# HP Insight Management Pack for Microsoft® Operations Manager User Guide



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HP Insight Management Pack for Microsoft Operations Manager User Guide

September 2004 (Third Edition) Part Number 257949-003 Product Version 2.20

## Contents

#### **About This Guide**

Audience Assumptions	v
Where to Go for Additional Help	v
Telephone Numbers	
•	

### Chapter 1

#### **Product Overview**

Introduction	1-1
Benefits at a Glance	1-2
Features	1-2
System Requirements	1-3
Insight Management Agent Requirements	1-3
Management Protocol Requirements	1-3
Disk Space Requirements	1-3
MOM Platform Support	1-4
MOM 2000	1-4
MOM 2005	1-4
System Support	1-4
HP Hardware Support	1-4
Managed Systems	1-4
Operating Systems	1-5
Product Architecture	
MOM Database (MS SQL Server)	1-7
Data Access Server	1-7
Consolidator/Agent Manager	1-7
MOM Agents	1-7
Console Interface	1-8
The HP Insight Management Pack for MOM	
HP Management Operations	1-8

# Chapter 2 Installation

Introduction	2-1
Installation Overview	2-1
Preinstallation Considerations	2-1
Installing the IMP for MOM	2-2
Installing the HP Insight Management Pack	
Post-Installation Procedures	
Updating from the Compaq Management Pack for MOM	

Deleting Duplicate Computer Groups	U
Deleting Duplicate Public Views	
Deleting Duplicate Event Processing Rules	
Uninstalling the HP Insight Management Pack	

### Chapter 3

#### Using the HP IMP for MOM

Introduction	3-1
Using the HP IMP	
Computer Groups	
Discovering HP Servers	
Viewing HP Server Details	
Using Computer Groups for Inventory Management	
Shared Information Views	
Accessing the Public Views	
Viewing HP Alerts in the Public Views	
Processing Rule Groups	
HP Event Processing Rules	
HP Alert Processing Rules	
HP Performance Processing Rules	
HP Alerts	
Knowledge Base Data	

### Appendix A

### HP IMP Rules

Event Notification Service Events	A-2
Remote Monitor Service Events	A-2
Device Error Events	A-3
Foundation Agent Events	A-4
NIC Agent Events	
Server Agent Events	A-21
Storage Agent Events	
Dr. Watson Application Events	
11	

### Appendix B

Troubleshooting

Index

### **About This Guide**

This guide is designed for system administrators who use the HP Insight Management Pack (IMP) for Microsoft® Operations Manager (MOM), Insight Management Agents, and other HP applications and tools to manage the operations of HP ProLiant and Integrity servers within a MOM environment.

**NOTE:** The HP IMP for MOM revision 2.20 supercedes the previous revision 1.12 and the Compaq Management Pack for MOM. All major user interface elements have been completely rebranded to reflect the latest HP format, but several subcomponents, such as event processing rules and alarm data presented in MOM by the Insight Management Agents, might still display some Compaq based content.

### **Audience Assumptions**

Readers of this guide should be familiar with the configuration and operation of Microsoft Windows®, Microsoft Operations Manager 2000, and the HP Insight Management Agents. Because of the potential risk of data loss, only individuals who are experienced with using this software should implement the procedures described in this guide.

### Where to Go for Additional Help

Additional information sources are available at:

- Appendix B of this guide
- Web pages related to the Insight Management Pack for MOM at <u>http://www.hp.com/servers/integration</u>
- Microsoft Operations Manager 2000 user documentation at <u>http://www.microsoft.com/mom/techinfo/productdoc/default.asp</u>

#### **Telephone Numbers**

For the name of your nearest HP authorized reseller:

- In the United States, call 1-800-345-1518.
- In Canada, call 1-800-263-5868.

For HP technical support:

- In the United States and Canada, call 1-800-HP-INVENT (1-800-474-6836).
- Outside the United States and Canada, refer to <u>http://www.hp.com</u>.

### **Product Overview**

### Introduction

The HP Insight Management Pack (IMP) for Microsoft Operations Manager (MOM) integrates event monitoring and alert processing for HP ProLiant servers into an existing Windows environment managed by MOM.

The IMP integration builds on the core elements of HP Insight Management Agents to complement and extend MOM and to maximize existing IT investments. HP customers who implement MOM for enterprise-class event and performance monitoring can use the IMP to help streamline IT administration and increase systems availability by viewing events for Microsoft Windows operating systems, Windows applications, and HP hardware through a common MOM interface.

The HP IMP includes an extensive collection of predefined rules and scripts that automatically identify HP servers running Insight Management Agents, and provide alert notifications to potential problems through the MOM console interface.

Comprehensive knowledge base data provided with the IMP aids in problem analysis and time-to-resolution. Over 650 event processing rules include alert forwarding definitions that enable administrators to take prompt corrective or preventive action, reducing unnecessary down time.

The IMP for MOM also includes pre-failure and threshold alerts for critical hardware subsystems and performance monitors to measure Insight Management Agent resource usage and availability. HP hardware alerts displayed in MOM include embedded browser links to the HP System Management Homepage on the device that generated the original Windows event. The System Management Homepage displays a consolidated view of single system status and configuration based on data collected by the Insight Management Agents, and provides access to other HP Web-based management tools, such as the Version Control Agents, Insight Management Diagnostics, and the Array Configuration Utility. Additional links to the Web interface for HP Systems Insight Manager and HP Remote Insight technologies are also included in related MOM alerts.

### **Benefits at a Glance**

The HP IMP for MOM version 2.20:

- Complements and extends MOM with hardware resource management for HP servers
- Simplifies management of the Windows enterprise with a single interface solution
- Brings the benefits of HP hardware resource lifecycle management to MOM
- Streamlines IT administration and increases systems availability

### **Features**

IMP revision 2.20 features include:

- Integration with MOM 2000 1.0 and MOM 2000 SP 1
- Fully scripted installation creates HP specific groups and copies HP IMP rules, scripts, views, and knowledge base data to the MOM database
- Automatic identification and grouping of HP servers running Insight Management Agents, HP Systems Insight Manager hosts, and ProLiant servers with access to HP Remote Insight technology
- Monitors Windows Event Log entries generated by HP Insight Management Agents, HP Insight Manager 7, HP Systems Insight Manager and HP Remote Insight functionality
- HP Insight alerts clearly displayed in the MOM Administrator Console
- Over 650 predefined event processing rules for HP ProLiant servers running Insight Management Agents 4.60 to 7.1 on all Windows platforms supported by MOM
- Event monitors and processing rules for the following categories:
  - Server health and hardware subsystem status
  - Environmental conditions and security access violations
  - HP service events and pre-failure alerts for memory, CPU, and hard drive subsystems
  - Application events and availability monitors for systems hosting HP Systems Insight Manager, HP Insight Manager 7, and HP Remote Insight functionality
- Predefined alert processing rules that automatically forward storage and network interface alerts to the Hardware Support Notification Group within MOM
- Performance rules to monitor Insight Management Agent availability and resource usage
- Predefined MOM public views that display discovered HP servers and open alerts listed by Insight Management Agent version
- HP hardware alerts that include an embedded browser link to the HP System Management Homepage of the device that generated the original event
- Embedded browser access to HP Systems Insight Manager and the HP Remote Insight Web interface from associated MOM alerts

### **System Requirements**

The following sections describe the system requirements necessary to install and operate the HP IMP for MOM.

This manual assumes a working knowledge of Microsoft Operations Manager 2000.

#### **Insight Management Agent Requirements**

HP Insight Management Agents for Servers 4.60 or later must be installed on each HP server to be managed. Version 2.20 of the IMP for MOM includes support for hardware and service events generated by Insight Management Agents 4.60 to 7.1.

#### **Management Protocol Requirements**

The required management protocols include:

- Simple Network Management Protocol (SNMP) for servers—Required locally on each managed server for correct operations of the HP Insight Management Agents
- Hyper Text Transfer Protocol (HTTP)—Required to enable browser access to the HP Insight Management Agents from within MOM

#### **Disk Space Requirements**

The rules, views, and scripts provided with the IMP for MOM require the following disk space requirements:

- Disk space for uncompressed download—5 MB
- MOM database space consumed—15 MB (approximate value)

### **MOM Platform Support**

#### **MOM 2000**

Revision 2.20 of the HP IMP for MOM is fully qualified to install and operate with all versions of MOM 2000.

#### **MOM 2005**

Revision 2.20 of the HP IMP for MOM is not qualified or formally supported for use with the forthcoming MOM 2005 release.

A new HP Management Pack specifically designed to complement and extend the new functionality provided with MOM 2005 will be made available at the time of the formal MOM 2005 release.



**CAUTION:** HP recommends customers do not install the HP IMP for MOM 2000 into production environments running MOM 2005. Installing revision 2.20 of the HP IMP will implement database entries and group definitions that do not apply in MOM 2005 and cannot be removed once installed. Installing revision 2.20 of the HP IMP might also prevent the forthcoming HP Management Pack for MOM 2005 from installing correctly, and might generate double entries for each MOM alert.

### System Support

The following sections describe the system hardware and platforms supported by the IMP for MOM.

#### **HP Hardware Support**

All HP server hardware defined in Insight Management Agents for Servers 4.60 or later is supported. Version 2.20 of the IMP for MOM includes event processing rules for hardware and service events generated by Insight Management Agents 4.60 through 7.1 and associated management services.

#### **Managed Systems**

The IMP for MOM supports events that are written to the Windows Event Log by Insight Management Agents for servers and associated Windows services, which includes the following HP server platforms that support Insight Management Agents for Servers 4.60 and later:

- HP ProLiant servers
- Compaq ProLiant and ProSignia servers

#### **Operating Systems**

The IMP for MOM supports identification and event monitoring of HP managed systems running the following operating systems:

- Windows Server 2003
- Windows 2000 with Service Pack 2 or later
- Windows 2000 Server
- Windows 2000 Advanced Server
- Windows 2000 Datacenter Server
- Windows 2000 Professional
- Microsoft Windows NT® 4.0 with Service Pack 4 or later
- Windows NT 4.0 Server
- Windows NT 4.0 WorkStation

### **Product Architecture**

The following section provides an architectural and functional overview of MOM and the HP IMP for MOM.

The IMP integration is designed to perform the following major functions:

- Automatically identify and group HP servers within MOM
- Monitor and display HP hardware and services alerts within MOM
- Enable browser-based linkage to the HP System Management Homepage on individual servers from HP Insight alerts presented within MOM

The MOM architecture consists of the following main components, as shown in Figure 1-1. For a detailed explanation of each element and MOM operations, refer to the Microsoft Operations Manager user reference documentation.



Figure 1-1: MOM architecture overview

#### MOM Database (MS SQL Server)

The MOM database provides back-end storage for all systems information data, including:

- Events and alerts
- Policies
- Performance and capacity data
- Views
- Reports

#### **Data Access Server**

The Data Access Server (DAS):

- Brokers data between the Consolidator and SQL database components of MOM
- Acts as a proxy for console access to the database (Windows security-by-transaction)

#### **Consolidator/Agent Manager**

The Consolidator/Agent Manager (CAM):

- Funnels data to and from the MOM Agents and DAS
- Implements agent installation and configuration policy
- Correlates centrally received events and provides auto-responses
- Is a major part of the MOM OnePoint service, which must be active for the entire MOM environment to communicate

#### **MOM Agents**

MOM Agents:

- Form part of the MOM OnePoint service that runs on every MOM-managed node
- Are automatically installed on all nodes managed by the MOM Agent Manager
- Execute local policies, rules, event correlation, and responses
- Collect the following data:
  - Windows Event Log entries
  - Events from third-party application event logs
  - Performance data, such as thresholds and capacity planning information
  - WMI information, including changes to system service lists and SNMP traps

#### **Console Interface**

The MOM interfaces include:

- MOM Administrator Console (Windows MMC snap-in)
  - Acts as the primary Windows-based console for central monitoring and administration
  - Communicates through the DAS to obtain views and data from the MOM database
  - Requires administrator rights to access this console
- Ops Portal Web Interface (Internet Explorer)
  - Is used only for viewing data
  - Provides Web frames that can be customized (Digital Dashboard)

### The HP Insight Management Pack for MOM

This section provides an overview of the HP IMP for MOM. Refer to Chapters 2 and 3 for detailed installation and operational procedures.

The IMP is delivered as a single .AKM file, in accordance with the MOM specification for management packs.

The IMP includes rules, views, scripts, and knowledge-base data specific to HP servers. These elements enable events written to the Windows Event Log by HP Insight Management Agents for servers to be clearly displayed within a MOM management console.

The objective of the IMP is to enable system administrators to view events for HP server hardware and management services in the same MOM console used for monitoring Windows operating system and application resources.

### **HP Management Operations**

Architecturally, the IMP is installed into the MOM application through the CAM using the MOM Administrator Console, and all HP rules, views, monitors, scripts, and knowledge base data are copied to the database associated with MOM. The installation process also creates HP computer group classifications in the MOM database for each supported version of the Insight Management Agents.

Predefined monitors and scripts provided with the IMP are used to automatically identify individual HP managed nodes based upon the presence of locally installed Insight Management Agents and the MOM Agent. As each HP managed node is discovered, a corresponding entry is written to the HP computer group associated with the version of installed Insight Management Agents. After a system is identified as an HP managed node, the MOM Agent Manager automatically copies selected HP rules and scripts provided with the IMP to the new managed node. Each managed node uses these rules and scripts to perform local event management, correlation, and filtering before escalating to the MOM console.

All identified HP servers are automatically collated into individual computer groups listed by the version of HP Insight Management Agents installed, as shown in Figure 1-2.

Action View Eavorites 🗢 🔿 配 🐰	e ne 🗙 🖅 🖻 🖳 😭 🙀 🛄 🔍 🍳 🍋 🕘	
ree Favorites	Severity Computer Group	Members
Console Root	No Alerts Computer Attributes Container	0
🖓 🚰 Microsoft Operations Manager (Default)	Service U Hardware Attributes - BIOS Date	96
E Monitor	Critical Error Hardware Attributes - BIOS Version	52
All Computers	Service U Hardware Attributes - CPU Identifier	96
- All Agents	Service U Hardware Attributes - CPU speed	96
All Computer Groups	Service U Hardware Attributes - CPU Vendor	96
- 🚺 All Open Alerts	Service U Hardware Attributes - Number of Processors	96
- 🚺 All Service Level Exceptions	No Alerts HP Insight Management Agent Version 4.60	0
- All Performance	No Alerts HP Insight Management Agent Version 4.70	1
- All Windows NT Events	No Alerts HP Insight Management Agent Version 4.80	0
	No Alerts HP Insight Management Agent Version 4.90	1
My Views	No Alerts HP Insight Management Agent Version 5.00	0
Public Views	No Alerts HP Insight Management Agent Version 5.10	0
Components	No Alerts HP Insight Management Agent Version 5.20	0
dvanced     Rules	No Alerts HP Insight Management Agent Version 5.30	0
Kules     Configuration	S Critical Error HP Insight Management Agent Version 5.40	2
E Be configuration	No Alerts HP Insight Management Agent Version 5.50	1
	SCritical Error HP Insight Management Agent Version 6.0	3
	No Alerts HP Insight Management Agent Version 6.10	0
	Scritical Error HP Insight Management Agent Version 6.20	4
	No Alerts HP Insight Management Agent Version 6.30	0
	S Critical Error HP Insight Management Agent Version 6.40	19
	Service U HP Insight Management Agent Version 7.10	8
	Service U HP Insight Management Agent Versions - All	40
	Service U HP Insight Management Agent Versions newer than 6.40	9
	No Alerts HP Insight Management Agent Versions newer than 7.10	1
	No Alerts HP Insight Manager 7 Server	3
	No Alerts HP Remote Insight Host System	0
	Service U HP Systems Insight Manager Server	16
	No Alerts Microsoft Data Engine [MSDE]	2
	SCritical Error Microsoft Operations Manager Agents	64
	Service U Microsoft Operations Manager Consolidator	1
	Service U Microsoft Operations Manager Data Access Server	1
	Service U Microsoft Operations Manager Database	1
	Service U Microsoft WMI enabled computers	85
	Service U Service Pack Version	75
	Service U Windows 2000 Any Computer	53
	Critical Error Windows NT 4.0 Any Computer	11

Figure 1-2: IMP computer groups

Along with the HP computer groups, the IMP installation also creates HP specific public views and an extensive set of processing rule groups in the MOM console tree, as shown in Figure 1-3 and Figure 1-4.



Figure 1-3: HP public views



Figure 1-4: HP Processing Rule Groups

When an Insight Management Agent generates an event, a corresponding entry is written to the Windows Event log, which is the primary data source used by MOM. If the HP event in the Windows Event Log has an associated event processing rule defined in the IMP, a MOM alert is generated and written to the appropriate alert view in the MOM console tree. An example of how an HP alert is displayed is shown in Figure 1-5.

A	ert Properties	(НРМР20)	<u>?</u> ×		
	Detected Condition	on State Knowledge Base History Events			
	Severity:	Warning			
	Computer:	SQAVMORAND_ML370G3			
	Source:	Storage Agents			
	Raised:	7/26/2004 9:34:42 AM			
	Name:	IDE Drive Status Degraded.			
	Repeat count:	0			
	Description: IDE Drive Status Degraded. The IDE drive Error has a degraded status and should be scheduled for replacement. [SNMP TRAP: 14001 in CPQIDE.MIB]				
	Alert URL:	http://JMORAND_ML370G3/OnePointOperations/Pro	ipei		
	GUID:	{FF60DAF3-48C8-44D3-B96E-495DEE65FF81}			
		View Rul	e		
		OK Cancel Apply Hel	P		

Figure 1-5: HP alert displayed in MOM

All HP alerts that relate to a hardware event include an embedded browser link at the bottom of the **Description** panel, as shown in Figure 1-6. This link enables an administrator to quickly obtain additional data by displaying the HP System Management Homepage and associated Insight Management Agent data of the device that generated the original event.

MOM alerts associated with HP SIM, Insight Manager 7, and HP Remote Insight events also include embedded links to their respective Web interface. Refer to Chapter 3 for further information on using the IMP and details on the HP alert fields.

P	lert Properties	(HPMP20)	<u>? ×</u>				
	Detected Condition State Knowledge Base History Events						
	Severity:	Severity: Warning					
	Computer: SQA\JMORAND_ML370G3						
	Source:	Source: Storage Agents					
	Raised: 7/26/2004 9:34:42 AM						
	Name:	IDE Drive Status Degraded.					
	Repeat count: 0						
	Description: [SNMP TRAP: 14001 in CPQIDE.MIB]						
	Alert URL:	http://JMORAND_ML370G3/OnePointOperations/Pro	pei				
	GUID:	{FF60DAF3-48C8-44D3-896E-495DEE65FF81}					
		OK Cancel Apply Help	>				

Figure 1-6: Embedded browser link to the HP System Management Homepage

### Installation

### Introduction

This chapter provides detailed instructions for installing and configuring the HP IMP for MOM.

**NOTE:** Before beginning the installation, study the information in this chapter and in the "System Requirements" section in Chapter 1.

### **Installation Overview**

Installation of the IMP includes:

- Downloading the IMP from the HP website at <a href="http://www.hp.com/servers/integration">http://www.hp.com/servers/integration</a>
- Installing the IMP into the MOM environment
- Completing the post-installation steps to discover and display HP servers in MOM

### **Preinstallation Considerations**

Before installing the IMP for MOM, be sure to read and understand the installation information provided in this chapter. The following requirements must be met before installing this product:

- Installation of the IMP must be performed using the HPInstallIMP.exe program provided with the IMP. Do not use the "Import Management Pack" option provided in the MOM Administrator Console.
- The IMP must be installed on a system hosting the MOM DAS.
- SNMP services must be active on all HP servers to be managed before installing the Insight Management Agents. SNMP is required locally on each managed HP system for correct installation and operation of the Insight Management Agents.
- HP Insight Management Agents for servers 4.60 or later must be installed and active on all HP servers to be managed using MOM and the IMP.

CAUTION: HP recommends customers do not install the HP IMP for MOM 2000 into production environments running MOM 2005. Installing revision 2.20 of the HP IMP will implement database entries and group definitions that do not apply in MOM 2005 and cannot be removed once installed. Installing revision 2.20 of the HP IMP might also prevent the forthcoming HP Management Pack for MOM 2005 from installing correctly, and might generate double entries for each MOM alert.

### Installing the IMP for MOM

The following section describes the recommended steps for installing the IMP. The IMP is downloaded from <u>http://www.hp.com/servers/integration</u> after a simple registration and is provided in .ZIP file format.

- 1. Copy the downloaded file HPMOM220.ZIP to a directory on a system hosting the MOM DAS.
- 2. Expand the .ZIP file using a suitable unzip utility to extract the following individual files:
  - HPInstallIMP.exe-Executable used to initiate the IMP installation process
  - HPInsightMP220.AKM-HP Insight Management Pack import file
  - HPInvent.jpg-HP branding logo file
  - HPMOM220.PDF—HP Insight Management Pack for MOM User Guide
  - MFC42.DLL and MSVCRT.DLL-Files used to assist the installation of the IMP

#### Installing the HP Insight Management Pack

To install the IMP:

1. On a system used to host the MOM DAS, open either a Windows Explorer or command prompt window. Change your location to the directory where the IMP download HPMOM220.ZIP was extracted.

2. Execute the HPinstallMP.exe file to initiate the IMP installation process.

**NOTE:** Do not use the "Import Management Pack" option provided in the MOM Administrator Console. Using this process will fail to correctly install all the groups, knowledge base, and HP branded components of the IMP.

**NOTE:** The IMP installation program can be run with the MOM Administrator Console either open or closed.

The management pack dialog window, shown in Figure 2-1, appears.

C Merge, and always use the rules defined in the Management Pa
Preserve my company's knowledge base comments.
<ul> <li>Replace existing rule groups with those of the imported Management Pack.</li> </ul>

#### Figure 2-1: Management Pack Dialog window

3. Select the required installation options to either merge or replace any existing components. For a first-time installation of the IMP, you can choose any of these options.

**NOTE:** If updating from the Compaq Management Pack for MOM to the HP IMP, choosing the "Merge" options results in duplicate event processing rules in the MOM Administrator Console labeled as both Compaq and HP. Choosing the replace option overwrites the existing Compaq event processing rules and displays a single set of HP rules in the MOM Administrator Console.

4. Click **Install** to start the automatic copy and installation process. During this process, the "HP Insight Management Pack for MOM" command window appears. The installation also creates a local C:\HPMP directory, where the HP branded knowledge base logo file is copied.

**NOTE:** Installation of the IMP requires no further user interaction and takes two to six minutes to complete, depending on the speed and complexity of your MOM environment.

5. When the installation completes, the IMP command prompt window closes and a pop-up message appears, as shown in Figure 2-2.

HP Insight Management Pack for MOM Installation	×
HP Insight Management Pack has been installed.	
ОК	

#### Figure 2-2: IMP Installation Complete Pop-up Message

6. If the IMP was installed with the MOM Administrator Console open, refresh the MOM folders and views to be sure the new IMP content is presented in the correct alphabetical order. If a refresh does not reorder the contents, close and reopen the MOM Administrator Console.

A successful installation adds the following HP computer groups, public views, and processing rules into the existing MOM environment.

#### **Computer Groups**

The following is a list of computer groups added after a successful IMP installation, which is also shown in Figure 2-3.

- HP Insight Management Agent Version 4.60
- HP Insight Management Agent Version 4.70
- HP Insight Management Agent Version 4.80
- HP Insight Management Agent Version 4.90
- HP Insight Management Agent Version 5.00
- HP Insight Management Agent Version 5.10
- HP Insight Management Agent Version 5.20
- HP Insight Management Agent Version 5.30
- HP Insight Management Agent Version 5.40
- HP Insight Management Agent Version 5.50
- HP Insight Management Agent Version 6.00
- HP Insight Management Agent Version 6.10
- HP Insight Management Agent Version 6.20
- HP Insight Management Agent Version 6.30
- HP Insight Management Agent Version 6.40
- HP Insight Management Agent Version 7.10
- HP Insight Management Agents, All

🚆 Console Window Help			🗋 📽 🖬 💷 💷
Action Yiew Eavorites	e 💼 🗡 🖆 😰 📴 😫 📜 🔍	a 🕽 🗍 🔟	
ee Favorites	Severity Computer Group	Members	
Console Root	No Alerts Computer Attributes Containe	r 0	
A Microsoft Operations Manager (Default)	Service U Hardware Attributes - BIOS D.		
😑 🔜 Monitor	Critical Error Hardware Attributes - BIOS Ve	ersion 52	
- 🔂 All Computers	Service U Hardware Attributes - CPU Ide		
- 🔂 All Agents	Service U Hardware Attributes - CPU spin		
All Computer Groups	Service U Hardware Attributes - CPU Ve	ndor 96	
- 🚺 All Open Alerts	Service U Hardware Attributes - Number	of Processors 96	
- All Service Level Exceptions	No Alerts HP Insight Management Agen	t Version 4.60 0	
All Performance	No Alerts HP Insight Management Agen	t Version 4.70 1	
All Windows NT Events	No Alerts HP Insight Management Agen	t Version 4.80 0	
All Other Events	No Alerts HP Insight Management Agen	t Version 4.90 1	
My Views     Public Views	No Alerts HP Insight Management Agen	t Version 5.00 0	
E Components	No Alerts HP Insight Management Agen	t Version 5.10 0	
Advanced	No Alerts HP Insight Management Agen	t Version 5.20 0	
E Rules	No Alerts HP Insight Management Agen	t Version 5.30 0	
E Configuration	Scritical Error HP Insight Management Agen	t Version 5.40 2	
	No Alerts HP Insight Management Agen		
	Critical Error HP Insight Management Agen	t Version 6.0 3	
	No Alerts HP Insight Management Agen		
	Critical Error HP Insight Management Agen	t Version 6.20 4	
	No Alerts HP Insight Management Agen		
	Critical Error HP Insight Management Agen		
	Service U HP Insight Management Agen	t Version 7.10 8	
	Service U HP Insight Management Agen		
	Service U HP Insight Management Agen	t Versions newer than 6.40 9	
	No Alerts HP Insight Management Agen	t Versions newer than 7.10 1	
	No Alerts HP Insight Manager 7 Server	3	
	No Alerts HP Remote Insight Host Syste	m 0	
	Service U HP Systems Insight Manager S	ierver 16	
	No Alerts Microsoft Data Engine [MSDE]		
	Scritical Error Microsoft Operations Manager		
	Service U Microsoft Operations Manager	Consolidator 1	
	Service U Microsoft Operations Manager		
	Service U Microsoft Operations Manager		
	Service U Microsoft WMI enabled computer Service U	ters 85	
	Service U Service Pack Version	75	
	Service U Windows 2000 Any Computer	53	
	Critical Error Windows NT 4.0 Any Compute	er 11	

Figure 2-3: All Computer Groups folder

#### **Public Views**

The following is a list of public views added after a successful IMP installation, which is also shown in Figure 2-4.

- HP Insight Management Agents
- Device Error Alerts
- Event Notifier Alerts
- Foundation Agents Alerts
- NIC Agents Alerts
- Remote Monitor Alerts
- Server Agents Alerts
- Storage Agents Alerts
- Web Agent Alerts
- HP Insight Manager 7
- HP Systems Insight Manager
- HP Remote Lights-Out



Figure 2-4: Public Views folder

#### **Processing Rule Groups**

The following is a list of processing rule groups added after a successful IMP installation, which is also shown in Figure 2-5.

- HP Insight Management Agents 4.60 and newer
- Device Errors
- Event Notifier
- Foundation Agents
- NIC Agents
- Remote Monitor Service
- Server Agents
- Storage Agents
- HP Insight Manager 7
- HP Systems Insight Manager
- HP Remote Lights-Out



Figure 2-5: Processing Rule Groups folder

#### **Post-Installation Procedures**

Following a successful installation of the IMP, complete the following steps to discover and monitor HP servers. These steps are standard MOM configuration procedures and are provided here for additional reference.

**NOTE:** After the post-installation procedures have been correctly applied to the target servers, the HP computer groups and public views automatically populate with discovered HP servers and associated alert data.

1. In the MOM console tree, access the **Configuration** folder and configure the Agent Managers to include the HP servers to be managed.



Figure 2-6: Configuring the Agent Manager

2. Scan the managed servers. The default Agent Manager setting for automated daily scanning is 2:05 a.m. For an immediate discovery, click **Scan managed computers now,** as shown in Figure 2-7.

[7]	anaged Computer R	ules	Mana	aged Computers
Managed Computer Scan		Agent Service Account		Agent Installatio
1		and frequency for Managed Comput		anager to scan
-	specification, col	omputers that mat lects computer attr installs or uninstal	ributes, eval	uates computer group
	Scan managed	-	very	1 📰 day(s)
		<u>S</u> can managed	computers i	now

Figure 2-7: Scan managed computers now option

Each managed system must be configured with an active MOM agent to enable system discovery and monitoring. This task can be completed by the MOM Agent Manager or by a separate manual installation. For further information, refer to the MOM user documentation or product help.

**NOTE:** The MOM agent installation process requires local SNMP services to be reset. If a MOM agent was installed onto a server running Insight Manager 7 before version SP1, the Insight Manager service might be temporarily stopped and restarted. Insight Manager 7 operations require an active SNMP service, and as a result, any clients browsing into the Insight Manager 7 application might need to restart their browser sessions. This problem is resolved with HP Insight Manager 7 SP 1 and later, and is not apparent with HP Systems Insight Manager.

3. Depending on the properties assigned to the Agent Manager and other MOM global settings, further administrator approval might be required to complete the computer scan and installation of MOM agents. Access the **Pending Installation** folder to display any outstanding tasks.

### Updating from the Compaq Management Pack for MOM

The HP IMP for MOM revision 2.20 supersedes the previous revision 1.12 and the Compaq Management Pack for MOM, and is designed to provide easy migration to the new HP branded groups, views, and processing rules.

Depending on the installation options selected during step 4 of "Installing the HP Insight Management Pack" in this chapter, the MOM Administrator Console might display duplicate Compaq and HP branded groups, views, and event processing rules.

In the event of duplicate entries, use the following steps to remove the Compaq branded groups, views, and processing rules.

#### **Deleting Duplicate Computer Groups**

- 1. In the left pane of the MOM Administrator Console, expand the **Rules** folder, and click the **Computer Groups** sub-folder.
- 2. Right-click the groups to be removed and select **Delete** from the menu list to complete the process.

#### **Deleting Duplicate Public Views**

- 1. In the left pane of the MOM Administrator Console, expand the **Monitor** folder and the **Public View** sub-folder.
- 2. Right-click the groups to be removed and select **Delete** from the menu list to complete the process.

#### **Deleting Duplicate Event Processing Rules**

- 1. In the left pane of the MOM Administrator Console, expand the **Rules** folder and the **Processing Rule Groups** sub-folder.
- 2. Right-click the groups to be removed and select **Delete** from the menu list to complete the process.

### **Uninstalling the HP Insight Management Pack**

The current architecture for MOM management packs does not readily accommodate the uninstalling of management pack elements from the MOM environment.

Individual elements of a management pack, such as processing rules, views, and groups, can be visually deleted from the MOM console tree, but the majority of associated entries in the MOM database and Windows registry are not removed.

Subsequent developments of the IMP for MOM will evaluate the inclusion of more comprehensive uninstall options.

3

### Using the HP IMP for MOM

### Introduction

This chapter describes how to use the features provided with the HP IMP for MOM.

### Using the HP IMP

As described in Chapter 2, the HP IMP for MOM includes the following major elements:

- Computer Groups
- Shared Information Views
- Processing Rule Groups
- Knowledge Base Data

This chapter focuses on features of the IMP that are designed to discover and manage HP servers using MOM. The examples shown are all based on operations within the MOM Administrator Console. Like all standard elements of MOM, HP alerts, computer groups, views, and knowledge base data can also be viewed using the Web-based Ops Portal console for MOM.

**NOTE:** For full details on using the Web-based Ops Portal console, refer to the MOM user documentation or product help menus.

Before attempting to use the IMP, be sure that the following conditions exist:

- The IMP has been installed in accordance with the procedures defined in Chapter 2.
- The SNMP service is installed and active on all HP servers to be managed before installing the Insight Management Agents. SNMP is required for correct installation and operation of the Insight Management Agents.
- HP Insight Management Agents for servers version 4.60 or later are installed and active on all HP servers to be managed using MOM.

CAUTION: HP recommends customers do not install the HP IMP for MOM 2000 into production environments running MOM 2005. Installing revision 2.20 of the HP IMP will implement database entries and group definitions that do not apply in MOM 2005 and cannot be removed once installed. Installing revision 2.20 of the HP IMP might also prevent the forthcoming HP Management Pack for MOM 2005 from installing correctly, and might generate double entries for each MOM alert.

### **Computer Groups**

A MOM computer group is a collection of computers that share a common set of attributes. Each computer group is also associated with one or more processing rule groups. The IMP for MOM includes the following predefined computer groups for each supported version of the HP Insight Management Agents:

- HP Insight Management Agent Version 4.60
- HP Insight Management Agent Version 4.70
- HP Insight Management Agent Version 4.80
- HP Insight Management Agent Version 4.90
- HP Insight Management Agent Version 5.00
- HP Insight Management Agent Version 5.10
- HP Insight Management Agent Version 5.20
- HP Insight Management Agent Version 5.30
- HP Insight Management Agent Version 5.40
- HP Insight Management Agent Version 5.50
- HP Insight Management Agent Version 6.00
- HP Insight Management Agent Version 6.10
- HP Insight Management Agent Version 6.20
- HP Insight Management Agent Version 6.30
- HP Insight Management Agent Version 6.40
- HP Insight Management Agent Version 7.10
- HP Insight Management Agents—All
- HP Systems Insight Manager Server
- HP Remote Insight Host System
- HP Insight Manager 7 Server

#### **Discovering HP Servers**

To determine membership for each HP computer group, the attribute **HP Insight Management Version Number** is included in the properties definitions for each group. The version number attribute is compared with the local registry entries on each managed node to identify the version of installed HP Insight Management Agents. As new HP servers are added to the MOM environment, they are automatically assigned to one of the predefined computer groups.

The IMP includes a computer group named **HP Insight Management Agents - All.** This group is designed to identify all HP servers configured with Insight Management Agents 4.60 or higher and can also be used to identify systems that do not match the criteria of individual predefined computer groups, such as Insight Management Agent versions later than 7.10.

#### **Viewing HP Server Details**

To view the total number of HP servers and the most severe alert status assigned to each computer group, click **Console Root>Microsoft Operations Manager** (**Default)>Monitor>All Computer Groups,** as shown in Figure 3-1.

Action View Eavorites 🗢 🔿 配 🐰 🕞	n   X 🖻 🖬 🛛	3 🕄 🏚 🛄 🔍 🔍 🍋 🕘		
ree Favorites	Severity	Computer Group	Members	
Console Root	No Alerts	Computer Attributes Container	0	
A Microsoft Operations Manager (Default)	Service U	Hardware Attributes - BIOS Date	96	
🖻 👿 Monikor	Critical Error	Hardware Attributes - BIOS Version	52	
- 🔂 All Computers		Hardware Attributes - CPU Identifier	96	
🔂 All Agents	Service U	Hardware Attributes - CPU speed	96	
All Computer Groups		Hardware Attributes - CPU Vendor	96	
- 🚺 All Open Alerts	Service U	Hardware Attributes - Number of Processors	96	
All Service Level Exceptions	No Alerts	HP Insight Management Agent Version 4.60	0	
- All Performance	No Alerts	HP Insight Management Agent Version 4.70	1	
All Windows NT Events	No Alerts	HP Insight Management Agent Version 4.80	0	
All Other Events	No Alerts	HP Insight Management Agent Version 4.90	1	
My Views     Public Views	No Alerts	HP Insight Management Agent Version 5.00	0	
Components	No Alerts	HP Insight Management Agent Version 5.10	0	
Advanced	No Alerts	HP Insight Management Agent Version 5.20	0	
E Rules	No Alerts	HP Insight Management Agent Version 5.30	0	
E Configuration	S Critical Error	HP Insight Management Agent Version 5.40	2	
	No Alerts	HP Insight Management Agent Version 5.50	1	
		HP Insight Management Agent Version 6.0	3	
	No Alerts	HP Insight Management Agent Version 6.10	0	
		HP Insight Management Agent Version 6.20	4	
	No Alerts	HP Insight Management Agent Version 6.30	0	
		HP Insight Management Agent Version 6.40	19	
		HP Insight Management Agent Version 7.10	8	
		HP Insight Management Agent Versions - All	40	
	Service U	HP Insight Management Agent Versions newer than 6.40	9	
	No Alerts	HP Insight Management Agent Versions newer than 7.10	1	
	No Alerts	HP Insight Manager 7 Server	3	
	No Alerts	HP Remote Insight Host System	0	
	Service U	HP Systems Insight Manager Server	16	
	No Alerts	Microsoft Data Engine [MSDE]	2	
		Microsoft Operations Manager Agents	64	
		Microsoft Operations Manager Consolidator	1	
		Microsoft Operations Manager Data Access Server	1	
		Microsoft Operations Manager Database	1	
		Microsoft WMI enabled computers	85	
		Service Pack Version	75	
		Windows 2000 Any Computer Windows NT 4.0 Any Computer	53	

Figure 3-1: All Computer Groups folder

You can also view this information by selecting the **Computer Group Views** option in the **Monitor** details pane of the MOM Administrator Console, as shown in Figure 3-2.



Figure 3-2: Monitor details pane

	12 🛛 🎝 🛄	u, 4, 👌 🛛 🕘	
ee Favorites	Severity	Computer Group	Members
Console Root	No Alerts	HP Insight Management Agent Version 4.60	0
A Morosoft Operations Manager (Default)	No Alerts	HP Insight Management Agent Version 4.70	0
E- Monitor	No Alerts	HP Insight Management Agent Version 4.80	0
Al Computers	No Alerts	HP Insight Management Agent Version 4.90	0
- 🔂 All Agents	No Alerts	HP Insight Management Agent Version 5.00	0
- 🔂 Al Computer Groups	No Alerts	HP Insight Management Agent Version 5.10	0
Al Open Alerts	No Alerts	HP Insight Management Agent Version 5.20	0
- Al Service Level Exceptions	A Warning	HP Insight Management Agent Version 5.30	1
- La Al Performance	Critical Error	HP Insight Management Agent Version 5.40	2
All Windows NT Events	Error	HP Insight Management Agent Version 5.50	1
- Is Al Other Events	No Alerts	HP Insight Management Agent Version 6.0	0
E- C My Views	No Alerts	HP Insight Management Agent Version 6.10	0
Public Wews     HP Insight Management Agents	Critical Error	1	
HP Insign: Hanagement wgents     H IIS	No Alerts	0	
	No Alexa	The second design of the second design of the	21
🔒 🤐 🎽 🚰 2:Computers In HP Insight Management Agent Version 6.	20 Group		
👷 🦳 p Action Yew Eavorites ( 🖛 🔿 🖹 📰 💼 😭	🗃 🔂 🐻  😭	🕢 🛄 🔍 🍳 🎦	
		1 KU 🔛 🛰 🔍 🖬	
* + Severity Corroter Description Last Contact			Error Wa
Computer Description Last Contact      Computer Description Last Contact	Ne	ew Alerts Service Unavailable Oritical Error	Error Wa
Severity Computer Description Last Contact     Gong Official Error WATCH 10/10/2003 5:00	Ne		Error Wa
Severity Computer Description Last Contact     Severity Computer Description Last Contact     Adva     Ortical Error WATCH 10/10/2000 5:00	Ne	ew Alerts Service Unavailable Oritical Error	1
Sevenity Computer Description Last Contact	Ne	ew Alerts Service Unavailable Oritical Error	Error Wa
Severity Computer Description Last Contact     Gonda Adva     Sources Control Error WATCH     10/10/2000 5:00	Ne	ew Alerts Service Unavailable Oritical Error	1
Sevenity Computer Description Last Contact     Sevenity Computer De	Ne	ew Alerts Service Unavailable Oritical Error	1
Severity Computer Description Last Contact     Conce     Adva     Conce     Conce	<07 PM	w Alerts Service Unavailable Oritical Error 12 0 1	1
Severity Computer Description Last Contact     Severity Computer Description Last Contact     Severity Computer Description Last Contact     Severity Computer VATCH 10/10/2000 5:06     Severity Contact Error WATCH 10/10/2000 5:06     Severity Contact Error VATCH 10/10/2000 5:06     Severity Error VATCH 10/10/2000 5:06	KOT FM	W Alerts Service Unavailable Oritical Error 12 0 1 Microsoft Message Queue 2.0	1
Severity Computer Description Last Contact     Control Error WATCH 10/10/2000 5:00     Rules     Contex     Contex     Proce     Proce     Proce     Processing Rules     Professing Rules     Professing Rules     Professing Rules     Professing Rules	No Alerts	Merts Service Unavailable Oritical Error 12 0 1 Microsoft Message Queue 2.0 Microsoft Operations Manager Agents	1
Beverity Computer Description Last Contact     Conce     Adva     Adva     Conce     Conce	No Alerts Critical Error	W Alerts Service Unavailable Oritical Error 12 0 1 Microsoft Message Queue 2.0 Microsoft Operations Manager Agents Microsoft Operations Manager Consolidator	1
Severity Computer Description Last Contact     Severity Computer Description Last Contact     Severity Computer Description Last Contact     Severity Computer VATCH 10/10/2000 5:06     Severity Contact Error WATCH 10/10/2000 5:06     Severity Contact Error VATCH 10/10/2000 5:06     Severity Error VATCH 10/10/2000 5:06     Se	No Alerts Critical Error Critical Error	Martis Service Unavailable Oritical Error 12 0 1 Microsoft Message Queue 2.0 Microsoft Operations Manager Agents Microsoft Operations Manager Cossolidator Microsoft Operations Manager Cossolidator	1
Severity Computer Description Last Contact     Conce     Conc	No Alerts Critical Error Critical Error Critical Error Critical Error	Microsoft Operations Manager Agents Microsoft Operations Manager Agents Microsoft Operations Manager Agents Microsoft Operations Manager Consolidator Microsoft Operations Manager Data Access Server Microsoft Operations Manager DataAccess	1
Berfering Rules     B	No Allerts Critical Error Critical Error Critical Error Critical Error Critical Error No Allerts	Microsoft Operations Manager Consolidator Microsoft Operations Manager Data Access Server Microsoft Operations Manager Data Access Microsoft SMS 1.2 Client	1
Bevently Computer Description Last Contact     Conce     Adva     Adva     Adva     Conce     Conce	No Alerts No Alerts Critical Error Critical Error Critical Error Critical Error No Alerts No Alerts	Microsoft SMS 1.2 Client Microsoft SMS 1.2 Client Microsoft SMS 1.2 Client	1 0 4 1 1 1 0 0 0

To display individual servers within a group, double-click a specific group or right-click a group and select the **View Computers** option from the menu list, as shown in Figure 3-3.

Figure 3-3: Viewing computers within a group

To view alert data for each discovered server, double-click an individual server object, as shown in Figure 3-4.



Figure 3-4: Alert data for individual servers

To view property details for an individual server, including group membership and rules association, right-click a server object and select the **Properties** option from the menu list, as shown in Figure 3-5.

Sonsole Root\Microsoft Operations Manager (Defail	ult)\Monitor\All Computer Groups			
Action Yew Eavorites   ← →   🛍 🕅 🐰 🕅	n 🗈 🗡 👘 🗹 🖫 😵 🛛 🖓 🗌	🛄 🔍 🍕 🎴	0	
Tree Favorites	Seventy	Computer Gro	NP	Henbers A
Console Root	No Alerts	HP Insight Ma	nagement Agent Version 4	4.60 0
🖻 🚰 Microsoft Operations Manager (Default)	No Alerts	HP Insight Ma	nagement Agent Version 4	4.70 0
🖻 🤯 Honkor 🕞 4:Computers In HP Insight Mai	agement Agent Yersion 6.20 Group	0.00	and a	_ [] ×
All Compo	→   窗田   8 喩 胞   × 留		a 🛄 🔍 🍳 🗎	
All Comps Security Consultan	escription Last Contact	New Alerts	Service Unavailable	Critical Error Error Wa
Al Open	10/10/2003 5:11:07 PM	6	Service Unavaliable	Cricka Erfor   Erfor   wa
All Servic Critical Error WATCH	10/10/2003 5:11:07 PR	5	0	
ATUEN .	Computer Properties (mselab) - HYPE	RIONWATCH	7 ×	
All Other				2
<ul> <li>My Views 1 Items</li> </ul>	Computer Detail Computer Groups Pro	cessing Rules	(	li.
Public Views	Domain: ENGERION		Version 6	5.20 1
House H			Version 6	5.30 0
Microsoft Operations Manager	Name: WATCH		Version 6	5.40 0
E Bouting and Remote Access Services	Type: Windows NT Server			
E C Active Directory	The dome with Server		Versions	newer than 4
🗵 🧰 Hardware	Description:			0
E Components	Last hearbeat 10/10/2003 5:11:07 P			r Version 1.0 0
😥 🚞 Advanced	10/10/2003 0.11.0/ P	1		r Version 2.0 0
E-1 Rules	Custom data 1:			r Version 3.0 4
Computer Groups     Fracessing Rule Groups	Custon data 2			0 Servers 0
Processing rate croups     Processing rate	Conton Gala 2		Server 5	1 and a servers
HP Insight Management Agents 4.6 and Nev	Alerts:			0
- B Event Processing Rules	Severity New Un	bevloce	A Agents	
- 💽 Alert Processing Rules	Success 0	0	Consolid	stor 1
- Performance Processing Rules	Information 0	0		ess Server 1
P Insight Management Agents Versions	Warring 4	4	Detabase	e 1
Book Strategy Contract Co	Evor 1	1		0
Microsoft Domain Name Service (UNS) (enable)     E- Microsoft Dynamic Host Configuration Protoc	Childred Frank 1	1		0
Microsoft Internet Information Server (IIS) (				0
😥 🦳 Microsoft Nessage Queue (MSMQ) (enabled)	0K Cancel	Apply	Help	0
			ersion 2.1	X 0 .

Figure 3-5: Computer Properties window

#### **Using Computer Groups for Inventory Management**

In addition to identifying each managed HP server within a Windows enterprise, the computer groups delivered with the IMP provide a convenient and accurate method for maintaining inventory control of installed HP Insight Management Agents. Listing discovered HP servers by Management Agent version helps administrators quickly identify any server configuration that falls outside of the supported software specifications for an individual network environment.

### **Shared Information Views**

The MOM console provides a variety of folders and windows for viewing information stored in the MOM database.

The IMP for MOM includes predefined public views that provide high-level information about each discovered HP server and associated alerts. Public views are accessible by any user accessing the configuration group database from a MOM console, and are saved in the **Public Views** folder of the MOM console tree.

#### **Accessing the Public Views**

To access the views provided with the IMP, click **Console Root>Microsoft Operations Manager (Default)>Monitor>Public Views** from the MOM console tree, as shown in Figure 3-6.



Figure 3-6: Accessing HP Public Views

The following list provides an overview of each HP folder under the Public Views folder:

- HP Insight Management Agent Versions—Lists all discovered HP servers by computer name, domain, and version of installed Insight Management Agents
- Event Notification Alerts—Lists alerts generated by the HP Event Notifier service that correspond to defined MOM event processing rules
- **Device Error Alerts**—Lists alerts generated by HP management services and drivers that correspond to defined MOM event processing rules
- **Foundation Agents Alerts**—Lists hardware and service alerts generated by the HP Foundation Agents that correspond to defined MOM event processing rules
- NIC Agent Alerts—Lists hardware, service, and performance alerts generated by the HP NIC Agents that correspond to defined MOM event processing rules
- **Remote Monitor Alerts**—Lists alerts generated by the HP Remote Monitor service that correspond to defined MOM event processing rules
- Server Agent Alerts—Lists hardware, service, and performance alerts generated by the HP Server Agents that correspond to defined MOM event processing rules
- **Storage Agent Alerts**—Lists hardware, service, and performance alerts generated by the HP storage agents that correspond to defined MOM event processing rules
- **HP Insight Manager 7**—Lists service and application alerts generated by HP Insight Manager 7 that correspond to defined MOM event processing rules
- **HP Remote Lights-Out**—Lists hardware, service, and performance alerts generated by HP Remote Insight Lights-Out and Integrated Lights-Out technology that correspond to defined MOM event processing rules
- HP Systems Insight Manager—Lists service and application alerts generated by HP Systems Insight Manager that correspond to defined MOM event processing rules

**NOTE:** For details on the event processing rules provided with the IMP, refer to the "Processing Rule Groups" section of this chapter.

#### **Viewing HP Alerts in the Public Views**

The individual HP agent and service folders listed under the Public Views folder display HP specific alerts generated within the MOM console. To display detailed information on an individual alert, double-click the alert object or right-click an alert and select the **Properties** option from the menu list, as shown in Figure 3-7.

Action ⊻iew Eavorites		' 🖸 🖫 😰 🛛 🖆 🚫 🔍 🍳 角
Tree Favorites	Name	
Console Root	Alert Properties	(HPMP20) ?X
Kicrosoft Operations Manager (Default)     Monitor	Detected Conditi	ion   State   Knowledge Base   History   Events
All Computers     All Agents	Severity:	Warning
All Computer Groups	Computer:	SQAVMORAND_ML370G3
All Service Level Exceptions     All Performance	Source:	Storage Agents
All Windows NT Events	Raised:	7/26/2004 9:34:42 AM
All Other Events     My Views	Name:	IDE Drive Status Degraded.
Public Views     HP Insight Management	Repeat count:	0
HP Insight Management Agents     Discovery     Device Error Alerts     Event Notifier Alerts     Fundation Agent Alerts	Description:	IDE Drive Status Degraded. The IDE drive Error has a degraded status and should be scheduled for replacement. [SNMP TRAP: 14001 in CPQIDE.MIB]
NIC Agents Alerts     Remote Monitor Alerts	Alert URL:	http://JMORAND_ML370G3/OnePointOperations/Proper
Server Agents Alerts Storage Agents Alerts Web Agent Alerts	GUID:	(FF60DAF3-48C8-44D3-896E-495DEE65FF81) View Rule
⊕ - HP Insight Manager 7     ⊕ - HP Remote Lights-Out     ⊕ - HP Systems Insight Manager		OK Cancel Apply Help

Figure 3-7: Detailed alert information

## **Processing Rule Groups**

MOM provides comprehensive real-time monitoring of Windows operating system and application events and displays these as MOM alerts. An event can be defined as an entry written to the Windows Event Log or delivered by an alternative source, such as an SNMP trap. An alert can be defined as a response to a Windows event generated by MOM and displayed in the MOM console interface.

MOM uses a rules-based infrastructure to process events, alerts, and performance indicators for devices and applications. The MOM rules infrastructure is presented as three main rules processing groups:

- Event Processing Rules—Identify, consolidate, and filter events that conform to specified criteria (event processing rules are used as a primary source for generating MOM alerts)
- Alert Processing Rules—Specify responses to a MOM alert or group of alerts, such as forwarding to notification groups or launching associated applications and scripts
- **Performance Processing Rules**—Are used for measuring and alerting on specific performance or capacity metrics, such as resource utilization or drive space availability

**NOTE:** For full details on creating or customizing MOM processing rules, refer to the MOM user documentation or associated help information.

#### **HP Event Processing Rules**

The HP IMP for MOM includes over 650 predefined event processing rules. These rules identify and process HP events that have been written to the Windows Event Log by Insight Management Agents and management services. All HP events that correspond to a valid event processing rule are displayed as HP alerts within the MOM console interface. This capability extends the functionality of MOM, enabling administrators to monitor events for the HP hardware infrastructure through the same MOM console used to monitor Windows operating system and application resources.

**NOTE:** The HP event processing rules for MOM do not process SNMP traps generated by the Insight Management Agents. All HP rule criteria are based on HP event data written to the Windows Event Log.

The HP event processing rule groups are installed under the Rules–Processing Rule Groups folder in the MOM console tree, as shown in Figure 3-8, and include container and individual rule groups listed by HP Insight Management Agent type and service definitions.

The individual HP event processing rules are contained in the Event Processing Rules folder of each agent or service group, as shown in Figure 3-8.

Hom Administrator Console - [Console Root\Microsoft Ope	rations Manager (Default)\Rules\Processing Rule Groups\HP Insight Management Pack (Version 2.2) (enabl 📃 🖉 🗙
🚰 Console Window Help 🗋 🖙 🖬 💷	_[6] ×
Action View Eavorites 🛛 🖛 🔿 🗈 🔢 😭 📽	3 5 1 1 1
Tree Favorites	HP Insight Management Pack (Version 2.2
Tree Favorites  Console Root  Microsoft Operations Manager (Default)  Microsoft Operations  All Computer Groups  All All Open Artis  All Open Artis  All Open Artis  All Open Artis  Artis Artis  Artis  Artis  Artis  Artis Artis  Artis  Artis  Artis  Artis Artis  Artis Artis  Artis A	HP Insight Management Pack (Version 2.2 Processing Rule Group: Enabled: Yes Parent Rule Groups: HP Insight Manager 7 HP Remote Lights-Out HP Systems Insight Manager Insight Management Agents Version 4.60-7.10 Description: None Bound to Computer Groups: HP Insight Management Agent Version 6.40 HP Insight Management Agent Version 6.40 HP Insight Management Agent Version 5.40 HP Insight Management Agent Version 5.40 HP Insight Management Agent Version 5.40 HP Insight Management Agent Version 5.50 HP Insight Management Agent Version 6.30 HP Insight Management Agent Version 6.10 HP Insight Management Agent Version 6.20 HP Insight Manageme
x  >	Insight Management Pack for MOM

Figure 3-8: Event Processing Rules folders

The following provides an overview of the HP rule groups provided with the IMP:

- HP Insight Management Agents Versions 4.60 7.10—Contains the individual HP rule groups
- **Device Errors**—Contains rules to process events generated by HP management services and drivers, such as resource or driver conditions
- **Event Notifier**—Contains rules to process events generated by the HP Event Notifier service, such as e-mail errors encountered when forwarding events
- **Foundation Agents**—Contains rules to process hardware and services events generated by HP Insight Foundation Agents, such as threshold and host subsystem conditions
- NIC Agents—Contains rules to process hardware, performance, and services events generated by HP Insight NIC Agents, such as connectivity status
- **Remote Monitor Service**—Contains rules to process hardware and services events generated by the HP Remote Monitor Service, such as hot-plug device conditions
- Server Agents—Contains rules to process hardware and services events generated by HP Insight Server Agents, such as environmental conditions and resource usage

- **Storage Agents**—Contains rules to process hardware, performance, and services events generated by HP Insight Storage Agents, such as drive array and data integrity errors
- **HP Insight Manager 7**—Contains rules to process service and application alerts generated by HP Insight Manager 7, such as login violations and service availability
- **HP Remote Lights-Out**—Lists hardware, service, and performance alerts generated by HP Remote Insight Lights-Out and Integrated Lights-Out technology, such as attempted security violations, remote NIC port availability and hardware resets
- **HP Systems Insight Manager**—Lists service and application alerts generated by HP Systems Insight Manager, such as login violations, application setting changes and service availability

#### **Default Rule Properties**

HP event processing rules are created with default properties that enable immediate operations but can be customized to suit individual requirements. The following list identifies the available Properties tabs and default IMP conditions:

- General
- Data Provider
- Criteria
- Schedule
- Alert
- Alert Suppression
- Responses
- Knowledge Base

The following figures show each default element of the HP event processing rule for Windows Event Log ID 1104, highlighting a degraded power supply in an HP storage system.

Alert Supp	pression	Responses	Knowled	ge Base
General	Data Provider	Criteria	Schedule	,Alert
Enter a nam	ne for the processin	ng rule.		
Name: Comp	aq Storage System	n Fault Tolerant Por	ver Supply Degrad	led.
I⊽ Er	nabled			
	action:			
Gener	rates an alert when	a specified event of	DCCUFS.	
Processing III	le path: HP Insi	hi Management An	ents 4.6 and New	er I Indate I
		iht Management Ag		
		phi Management Ag 334-638F-4461-A3		
	le GUID: (877124	494-698F-4461-A3	56-C1EF4704852E	
Processing ru	le GUID: (877124		56-C1EF4704852E	
Processing ru	le GUID: (877124	494-698F-4461-A3	56-C1EF4704852E	
Processing ru	le GUID: (877124	494-698F-4461-A3	56-C1EF4704852E	

Figure 3-9: Event Processing Rule Properties—General tab

Alert Supp	pression F	Responses	Knowled	ge Base
General	Data Provider	Criteria	Schedule	Alert
	irce of the data or eve lick New to create a n s:		ed by this rule. If t	he provide
System				
rovider type:				
Windows NT	Event Log			
Provider set Monitor the	trigs Windows NT System (	event log.		

Figure 3-10: Event Processing Rule Properties—Data Provider tab

Alert Suppression		Responses	Knowk	iowledge Base	
General	Data Pro	vider Criteria	Schedule	Alert	
Select the pro	operties of eve	ents that you would lik	e to match.		
Match events	:				
🗸 from sour	e	Storage Agents			
with even	t jd	1104			
of type		None		Y	
with desc	ription	, 			
- Criteria desi	cription				
	nber equals '1' me equals 'St	104' orage Agents'	-	<u>A</u> dvanced	

Figure 3-11: Event Processing Rule Properties—Criteria tab

General Data Provider Criteria Schedule pecify optional schedule for this processing rule. If no schedule is spe le will be always active.	Alert
le vil be always active. Always process data	without the
	scaled, an
0.00.00 Jtd	
Between 00:00 and 23:59 and	
🗖 Sunday 🗖 Tues	iday
🗆 🔟 ednesday 🗖 Thursday 🗖 Erida	9
Saturday	

Figure 3-12: Event Processing Rule Properties-S chedule tab

Description:     \$07 Message\$	Alert gource: \$05 Source Name\$	Alert Suppress	ion	Responses	Knowled	ge Base
Generate alert       Alert properties       Alert severity:       Warning       Owner:       Besolution state:       New       Alert gource:       \$05 Source Name\$       Description:       \$07 Message\$	generate alert       Alert properties       Alert severity:       Warning       Owner:       Besolution state:       New       Alert gource:       \$05 Source Name\$       Description:       \$07 Message\$	General	Data Provider	Criteria	Schedule	Alert
Allert severity: Warning            Owner:           Resolution state:           New           Allert gource:           \$05 Source Name\$           Description:           \$07 Message\$	Allert severity: Warning        Dwner:       Resolution state:       New       Allert gource:       \$05 Source Name\$       Description:       \$07 Message\$	operties.		generates an a	lert, and define the	alert
Dwner: Besolution state: New  Alert gource: \$05 Source Name\$ Description: \$07 Message\$	D <u>w</u> ner: Besolution state: New ▼ Alert gource: \$05 Source Name\$ Description: \$07 Message\$	Alert properties				
Resolution state:     New       Alert gource:     \$05 Source Name\$       Description:     \$07 Message\$	Resolution state:     New       Alert gource:     \$05 Source Name\$       Description:     \$07 Message\$	Alert severity:	Warning			-
Alert source: \$05 Source Name\$	Alert source: \$05 Source Name\$	0 <u>w</u> ner:				
Description: \$07 Message\$	Description: \$07 Message\$	Resolution state	New			•
		Alert source:	\$05 Source I	Name\$		•
	Custom Fields	Description:	\$07 Messag	c\$		•
Lustom Fields			1		Custor	n <u>F</u> ields

Figure 3-13: Event Processing Rule Properties—Alert tab

General 🕴 Data Provide	r Criteria	Schedule	Alert
Alert Suppression	Responses	Knowled	ge Base
efine the handling of duplicat	e alerts.		
Suppress duplicate alerts			
Fields			
to be considered a duplicate significant. Alert Name Alert Description	. Check helds below	to make additiona	al heids
CAled Source			
Alert Source			
Severity Source Name			
Sevenity Source Name Event Number			
Severity Source Name			
Severity Source Name Event Number Category Description	Selections		*
Severity Source Name Event Number Category Description	Selections		2

Figure 3-14: Event Processing Rule Properties—Alert Suppression tab

Alert Suppression	Criteria Sc Responses	hedule Alert Knowledge Base
efine any response actions you	would like to take when a	match occurs.
Response	Туре	Add
Compaq :: CompaqURLScript	Script	Edit
		<u>R</u> emove

Figure 3-15: Event Processing Rule Properties—Responses tab

**NOTE:** HP event processing rules that relate to HP hardware events include the "CompaqURL Script" as a default response entry, as shown in Figure 3-15. This response is used to display an additional browser link to the HP System Management Homepage, as shown in Figure 3-20.

	ng Rule Prope			and a second description		
General Alert Supp	Data Provid ression	··· 1	Criteria sponses	Schedul Kno	le   Al owledge Bas	
Knowledge Ba	ase:					
(IP)			lanage for MC			
	NOWLEDGE S	OURCES	5			
On-Ine Sup	port					
On-line Do						-1
I CITALS DO	unerication					<u> </u>
-						
Company Kno						
-						
-						
-						
-						×
-						
-						×
-					Edit.	×
-					Edk.	V

Figure 3-16: Event Processing Rule Properties—Knowledge Base tab

#### **Customizing Event Processing Rules**

HP event processing rules are predefined for immediate use but can be easily customized to suit an individual enterprise. The following list highlights some common reasons for modifying an event processing rule:

- Disabling or enabling a rule
- Changing the alert severity level
- Assigning specific alerts to notification groups
- Modifying data processing or alert-suppressing criteria
- Adding a custom response to selected events
- Including environment-specific knowledge base data

To customize a rule, select the rule to be edited from the appropriate Event Processing Rules folder by double-clicking the rule entry or by right-clicking the rule and selecting the **Properties** option from the menu list.

**NOTE:** For full details on customizing MOM processing rules, refer to the MOM user documentation or associated help information.

#### **HP Alert Processing Rules**

By default, the HP NIC Agent and HP Storage Agent processing rule groups include a predefined alert processing rule that forwards all alert conditions of Error or higher to the Hardware Support Notification Group in MOM.

To take advantage of this feature, the Hardware Support Notification Group must be configured to include at least one named Group Operator.

**NOTE:** For details on configuring the Hardware Support Notification Group, refer to the MOM user documentation or associated help information.

#### **HP Performance Processing Rules**

By default, the HP NIC Agent and HP Storage Agent processing rule groups include two predefined performance-processing rules:

- **Private Bytes > 1,000,000**—This rule measures the amount of memory used by each set of agent services and generates an alert if the threshold of 1 MB is exceeded.
- **Handle Count > 1,000**—This rule monitors the number of resource handles used by each set of agent services and generates an alert if the threshold of 1,000 is exceeded.

#### **HP Alerts**

An alert can be defined as a response to a Windows event generated by MOM and displayed in the MOM console interface. Alert severity levels, contents, and other criteria are all defined by the properties in the MOM processing rule groups.

When an event matches the criteria defined in the HP event processing rules, a corresponding HP alert is generated and displayed in the MOM console.

#### **Identifying HP Alerts**

When reviewing the list of alerts displayed in the All Open Alerts folder of the MOM console tree, an HP alert can be clearly identified by the contents of the Source field, as shown in Figure 3-17.

The available HP entries in the Source field include:

- CIMNotify
- Foundation Agents
- NIC Agents
- Server Agents
- Storage Agents
- HP Insight Manager 7
- HP Remote Lights-Out

• HP Systems Insight Manager

HP alerts can also be reviewed by accessing the **HP Insight Management Agent** public views in the MOM console tree, as detailed in the "Shared Information Views" section of this chapter.

ree Favorites	Severity	Time	Computer	Resolution State	Source	Name
Console Root	Error	10/10/2003 4:19:15 PM	WORKING	New	Storage Agents	Physical Drive Status Change
Microsoft Operations Manager (Default)	6 Error	10/10/2003 4:17:05 PM	WATCH	New	OnePoint Operations	Agent Manager Alert: C++ e
- Monitor	A Warning	10/10/2003 3:56:02 PM	IRIS	New	OnePoint Operations	Event Log "wrapped"
Al Computers	Warning	10/10/2003 3:54:22 PM	IRIS	New	Server Agents	Compag System Information
- 🔂 All Agents	Information	10/10/2003 3:54:18 PM	IRIS	Mow	Server Agents	Compag System Information
- 🔂 All Computer Groups	Warning	10/10/2003 3:54:17 PM	IRIS	New	Server Agents	Compag System Information
All Open Alerts						
- 🛃 All Service Level Exceptions 🥂						
- Al Performance						
- B Al Windows NT Events						
- III All Other Events						
B Straws						
🖯 🧰 Public Views						
HP Insight Nanagement Agents						
Discovery						
Device Error Alerts						
Event Notifier Alerts						
- Poundation Agent Alerts						
NIC Agents Alerts						
Remote Monitor Alerts						
Server Agents Alerts     Storage Agents Alerts						

Figure 3-17: HP alert identification

#### **Analyzing HP Alerts**

HP alerts contain a wealth of data derived from the Windows Event Log entries and processing rules provided with the IMP. This information enables administrators to quickly and accurately identify the root cause of a particular event or series of events and implement a timely response.

As an example, Figure 3-18 shows a failed HP IDE hard drive. The standard contents of the alert clearly identify the level of severity (Warning), the system that generated the event (SQA\JMORAND\_ML370G3), and the agent source (Storage Agents).

Alert Properties	(HPMP20)
Detected Conditi	ion State Knowledge Base History Events
Severity:	Warning
Computer:	SQAVJMORAND_ML370G3
Source:	Storage Agents
Raised:	7/26/2004 9:34:42 AM
Name:	IDE Drive Status Degraded.
Repeat count:	0
Description:	IDE Drive Status Degraded. The IDE drive Error has a degraded status and should be scheduled for replacement. [SNMP TRAP: 14001 in CPQIDE.MIB]
Alert URL:	http://JMORAND_ML370G3/OnePointOperations/Proper
GUID:	{FF60DAF3-48C8-44D3-B96E-495DEE65FF81}
	View Rule
	OK Cancel Apply Help

Figure 3-18: Alert content for a failed hard drive

The contents of the Description panel clearly details what has occurred and provides all the relevant information needed to quickly identify and resolve the problem.

The most relevant data includes the following message:

The IDE Drive has a degraded status and should be scheduled for replacement.

#### Launching the HP System Management Homepage from within MOM

All HP alerts that relate directly to an HP server hardware event include an embedded browser link at the bottom of the Description panel, as shown in Figure 3-19. This feature enables administrators to directly access the HP System Management Homepage for the device identified in the Computer field, and to view detailed configuration and status data on the device that generated the original event.

The browser link is created using "CompaqURL Script," which is embedded by default into all HP event processing rules that relate to hardware conditions. For more information, refer to Figure 3-15.

Alert Properties	(HPMP20)	<u>?</u> ×
Detected Conditi	ion State Knowledge Base History Events	1
Severity:	Warning	
Computer:	SQANJMORAND_ML370G3	
Source:	Storage Agents	
Raised:	7/26/2004 9:34:42 AM	
Name:	IDE Drive Status Degraded.	
Repeat count:	0	
Description:	Click below to view HP Insight Management Agents	
Alert URL:	http://JMORAND_ML370G3/OnePointOperations/Pro	<u>iper</u>
GUID:	{FF60DAF3-48C8-44D3-B96E-495DEE65FF81}	
	View Rul	e
	OK Cancel Apply Hel	p

Figure 3-19: Embedded HP browser link in Description panel

Click the browser link to display the HP System Management Homepage of the device that generated the original event, as shown in Figure 3-20.



Figure 3-20: HP System Management Homepage

The browser-based HP System Management Homepage provides a consolidated view of system status and configuration information for a single server, based on data collected by the Insight Management Agents. The System Management Homepage also provides access to other HP browser-based management tools that might be installed on the target server, such as Insight Diagnostics, Version Control Agents, Insight Management Agents, or the Array Configuration Utility.

#### Launching the HP SIM or HP Insight Manager 7 from within MOM

All HP alerts generated by the HP SIM or HP Insight Manager 7 applications include an embedded browser link at the bottom of the Description panel, as shown in Figure 3-21. This feature enables administrators to launch the HP Systems Insight Manager application hosted on the identified system, and access the broad range of hardware resource lifecycle tools.

P	lert Properties	(HPMP20)
	Detected Condition	on State Knowledge Base History Events
	<u>S</u> everity:	Warning
	<u>C</u> omputer:	SQAVJMORAND_ML370G3
	So <u>u</u> rce:	HP Systems Insight Manager
	<u>R</u> aised:	7/26/2004 1:36:47 PM
	<u>N</u> ame:	HP Systems Insight Manager logged an error
	Regeat count:	0
	Description:	1
		Click below to view HP Insight Manager 7 http://JMORAND_ML370G3:280
	Alert URL:	http://JMORAND_ML370G3/OnePointOperations/Proper
	<u>G</u> UID:	{0982EC16-58C0-4B3D-84DE-D3CA8D72D13A}
		<u>V</u> iew Rule
		OK Cancel Apply Help

Figure 3-21: Embedded HP Systems Insight Manager Link

## **Knowledge Base Data**

Knowledge base data is a valuable element of all management packs developed for the MOM, and is used to help provide administrators with additional information specific to each management pack.

The IMP provides knowledge base data for each HP processing rule and associated alert. This additional data can help to further identify event root causes, and can be edited to include environment or customer-specific information.

To view the main HP IMP knowledge base window in the MOM details pane, highlight the **HP Insight Management Pack (Version 2.2)** processing rule folder, as shown in Figure 3-22. The main IMP knowledge base window contains product and configuration data, and browser links to the additional Web-based information.



Figure 3-22: HP Insight Management Pack knowledge base window

To view and modify the knowledge base data for an individual processing rule, select the **Knowledge Base** tab of the rule Properties window, as shown in Figure 3-23. For more details on customizing HP processing rules, refer to the "Customizing Event Processing Rules" section.

Alert Properties (mselab)	? ×
Detected Condition   State Knowledge Base   History   Even	15
Knowledge Base:	
SAMPLE EVENT	<b>_</b>
Compaq SCSI Physical Drive Status Change. The SCSI physical drive with SCSI target %6 connecter SCSI bus %5 of the controller in slot %4 has a new st of %2. (Drive status values: 1=other, 2=ok, 3=failed, 4=notConfigured, 5=badCable, 6=missingWasOk, 7=missingWasEailed, 8=nredictiveEailure.	ad to
Company Knowledge Base:	
	~
	-
	Edt.
OK Cancel Apply	Help

Figure 3-23: Alert Properties—Knowledge Base tab

# A HP IMP Rules

The following tables detail the HP events associated with the predefined event processing rules provided with the IMP for MOM.

HP Insight Management Pack for Microsoft Operations Manager User Guide

## **Event Notification Service Events**

Table A-1 lists the event notification service events and their descriptions.

Table A-1: Event Notification Service Events

Windows Event ID	Event Description
1	Unable to open parameters registry key.
2	Unable to open CIMNotify service SMTP host registry key.
3	Unable to read the SMTP host name from the registry.
4	Unable to establish a connection with the SMTP host: "%1."
5	Error sending notification to: "%1."
6	Unable to build event list.
7	Unable to initialize the Windows Sockets API.
8	Invalid recipient, no IP address found in registry.
9	Invalid recipient entry IDs found in registry.
10	The Recipient "%1" is invalid.
11	The service received a bad service request.
13	The service handler is invalid.
14	There is not enough free memory for this operation.
15	There are not enough system resources to continue.

## **Remote Monitor Service Events**

Table A-2 lists the remote monitor service events and their descriptions.

Windows Event ID	Event Description
16	A device driver reported a critical condition.
16	A device driver reported an error or failure.
16	A device driver reported a warning.
16	A device driver reported a repair.
17	A hot plug service reported a repair.
17	A hot plug service reported a critical condition.
17	A hot plug service reported a warning.
17	A hot plug service reported an error or failure.
18	A remote monitor service reported.

Table A-2: Remote Monitor Service Events

## **Device Error Events**

Table A-3 lists the device error events and their descriptions.

Table A-3:	<b>Device Erro</b>	or Events
------------	--------------------	-----------

Windows Event ID	Event Description
5	A parity error was detected on the device.
13	The driver was configured with an incorrect interrupt.
14	The driver was configured with an invalid I/O base address.
17	The wrong version of the driver has been loaded.
21	Conflict between two drivers: Overlapping memory regions.
22	Conflict between two drivers: Overlapping IO port regions.
23	Conflict between two drivers: Equivalent DMA channels.
24	Conflict between two drivers: Equivalent IRQs.
25	The driver has detected a device with old or out-of-date firmware.
26	The driver has detected that a device has old or out-of-date firmware.
27	Device resources conflicts: DMA.
28	Device resources conflicts: Interrupt.
29	Device resources conflicts: Memory.
30	Device resources conflicts: Port.
31	The file contains a bad disk block.
32	The driver detected that data corruption might occur because a device has its write cache enabled.
41	The file system structure on the disk is corrupt and unusable.
46	Crash dump initialization failed.
49	Configuring the Page file for crash dump failed.
52	The driver has detected that a device has predicted that a failure might be imminent.
53	A pending interrupt was detected on a device during a timeout operation.
55	The file system structure on the disk is corrupt and unusable.

## **Foundation Agent Events**

Table A-4 lists the foundation agent events and their descriptions.

Windows Event ID	Event Description
Foundation Agent S	ervice Events
256	Foundation Agents service detected an error.
257	Foundation Agents service could not allocate memory. The data contains the error code.
258	Foundation Agents service could not register with the Service Control Manager. The data contains the error code.
259	Foundation Agents service could not set the service status with the Service Control Manager. The data contains the error code.
260	Foundation Agents service could not create an event object. The data contains the error code.
261	Foundation Agents service could not open registry key "%1." The data contains the error code.
262	Foundation Agents service could not start any agents successfully.
263	Foundation Agents service could not read the registry value "%1." The data contains the error code.
264	Foundation Agents service could not load the module "%1." The data contains the error code.
265	Foundation Agents service could get the control function for module "%1." The data contains the error code.
266	Foundation Agents service could not initialize agent "%1." The data contains the error code.
267	Foundation Agents service could not start agent "%1." The data contains the error code.
268	Foundation Agents service detected an invalid state for an agent.
269	Foundation Agents service could not stop agent "%1." The data contains the error code.
270	Foundation Agents service could not terminate agent "%1." The data contains the error code.
271	Foundation Agents service could not unload a module.
272	Foundation Agents service could not create the registry key "%1." The data contains the error code.
273	Foundation Agents service could not write a registry value.
399	Foundation Agents service encountered a fatal error.
1792	Component: Foundation SNMP Agent Error: The agent is unable to generate traps because of an error during initialization.

Windows Event ID	Event Description	
Foundation Agent S	ervice Events	
1793	Foundation SNMP Agent's trap thread has encountered an error while waiting for event notification from event log.	
1794	Foundation SNMP Agent's trap thread was unable to send a trap because of a processing error.	
1795	Component: Foundation SNMP Agent Error: The agent is older than other components.	
1796	Component: Foundation SNMP Agent Error: The %1 Agent is older than other components.	
1797	Foundation SNMP Agent has failed to refresh data associated with specified key.	
1798	Foundation SNMP Agent was unable to process a SNMP request because the Foundation SNMP Agent service is not running.	
1800	Component: Foundation SNMP Agent Error: Unable to read security configuration information. SNMP sets have been disabled.	
1803	Component: %4 Error: Unable to load a required library.	
1804	Foundation SNMP Agent was unable to forward a SNMP trap to the Remote Insight Board trap because of a processing error.	
1805	Foundation SNMP Agent was unable to get last modification time for specified key.	
1806	Component: Foundation SNMP Agent Error: The Foundation SNMP Agent service is not running.	
1808	Component: Foundation SNMP Agent Error: The agent could not deliver trap %1.	
Host Agent Service	Alarms	
2048	Unable to allocate memory. This indicates a low memory condition. Rebooting the system will correct this error.	
2049	Unable to read from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.	
2050	Could not create the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.	
2051	Unable to read from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.	
2052	Unable to read "%1" from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.	
2053	Unable to read "%1" from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.	
2054	The Host Agent could not create a necessary event. The data contains the error code.	
2055	The Host Agent could not set an event. The data contains the error code.	
2056	Unable to create thread. This error might be caused by a low memory condition. Rebooting the server might correct this error.	

Windows Event ID	Event Description	
Host Agent Service	Alarms	
2057	The Host Agent main thread did not terminate properly. The data contains the error code.	
2058	The Host Agent got an unexpected error code while waiting for an event. The data contains the error code.	
2059	The Host Agent did not respond to a request. The data contains the error code.	
2060	The Host Agent received an unknown action code from the service. The data contains the action code.	
2061	The Host Agent could not get the system type. The data contains the error code.	
2098	Unable to acquire file system information. This error might be caused by an unformatted partition or by a partition that has been recently modified. Formatting the partition or rebooting the server might correct this error.	
2099	Unable to acquire file system information for %1. This error might be caused by a low memory condition. Rebooting the server might correct this error.	
2100	Unable to acquire the current process list. This error might be caused by a low memory condition. Rebooting the server might correct this error.	
2101	Unable to acquire the CPU performance data. This error might be caused by a low memory condition. Rebooting the server might correct this error.	
2102	The Host Agent could not determine the number of processors. The data contains the error code.	
2103	The Host Agent could not delete a registry subkey: %1. The data contains the error code.	
2104	Unable to make an SNMP request. This error might be caused by a corrupt or missing file. Reinstalling the Management Agents or running the Emergency Repair procedure might correct this error.	
2105	The Host Agent SNMP API failed. The data contains the error code.	
2106	The Host Agent could not set the variable because it is unsupported. The data contains the error code.	
2107	The Host Agent could not set the variable because the value is invalid or out of range. The data contains the error code.	
2108	The Host Agent is not loaded. Sets are not available. The data contains the error code.	
2109	Component: Host Agent Note: The Agent process exception handler has generated an exception. Debug processing has been stopped.	
2110	Unable to read from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.	
2111	Unable to write to the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.	
2112	Unable to read from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.	

Windows Event ID	Event Description
Host Agent Service	Alarms
2113	Unable to spawn default exception handler. This error can be caused by a corrupt or missing file. Reinstalling the Management Agents or running the Emergency Repair procedure might correct this error.
2114	The Host Agent encountered an error while determining if this server has been configured with Integration server shares. The data contains the error code.
2115	The Host Agent encountered an error getting OS version information. The data contains the error code.
2116	Unable to read %1 from the registry. This error can be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
2117	Unable to write %1 to the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
2118	The Host Agent encountered an error while trying to generate a unique GUID for the system. The data contains the error code.
Remote Alerter Serv	ice Alarms
768	The Host Remote Alerter detected an invalid data type within an alert definition.
769	The Host Remote Alerter detected an error while attempting to log an alert remotely. The data contains the error code.
770	The Host Remote Alerter detected an error while attempting to retrieve data from key = %1 in the registry. The data contains the error code.
771	The Host Remote Alerter was unable to log an event in the event log of the system named %. The data contains the error code.
772	The Host Remote Alerter detected a null handle on initialization. The data contains the error code.
773	The Host Remote Alerter received an error on WaitForMultipleObjects call. The data contains the error code.
774	The Host Remote Alerter received an error on ResetEvent call. The data contains the error code.
Drive Array Traps	
1024	System Information Agent: Health: A cache accelerator parity error indicates a cache module must be replaced.
1061	Drive Array Physical Drive Threshold Exceeded. The physical drive in slot %4, port %5, bay %6 with serial number "%7" has exceeded a drive threshold.
1062	Drive Array Logical Drive Status Change.
1063	Drive Array Spare Drive Status Change.
1064	Drive Array Physical Drive Status Change.
1065	Drive Array Accelerator Status Change.

Windows Event ID	Event Description
Drive Array Traps	
1066	Drive Array Accelerator Bad Data. The array accelerator board attached to the array controlle in slot %4 is reporting that it contains bad-cached data.
1067	Drive Array Accelerator Battery Failed. The array accelerator board attached to the array controller in slot %4 is reporting a battery failure.
1165	Drive Array Controller Active. The Drive Array Controller in slot %4 has become the active controller. The Drive Array Controller in slot %6 is now the backup.
SCSI Traps	
1068	SCSI Agent: SCSI Controller: Controller Status Change Slot: %4; Port: %5; Value: %2 %3; Threshold: %1.
1069	The SCSI Logical drive with SCSI target %6 connected to SCSI bus %5 of the controller %4 SCSI has a new status of %2.
1070	SCSI Agent: SCSI Physical Drive: Physical Status Change Slot: %4; Port: %5; Drive: %6; Value: %2 %3; Threshold: %1.
1156	SCSI Agent: SCSI Autoloader failed.
1158	SCSI Agent: SCSI Autoloader degraded.
1159	SCSI Agent: SCSI Autoloader door open.
Health Traps	
1071	System Information Agent: Health: Correctable memory error detected.
1072	System Information Agent: Health: The tracking of correctable memory errors has been disabled. Value: %2 %3; Threshold: %1.
1076	Storage System: Temperature Failure.
1077	Storage System: Temperature Degraded Value: %2 %3; Threshold: %1.
1082	System Information Agent: Health: Temperature Failure.
1083	System Information Agent: Health: Temperature Degraded Value: %2 %3; Threshold: %1.
1085	System Information Agent: Health: System Fan Failure Value: %2 %3; Threshold: %1.
1086	System Information Agent: Health: System Fan Degraded Value: %2 %3; Threshold: %1.
1088	System Information Agent: Health: CPU Fan Failure.
1089	System Information Agent: Health: CPU Fan OK.
1092	System Information Agent: Health: Post Error Detected Post Error.
1124	System Information Agent: Health: System Fault Tolerant Power Supply Degraded Chassis: %4; Bay: %5.
1125	System Information Agent: Health: System Fault Tolerant Power Supply Failed Chassis: %4; Bay: %5.

Windows Event ID	Event Description
Health Traps	
1126	System Information Agent: Health: System Fault Tolerant Power Supply Redundancy Lost Chassis: %4.
1127	System Information Agent: Health: System Fault Tolerant Power Supply Inserted Chassis: %4 Bay: %5.
1128	System Information Agent: Health: System Fault Tolerant Power Supply Removed Chassis: %4; Bay: %5.
1129	System Information Agent: Health: System Fault Tolerant Fan Degraded Chassis: %4; Fan: %5.
1130	System Information Agent: Health: System Fault Tolerant Fan Failed Chassis: %4; Fan: %5.
1131	System Information Agent: Health: System Fault Tolerant Fan Redundancy Lost Chassis: %4.
1132	System Information Agent: Health: System Fault Tolerant Fan Inserted Chassis: %4; Bay: %5.
1133	System Information Agent: Health: System Fault Tolerant Fan Removed Chassis: %4; Bay: %5.
1134	System Information Agent: Health: Temperature Failure Chassis: %4; Locale: %5.
1135	System Information Agent: Health: Temperature Degraded Chassis: %4; Locale: %5.
1137	System Information Agent: Health: Power Converter Degraded.
1138	System Information Agent: Health: Power Converter Failed.
1139	System Information Agent: Health: Power Converters are no longer redundant. Chassis: %4.
1140	System Information Agent: Health: Hot Plug Board removed.
1141	System Information Agent: Health: Hot Plug Board inserted.
1142	System Information Agent: Health: Hot Plug Board power up failed.
Storage System Tra	ps
1101	Storage System: Side Panel Removed Slot: %4; Port: %5; Vendor: %6; Model: %7; Value: %2 %3; Threshold: %1.
1103	System Information Agent: Health: System Fault Tolerant Power Supply Degraded Value: %2 %3; Threshold: %1.
1104	Storage System: Fault Tolerant Power Supply Degraded Value: %2 %3; Threshold: %1.
1107	SCSI Agent: SCSI Tape Drive: Tape Status Change Slot: %4; Port: %5; Drive: %6; Value: %2 %3; Threshold: %1.
1120	SCSI Agent: SCSI Tape Drive: Cleaning tape expired Slot: %4; Port: %5; Drive: %6; Value: %2 %3; Threshold: %1.
1152	Storage System Fan Module Status Change.
1154	Storage System Power Supply UPS Status Change.
1155	Storage System Temperature Sensor Status Change.

Windows Event ID	Event Description
Remote Insight Trap	9S
1108	Remote Insight Agent: The Remote Insight Board has detected more that the maximum number of unauthorized login attempts (%4).
1109	Remote Insight Agent: The Remote Insight Board has detected a battery failure.
1110	Remote Insight Agent: The Remote Insight Board has detected self-test error %4.
1111	Remote Insight Agent: The Remote Insight Board has detected a controller interface error.
1112	Remote Insight Agent: The Remote Insight Board has detected that the battery is disconnected.
1113	Remote Insight Agent: The Remote Insight Board has detected that the keyboard cable is disconnected.
1117	Remote Insight Agent: The Remote Insight Board has detected that the external power cable is disconnected.
Threshold Traps	
1162	Threshold Agent: Rising Threshold Passed. SNMP MIB Variable %1 has value %2 >= %4. Severity: %5; Description: %6. Refer to the MIB for a definition of the variable.
1163	Threshold Agent: Falling Threshold Passed. SNMP MIB Variable %1 has value %2 <= %3. Severity: %5; Description: %6. Refer to the MIB for a definition of the variable.
1164	Critical Rising Threshold Passed.
Threshold Agent Se	rvice Alarms
2304	The Threshold Agent could not allocate memory. The data contains the error code.
2305	The Threshold Agent could not open the base of the registry. The data contains the error code.
2306	The Threshold Agent could not create the registry subkey: "%1." The data contains the error code.
2307	The Threshold Agent could not open the registry subkey: "%1." The data contains the error code.
2308	The Threshold Agent could not read the registry value "%1." The data contains the error code.
2309	The Threshold Agent found an incorrect type for registry value "%1." The data contains the type found.
2310	The Threshold Agent could not create a necessary event. The data contains the error code.
2311	The Threshold Agent could not set an event. The data contains the error code.
2312	The Threshold Agent could not create its main thread of execution. The data contains the erro code.
2313	The Threshold Agent main thread did not terminate properly. The data contains the error code

Windows Event ID	Event Description
Threshold Agent Se	rvice Alarms
2314	The Threshold Agent got an unexpected error code while waiting for an event. The data contains the error code.
2315	The Threshold Agent did not respond to a request. The data contains the error code.
2316	The Threshold Agent received an unknown action code from the service. The data contains the action code.
2317	The Threshold Agent could not get the system type. The data contains the error code.
2354	The Threshold Agent could not create an SNMP session. The data contains the error code.
2355	The Threshold Agent SNMP request failed. The data contains the error code. 1. Ensure that the SNMP service is configured to allow SNMP requests from "localhost." 2. Ensure that there is an adequate amount of free memory.
2356	The Threshold Agent could do thresholding on a non-integer object: "%1." The data contains the error code.
2357	The Threshold Agent could not set the variable because it is unsupported. The data contains the error code.
2358	The Threshold Agent could not set the variable because the value is invalid or out of range. The data contains the error code.
2359	The Threshold Agent is not loaded. Sets are not available. The data contains the error code.
Fibre Channel Array	Traps
1145	Fibre Channel Array Logical Drive Status Change.
1146	Fibre Channel Array Physical Drive Status Change.
1147	Fibre Channel Array Spare Drive Status Change. The spare drive in port %5, bay %6 on arra "%4" has a new status of %7.
1148	Fibre Channel Array Accelerator Status Change.
1149	Fibre Channel Array Accelerator Bad Data. The array accelerator board attached to the Fibre Channel Array Controller in I/O slot %5 of array "%4" is reporting that it contains bad-cached data.
1150	Fibre Channel Array Accelerator Battery Failed. The array accelerator board attached to the Fibre Channel Array Controller in I/O slot %5 of array "%4" is reporting a battery failure.
1151	Fibre Channel Array Controller Status Change. The Fibre Channel Array Controller in I/O slot %5 of array "%4" has a new status of %6.
1173	Fibre Channel Tape Controller Status Change.
1176	Fibre Channel Tape Drive Status Change.

Windows Event ID	Event Description
Fibre Channel Array	' Traps
1177	Fibre Channel Tape Drive Cleaning Required. The Fibre Channel tape drive on tape controller with world wide name "%4", SCSI bus %5, SCSI target %6 requires cleaning.
1178	Fibre Channel Tape Drive Replace Cleaning Tape. The cleaning tape in the Fibre Channel tape drive on tape controller with world wide name "%4", SCSI bus %5, SCSI target %6, must be replaced.
1179	Fibre Channel Array Controller Active. The Fibre Channel Array Controller in I/O slot %5 of array "%4" has become the active controller.
Cluster Traps	
1167	Cluster Agent: The cluster resource %4 has become degraded.
1168	Cluster Agent: The cluster resource %4 has failed.
1169	Cluster Agent: The cluster network %4 has become degraded.
1170	Cluster Agent: The cluster network %4 has failed.
1171	Cluster Agent: The cluster service on %4 has become degraded.
1172	Cluster Agent: The cluster service on %4 has failed.
Cluster Agent Servio	ce Alarms
3840	Unable to allocate memory. This indicates a low memory condition. Reboot the system.
3841	Could not read from the registry subkey. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error
3842	Could not write the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3843	Could not read the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3844	Could not write the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3845	Could not write the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3846	The Cluster Agent could not create an event. The data contains the error code.
3847	The Cluster Agent could not set an event. The data contains the error code.
3848	The Cluster Agent could not create its main thread of execution. The data contains the error code.
3849	The Cluster Agent main thread did not terminate properly. The data contains the error code.
3850	The Cluster Agent got an unexpected error code while waiting for an event. The data contains the error code.
3851	The Cluster Agent got an unexpected error code while waiting for multiple events. The data contains the error code.

Windows Event ID	Event Description
Cluster Agent Servio	ce Alarms
3852	The Cluster Agent could not create a mutex variable. The data contains the error code.
3853	The Cluster Agent did not respond to a request. The data contains the error code.
3854	The Cluster Agent received an unknown action code from the service. The data contains the action code.
3855	Could not open a cluster enumeration object. The Cluster service might not be running. Restart the Cluster service.
3856	The Cluster Agent could not enumerate all the nodes in the cluster. The data contains the error code.
3857	The Cluster Agent could not get the cluster's status. The Cluster service might not be running Restart the Cluster service.
3858	Could not open the enumerated resource. The Cluster service might not be running. Restart the Cluster service.
3859	Could not enumerate the cluster's resources. The Cluster service might not be running. Restart the Cluster service.
3861	Resource status is offline. The resource has failed or was taken offline by a cluster administrator.
3862	Could not get the resource status. The Cluster service might not be running. Restart the Cluster service.
3863	Resource status is inherited.
3867	Resource status is offline pending. The resource is being taken offline.
3868	Cluster information is unavailable. The Cluster service might not be running. Restart the Cluster service.
3869	The Cluster service is not running. The Cluster service has failed or has not started yet. Restart the Cluster service.
3870	The Agent could not open the Cluster service. The Cluster service might have been stopped. Restart the Cluster service.
3871	The Agent could not open the Cluster service registry key. The Cluster service might have no been installed, a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3872	The specified storage class is not supported by the Agent. The Agent only supports the disk resource class.
3873	The fibre controller resided at the storage box is off-line. The Agent only supports the disk resource class.
3874	Could not read the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3875	Could not open enumerated network. The Cluster service might not be running. Restart the Cluster service.
3876	Could not enumerate the cluster's networks. The Cluster service might not be running. Restar the Cluster service.

Windows Event ID	Event Description
IDE Traps	
1121	IDE Agent: Drive %4: Status Degraded. Value: %2 %3; Threshold: %1.
External Status Age	nt Alarms
4352	The External Status MIB Agent could not allocate memory. The data contains the error code.
4353	The External Status MIB Agent could not open the base of the registry. The data contains the error code.
4354	The External Status MIB Agent could not create the registry subkey: "%1." The data contains the error code.
4355	The External Status MIB Agent could not open the registry subkey: "%1." The data contains the error code.
4356	The External Status MIB Agent could not read the registry value "%1." The data contains the error code.
4357	The External Status MIB Agent found an incorrect type for registry value "%1." The data contains the type found.
4358	The External Status MIB Agent could not create a necessary event. The data contains the error code.
4359	The External Status MIB Agent could not set an event. The data contains the error code.
4360	The External Status MIB Agent could not create its main thread of execution. The data contains the error code.
4361	The External Status MIB Agent main thread did not terminate properly. The data contains the error code.
4362	The External Status MIB Agent got an unexpected error code while waiting for an event. The data contains the error code.
4363	The External Status MIB Agent did not respond to a request. The data contains the error code.
4364	The External Status MIB Agent received an unknown action code from the service. The data contains the action code.
4365	The External Status MIB Agent could not get the system type. The data contains the error code.
4402	The External Status MIB Agent could not create an SNMP session. The data contains the error code.
4403	The External Status MIB Agent SNMP request failed. The data contains the error code. 1. Ensure that the SNMP service is configured to allow SNMP requests from "localhost." 2. Ensure that there is an adequate amount of free memory.

Windows Event ID	Event Description
External Status Age	nt Alarms
4404	The External Status MIB Agent could do status checking on a non-integer object: "%1." The data contains the error code.
4405	The External Status MIB Agent could not set the variable because it is unsupported. The data contains the error code.
4406	The External Status MIB Agent could not set the variable because the value is invalid or out of range. The data contains the error code.
4407	The External Status MIB Agent is not loaded. Sets are not available. The data contains the error code.
Software Version Ag	gent Alarms
3087	The Software Version Agent has failed a set operation on %1. The data contains the value of the attempted set.
3088	The Software Version Agent has received a set operation for service that is not loaded. The set operation failed. The data contains the current DLL state.
3089	The Software Version Agent has received a set operation for an unsupported attribute. The set operation failed. The data contains the index of the attempted set.
Foundation Agent O	ther Alarms
3072	Could not read from the registry subkey. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3073	Could not create the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3074	Could not create the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3075	Unable to read "%1" from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3076	Component: %4 Error: Unable to read "%1" from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3077	The %4 could not create a necessary event. The data contains the error code.
3078	The %4 could not set an event. The data contains the error code.
3079	The %4 could not create its main thread of execution. The data contains the error code.
3080	The %4 main thread did not terminate properly. The data contains the error code.
3081	The %4 received an unknown action code from the service. The data contains the action code
3082	The %4 is unable to send an administrative alert. The data contains the error code. Verify the Alerter service is started in the Services Control Panel Application.

Windows Event ID	Event Description
Foundation Agent C	Other Alarms
3083	The %4 is unable to convert the computer name %1 to Unicode.
3084	Unable to read configuration (%1) from the registry. This error might be caused by a corrupt registry, a low memory condition, or incomplete configuration. Reconfigure the Management Agents using the Control Panel.
3085	Unable to write (%1) to the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3086	Unable to load a required library. This error can be caused by a corrupt or missing file. Reinstalling the Management Agents or running the Emergency Repair procedure might correct this error.
3090	Unable to allocate memory. This indicates a low memory condition. Reboot the system to correct this error.

## **NIC Agent Events**

Table A-5 lists the NIC agent events and their descriptions.

#### Table A-5: NIC Agent Events

Windows Event ID	Event Description
NIC Agent Service A	larms
256	The NIC Management Agent detected an error. The insertion string is: %1. The data contains the error code.
257	Unable to allocate memory. This indicates a low memory condition. Reboot the system.
258	The NIC Management Agent could not register with the Service Control Manager. The data contains the error code.
259	The NIC Management Agent could not set the service status with the Service Control Manager. The data contains the error code.
260	The NIC Management Agent could not start the Service Control Dispatcher. The data contains the error code.
261	Unable to read from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
262	Could not create the registry key: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
263	Could not delete the registry key: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
264	Unable to open the registry key "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.

Table A-5:	NIC Agent Events continued
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#### Windows Event ID Event Description

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NIC Agent Ser	rvice Alarms
265	Unable to read "%1" from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
266	Unable to read "%1" from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
267	Unable to write "%1" to the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
268	Unable to enumerate "%1" from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
269	The NIC Management Agent encountered a fatal error. The service is terminating. The data contains the error code.
270	Unable to create thread. This error might be caused by a low memory condition. Rebooting the server might correct this error.
271	Could not open the driver for device "%1." The data contains the error code. This error might be caused by an improperly installed adapter. Removing and reinstalling the device might correct the problem.
272	Failure in driver %1. The data contains the error code. This error might be caused by an outdated driver version. Installing a later version of the driver might correct the problem.
273	There were no physical adapters in team: "%1" This error might be caused by improperly installed drivers. Remove all device instances associated with the team and re-install the drivers and team.
274	The NIC Management Agent cannot generate TRAPS because of a communication problem with the NIC SNMP extension agent. This error might be caused by improperly installed Agents. Re-install the agents.
276	The NIC Management Agent cannot communicate with the Token Ring Protocol driver (CNMPROT.SYS). The agent is still functional but Token Ring MIB II transmissions statistics will not be accurate. This error might be caused by improperly installed Agents. Re-install the agents.
278	The NIC Management Agent could not create a necessary event. The data contains the error code.
279	The NIC Management Agent could not set an event. The data contains the error code.
280	The NIC Management Agent service could not start any agents successfully.
281	The NIC Management Agent main thread did not terminate properly. The data contains the error code.
282	The NIC Management Agent got an unexpected error code while waiting for an event. The data contains the error code.
283	The NIC Management Agent did not respond to a request. The data contains the error code.

Windows Event ID	Event Description
NIC Agent Service A	larms
284	The NIC Management Agent received an unknown action code from the service. The data contains the action code.
285	The NIC Management Agent could not get the system type. The data contains the error code.
287	The NIC Agent service could not load the module "%1." The data contains the error code.
288	The NIC Agent service could get the control function for module "%1." The data contains the error code.
289	The NIC Agent service could not initialize agent "%1." The data contains the error code.
290	The NIC Agent service could not start agent "%1." The data contains the error code.
291	The NIC Agent service detected an invalid state for agent "%1." The data contains the state.
292	The NIC Agent service could not stop agent "%1." The data contains the error code.
293	The NIC Agent service could not terminate agent "%1." The data contains the error code.
294	The NIC Agent service could not unload the module "%1." The data contains the error code.
512	Unable to allocate memory. This indicates a low memory condition. Rebooting the system will correct this error.
513	Unable to read from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
514	Could not create the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
515	Unable to open the registry subkey "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
516	Unable to read "%1" from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
517	Unable to read "%1" from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
518	The NIC MIB Insight Agent could not create a necessary event. The data contains the error code.
519	The NIC MIB Insight Agent could not set an event. The data contains the error code.
520	Unable to create thread. This error might be caused by a low memory condition. Rebooting the server might correct this error.

#### Table A-5: NIC Agent Events continued

Windows Event ID	Event Description
NIC Agent Service A	larms
521	The NIC MIB Insight Agent main thread did not terminate properly. The data contains the error code.
522	The NIC MIB Insight Agent got an unexpected error code while waiting for an event. The data contains the error code.
523	The NIC MIB Insight Agent did not respond to a request. The data contains the error code.
524	The NIC MIB Insight Agent received an unknown action code from the service. The data contains the action code.
525	The NIC MIB Insight Agent could not get the system type. The data contains the error code.
526	Could not open the driver for device "%1." The data contains the error code. This error might be caused by an improperly installed adapter. Removing and reinstalling the device might correct the problem.
527	Failure in driver %1. The data contains the error code. This error might be caused by an outdated driver version. Installing a later version of the driver might correct the problem.
528	Unable to enumerate "%1" from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
529	There were no physical adapters in team: "%1" This error might be caused by improperly installed drivers. Remove all device instances associated with the team and re-install the drivers and team.
530	The NIC Agent cannot generate TRAPS because of a communication problem with the NIC SNMP extension agent. This error might be caused by improperly installed Agents. Re-install the agents.
768	Unable to allocate memory. This indicates a low memory condition. Reboot the system.
769	Unable to read from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
770	Could not write the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
771	Could not read the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
772	Could not write the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
773	Could not write the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
774	The NICs Insight Agent could not create a necessary event. The data contains the error code.
775	The NICs Insight Agent could not set an event. The data contains the error code.
776	The NICs Insight Agent could not create its main thread of execution. The data contains the error code.
777	The NICs Insight Agent main thread did not terminate properly. The data contains the error code.

 Table A-5: NIC Agent Events continued
Windows Event ID	Event Description
NIC Agent Service A	larms
778	The NICs Insight Agent got an unexpected error code while waiting for an event. The data contains the error code.
779	The NICs Insight Agent did not respond to a request. The data contains the error code.
780	The NICs Insight Agent received an unknown action code from the service. The data contains the action code.
781	The NICs Insight Agent could not get the system type. The data contains the error code.
1024	The SNMP Insight Agent is unable to generate traps because of an error during initialization. Ensure the SNMP service is running. Reinstalling the agents might fix this error.
1025	The SNMP Insight Agent's trap thread has encountered an error while waiting for event notification from event log.
1026	The SNMP Insight Agent's trap thread was unable to send a trap because of a processing error.
1027	The SNMP Agent is older than other components. The SNMP Agent is older than the other components of the Insight Agents. Reinstall the entire Insight Agents package to correct this error.
1028	The %1 Agent is older than other components. The %1 Agent is older than the other components of the Insight Agents. Reinstall the entire Insight Agents package to correct this error.
1029	The SNMP Insight Agent has failed to refresh data associated with key %1. This might cause data received from SNMP agent to be old or invalid. Ensure management service is up and running.
1030	The SNMP Insight Agent was unable to process a SNMP request because the Insight Agents Service is not up and running.
1031	The SNMP Insight Agent has continued refreshing data for the key associated with %1.
1032	Unable to read security configuration information. SNMP sets have been disabled. This can be cause by an invalid or missing configuration or by a corrupt registry. Reinstalling the Insight Agents or running the Emergency Repair procedure might correct this error.
1035	Unable to load a required library. This error can be caused by a corrupt or missing file. Reinstalling the Insight Agents or running the Emergency Repair procedure might correct this error.
1036	The SNMP Insight Agent was unable to forward an SNMP trap to the Remote Insight Board trap because of a processing error. The data contains the error code.
1037	The SNMP Insight Agent was unable to get last modification time for key %1.
1038	The Insight Agent service is not running. The SNMP Insight Agent has determined that the Insight Agent service is not running. Stop the SNMP service and restart the Insight Agents service. If the error persists, reinstalling the Insight Agents might correct this error.
1040	The agent could not deliver trap %1. The agent was unable to use Asynchronous Management to deliver a trap. This might be caused by a failure in the Remote Access Service or by a missing or invalid configuration. Use the Insight Agent control panel to verify the Asynchronous Management configuration settings. Use the Network control panel to verify the Remote Access configuration. If this error persists, reinstalling the Insight Agents or the Remote Access Service might correct this error. For more information, refer to the Insight Asynchronous Management documentation.

# Table A-5: NIC Agent Events continued

Windows Event ID	Event Description
NIC Agent Traps	
1281	NIC Agent: Connectivity has been lost for the NIC in slot %1, port %2.
1282	NIC Agent: Redundancy has been increased by the NIC in slot %1, port %2. Number of functional NICs in the team: %3.
1283	NIC Agent: Redundancy has been reduced by the NIC in slot %1, port %2. Number of functional NICs in the team: %3.
1287	Redundancy has been reduced by the NIC in slot %1, port %2. Number of functional NICs in the team: %3.

# Table A-5: NIC Agent Events continued

# **Server Agent Events**

Table A-6 lists the server agent events and their descriptions.

Windows Event ID	Event Description
Server Agents Serv	ice Alarms
256	The Server Agents service detected an error. The insertion string is: %1. The data contains the error code.
257	The Server Agents service could not allocate memory. The data contains the error code.
258	The Server Agents service could not register with the Service Control Manager. The data contains the error code.
259	The Server Agents service could not set the service status with the Service Control Manager. The data contains the error code.
260	The Server Agents service could not create an event object. The data contains the error code.
261	The Server Agents service could not open registry key "%1." The data contains the error code.
262	The Server Agents service could not start any agents successfully.
263	The Server Agents service could not read the registry value "%1." The data contains the error code.
264	The Server Agents service could not load the module "%1." The data contains the error code.
265	The Server Agents service could get the control function for module "%1." The data contains the error code.
266	The Server Agents service could not initialize agent "%1." The data contains the error code.
267	The Server Agents service could not start agent "%1." The data contains the error code.

#### Table A-6: Server Agent Events

Windows Event ID	Event Description
Server Agents Servi	ce Alarms
268	The Server Agents service detected an invalid state for agent "%1." The data contains the state.
269	The Server Agents service could not stop agent "%1." The data contains the error code.
270	The Server Agents service could not terminate agent "%1." The data contains the error code.
271	The Server Agents service could not unload the module "%1." The data contains the error code.
272	The Server Agents service could not create the registry key "%1." The data contains the error code.
273	The Server Agents service could not write the registry value "%1." The data contains the error code.
399	The Server Agents service encountered a fatal error. The service is terminating. The data contains the error code.
Remote Alerter Age	nt Service Alarms
768	The Remote Alerter Agent detected an invalid data type within an alert definition.
769	The Remote Alerter Agent detected an error while attempting to log an alert remotely. The data contains the error code.
770	The Remote Alerter Agent detected an error while attempting to retrieve data from key = $\%1$ ir the registry. The data contains the error code.
771	The Remote Alerter Agent was unable to log an event in the event log of the system named %1. The data contains the error code.
772	The Remote Alerter Agent detected a null handle on initialization. The data contains the error code.
773	The Remote Alerter Agent received an error on WaitForMultipleObjects call. The data contains the error code.
774	The Remote Alerter Agent received an error on ResetEvent call. The data contains the error code.
Health Agent Traps	
1024	System Information Agent: Health: A cache accelerator parity error indicates a cache module must be replaced.
1034	A memory board or cartridge bus error has been detected in the memory subsystem. User Action: replace the indicated board or cartridge.
1071	System Information Agent: Health: Correctable memory error detected. The memory module should be replaced. Value: %2 %3; Threshold: %1.
1072	System Information Agent: Health: The tracking of correctable memory errors has been disabled. Value: %2 %3; Threshold: %1.
1082	System Information Agent: Health: Temperature Failure Value: %2 %3; Threshold: %1.

Windows Event ID	Event Description
Health Agent Traps	
1083	System Information Agent: Health: Temperature Degraded Value: %2 %3; Threshold: %1.
1085	System Information Agent: Health: System Fan Failure Value: %2 %3; Threshold: %1.
1086	System Information Agent: Health: System Fan Degraded Value: %2 %3; Threshold: %1.
1088	System Information Agent: Health: CPU Fan Failure Value: %2 %3; Threshold: %1.
1092	System Information Agent: Health: Post Error Detected Post Error: %4; Post Message: %5.
1103	System Information Agent: Health: System Fault Tolerant Power Supply Degraded Value: %2 %3; Threshold: %1.
1114	System Information Agent: Standard Equipment: CPU passed internal corrected error threshold. Slot: %4; Socket %5; Value: %2 %3; Threshold: %1.
1115	System Information Agent: The computer cover has been removed since last system start up
1123	System Information Agent: Health: Post Errors Detected.
1124	System Information Agent: Health: System Fault Tolerant Power Supply Degraded Chassis: %4; Bay: %5.
1125	System Information Agent: Health: System Fault Tolerant Power Supply Failed Chassis: %4; Bay: %5.
1126	System Information Agent: Health: System Fault Tolerant Power Supply Redundancy Lost Chassis: %4.
1128	System Information Agent: Health: System Fault Tolerant Power Supply Removed Chassis: %4; Bay: %5.
1129	System Information Agent: Health: System Fault Tolerant Fan Degraded Chassis: %4; Fan: %5.
1130	System Information Agent: Health: System Fault Tolerant Fan Failed Chassis: %4; Fan: %5.
1131	System Information Agent: Health: System Fault Tolerant Fan Redundancy Lost Chassis: %4
1133	System Information Agent: Health: System Fault Tolerant Fan Removed Chassis: %4; Fan: %5.
1134	System Information Agent: Health: Temperature Failure Chassis: %4; Locale: %5.
1135	System Information Agent: Health: Temperature Degraded Chassis: %4; Locale: %5.

Windows Event ID	Event Description
Health Agent Traps	
1137	System Information Agent: Health: Power Converter Degraded Chassis: %4; Slot: %5; Socket: %6.
1138	System Information Agent: Health: Power Converter Failed Chassis: %4; Slot: %5; Socket: %6.
1139	System Information Agent: Health: Power Converters are no longer redundant Chassis: %4.
1140	System Information Agent: Health: Hot Plug Board removed Chassis: %4; Slot: %5.
1142	System Information Agent: Health: Hot Plug Board failed Chassis: %4; Slot: %5.
System Information	Agent Service Alarms
1536	The System Information Agent was unable to initialize base system information.
1537	The System Information Agent was unable to initialize server health information.
1538	The System Information Agent monitor thread has experienced an error in call to async notify IOCTL. The thread is exiting. Error information follows.
1539	Unable to write to the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error
1540	Unable to read from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
1541	The System Information Agent experienced an error while trying to create events for Health monitor thread. Error information follows.
1542	The System Information Agent was unable to start a monitor thread. Error information follows.
1543	Unable to load a required driver. This error might be caused by a corrupt or missing file. Reinstall the Insight Agents, the software support drivers, or run the Emergency Repair procedure.
1544	Unable to read from the registry. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
1545	The System Information Agent has determined that correctable memory errors are supported but not enabled. Memory errors will be corrected but not logged into internal health logs.
1546	The System Information Agent was unable to update MIB state conditions in the registry. Error information follows.
1547	The System Information Agent was unable to update critical errors.
1548	The System Information Agent unable to update correctable memory errors.
1549	The System Information Agent was unable to update CSM information.

Windows Event ID	Event Description
System Information	Agent Service Alarms
1550	The System Information Agent was unable to update the system utilization information.
1551	The System Information Agent's system utilization update thread failed to wait on an event.
1552	The System Information Agent's system utilization update thread cannot update information because a device handle could not be obtained.
1553	The System Information Agent has received a set operation while the service is not loaded. The set operation failed. Index value follows.
1554	The System Information Agent has failed a set operation on an attribute. Index value follows.
1555	The System Information Agent has received a set operation for an unsupported attribute. Index value follows.
1556	Component: System Information Agent Note: Unable to reboot to Utilities. The system partition is not available.
1557	The System Information Agent does not support a Remote Server Restart on Non-EISA systems.
1558	Unable to shutdown the system. System shutdown has failed. This might be caused by a Windows NT service that has crashed. Reboot the server manually.
1559	The System Information Agent failed to start a command or batch file during a remote system initiated reboot. Shutdown of system will continue.
1560	The System Information Agent failed to complete a command or batch file during a remote system initiated reboot. Shutdown of system will continue.
1561	Non-EISA systems are not supported by the System Information Agent.
1562	Unable to initialize agent on non-system. The System Information Agent only operates on systems.
1563	The System Information Agent was unable to update fault tolerant power supply information.
1564	Could not read the registry subkey: "%1." This error can be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
1565	The System Information Agent was unable complete IOCTL to sysmgmt.sys.
1566	The System Information Agent was unable to get cache information on more than 4 processors.
1567	Unable to allocate memory. This indicates a low memory condition. Rebooting the system will correct this error.
1568	The System Information Agent experienced an error while decoding PCI information. Error information follows.

Windows Event ID	Event Description
System Information	Agent Service Alarms
1569	The System Information Agent was unable to read PCI information from system. Error information follows.
1570	The System Information Agent was unable to initialize PCI utilization. Error information follows.
1571	The System Information Agent has received invalid PCI utilization information from the Systems Management Driver. Returning 0 utilization.
1572	The System Information Agent has failed while calling the SMI pass-through to the Systems Management Driver. Setting IRC info to default values.
1573	The System Information Agent has determined that the IRC function is not present via SMI. Setting IRC info to default values.
1574	Could not write the registry subkey: "%1." This error can be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
1575	The System Information Agent was unable to update OSB information.
Remote Insight Age	nt Traps
1108	Remote Insight Agent: The Remote Insight Board has detected more that the maximum number of unauthorized login attempts (%4).
1109	Remote Insight Agent: The Remote Insight Board has detected a battery failure.
1110	Remote Insight Agent: The Remote Insight Board has detected self-test error %4.
1111	Remote Insight Agent: The Remote Insight Board has detected a controller interface error.
1112	Remote Insight Agent: The Remote Insight Board has detected that the battery is disconnected.
1113	Remote Insight Agent: The Remote Insight Board has detected that the keyboard cable is disconnected.
1117	Remote Insight Agent: The Remote Insight Board has detected that the external power cable is disconnected.
Remote Insight Age	nt Service Alarms
3328	Unable to allocate memory. This indicates a low memory condition. Rebooting the system might correct this error.
3329	Could not read from the registry subkey. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.

Windows Event ID	Event Description
Remote Insight Age	nt Service Alarms
3330	Could not write the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3331	Could not read the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3332	Could not read the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3333	Could not read the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
3334	The Remote Insight Agent could not create an event. The data contains the error code.
3335	The Remote Insight Agent could not open an event. The data contains the error code.
3336	The Remote Insight Agent could not set an event. The data contains the error code.
3337	The Remote Insight Agent could not create a mutex. The data contains the error code.
3338	The Remote Insight Agent could not open a mutex. The data contains the error code.
3339	The Remote Insight Agent could not create its main thread of execution. The data contains th error code.
3340	The Remote Insight Agent main thread did not terminate properly. The data contains the erro code.
3341	The Remote Insight Agent got an unexpected error code while waiting for an event. The data contains the error code.
3342	The Remote Insight Agent got an unexpected error code while waiting for multiple events. Th data contains the error code.
3343	The Remote Insight Agent did not respond to a request. The data contains the error code.
3344	The Remote Insight Agent received an unknown action code from the service. The data contains the action code.
3345	Remote Insight Board device driver not present. The Remote Insight Agent requires the Remote Insight Board device driver (CPQSM2.SYS) to be installed. Install the driver from the latest Software for Windows. If you do not have a Remote Insight Agent Board in this system, disable the Remote Insight Agent via the Management Agent Control Panel.
3346	The Remote Insight Agent could not read all the SNMP community strings. The data contains the error code.
3347	The Remote Insight Agent has failed a set operation on an attribute. The data contains the error code.
3348	The Remote Insight Agent has received a set operation for an unsupported attribute.

Windows Event ID	Event Description
Remote Insight Age	nt Service Alarms
3349	The Remote Insight Agent received an error while modifying the controller status field. The data contains the error code.
3350	The Remote Insight Agent received an error while modifying the server information field. The data contains the error code.
3358	The Remote Insight Agent encountered an invalid handle.
3359	The Remote Insight Agent has received an invalid sessions type.
3360	The Remote Insight Agent has reached the maximum number of user sessions.
3361	The Remote Insight Agent encountered a buffer too small to contain the data. No data has been returned.
3362	The Remote Insight Agent received the wrong response to a command.
3364	The Remote Insight Agent encountered a receive buffer in use error. No data has been returned.
3365	The Remote Insight Agent could not allocate a receive buffer.
3366	The Remote Insight Agent could not free a receive buffer.
3367	The Remote firmware returned a command error buffer.
Server SNMP Agent	Service Alarms
1792	The Server SNMP Agent is unable to generate traps because of an error during initialization. Check to ensure that the SNMP service is running. Reinstalling the agents might fix this error.
1793	The Server SNMP Agent's trap thread has encountered an error while waiting for event notification from event log.
1794	The Server SNMP Agent's trap thread was unable to send a trap because of a processing error.
1795	The SNMP Agent is older than other components. The SNMP Agent is older than the other components of the Server Agents. Reinstall the entire Server Agents package to correct this error.
1796	The %1 Agent is older than other components. The %1 Agent is older than the other components of the Server Agents. Reinstall the entire Server Agents package to correct this error.
1797	The Server SNMP Agent has failed to refresh data associated with key %1. This might cause data received from SNMP agent to be old or invalid. Verify Server Agents service is up and running.
1798	The Server SNMP Agent was unable to process a SNMP request because the Insight Agents Service is not up and running.

Windows Event ID	Event Description
Server SNMP Agent	Service Alarms
1800	Unable to read security configuration information. SNMP sets have been disabled. This might be caused by an invalid or missing configuration or by a corrupt registry. Reinstalling the Insight Agents might correct this error.
1803	Unable to load a required library. This error might be caused by a corrupt or missing file. Reinstalling the Server Agents or running the Emergency Repair procedure might correct this error.
1804	The Server SNMP Agent was unable to forward an SNMP trap to the Remote Insight Board trap because of a processing error. The data contains the error code.
1805	The Server SNMP Agent was unable to get last modification time for key %1.
1806	The Insight Agent service is not running. The Server SNMP Agent has determined that the Server Agent service is not running. Stop the SNMP service and restart the Server Agents. If the error persists, reinstalling the Insight Agents might correct this error.
1808	The agent could not deliver trap %1. Cause: The agent was unable to use Asynchronous Management to deliver a trap. This might be caused by a failure in the Remote Access Service or by a missing or invalid configuration. Use the Management Agents control panel to verify the Asynchronous Management configuration settings. Use the Network control panel to verify the Remote Access configuration. If this error persists, reinstalling the Management Agents or the Remote Access Service might correct this error. For more information, refer to the Management Agents Asynchronous Management documentation.

# **Storage Agent Events**

Table A-7 lists the storage agent events and their descriptions.

Windows Event ID	Event Description		
Storage Agents Serv	Storage Agents Service Alarms		
256	The Storage Agents service detected an error. The insertion string is: %1. The data contains the error code.		
257	The Storage Agents service could not allocate memory. The data contains the error code.		
258	The Storage Agents service could not register with the Service Control Manager. The data contains the error code.		
259	The Storage Agents service could not set the service status with the Service Control Manager. The data contains the error code.		

#### Table A-7: Storage Agent Events

Windows Event ID	Event Description
Storage Agents Service	vice Alarms
260	The Storage Agents service could not create an event object. The data contains the error code.
261	The Storage Agents service could not open registry key "%1." The data contains the error code.
262	The Storage Agents service could not start any agents successfully.
263	The Storage Agents service could not read the registry value "%1." The data contains the error code.
264	The Storage Agents service could not load the module "%1." The data contains the error code.
265	The Storage Agents service could get the control function for module "%1." The data contains the error code.
266	The Storage Agents service could not initialize agent "%1." The data contains the error code.
267	The Storage Agents service could not start agent "%1." The data contains the error code.
268	The Storage Agents service detected an invalid state for agent "%1." The data contains the state.
269	The Storage Agents service could not stop agent "%1." The data contains the error code.
270	The Storage Agents service could not terminate agent "%1." The data contains the error code.
271	The Storage Agents service could not unload the module "%1." The data contains the error code.
272	The Storage Agents service could not create the registry key "%1." The data contains the error code.
273	The Storage Agents service could not write the registry value "%1." The data contains the error code.
399	The Storage Agents service encountered a fatal error. The service is terminating. The data contains the error code.
512	Unable to allocate memory. This indicates a low memory condition. Rebooting the system will correct this error.
513	Could not read from the registry subkey. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.

Storage Age	nts Service Alarms
514	Could not write the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
515	Could not read the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
516	Could not read the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
517	Could not read the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
518	The Drive Array Storage Agent could not create an event. The data contains the error code.
519	The Drive Array Storage Agent could not set an event. The data contains the error code.
520	The Drive Array Storage Agent could not create its main thread of execution. The data contains the error code.
521	The Drive Array Storage Agent main thread did not terminate properly. The data contains the error code.
522	The Drive Array Storage Agent got an unexpected error code while waiting for an event. The data contains the error code.
523	The Drive Array Storage Agent did not respond to a request. The data contains the error code
524	The Drive Array Storage Agent received an unknown action code from the service. The data contains the action code.
525	The Drive Array Storage Agent could not get the system type. The data contains the error code.
526	Unsupported storage system. The ProLiant storage system %1 is not supported by this version of the Storage Agents. Upgrade the agents to the latest version.
527	The Drive Array Storage Agent storage system table is full.
562	A Drive Array passthrough command failed with a FATAL error bit set.
563	A Drive Array passthrough command failed with a BAD_REQUEST bit set.

**Event Description** 

Windows Event ID

Windows Event ID	Event Description
Storage Agents Serv	vice Alarms
565	The Drive Array Storage Agent could not get Drive Array controller configuration information. The data contains the error code.
566	The Drive Array Storage Agent could not get accelerator information. The data contains the error code.
567	The Drive Array Storage Agent could not get logical unit surface status information. The data contains the error code.
568	The Drive Array Storage Agent could not get physical drive information. The data contains the error code.
569	The Drive Array Storage Agent could not get physical drive threshold information. The data contains the error code.
570	The Drive Array Storage Agent could not get logical unit status information. The data contains the error code.
571	The Drive Array Storage Agent could not get logical unit drive threshold violation information. The data contains the error code.
572	The Drive Array Storage Agent could not get drive array controller bus information. The data contains the error code.
573	The Drive Array Storage Agent could not get drive array error log information. The data contains the error code.
574	The Drive Array Storage Agent failed to get capacity on SCSI drive because SCSI pass through IOCTL failed.
575	The Drive Array Storage Agent failed to get capacity on SCSI drive.
576	The Drive Array Storage Agent could not get performance information. The data contains the error code.
Remote Alerter Serv	ice Alarms
768	The Remote Alerter Agent detected an invalid data type within an alert definition.
769	The Remote Alerter Agent detected an error while attempting to log an alert remotely. The data contains the error code.
770	The Remote Alerter Agent detected an error while attempting to retrieve data from key = $\%1$ in the registry. The data contains the error code.
771	The Remote Alerter Agent was unable to log an event in the event log of the system named %1. The data contains the error code.
772	The Remote Alerter Agent detected a null handle on initialization. The data contains the error code.
773	The Remote Alerter Agent received an error on WaitForMultipleObjects call. The data contains the error code.
774	The Remote Alerter Agent received an error on ResetEvent call. The data contains the error code.

Windows Event ID	Event Description
Drive Array Traps	
1061	Drive Array Physical Drive Threshold Exceeded. The physical drive in slot %4, port %5, bay %6 with serial number "%7" has exceeded a drive threshold.
1062	Drive Array Logical Drive Status Change.
1063	Drive Array Spare Drive Status Change.
1064	Drive Array Physical Drive Status Change.
1065	Drive Array Accelerator Status Change.
1066	Drive Array Accelerator Bad Data. The array accelerator board attached to the array controlle in slot %4 is reporting that it contains bad-cached data.
1067	Drive Array Accelerator Battery Failed. The array accelerator board attached to the array controller in slot %4 is reporting a battery failure.
1164	Drive Array Controller Status Change.
1180	Drive Array Tape Library Status Change. The tape library in slot %4, SCSI bus %5, SCSI target %6 has a new status of %7.
1182	Drive Array Tape Drive Status Change. The tape drive in slot %4, SCSI bus %5, SCSI target %6 has a new status of %7.
1183	Drive Array Tape Drive Cleaning Required. The tape drive in slot %4, SCSI bus %5, SCSI target %6 requires cleaning.
1184	Drive Array Tape Drive Replace Cleaning Tape. The cleaning tape in the tape drive in slot %4 SCSI bus %5, SCSI target %6 must be replaced.
1199	Drive Array Controller Status Change. The Drive Array Controller in %7 has a new status of %5.
1200	Drive Array Logical Drive Status Change. Logical drive number %5 on the array controller in %4 has a new status of %2.
1201	Drive Array Spare Drive Status Change. The spare drive in %4, port %5, bay %6 has a new status of %2.
1202	Drive Array Physical Drive Status Change. The physical drive in %4, port %5, bay %6 with serial number "%7" has a new status of %2.
1203	Drive Array Physical Drive Threshold Exceeded. The physical drive in %4, port %5, bay %6 with serial number "%7" has exceeded a drive threshold.
1204	Drive Array Accelerator Status Change. The array accelerator board attached to the array controller in %4 has a new status of %2.
1205	Drive Array Accelerator Bad Data. The array accelerator board attached to the array controlle in %4 is reporting that it contains bad cached data.
1206	Drive Array Accelerator Battery Failed. The array accelerator board attached to the array controller in %4 is reporting a battery failure.
1207	Drive Array Tape Library Status Change. The tape library in %4, SCSI bus %5, SCSI target %6 has a new status of %7.
1208	Drive Array Tape Library Door Status Change. The tape library in %4, SCSI bus %5, SCSI target %6 has a new door status of %7.

Windows Event ID	Event Description
1209	Drive Array Tape Drive Status Change. The tape drive in %4, SCSI bus %5, SCSI target %6 has a new status of %7.
1210	Drive Array Tape Drive Cleaning Required. The tape drive in %4, SCSI bus %5, SCSI target %6 requires cleaning.
1211	Drive Array Tape Drive Replace Cleaning Tape. The cleaning tape in the tape drive in %4, SCSI bus %5, SCSI target %6 must be replaced.
Storage System Tra	ps
1076	Storage System: Temperature Failure Value: %2 %3; Threshold: %1.
1077	Storage System: Temperature Degraded Value: %2 %3; Threshold: %1.
1101	Storage System: Side Panel Removed Slot: %4; Port: %5; Vendor: %6; Model: %7; Value: %2 %3; Threshold: %1.
1104	Storage System: Fault Tolerant Power Supply Degraded Value: %2 %3; Threshold: %1.
1119	SCSI Storage Agent: SCSI Tape Drive: Head needs cleaning Slot: %4; Port: %5; Drive: %6; Value: %2 %3; Threshold: %1.
1120	SCSI Storage Agent: SCSI Tape Drive: Cleaning tape expired Slot: %4; Port: %5; Drive: %6; Value: %2 %3; Threshold: %1.
1153	Storage System Power Supply Status Change.
1154	Storage System Power Supply UPS Status Change.
1212	Storage System Fan Status Change. The %6 %7 storage system connected to SCSI bus %5 of the controller in %4 has a new status of %2.
1213	Storage System Temperature Status Change. The %6 %7 storage system connected to SCSI bus %5 of the controller in %4 has a new temperature status of %2.
1214	Storage System Fault Tolerant Power Supply Status Change. The fault tolerant power supply in the %6 %7 storage system connected to SCSI bus %5 of the controller in %4 has a new status of %2.
1155	Storage System Temperature Sensor Status Change.
IDE Storage Agent 1	raps
1121	IDE Storage Agent: Drive %4: Status Degraded. Value: %2 %3; Threshold: %1.
IDE Storage Agent S	Service Alarms
3584	The IDE Storage Agent could not allocate memory. The data contains the error code.
3585	The IDE Storage Agent could not open the base of the registry. The data contains the error code.
3586	The IDE Storage Agent could not create the registry subkey: "%1." The data contains the erro code.
3587	The IDE Storage Agent could not open the registry subkey: "%1." The data contains the error code.
3588	The IDE Storage Agent could not read the registry value "%1." The data contains the error code.
3589	The IDE Storage Agent found an incorrect type for registry value "%1." The data contains the type found.

Windows Event ID	Event Description
3590	The IDE Storage Agent could not create an event. The data contains the error code.
3591	The IDE Storage Agent could not open an event. The data contains the error code.
3592	The IDE Storage Agent could not set an event. The data contains the error code.
3593	The IDE Storage Agent could not create a mutex. The data contains the error code.
3594	The IDE Storage Agent could not open a mutex. The data contains the error code.
3595	The IDE Storage Agent could not create its main thread of execution. The data contains the error code.
3596	The IDE Storage Agent main thread did not terminate properly. The data contains the error code.
3597	The IDE Storage Agent got an unexpected error code while waiting for an event. The data contains the error code.
3598	The IDE Storage Agent got an unexpected error code while waiting for multiple events. The data contains the error code.
3599	The IDE Storage Agent did not respond to a request. The data contains the error code.
3600	The IDE Storage Agent received an unknown action code from the service. The data contains the action code.
Fibre Channel Traps	
1145	Fibre Channel Array Logical Drive Status Change. Logical drive number %5 on array "%4" has a new status of %6.
1146	Fibre Channel Array Physical Drive Status Change.
1147	Fibre Channel Array Spare Drive Status Change.
Fibre Channel Traps	
1148	Fibre Channel Array Accelerator Status Change.
1149	Fibre Channel Array Accelerator Bad Data. The array accelerator board attached to the Fibre Channel Array Controller in I/O slot %5 of array "%4" is reporting that it contains bad-cached data.
1150	Fibre Channel Array Accelerator Battery Failed. The array accelerator board attached to the Fibre Channel Array Controller in I/O slot %5 of array "%4" is reporting a battery failure.
1151	Fibre Channel Array Controller Status Change.
1173	Fibre Channel Tape Controller Status Change.
1174	Fibre Channel Tape Library Status Change.
1176	Fibre Channel Tape Drive Status Change.
1177	Fibre Channel Tape Drive Cleaning Required. The Fibre Channel tape drive on tape controlle with world wide name "%4", SCSI bus %5, SCSI target %6 requires cleaning.
1178	Fibre Channel Tape Drive Replace Cleaning Tape. The cleaning tape in the Fibre Channel tape drive on tape controller with world wide name "%4", SCSI bus %5, SCSI target %6 must be replaced.
1185	Fibre Channel Controller Status Change.
1215	Fibre Channel Controller Status Change.

Windows Event ID	Event Description
SCSI Traps	
1156	SCSI Storage Agent: SCSI Autoloader failed Slot: %4; Port: %5; Device: %6.
1158	SCSI Storage Agent: SCSI Autoloader degraded Slot: %4; Port: %5; Device: %6.
SCSI Agent Service	Alarms
1280	Unable to allocate memory. This indicates a low memory condition. Rebooting the system will correct this error.
1281	Could not read from the registry subkey. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
1282	Could not write the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
1283	Could not read the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
1284	Could not write the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
SCSI Agent Service	Alarms
1285	Could not write the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
1286	The SCSI Storage Agent could not create an event. The data contains the error code.
1287	The SCSI Storage Agent could not set an event. The data contains the error code.
1288	The SCSI Storage Agent could not create its main thread of execution. The data contains the error code.
1289	The SCSI Storage Agent main thread did not terminate properly. The data contains the error code.
1290	The SCSI Storage Agent got an unexpected error code while waiting for an event. The data contains the error code.
1291	The SCSI Storage Agent did not respond to a request. The data contains the error code.
1292	The SCSI Storage Agent received an unknown action code from the service. The data contains the action code.
1293	The SCSI Storage Agent could not get the system type. The data contains the error code.
1294	Unsupported storage system. The ProLiant storage system %1 is unsupported by this version of the Storage Agents. Upgrade the agents to the latest version.
1295	The SCSI Storage Agent storage system table is full.
1330	Unable to open SCSI port %1. SCSI port %1 might have been deleted or the driver might not have started.

Windows Event ID	Event Description
1331	The SCSI Mini-Port driver returned an error. The data contains the error code.
1332	The SCSI Storage Agent could not get the SCSI Mini-Port data. The data contains the error code.
1333	Unable to open any SCSI ports. The SCSI driver might have been deleted or the driver might not have started. Reinstall the SCSI driver. If the system does not have any SCSI devices disable the SCSI Agent.
1334	The SCSI Storage Agent could not get the SCSI monitor driver version using port "%1." The data contains the error code.
1335	The SCSI Storage Agent could not get the SCSI monitor configuration for port "%1." The data contains the error code.
1336	The SCSI Storage Agent could not get the SCSI monitor data. The data contains the error code.
SCSI Agent Service	Alarms
1337	The SCSI Storage Agent could not get the storage system driver version using port "%1." The data contains the error code.
1338	The SCSI Storage Agent could not get the storage system configuration for port "%1." The data contains the error code.
1339	The SCSI Storage Agent could not get the storage system alarm page. The data contains the error code.
1340	The SCSI Storage Agent could not get the storage system device map. The data contains the error code.
1341	The SCSI Storage Agent could not get the inquiry data for port "%1." The data contains the error code.
1342	The SCSI Storage Agent could not get the data for a tape drive with SCSI ID "%1." The data contains the error code.
1343	Duplicate SCSI port found in slot %1. The current system ROM might not support this SCSI controller. You might need to update your system ROM.
1344	A version mismatch has been detected with the SCSI device monitor driver (CPQSDM.SYS). The current driver version is %1.
1345	The SCSI Agent could not get the SCSI RAID data. The data contains the error code.
1346	The SCSI Agent could not get the slot data for the controller, The SCSI controller on port %1 has been omitted.

1793       The Storage SNMP Agent's trap thread has encountered an error while waiting for even tog.         1794       The Storage SNMP Agent's trap thread was unable to send a trap because of a proce error.         1795       The SNMP Agent is older than other components. The SNMP Agent is older than the other components of the Storage Agents. Reinstall the entire Storage Agents package to correct this error.         1796       The %1 Agent is older than the other components. The %1 Agent is older than the other components of the Storage Agents. Reinstall the entire Storage Management Agents package to correct the error.         1796       The Storage SNMP Agent Agent has failed to refresh data associated with key %1. This might cause data received from SNMP agent to be old or invalid. Ensure management service is up and running.         1798       The Storage SNMP Agent has continued refreshing data for the key associated with %         1799       The Storage SNMP Agent has continued refreshing data for the key associated with %         1800       This might be caused by an invalid or missing configuration or by a corrupt registry. Reinstalling the Storage SNMP Agent Note: The SNMP Agent will allow SNMP sets.         1801       Component: Storage SNMP Agent was unable to forward an SNMP trap to the Remote Insight trap because of a procesing error.         1803       The Storage SNMP Agent was unable to forward an SNMP trap to the Remote Insight trap because of a procesing error. The data contains the error code.         1804       The Storage SNMP Agent was unable to get last modification time for key %1.      <	Windows Event ID	Event Description
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Continued

Windows Event ID	Event Description
Fibre Channel Stora	ge Agent Service Alarms
4096	Unable to allocate memory. This indicates a low memory condition. Rebooting the system will correct this error.
4097	Could not read from the registry subkey. This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
4098	Could not write the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
Fibre Channel Stora	ge Agent Service Alarms
4099	Component: Fibre Channel Storage Agent Error: Could not read the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
4100	Could not read the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
4101	Could not read the registry subkey: "%1." This error might be caused by a corrupt registry or a low memory condition. Rebooting the server might correct this error.
4102	The Fibre Channel Storage Agent could not create an event. The data contains the error code
4103	The Fibre Channel Storage Agent could not set an event. The data contains the error code.
4104	The Fibre Channel Storage Agent could not create its main thread of execution. The data contains the error code.
4105	The Fibre Channel Storage Agent main thread did not terminate properly. The data contains the error code.
4106	The Fibre Channel Storage Agent got an unexpected error code while waiting for an event. The data contains the error code.
4107	The Fibre Channel Storage Agent did not respond to a request. The data contains the error code.
4108	The Fibre Channel Storage Agent received an unknown action code from the service. The data contains the action code.
4109	The Fibre Channel Storage Agent could not get the system type. The data contains the error code.

Windows Event ID	Event Description
4110	Unsupported storage system. The ProLiant storage system %1 is not supported by this version of the Storage Agents. Upgrade the agents to the latest version.
4111	The Fibre Channel Storage Agent storage system table is full.
4146	A Fibre Channel Array passthrough command failed with a FATAL error bit set.
4147	A Fibre Channel Array passthrough command failed with a BAD_REQUEST bit set.
4148	Fibre Channel Array device driver not present. The Fibre Channel Storage Agent requires the Fibre Channel Array Class driver (CPQFCAC.SYS) to be installed.
4149	The Fibre Channel Storage Agent could not get Fibre Channel Array controller configuration information. The data contains the error code.
4150	The Fibre Channel Storage Agent could not get accelerator information. The data contains the error code.
4151	The Fibre Channel Storage Agent could not get logical unit surface status information. The data contains the error code.
4152	The Fibre Channel Storage Agent could not get physical drive information. The data contains the error code.
4153	The Fibre Channel Storage Agent could not get physical drive threshold information. The data contains the error code.
4154	The Fibre Channel Storage Agent could not get logical unit status information. The data contains the error code.
4155	The Fibre Channel Storage Agent could not get logical unit drive threshold violation information. The data contains the error code.
4156	The Fibre Channel Storage Agent could not get drive array controller bus information. The data contains the error code.
4157	The Fibre Channel Storage Agent could not get drive array error log information. The data contains the error code.
4158	The Fibre Channel Storage Agent failed to get capacity on SCSI drive because SCSI pass through IOCTL failed.
4159	The Fibre Channel Storage Agent failed to get capacity on SCSI drive.
4160	The Fibre Channel Storage Agent could not get performance information. The data contains the error code.

# **Dr. Watson Application Events**

The following table describes the Microsoft Dr. Watson application event that relates to Insight Management Agent operations.

Table A-8: Dr. Watson Application Events

Windows Event ID	Event Description
4097	Insight Management Agent caused a Dr. Watson error.

# Troubleshooting

The following information is designed to help resolve some of the more common installation, setup, and operating problems that can occur when implementing the HP IMP for MOM.

#### Q. Why are some elements of the IMP not visible?

A. Refresh the MOM console interface, which displays any recent console tree updates. If some elements of the IMP are still not visible, the database might be corrupt, which can happen if the installation was interrupted or did not complete. Reinstall the IMP to correct this problem. Refer to the "Installing the Insight Management Pack for Microsoft Operations Manager" section in Chapter 2 for complete details on installing the IMP.

#### Q. Why are my HP servers not being discovered by MOM?

- A. There are a number of reasons why HP servers might not be discovered by the MOM console. Be sure that the following conditions exist on all servers to be managed:
- SNMP services are running.
- The HP Insight Management Agents are installed and active.
- The MOM Agent Manager has been configured to include the target HP servers as managed computers.
- An active MOM agent has been installed. This condition can usually be validated by the presence of the OnePoint service on each managed server.

If the MOM Agent Manager has already been configured to include the target servers as managed computers, then force a system scan. The default setting for automated daily scanning is 2:05 a.m. To enable systems to show up immediately, use the **Scan managed computers now** feature of the MOM Agent Manager.

Confirm that MOM has the rights to manage the target servers. In the Windows Event Log of the MOM host system, check the Application Log for warning messages from the OnePoint service.

An example of a warning message is Event ID 21196:

```
The Agent Manager would have taken responsibility for the following computers, but was unable to obtain write access to their registries.
```

# Q. My HP servers are being discovered by MOM but are not displaying within the computer groups provided with the IMP. What could be causing this?

A. Be sure that Insight Management Agents 4.60 or later are installed and active on all HP servers to be managed with MOM. If Insight Management Agents are not installed or are versions earlier than 4.60, HP servers are not displayed under the HP specific computer groups.

#### Q. Why are none of my HP events showing up as alerts under MOM?

- A. Assuming that the HP servers are included as managed computers under the Agent Manager and are being discovered correctly, be sure that:
- Each managed HP server has local SNMP service running and that all required Insight Management Agents are installed and active. SNMP is required locally by the Insight Management Agents to ensure correct operation.
- Each managed HP server is receiving HP Insight events in the Windows Event Log.
- The Windows Event Log is not full. If the Windows Event Log is full, this might prevent new events from being recorded.
- If HP events are visible in the Windows Event Log, be sure that the event processing rules provided with the IMP are installed and enabled within MOM.

# Q. Why do some HP events display in Systems Insight Manager but are not visible in MOM?

- A. HP Systems Insight Manager is designed to display all events, including SNMP traps and service events generated directly by the Insight Management Agents. By comparison, MOM uses the Windows Event Log to collate event information. If selected HP events are not being displayed within MOM then there are two primary causes:
- The event is not being written to the Windows Event Log. In general, only events that relate to hardware or service error conditions are written to the Windows Event Log. The majority of informational or "Status OK" events are not written to the Windows Event Log by the Insight Management Agents.
- If an HP event is being written to the Windows Event Log but is not showing up in MOM, it might not be associated with an enabled event-processing rule or might not match the processing rule criteria.

# Q. Why are HP Storage Agent and NIC Agent alerts not being forwarded to the Hardware Support Notification Group in the MOM console?

A. Check the following items:

- Confirm that the alert processing rules are enabled under the Storage Agent and NIC Agents rule groups provided with the IMP.
- Verify that the Hardware Support Notification Group in MOM has been configured with at least one valid Group Operator, and that the operator properties are correct.

# Q. Why do I lose connection with the Insight Manager 7 application when a MOM agent is installed?

A. The MOM agent installation process requires local SNMP services to be reset. If a MOM agent is installed onto a server running Insight Manager 7 before version SP1, the Insight Manager service can be temporarily stopped and restarted. Insight Manager 7 operations require an active SNMP service, and as a result, any clients browsing into the Insight Manager 7 application could receive a message stating that the connection has been lost and the browser must be closed and reopened. This problem is resolved with HP Insight Manager 7 SP1 and later.

# Q. Why does the HP Insight Management Pack not display a Computer Group for Insight Management Agents v7.0?

A. Because of a known problem with the format of the registry data written by Insight Management Agents 7.0, a separate computer group is not displayed by the Insight Management Pack. All managed systems installed with Insight Management Agents v7.0 will appear in computer group "HP Insight Management Agent Version 6.40" in addition to the "HP Insight Management Agent All" group. This problem is resolved in Insight Management Agents 7.1.

# Index

# A

Administrator Console installing IMP 2-2 overview 1-8 alert processing rules 3-18 alerts accessing information on 3-18 definition 3-10 troubleshooting B-2 viewing 3-6, 3-9 architecture 1-5 arrays, drive, traps and alarms for A-7, A-33

# В

browsers, accessing alerts 3-22

# С

CAM See Consolidator/Agent Manager clusters, traps for A-12 Compaq Prosignia servers 1-4 computer groups installation default 2-4 overview 3-2 configuration procedures 2-7 Consolidator Agent Manager 1-7 customer support v customizing rules in event processing 3-17

# D

DAS See Data Access Server Data Access Server 1-7 database space requirements 1-3 default rule properties 3-12 deleting duplicate computer groups 2-10 duplicate event processing rules 2-10 duplicate public views 2-10 device error events accessing 3-11 alerts 3-8 detailed list A-2, A-3 discovery of servers computer group organization 3-3 initial configuration 2-7 troubleshooting B-1 disk space requirements 1-3 Dr. Watson application events A-41 drive array traps A-7, A-33

# Ε

error events, device accessing 3-11 alerts 3-8 detailed list A-2, A-3 Event Notifier service 3-11 event processing rules, overview 3-10 events definition 3-10 troubleshooting B-2 external status alarms A-14

# F

features 1-2 Fibre Channel array traps and alarms A-11, A-35, A-39 Foundation Agent events accessing 3-11 alerts 3-8 detailed list A-4

# G

Group Operator, setting up 3-18 groups, computer installation default 2-4 overview 3-2

# Н

Hardware Support Notification Group 3-18, B-2 hardware, supported 1-4 help resources v Host Agent service alarms A-5 HP authorized reseller v HP Cluster Agent service alarms A-12 HP Drive Array traps A-7, A-33 HP Event Notifier service 3-11 HP External Status Agent alarms A-14 HP Foundation Agent events accessing 3-11 alerts 3-8 detailed list A-4 HP Health Agent traps A-8, A-22 HP Host Agent service alarms A-5 HP IDE Storage Agent traps/alarms A-14, A-34 HP Insight Management Agents, computer groups 2-4 HP Integrity servers 1-4 HP Management Agents alerts 3-18 launching 3-21, 3-22 Web-based management interface 3-22 HP NIC Agent events accessing 3-11 alerts 3-8 detailed list A-16 predefined processing rules 3-18 HP ProLiant servers 1-4 HP Remote Alerter Agent service alarms A-7, A-22, A-32 HP Remote Insight Lights-Out Edition traps and alarms A-10, A-26 HP Remote Monitor Service events accessing 3-11 alerts 3-8 detailed list A-2 HP SCSI Agent traps and alarms A-8, A-36 HP Server Agent events accessing 3-11 alerts 3-9 detailed list A-21 HP Server SNMP Agent service alarms A-28 HP Software Version Agent alarms A-15 HP Storage Agent events accessing 3-12 alerts 3-9 detailed list A-29 predefined processing rules 3-18 HP System Information Agent service alarms A-24 HP Threshold Agent traps and alarms A-10 HP Web-Based Management 3-22 HP website v HTTP requirements 1-3

## I

IDE Storage Agent traps/alarms A-14, A-34 Insight Management Agents computer groups 3-2 system requirements 1-3 version information 3-2, 3-8 Insight Management Pack (IMP) for MOM event rules tables A-1 installation 2-1 overview 1-1 prerequisites 3-1 troubleshooting B-1 using 3-1 **Insight Manager 7** display of events not in MOM B-2 loss of connection with B-3 installation overview 2-1 post-installation procedures 2-7 preinstallation considerations 2-1 procedures 2-2 uninstalling 2-10 inventory management 3-7

# Κ

knowledge base data 3-23

#### Μ

Management Agents See Insight Management Agents management protocol requirements 1-3 Microsoft Ops Portal console 3-1 MOM (Microsoft Operations Manager) See Insight Management Pack for MOM MOM agents 1-7

## Ν

NetIQ 1-1 network requirements 1-3 NIC Agent events accessing 3-11 alerts 3-8 detailed list A-16 predefined processing rules 3-18 notification of events accessing 3-11 detailed list A-2

# 0

operating systems, supported 1-5 Ops Portal console 3-1

# Ρ

performance processing rules 3-18 platform support MOM 2000 1-4 MOM 2005 1-4 preinstallation considerations 2-1 processing rule groups computer groups 3-2 installation defaults 2-6 using 3-10 ProLiant servers 1-4 properties, viewing server 3-7 Prosignia servers 1-4 protocol requirements 1-3 public views accessing 3-8 installation default list 2-5

## R

Remote Alerter service alarms A-7, A-22, A-32 Remote Insight Lights-Out Edition traps and alarms A-10, A-26 remote monitor events accessing 3-11 alerts 3-8 detailed list A-2 requirements HTTP 1-3 network 1-3 protocol 1-3 SNMP 1-3 system 1-3 rules, processing computer groups 3-2 installation defaults 2-6 using 3-10

# S

SCSI devices, traps for A-8, A-36 Server Agent events accessing 3-11 alerts 3-9 detailed list A-21 servers discovery 2-7, 3-3, B-1 supported models 1-4 viewing details 3-3 shared information views 3-7 SNMP HP Server SNMP Agent service alarms A-28 requirements 1-3 resetting during installation 2-9 software version alarms A-15 SQL server 1-7 Storage Agent events accessing 3-12 alerts 3-9 detailed list A-9, A-29 predefined processing rules 3-18 system health traps A-8, A-22 information alarms A-24 requirements 1-3 support 1-4

# Т

technical support v telephone numbers v threshold traps and alarms A-10 traps See alerts troubleshooting installation and use B-1 Web resources v

# U

uninstalling IMP 2-10 updating from the Compaq Management Pack 2-9

## V

version information 3-2, 3-8, A-15 viewing problems with IMP B-1

## W

Web-based Ops Portal console 3-1 Web-based server management interface 3-22 websites, technical support v Windows Event Log entries 3-19 Windows operating systems, supported 1-5