShotCollector collector, shows the mount point of the snapshot file system.	4-14

Parameter Default Values

Table 4-2 lists default values for parameters. Interpret the column headings as follows. Depending on the type of parameter, some information is not applicable, denoted by N/A in the table.

Parameter	Specifies the parameter name.
Active?	Specifies whether the parameter is active or inactive when discovered.
Type	Specifies whether the parameter is a Standard (Std.), Consumer (Con.), or Collector (Coll.) parameter.
Alarm 1	Specifies the thresholds for the first alarm. This information is not applicable to Collectors.
Alarm 2	Specifies the thresholds for the second alarm. This information is not applicable to Collectors.
Scheduling	Specifies the time interval in the poll cycle. This information is not applicable to Consumers.
Icon	Specifies whether the icon is a graph, gauge, or text box.
Units	Specifies the type of unit in which the parameter output is expressed, such as a percentage, a number, or bytes.
History Level	Specifies the history retentions period. This information is not applicable to Collectors.
See Also Page	Specifies other pages in this chapter where you can find more functional information about the parameter.

Table 4-2 VFS KM Parameter Default Values

Parameter Name	Active?	Type	Alarm 1	Alarm 2	Scheduling	Icon	Units	History Level	See Also Page
VFS_CONTAINER Application Class									
ExtraFilesList	N	Std	N/A	N/A	N/A	N/A	N/A	Inherited	4-2
VFSCapacityCollector	Y	Coll	N/A	N/A	30min	N/A	N/A	Inherited	4-2
VFSConfigCollector	Y	Coll	N/A	N/A	60min	N/A	N/A	Inherited	4-2
VFSFragmentationCollector	Y	Coll	N/A	N/A	360min	N/A	N/A	Inherited	4-2
VFSKernelCollector	Y	Coll	N/A	N/A	10min	N/A	N/A	Inherited	4-2
VFSPasswordState	Y	Con	1-1 ALRM	N/A	N/A	Bool	0 = Password OK; 1 = Password Incorrect.	Inherited	4-2
VFSPerformanceCollector	Y	Coll	N/A	N/A	30min	N/A	N/A	Inherited	4-2
VFSQuotaCollector	Y	Coll	N/A	N/A	60min	N/A	N/A	Inherited	4-2
VFSSnapShotCollector	Y	Coll	N/A	N/A	30min	N/A	N/A	Inherited	4-2
VFS_FILESYSTEMS Application Class									
VFSActiveServiceTime	Y	Con	N/A	N/A	N/A	Graph	msec	Inherited	4-3
VFSActiveTransactions	Y	Con	N/A	N/A	N/A	Graph	Transactions	Inherited	4-3
VFSBlockTransfers	Y	Con	N/A	N/A	N/A	Graph	Blocks	Inherited	4-3
VFSBusyTimePercent	Y	Con	N/A	N/A	N/A	Graph	%	Inherited	4-3
VFSConfigDetails	Y	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-3
VFSCurrentMountPoint	Y	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-3
VFSFragmentation	Y	Con	N/A	N/A	N/A	Graph	Directories	Inherited	4-3
VFSFreeInodes	Y	Con	N/A	N/A	N/A	Graph	Inodes	Inherited	4-4
VFSInodeAttributes	N	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-4
VFSInodeCount	Y	Con	N/A	N/A	N/A	Graph	Inodes	Inherited	4-4
VFSInodeSize	Y	Con	N/A	N/A	N/A	Graph	Bytes	Inherited	4-4
VFSInodeText	Y	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-4

Table 4-2 VFS KM Parameter Default Values

Parameter Name	Active?	Type	Alarm 1	Alarm 2	Scheduling	Icon	Units	History Level	See Also Page
VFSInodeUsedPercent	Y	Con	N/A	N/A	N/A	Graph	%	Inherited	4-4
VFSIntentLogStatus	N	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-4
VFSIOOperations	Y	Con	N/A	N/A	N/A	Graph	Operations	Inherited	4-4
VFSIORate	Y	Con	N/A	N/A	N/A	Graph	Operations/sec	Inherited	4-4
VFSJournalStatus	N	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-5
VFSMountStatus	Y	Con	1-1 WARN	2-2 ALRM	N/A	Stop Light	0 (Green) = Mounted 1 (Yellow) = Unmounted/ Auto Disabled or Mounted on a different Mount Point 2 (Red) = Unmounted/ Auto Enabled	Inherited	4-5
VFSMountStatusText	Y	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-5
VFSQueueLength	Y	Con	N/A	N/A	N/A	Graph	Count	Inherited	4-5
VFSReadBlocks	Y	Con	N/A	N/A	N/A	Graph	Blocks	Inherited	4-5
VFSReadIORate	Y	Con	N/A	N/A	N/A	Graph	Operations/sec	Inherited	4-5
VFSReadOperations	Y	Con	N/A	N/A	N/A	Graph	Operations	Inherited	4-5
VFSReadTime	Y	Con	N/A	N/A	N/A	Graph	msec	Inherited	4-6
VFSReadTransferRate	Y	Con	N/A	N/A	N/A	Graph	Blocks/s	Inherited	4-6
VFSServiceTime	Y	Con	N/A	N/A	N/A	Graph	msec	Inherited	4-6
VFSSize	Y	Con	N/A	N/A	N/A	Graph	KBytes	Inherited	4-6
VFSSpaceFree	Y	Con	N/A	N/A	N/A	Graph	KBytes	Inherited	4-6
VFSSpaceUsed	Y	Con	N/A	N/A	N/A	Graph	KBytes	Inherited	4-6
VFSSpaceUsedPercent	Y	Con	N/A	N/A	N/A	Graph	%	Inherited	4-6
VFSTransferRate	Y	Con	N/A	N/A	N/A	Graph	Blocks/s	Inherited	4-6
VFSVnodeAttributes	N	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-6

Table 4-2 VFS KM Parameter Default Values

Parameter Name	Active?	Type	Alarm 1	Alarm 2	Scheduling	Icon	Units	History Level	See Also Page
VFSVolumeName	Y	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-6
VFSWaitQueueServiceTime	Y	Con	N/A	N/A	N/A	Graph	msec	Inherited	4-7
VFSWaitTimePercent	Y	Con	N/A	N/A	N/A	Graph	%	Inherited	4-7
VFSWriteBlocks	Y	Con	N/A	N/A	N/A	Graph	Blocks	Inherited	4-7
VFSWriteIORate	Y	Con	N/A	N/A	N/A	Graph	Operations/sec	Inherited	4-7
VFSWriteOperations	Y	Con	N/A	N/A	N/A	Graph	Operations	Inherited	4-7
VFSWriteTime	Y	Con	N/A	N/A	N/A	Graph	msec	Inherited	4-7
VFSWriteTransferRate	Y	Con	N/A	N/A	N/A	Graph	Blocks/s	Inherited	4-7
VFS_KERNEL Application Class									
VFSKernelErrors	Y	Con	1+ ALRM	N/A	N/A	Graph	Errors	Inherited	4-8
VFSKernelErrorsText	Y	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-8
VFSKernelInfoText	Y	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-8
VFSKernelReadStatus	Y	Con	1-1 ALRM	N/A	N/A	Bool	0=Read OK 1=Read Failed	Inherited	4-8
VFSKernelTextLines	Y	Con	N/A	N/A	N/A	Graph	Lines Read	Inherited	4-8
VFSKernelTextScanned	Y	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-8
VFSKernelUnknownText	Y	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-8
VFSKernelWarningText	Y	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-8
VFSKernelWarnings	Y	Con	1-2 WARN	3+ ALRM	N/A	Graph	Warnings	Inherited	4-8
VFS_QUOTA Application Class									
VFSQuotaEnabled	Y	Con	0-0 ALRM	N/A	N/A	Bool	0 = Quotas Enabled 1 = Quotas Disabled	Inherited	4-9
VFSQuotaPolicy	Y	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-9

Table 4-2 VFS KM Parameter Default Values

Parameter Name	Active?	Type	Alarm 1	Alarm 2	Scheduling	Icon	Units	History Level	See Also Page
VFS_QUOTA_USERS Application Class									
VFSBlockPercentUsed	Y	Con	N/A	N/A	N/A	Graph	%	Inherited	4-9
VFSBlockTimeLeft	Y	Con	N/A	N/A	N/A	Graph	Days	Inherited	4-9
VFSFilePercentUsed	Y	Con	N/A	N/A	N/A	Graph	%	Inherited	4-9
VFSFileTimeLeft	Y	Con	N/A	N/A	N/A	Graph	Days	Inherited	4-9
VFSSoftBlockLimitExceeded	Y	Con	1-1 WARN	N/A	N/A	Bool	0 = Not Exceeded 1 = Exceeded	Inherited	4-9
VFSSoftFileLimitExceeded	Y	Con	1-1 WARN	N/A	N/A	Bool	0 = Not Exceeded 1 = Exceeded	Inherited	4-9
VFS_SNAPSHOT Application Class									
VFSSnapShotMountPoint	Y	Con	N/A	N/A	N/A	Text	N/A	Inherited	4-9

Where to Go from Here

The following table suggests topics that you should read next.

If you want information on...	See...
How to load VFS KM	Chapter 2, "Getting Started."
What a certain menu command does	Chapter 3, "Menu Summary" and VFS KM help.
How to perform a task using this KM	Chapter 5, "Monitoring Veritas File System."

Monitoring Veritas File System

This chapter introduces you to basic tasks that can be performed with PATROL for Veritas File System (also called the VFS KM). The following topics are discussed:

Overview	5-2
Objectives of the KM	5-2
Monitoring File System Availability	5-2
Monitoring File System Performance	5-3
Monitoring File System Storage Capacity and Growth	5-3
Monitoring Kernel Events	5-4
Monitoring VxFS Snapshot File Systems	5-4
Monitoring VxFS User Quotas	5-5
Debugging VFS KM	5-5
Refreshing Parameters	5-7
Displaying a Parameter Graph, Gauge, or Text Output Window . . .	5-7
Customizing Parameters	5-8
Unloading the KM	5-8
Uninstalling the KM	5-12
Where to Go from Here	5-18

Overview

After loading the VFS KM, you can use the default parameter settings to monitor the KM, or you can use a PATROL Developer Console to customize parameter settings to meet the demands of your environment. If the KM has not been loaded, refer to the Chapter 2, “Getting Started,” for procedures on loading the KM.

Objectives of the VFS KM are discussed in “Objectives of the KM” on page 5-2. This information will assist you in achieving maximum availability, performance, and integrity of your VFS.

Objectives of the KM

The primary objective of the VFS KM is to ensure the availability and integrity of your VxFS environment. This section describes how to use the VFS KM to achieve these goals. A PATROL Developer Console can be used, as required, to change any of the default behaviors listed below.

Monitoring File System Availability

PATROL for Veritas File System automatically discovers all VxFS installed on the server. The KM makes 3 passes at identifying valid file systems. The first pass is to locate disk partitions that have valid file systems created on them. This is done at the native partition level.

The next pass identifies file systems that have been added to the file system table (vfstab on Solaris).

The final pass looks at what VFS have been mounted.

VFS KM monitors the VFS on the server to ensure availability. Each VxFS File System has an instance created under the **File Systems** container.

Availability information is displayed by the parameter “VFSMountStatus” on page 4-5. In the event that a monitored file system is unmounted when it should be, the parameter will go into an alarm state. The “VFSMountStatusText” on page 4-5 parameter will indicate the reason for the ALARM or WARN state.

Monitoring File System Performance

VFS KM measures the performance of VxFS. The KM supports both Veritas Volume Manager™ based file systems and file systems created on standard disk partitions.

Note

The methods behind collecting performance figures differs slightly between Volume Manager™ Disks and standard disks. As a result there are some performance parameters that apply to Volume Manager™ and not standard disks and vice versa. Since Volume Manager™ disks may involve more than 1 physical disk, it is not possible to easily identify these devices and their relationship to a particular file system, so the performance parameters that are not able to be collected are disabled.

Monitoring File System Storage Capacity and Growth

VFS KM monitors the current available space of the monitored file systems. The KM measures both Disk Space and available Inodes. When these values become critical, the parameters that monitor these conditions will indicate ALARM or WARNING depending on the selected thresholds. Refer to Chapter 4, “Parameter Summary” for details.

Monitoring Kernel Events

VFS KM monitors messages that have been put into the kernel message file by VxFS utilities. Depending on the message type, ALARMS can be raised to alert the Systems Administrator of a problem with the file system. The kernel messages file is configured using the “VFS_KERNEL Application Class Menu” on page 3-19. This same menu system allows the user to choose the filter mechanisms which determine whether a particular message is a warning, error, information or to ignore it.

Since the messages file can be quite large, VFS KM only reads any changes to the file since the last collection interval.

The user may change this behaviour and reset the file pointers so the full contents of the file are read at the next interval. The pointers will then “catch-up” to the current file location.

Monitoring VxFS Snapshot File Systems

A feature of VxFS is to create read-only file system images so that the working file system can be backed up while online. This technique is called a Snapshot. VFS KM creates an instance under the Snapshot'ed file system with the label of the file system being snapshot. When the backup is complete and the Snapshot removed, the Snapshot instance will also be removed.

Note

Unix reports these Snapshots as normal VxFS, but VFS KM identifies them as being special, so they don't appear in the File Systems container

Monitoring VxFS User Quotas

VxFS supports User Quotas. VFS KM will create an instance under the File System to indicate whether Quotas is enabled. If Quotas are not enabled, the Quotas icon is OFFLINE. If quota are enabled, the icon is OK and the Quotas parameters for “VFS_QUOTA Application Class” on page 4-13 show the status and configuration.

If users have quotas for a File System, their usernames appear under the Quotas Application instance. If a user exceeds the **soft limits** for the file system, the parameters for “VFS_QUOTA_USERS Application Class” on page 4-14 will show the status and information.

Debugging VFS KM

Summary: This task explains how to set debugging information for VFS KM

To Enable or Disable Debugging Mode

Step 1 Right-click and hold the mouse pointer on the **Veritas File System** or **VFS_SETUP (VFS_CONTAINER)** application instance icon.

The application menu appears.

Step 2 Choose **Debug**.

The Debug Settings dialog box appears



Figure 5-1 Debug Selection Window

- Step 3** Turn on the Debug for Collector Parameter(s) you want to monitor. Or, turn off the Debug for Collector Parameter(s) you don't want to monitor.
- Step 4** Select **Accept** to start/stop debugging, or **Cancel** to Abort.

Debugging information will appear on the "VFS Debug Output" task window for the computer.

Refreshing Parameters

Summary: This task explains how to refresh all parameters for an application instance.

To Refresh All Parameters

Step 1 Right-click and hold the mouse pointer on the **Veritas File System** or **VFS_SETUP** application instance icon.

The application menu appears.

Step 2 Choose **Refresh Parameters**.

All the parameters are updated for all application classes.

Displaying a Parameter Graph, Gauge, or Text Output Window

Each computer icon in the PATROL main window represents an instance of a host system that PATROL is monitoring. When you add a computer to the main window, PATROL establishes a default series of application and parameter icons for monitoring. For information on displaying a parameter graph, gauge, or text output window, see the *PATROL for Unix User Guide* or the *PATROL for Windows User Guide (Volume 2)*.

Customizing Parameters

Most parameters defined in a KM are activated by default. They continuously monitor key resources and warn you of potential problems. All parameters in KMs are global parameters; that is, they automatically run on all KM instances discovered. They are the common parameters used for all applications and computers. You can customize these parameters at the local level for a specific application or computer. You can customize parameters at the local level by performing some of the tasks listed below. For information on these tasks, see the *PATROL for Unix User Guide* or the *PATROL for Windows User Guide (Volume 3)*.

- Activating Help
- Adding Parameters
- Clearing Parameter History
- Deleting Parameters
- Entering the Parameter Command
- Entering the Parameter Environment
- Scheduling When the Parameter Runs
- Selecting the Parameter Computer Class
- Selecting the Parameter Command Type
- Selecting the Parameter Type
- Setting Alarm Ranges
- Setting Parameter Security
- Setting the Parameter History Retention Level
- Setting the Parameter Output
- Setting the State
- Suspending Parameters

Unloading the KM

This section describes the procedures for unloading (not uninstalling) the VFS KM from the PATROL Agent, PATROL Console or PATROL Central Console. The intention is that this section is only used if you no longer want to use *some parts* of the KM, though there may be circumstances where you may wish to fully unload the KM without uninstalling the files.

Note

If you want to completely uninstall the KM, please follow the instructions under “Uninstalling the KM” on page 5-12.

When the VFS KM is unloaded from a PATROL Agent, PATROL stops monitoring the Veritas File System application on that system when there is no connection to a PATROL Console with VFS KM loaded.

When the VFS KM is unloaded from PATROL Console, the PATROL Console stops displaying and monitoring the Veritas File System application on *any* PATROL Console connected system.

Unloading the KM from the PATROL Agent

1. Remove the VFS KM from the list of preloaded KMs, using the utility `wpconfig` (on MS Windows) or `xpconfig` (on Unix), remove **VFS_LOAD.kml** from the PATROL Agent configuration variable “/AgentSetup/preloadedKMs”.
2. Restart the PATROL Agent.
3. Repeat these steps on every PATROL Agent system (managed node) where the VFS KM is to be unloaded.

Note

The VFS KM cannot be *partially* unloaded from the PATROL Agent using the above steps. If you need to unload some parts of the KM from the PATROL Agent, refer to the *PATROL Agent Reference Manual*.

Unloading the KM from PATROL Console

Application classes are unloaded individually. This allows for a partial unloading of the KM to enable it to run as a reduced installation. Follow the steps below to unload the VFS KM completely or partially.

1. Remove the unwanted VFS KM application classes from the list of loaded application classes, as required. All VFS KM application classes start with “**VFS_**”.

With the PATROL Console for Unix:

- A. From the PATROL Console main window choose **Attributes => Application Classes...**
- B. Select a VFS KM application class to be removed and choose **Edit => Delete**.
- C. Repeat for all classes to be removed.

With the PATROL Console for MS Windows:

- A. From the PATROL Console tree view choose the **KM** tab and expand the folder **Application Classes**.
 - B. Right-click on a VFS KM application class to be removed and choose **Delete**.
 - C. Repeat for all classes to be removed.
2. Select **File => Save Configuration** to save the modified list of loaded application classes as the PATROL Console user preference.
 3. Repeat these steps on every PATROL Console system where the VFS KM is to be unloaded.

Unloading the KM from PATROL Central Console

A KM can be unloaded for particular managed systems or for all systems across the monitored environment. Application classes may be unloaded individually, or by selecting all classes at once. This allows for a partial unloading of the KM to enable it to run as a reduced installation on some or all of the managed systems. Follow the steps below to completely or partially unload the VFS KM from some or all of the managed systems.

1. Right click on the **PATROL Main Map**, and choose **Unload Knowledge Modules...**
2. Select the managed systems where the VFS KM is to be unloaded, and click **Next>**.

A list is displayed showing all the loaded application classes on each of the selected managed systems. All VFS KM application classes start with “**VFS_**”.

3. Select the VFS KM application classes to be removed for the appropriate managed systems, click **Next>** and **Finish**.
4. Repeat the above steps for each PATROL Central Management Profile where the VFS KM is to be unloaded.

Uninstalling the KM

This section describes steps for uninstalling the PATROL for Veritas File System. The KM is uninstalled when upgrading the VFS KM from an older version, or if the VFS KM is no longer required for monitoring the Veritas File System application. The steps required for uninstalling depend on the type of installation:

- For PATROL Agent and PATROL Console, “uninstallation” involves unloading the KM and then removing the files.
- For PATROL Central Console, the KM is uninstalled by unloading.
- For PATROL Central Console Server or PATROL Central Web Server, the KM is uninstalled by removing the files.

Note

If the VFS KM was installed using the *Installation Utility*, use the same to remove the KM files after unloading.

Uninstalling the KM from PATROL Agent

1. Unload the VFS KM by removing it from the list of preloaded KMs. Use the utility `wpconfig` (on MS Windows) or `xpconfig` (on Unix) to remove **VFS_LOAD.kml** from the PATROL Agent configuration variable “/AgentSetup/preloadedKMs”.
2. Restart the PATROL Agent.
3. Remove all VFS KM files listed in Table 5-1 under the paths for PATROL Home (**PATROL_HOME**) and PATROL Cache (**PATROL_CACHE**).

Note

There may be more than one PATROL Cache directory depending on how PATROL has been set up in your installation. Users can set up a local Cache directory to override the global setting.

- Repeat the above steps on every PATROL Agent system where the VFS KM is installed.

Table 5-1 Uninstallation from the PATROL Agent

File Types to Delete	Path relative to PATROL_HOME	
	Unix	Microsoft Windows
PSL Library Files	lib/psi/VFS_*.*	lib\psi\VFS_*.*
KM & Catalog Files	lib/knowledge/VFS_*.*	lib\knowledge\VFS_*.*
Archive Files	lib/archive/VFS_*.*	lib\archive\VFS_*.*
Other Files & Folders	VFS/* VFS VFS_*.*	VFS*.*
	lib/VFS/* lib/VFS lib/VFS_*.*	lib\VFS*.*
		lib\VFS lib\VFS_*.*

Uninstalling the KM from PATROL Console

- Unload the VFS KM by removing all the application classes from the list of loaded application classes. All VFS KM application classes start with “VFS_”.

On PATROL Console for Unix:

- From the PATROL Console main window choose **Attributes => Application Classes...**
- Select a VFS KM application class and choose **Edit => Delete**.
- Repeat for all classes.
- Select **File => Save Configuration** to save the modified list of loaded KMs as the PATROL Console user preference.

On PATROL Console for Microsoft Windows:

- From the PATROL Console tree view choose the **KM** tab and expand the folder Application Classes.
- Right-click on a VFS KM application class and choose **Delete**.
- Repeat for all classes.

- D. Select **File => Save Configuration** to save the modified list of loaded KMs as the PATROL Console user preference.
2. Remove all VFS KM files listed in Table 5-2 under the paths for PATROL Home (**PATROL_HOME**) and PATROL Cache (**PATROL_CACHE**).

Note

There may be more than one PATROL Cache directory depending on how PATROL has been setup in your installation. Users can set up a local Cache directory to override the global setting.

Table 5-2 Uninstallation from PATROL Console

File Types to Delete	Path relative to PATROL_HOME	
	Unix	Microsoft Windows
PSL Library Files	lib/psl/VFS_*.*	lib\psl\VFS_*.*
KM & Catalog Files	lib/knowledge/VFS_*.*	lib\knowledge\VFS_*.*
Archive Files	lib/archive/VFS_*.*	lib\archive\VFS_*.*
Icon & Image Files	lib/images/VFS_*.*	lib\images\vfs_*.*
Online Help Files & Folders	lib/help/vfs_*.*	lib\help\vfs_*.*
	lib/help/vfs_km/*.*	lib\help\vfs_km/*.*
	lib/help/vfs_km	lib\help\vfs_km
	lib/help/km_help_vfs_km	lib\help\km_help_vfs_km

3. Repeat above steps on every PATROL Console system where the VFS KM is installed.

Uninstalling the KM from PATROL Central Console

1. Unload the VFS KM by removing all the application classes from the list of loaded application classes. All VFS KM application classes start with “VFS_”.
 - A. Right-click on the **PATROL Main Map** and choose **Unload Knowledge Modules...**
 - B. Select the managed systems where the VFS KM is to be unloaded, and click **Next>**.
 - C. Select all VFS KM application classes, click **Next>** and **Finish**.
2. Repeat the above steps on every PATROL Central Console where the VFS KM is installed.

Uninstalling the KM from PATROL Central Console Server

1. Remove all VFS KM files listed in Table 5-3 under the PATROL Central Console Server installation path (**PATROL_ROOT**).

Table 5-3 Uninstallation from the PATROL Central Console Server

File Types to Delete	Path for PATROL Central Console Server	
	Unix	Microsoft Windows
Online Help Files	lib/knowledge/vfs_*/lib/help /EN_USA/vfs_km.chm	lib\knowledge\vfs_*\lib\help \EN_USA\vfs_km.chm
Icon & Image Files & Folders	lib/knowledge/vfs_*/*. * lib/knowledge/vfs_*	lib\knowledge\vfs_**. * lib\knowledge\vfs_*

2. Repeat above steps on every PATROL Central Console Server system where the VFS KM is installed.

Uninstalling the KM from the PATROL Central Web Server

1. Remove all VFS KM files listed in Table 5-4 under the PATROL Central Web Server installation path (**\$BMC_ROOT/webcentral** on Unix and **%BMC_ROOT%\WebCentral** on Microsoft Windows).

Table 5-4 Uninstallation from the PATROL Central Web Server

File Types to Delete	Path for PATROL Central Web Server	
	Unix	Microsoft Windows
Online Help Files	help_services/vfs_*.jar km_services/html/default/lib/help/EN_USA/vfs_*.jar	help_services\vfs_*.jar km_services\html\default\lib\help\EN_USA\vfs_*.jar

2. Repeat above steps on every PATROL Central Web Server system where the VFS KM is installed.

Uninstalling the PAR File from BPPM Portal

Note

If you are upgrading the PAR file on BMC Portal, skip the uninstallation procedures outlined below and follow the upgrade steps in “Installing or Upgrading the PAR file on BPPM Portal” on page 2-7.

1. Remove all elements using the VFS KM PAR file from the BMC ProactiveNet Performance Management Portal Infrastructure.
2. Log on to the BMC ProactiveNet Performance Management Portal with portal credentials, and select the **Portal** tab.
3. Under **Tasks** in the navigation pane, select **Performance Managers**.
4. Check the check-box next to the VFS KM solution from the list.
5. Click **Delete**.

Deleting PATROL Agent Configuration Variables

1. Remove all PATROL Agent configuration variables created by the VFS KM. These variables are stored under configuration paths **VFS** and **VFS_License**. They can be removed using `wconfig` (on MS Windows) or `xpconfig` (on Unix). Alternatively, you can use the following single line PSL command through the PATROL Console OS> prompt to remove VFS KM configuration variables. The VFS KM should be uninstalled on the PATROL Console before attempting the following PSL command:

```
%PSL foreach var(grep("^/VFS[/_]",pconfig("LIST")))
    { pconfig("DELETE", var); }
```

2. Repeat the above step on every PATROL Agent system where the VFS KM has been loaded.

Where to Go from Here

The following table summarises where to look for more information on using PATROL and the VFS KM. The shaded rows indicate tasks that you can accomplish only from a PATROL Developer Console.

If you want information on...	See...
VFS KM parameters	Chapter 4, "Parameter Summary," and the VFS KM help.
VFS KM applications	VFS KM help.
VFS KM menu commands	Chapter 3, "Menu Summary," and the VFS KM help.
VFS KM Info Boxes	Chapter 1, "Introduction," and the VFS KM help.
KMs in general	the PATROL for Unix User Guide or the PATROL for Windows NT User Guide (Volume 1)
KM versioning and customizations	the PATROL for Unix User Guide or the PATROL for Windows NT User Guide (Volume 3).
the PATROL interface	the PATROL for Unix User Guide or the PATROL for Windows NT User Guide (Volume 1).
managing events	the PATROL for Unix User Guide or the PATROL for Windows NT User Guide (Volume 2) and the PATROL Event Manager Console for Unix User Guide.
the PATROL Script Language (PSL)	the PATROL Script Language Reference Manual.
defining your monitoring environment	the PATROL for Unix User Guide or the PATROL for Windows NT User Guide (Volume 1).
adding computers to PATROL	the PATROL for Unix Getting Started or the PATROL for Windows NT User Guide (Volume 1).
working with parameters	the PATROL for Unix User Guide or the PATROL for Windows NT User Guide (Volume 2).

If you want information on...	See...
working with menu commands	the PATROL for Unix Getting Started or the PATROL for Windows NT User Guide (Volume 2).
working with tasks	the PATROL for Unix Getting Started or the PATROL for Windows NT User Guide (Volume 2).
managing monitored objects	the PATROL User Guide or the PATROL for Windows NT User Guide (Volume 2).
unloading the KM	the PATROL for Unix User Guide or the PATROL for Windows NT User Guide (Volume 2).

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